DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
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State Demonstrations Group
Summative Evaluation Report Approval Letter

January 21, 2026

Mike Levine
Medicaid Director
Commonwealth of Massachusetts
Department of Health and Human Services, Office of Medicaid
1 Ashburn Place, 11th Floor Room 1109
Boston, MA 02108

Dear Director Levine:

The Centers for Medicare & Medicaid Services (CMS) completed its review of Massachusetts's Summative Evaluation Report which is required by the Special Terms and Conditions (STCs), dated August 11, 2022, specifically STC #98(f) "Summative Evaluation Reports" of the Commonwealth's section 1115(a) demonstration entitled, "MassHealth" (Project No. 11-W-00030/1), effective from July 1, 2017 through September 30, 2022. This report covers the demonstration approval period. In addition, it also covers the full Delivery System Reform Incentive Payment Program (DSRIP) period, which extended through March 31, 2023. CMS determined that the Evaluation Report, submitted on September 30, 2024, and most recently revised on October 2, 2025, is in alignment with the CMS-approved Evaluation Design and the requirements set forth in the STCs, and therefore, approves the Commonwealth's Summative Evaluation Report.

The Summative Evaluation Report employed a robust mixed-methods design using multiple data sources that demonstrated notable improvements toward the demonstration's goals, including substantial progress in delivery system reform and integration of care. For example, the DSRIP investments in the ACOs were recouped with an additional 25 percent in returns, resulting in an aggregate savings of $503 million over the 2017–2022 period and a projected net savings of $966 billion over a 10-year period (2018–2028). The ACO program also produced favorable impacts on primary care visits, hospitalizations, and emergency department (ED) boarding. The Flexible Services Program provided nutritional and tenancy preservation supports to over 30,000 ACO members and averted 15,215 inpatient hospitalizations. Incremental cost-effectiveness ratio analysis showed that investing in housing and nutrition for eligible people resulted in one fewer hospital admission per every $3,421 spent on housing and $4,312 spent on nutrition. Among the Behavioral Health Community Partner members, primary care sensitive ED visits, all-cause ED visits, and ED visits for adults with serious mental illness (SMI)/substance use disorder (SUD) diagnoses decreased between 2018 and 2022. The SUD services expansion

showed improved access, with increases in the use of residential rehabilitation services and recovery coaches among members with any SUD or opioid use disorder (OUD) diagnosis 20 quarters after implementation in 2018. Favorable changes were observed in trends of multiple measures relative to the baseline period, including high doses of opioids, overdoses, ED visits, inpatient stays, number of medications for opioid use disorder (MOUD) providers, and readmissions for SUD care. Additionally, Massachusetts maintained near-universal coverage with an uninsurance rate of less than 3% during the baseline and the demonstration period.

The report also showed certain areas with opportunities for improvement. Hospitalizations for ambulatory care sensitive conditions increased in 2020 among ACO enrollees. Some SUD measures showed no change or worsened, including readmissions within 30 and 90 days after inpatient hospitalization for withdrawal management. However, the COVID-19 Public Health Emergency might have confounded some of the results. We look forward to further evidence from the Commonwealth's evaluation efforts during the ongoing demonstration approval period.

In accordance with the STC #101 "Public Access", the approved Evaluation Report may now be posted to the state's Medicaid website within 30 days. CMS will also post the Summative Evaluation Report on Medicaid.gov.

We look forward to continuing our partnership on the Commonwealth's section 1115 demonstration. If you have any questions, please contact your CMS demonstration team.

Sincerely,

DANIELLE DALY -S

Digitally signed by DANIELLE DALY -S
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Danielle Daly
Director
Division of Demonstration Monitoring and Evaluation

cc: Ambrosia Watts, State Monitoring Lead, CMS Medicaid and CHIP Operations Group

Independent Evaluation

Summative Report

Massachusetts 2017-2022 1115 Demonstration

Revised September 25, 2025

Prepared by:

Department of Population and Quantitative Health Sciences and ForHealth Consulting Research & Evaluation Unit

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About Us

UMass Chan Medical School is the Commonwealth's first and only public academic health sciences center. Founded in 1962, its mission is to advance the health and wellness of diverse communities throughout Massachusetts and worldwide by leading and innovating in education, research, health care delivery, and public service. UMass Chan Medical School is home to the T.H. Chan School of Medicine; the Morningside Graduate School of Biomedical Sciences; the Tan Chingfen Graduate School of Nursing; ForHealth Consulting, a public service health care consulting division; MassBiologics, the nation's only non-profit FDA-licensed manufacturer of vaccines; a thriving, $322 million research enterprise; and innovative programs in medical education, community health, and graduate physician training.

Population and Quantitative Health Sciences (PQHS) mission is to: (a) produce new knowledge relevant to the health of populations; (b) fulfill the quantitative health science needs of the academic medical center as a leader in clinical and translational research; (c) weave service to the academic medical center into discovery of new approaches to address national health care needs; (d) train the next generation of scientists in innovative methods that contribute to individual and population health of populations and enable transformative changes in health care delivery systems. The PQHS Department includes four Divisions: Biostatistics and Health Services Research, Epidemiology, Health Informatics and Implementation Science, and Preventive and Behavioral Medicine. PQHS also houses the Quantitative Methods Core, which provides biostatistical, epidemiological, and other methodological consultation and technical support for research at our medical school and beyond.

ForHealth Consulting at UMass Chan Medical School partners with purposeful organizations to make healthcare and human services more equitable, effective, and accessible. The ForHealth Consulting's Research & Evaluation unit conducts research and evaluations of existing and emerging programs, policies, and initiatives that are essential for public agencies and healthcare organizations. The Research & Evaluation Unit focuses on applied research across health and social policy, operational performance, and data analytics, using qualitative and quantitative methods by our faculty, clinical and non-clinical investigators, and staff from multiple disciplines (e.g., health policy, public health, health economics, epidemiology, sociology). ForHealth Consulting offers a community-based, participant-informed, and person-centered approach to collect, generate, analyze, and summarize information that advances policies, programs, and services to a higher level of impact and performance.

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ABBREVIATION LIST

Abbreviation	Definition
ABA	Applied Behavior Analysis
ACA	Affordable Care Act
ACCS	Adult Community Clinical Services
ACO	Accountable Care Organizations
ACPP	Accountable Care Partnership Plans (Model A)
ACS	American Community Survey
ACSC	Ambulatory Care Sensitive Conditions
ADA	American Dental Association
ADT	Admission-Discharge-Transfer
AHRQ	Agency for Healthcare Research and Quality
aIRR	Adjusted Incidence Rate Ratio
AMA	American Medical Association
AOD	Alcohol or Other Drug Use
aOR	Adjusted Odds Ratio
APCD	All Payer Claims Database
APM	Alternative Payment Model
APRN	Advanced Practice Registered Nurse
aRR	Adjusted Risk Ratio
ASAM	American Society of Addiction Medicine
ATS	Acute Treatment Services
BCBSMA	Blue Cross Blue Shield of Massachusetts
BCR	Benefit to Cost Ratio
BH	Behavioral Health
BMI	Body Mass Index
BP	Budget Period
BSAS	Bureau of Substance Addiction Services

CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBHC	Community Behavioral Health Center
CBHI	Children's Behavioral Health Initiative
CBO	Community-Based Organization
CDC	Centers for Disease Control and Prevention
CEA	Cost-Effectiveness Analyses
CG-CAHPS	Clinician and Group Consumer Assessment of Healthcare Providers and Systems
CHA	Cambridge Health Alliance
CHC	Community Health Center
CHCS	Center for Health Care Strategies
CHI	Center for Health Impact
CHIP	Children's Health Insurance Program
CHW	Community Health Worker
CI	Confidence Interval
CIS	Childhood Immunization Status
CMS	Centers for Medicare and Medicaid Services
COE RRS	Co-occurring Residential Rehabilitation Services
CP	Community Partner
CPI	Consumer Price Index
CPT	Current Procedural Terminology
CSA	Community Service Agency
CSS	Clinical Stabilization Services
CY	Calendar Year
DCF	Department of Children and Families
DDE	Daily Data Extract
DDS	Department of Developmental Services
DiD	Difference-in-Difference
DMH	Department of Mental Health

DO	Doctor of Osteopathic Medicine
DPH	Department of Public Health
DSH	Disproportionate Share Hospital
DSH-like	Disproportionate Share Hospital-like
DSHP	Designated State Health Programs
DSRIC	Delivery System Reform Implementation Advisory Council
DSRIP	Delivery System Reform Incentive Payment
DSTI	Delivery System Transformation Initiative
DUA	Data Use Agreement
DxCG	Diagnostic Cost Group
DY	Demonstration Year
ED	Emergency Department
EDD	Evaluation Design Document
EHR	Electronic Health Record
EMR	Electronic Medical Record
EOHHS	Executive Office of Health and Human Services
EPSDT	Early and Periodic Screening, Diagnostic, and Treatment
ESI	Employer-Sponsored Insurance
ESI PA	Employer-Sponsored Insurance Premium Assistance
FFC	Former Foster Care
FFCRA	Families First Coronavirus Response Act
FFS	Fee-For-Service
FMCH	Family Medicine and Community Health
FPL	Federal Poverty Level
FPP	Full Participation Plan
FS	Flexible Services
FY	Fiscal Year
GEE	Generalized Estimating Equations

GSVA	Gold Star Veteran Annuity
H	Hypothesis
HCBS	Home and Community-Based Services
HCV	Hepatitis C Virus
HEDIS	Healthcare Effectiveness Data and Information Set
HEPA	High Efficiency Particulate Air
HHA	Home Health Agency
HIE	Health Information Exchange
HIPAA	Health Insurance Portability and Accountability Act
HIT	Health Information Technology
HIV	Human Immunodeficiency Virus
HIX/IES	Health Insurance Exchange/Integrated Eligibility System
HIX-IEIS	Health Insurance Exchange/Integrated Eligibility Information System
HNBC	Health-Needs-Based Criteria
HR	Human Resources
HRiA	Health Resources in Action
HRSA	Health Resources and Services Administration
HRSN	Health-Related Social Needs
HSN	Health Safety Net
HSN-PD	Health Safety Net Presumptive Determination
IA	Independent Assessor
ICD	International Classification of Diseases
ICER	Incremental Cost Effectiveness Ratio
IE	Independent Evaluator
IEIR	Independent Interim Evaluation Report
IESR	Independent Evaluation Summative Report
IMA	Immunizations for Adolescents
IMD	Institutions for Mental Diseases

IP	Inpatient Services
IPFQR	Inpatient Psychiatric Facility Quality Reporting
IRR	Incidence Rate Ratio
ISA	Interdepartmental Services Agreement
IT	Information Technology
ITS	Interrupted Time Series
JOC	Joint Operating Committee
KII	Key Informant Interview
LADC	Licensed Alcohol and Drug Counselor
LCSW	Licensed Certified Social Worker
LICSW	Licensed Independent Clinical Social Worker
LMFT	Licensed Marriage and Family Therapist
LMHC	Licensed Mental Health Counselor
LPN	Licensed Practical Nurse
LTC	Long Term Care
LTSS	Long-Term Services and Supports
MA	Massachusetts
MAT	Medication for Addiction Treatment
MBHP	Massachusetts Behavioral Health Partnership
MCE	Managed Care Eligible
MCO	Managed Care Organization
MCO-ACO	Managed Care Organization-Administered Accountable Care Organization (Model C)
MD	Medical Doctor
MDS	Minimum Data Set
MH	Mental Health
MHA	Massachusetts Health and Hospital Association
MHQP	Massachusetts Health Quality Partners
MMIS	MassHealth Medicaid Management Information System

MOE	Maintenance of Eligibility
MOUD	Medications for Opioid Use Disorder
MRC	Massachusetts Rehabilitation Commission
MRI	Magnetic Resonance Imaging
MTM	Medically Tailored Meal
NCQA	National Committee for Quality Assurance
NDC	National Drug Code
NESCSO	New England States Consortium Systems Organization
NICU	Neonatal Intensive Care Unit
Non-FFC	Non-Former Foster Care
NP	Nurse Practitioner
NQF	National Quality Forum
NSACO	National Survey of Accountable Care Organizations
NSS	Neighborhood Stress Score
O:E	Observed versus Expected
OBH	MassHealth Office of Behavioral Health
OD	Overdose
OR	Odds Ratio
OUD	Opioid Use Disorder
P4P	Pay-For-Performance
P4R	Pay-For-Reporting
PA	Physician’s Assistant
PACC	Post-Adult Community Clinical Services
PC	Primary Care
PCA	Personal Care Assistant
PCACO	Primary Care Accountable Care Organization (Model B)
PCC	Primary Care Clinician
PCCP	Primary Care Clinician Plan

PCNS	Psychiatric Clinical Nurse Specialist
PCP	Primary Care Provider
PCPI	Physician Consortium for Performance Improvement
PCS	Primary Care Sensitive
PE	Provisional Eligibility
PETI	Post-Eligibility Treatment of Income
PFAC	Patient-Family Advisory Councils
PGAV	Production Grade Analytics Vendor
PHE	Public Health Emergency
PHM	Population Health Measure
PHTII	Public Hospital Transformation and Incentive Initiative
PMPM	Per Member Per Month
PMPY	Per Member Per Year
PRP	Performance Remediation Plan
PSA	Practice Site Administrator
PSPIC	Provider and Staff Perceptions of Integrated Care
PT	Provider Type
PTSD	Post-Traumatic Stress Disorder
PY	Performance Year
Q	Quarter
QHP	Qualified Health Plan
QHS	Quantitative Health Sciences
QI	Quality Improvement
RAFT	Residential Assistance for Families in Transition program
RC	Rating Category
RCo	Recovery Coach
RFI	Request for Information
RN	Registered Nurse

ROI	Return on Investment
RQ	Research Question
RR	Risk Ratio
RRS	Residential Rehabilitation Services
RSN	Recovery Support Navigation
RxCG	A pharmacy based medical complexity summary score
SAC	Scientific Advisory Committee
SD	Standard Deviation
SDOH	Social Determinants of Health
SED	Serious Emotional Disturbance
SFTP	Secure File Transfer Protocol
SFY	State Fiscal Year
SHIP	Student Health Insurance Program
SHIP PA	Student Health Insurance Program Premium Assistance
SHVS	State Health and Value Strategies
SME	Subject Matter Expert
SMI	Serious Mental Illness
SNAP	Supplemental Nutrition Assistance Program
SNCP	Safety Net Care Pool
SNF	Skilled Nursing Facility
SNPP	Safety Net Provider Payments
SOAP	Structured Outpatient Addiction Programs
SPA	State Plan Amendment
SSIW	Social Services Integration Workgroup
SSO	Social Service Organization
SSP	Massachusetts State Supplement Program
STC	Special Terms and Conditions
SUD	Substance Use Disorder

SWI	Statewide Investments
TA	Technical Assistance
TCOC	Total Cost of Care
TPL	Third Party Liability
TPS	Tenancy Preservation Supports
U.S.	United States
UCC	Uncompensated Care Cost
UCCR	Uncompensated Care Cost & Charge Report
UMass Chan	UMass Chan Medical School
VA	Veterans Affairs
VPR	Verification, Planning, and Referral
W	Wave
WONDER	Wide-ranging Online Data for Epidemiologic Research

EXECUTIVE SUMMARY

Since its launch in 1997, MassHealth Section 1115 Waiver Demonstrations have served as vehicles for expanding health insurance coverage, encouraging better healthcare coordination and cost containment through managed care, and supporting safety net providers. MassHealth sought to advance seven goals to enhance the Medicaid and CHIP programs through the 2017-2022 Demonstration approved by the Centers for Medicare and Medicaid Services (CMS) in November 2016. Goals 1 and 2 listed below were partially supported by the Massachusetts Delivery System Reform Incentive Payment (DSRIP) Program.

Through the 2017-2022 Demonstration, MassHealth sought to:

1. Enact payment and delivery system reforms that promote integrated, coordinated care and hold providers accountable for the quality and total cost of care.
2. Improve integration of physical, behavioral, and long-term services.
3. Maintain near-universal coverage.
4. Sustainably support safety net providers to ensure continued access to care for Medicaid and low-income, uninsured individuals.
5. Address the opioid addiction crisis by expanding access to a broad spectrum of recovery-oriented substance use disorder services.
6. Ensure access to Medicaid services for former foster care individuals between the ages of 18 and 26 who previously resided in another state.
7. Ensure the long-term financial sustainability of the MassHealth program through the refinement of provisional eligibility and authorization for Student Health Insurance Program (SHIP) Premium Assistance (PA).

MassHealth selected UMass Chan Medical School as the Independent Evaluator for the 2017-2022 Demonstration, including the DSRIP Program.

This executive summary presents the evaluation key findings by Demonstration goal. Detailed information on the evaluation design, methods, data sources, results, key findings, interpretation, and recommendations can be found in the Independent Evaluation Summative Report (IESR) chapters indicated below.

KEY FINDINGS AND RECOMMENDATIONS BY DEMONSTRATION GOAL

Goals 1 and 2: Payment/Delivery Reform and Integration of Care and the Delivery System Reform Incentive Payment (DSRIP) Program *(Chapter 2)*

The primary objectives of the evaluation of Goals 1 and 2 were to measure progress towards improving care integration, meeting members' needs, and moderating cost trends while maintaining or improving care quality, and to ascertain stakeholders' (i.e., members, providers, representatives from participating organizations, and MassHealth staff) perspectives regarding DSRIP implementation, successes, and challenges. The evaluation findings elucidate state and organizational actions that facilitated or impeded the achievement of these goals, while also

producing preliminary evidence regarding the extent to which reforms impacted cost, quality, and member experience.

Findings and Recommendations for MassHealth, CMS, and other state Medicaid programs arising from the IESR are summarized below and presented in more detail in **Sections 2.3 and 2.4.**

Goals 1 and 2 Key Findings

MassHealth and numerous DSRIP stakeholders improved care processes at the organizational level and moderated cost growth while maintaining or improving most measures of clinical quality and member outcomes. An overarching finding was that for many measures, there was much variation over time and heterogeneity within and between organizations. Key findings from the evaluation of the DSRIP program include:

MassHealth implemented and sustained 17 new accountable care organizations (ACOs) and 27 Community Partners (CPs) with fidelity to their initial design. With strong guidance and support from MassHealth, participating organizations overcame many early challenges to developing new relationships and operating under an integrated and accountable care model. This included setting and maintaining contractual requirements of ACOs and CPs and consistently engaging with key stakeholders to implement and refine programs.

MassHealth shifted more than 80% of eligible members into ACOs with little disruption. MassHealth's policies of preserving existing patient-provider relationships, extending the plan selection period, temporarily suspending network restrictions, and using multimodal communication strategies appear to have promoted a smooth member experience during the transition to ACOs.

MassHealth successfully implemented the Statewide Investment (SWI) Program, which was essential to delivery system reforms. SWIs supported workforce development, including recruitment, training, and retention of primary care and behavioral health providers and staff. Other SWIs supported accommodations for members with physical and mobility disabilities and those for whom English is not their primary language. Investments in technology and technical assistance supported organizations in establishing new and improving existing health information technology capabilities.

ACOs engaged providers in delivery system change, including through governance, special projects, and performance improvement initiatives. ACOs also used financial incentives based on performance on quality and member experience measures, panel size, total cost of care (TCOC) performance, and productivity to engage providers.

Care integration and physical, behavioral, long-term services and supports (LTSS), and health-related social needs (HRSNs) care processes improved or remained stable. Additionally, ACO enrollee ratings of their primary care, behavioral health (BH), and LTSS providers were consistently positive throughout the evaluation period (2018-2022) among respondents (or proxy respondents) to surveys of adults and children.

ACOs established and enhanced systems to comprehensively identify and address members' needs, including HRSNs. ACOs relied on strategic partnerships with CPs

and social services organizations (SSOs), and these organizations collaboratively improved their care plan documentation, information sharing, and care navigation support

ACOs, SSOs, and some CPs aligned resources and took joint actions to implement the Flexible Services (FS) Program, including developing service contracts, co-designing individual nutrition and tenancy preservation programs, and sharing evaluation plans. Despite launching during the COVID-19 pandemic and significant challenges related to affordable housing availability in Massachusetts, the FS Program delivered nutritional and tenancy preservation supports to over 30,000 ACO enrollees in the first three years of program operation.

ACO members who received nutritional or tenancy preservation supports in the FS Program had fewer emergency department (ED) admissions and hospitalizations than a comparison group of eligible and referred members who did not enroll in the FS Program. Effect sizes were larger in the years following the peak of the COVID-19 pandemic (2022-2023) and for adults as compared to children. The cost of the FS Program was partially offset by savings from lower TCOC among FS Program enrollees, with strongest evidence for lower TCOC in 2022-2023 among adult recipients of nutrition supports for >90 days and among adult recipients of tenancy preservation supports.

The quality of BH and LTSS CP care coordination supports improved over time for most measures. The TCOC was higher among BH CP enrollees versus a non-CP enrolled comparison group, and this appeared to be driven by higher spending on outpatient BH services. The TCOC among LTSS CP enrollees was not significantly different from the comparison group, with higher spending on outpatient services and lower spending on inpatient care.

ACOs and CPs demonstrated flexibility and adapted to the many challenges faced throughout the COVID-19 pandemic, with continued efforts to address members' challenges in accessing care. ACOs and CPs were resilient and sustained operations despite the massive disruptions caused by the COVID-19 pandemic.

ACO adult enrollees generally experienced favorable shifts in service use (e.g., towards proactive preventative care and away from high-cost acute care), but results varied for different outcomes over the evaluation period (2018–2022). ACO adult enrollees generally had more annual primary care visits, fewer hospitalizations, and less ED boarding than would have been expected absent the ACO Program. Performance varied across outcomes and in some cases deteriorated (e.g., more ambulatory care sensitive conditions hospitalizations), fluctuated due to impacts of COVID-19 (e.g., clinical outcomes), or remained largely stable (e.g., self-reported health ratings).

Results of TCOC analyses suggest cost growth was moderated for ACO enrollees relative to a comparison group (i.e., TCOC savings) in each year (2018–2022). The largest difference between the groups occurred during the peak of the COVID-19 pandemic (2020–2021). Driven by the two pandemic years, ROI analysis suggests that the TCOC savings for ACO enrollees exceeded the $1.47 billion cost of the DSRIP program. We only partially understand the mechanisms driving this finding, which did not manifest as a year-over-year increasing advantage (the amount of TCOC savings declined in 2022). Additional analyses of the existing data may shed light on mechanisms, although additional years of data during the post-pandemic period are

needed to credibly estimate the net cost (savings) to be expected from sustaining delivery system reforms supported by the DSRIP Program.

Goals 1 and 2 Recommendations

CMS and states should evaluate opportunities to leverage DSRIP-like investments to shift Medicaid programs to ACO or ACO-like arrangements. When establishing payment and accountability policy for ACO or ACO-like arrangements, MassHealth and other states need to balance multiple goals, which sometimes may be in competition. These include improving member and provider experience; quality improvement; cost containment; likelihood, amount, and predictability of shared savings; and the expected net benefit to organizations of continued program participation.

CMS and states seeking to integrate healthcare and community-based organizations should be prepared to invest a large amount of start-up resources. Funding and technical assistance should be directed by a well-resourced design and implementation team and targeted to entities with the greatest need. An important factor facilitating this integration in Massachusetts was investment in the development of a substantial community-based workforce.

States implementing care coordination models that involve healthcare partnerships with community-based organizations should calibrate program design elements to promote participation and collaboration while achieving sustainability and effectiveness of partnerships. For example, CP participation and sustainability were supported by MassHealth's initial requirement for ACOs and MCOs to partner with CPs in their service areas, and effectiveness through preferred partnerships was facilitated by MassHealth's decision to reduce the requirements related to the number of partnerships ACOs and CPs had to maintain.

States should evaluate the prevalence of HRSNs among their members and work to increase the resources available to address them. FS-like programs should leverage existing community programs and find ways to encourage ACOs and others to develop new programs to help address gaps in local community-based resources.

Additional policy-relevant analyses should be pursued to better understand HRSN programs' (e.g., FS Program) impact on member health. These include exploring impacts by subcategory of tenancy preservation program and nutrition program models, evaluating effects versus a second comparison group (e.g., those who were never screened and referred to services), investigating the role of enrollment length on member outcomes, exploring impacts among key member populations (e.g., high-risk pregnancies), and assessing if there are longer-term impacts on healthcare utilization and costs after program enrollment ends.

CMS and states should continue to test and evaluate innovative programs and partnerships that promote the shift to accountable and integrated care. In Massachusetts, additional evaluation is needed to clarify the drivers of system-wide success and of heterogeneity within and between organizations; additional years of data are needed to more confidently estimate program effects.

Goal 3: Maintain near-universal health insurance coverage *(Chapter 3)*

The primary objective of the Goal 3 evaluation was to examine whether near-universal coverage had been maintained in Massachusetts through the Demonstration's Coverage & Eligibility (C&E) policies and programs.

Findings and Recommendations for MassHealth, CMS, and other state Medicaid programs arising from the IESR are summarized below and presented in more detail in **Sections 3.3 and 3.4.**

Goal 3 Key Findings

Massachusetts continued to lead the nation in health insurance coverage, with an uninsurance rate of less than 3% – the lowest among all states, including the comparison states – during the baseline (CY2015-CY2016) and the 2017-2022 Demonstration.

MassHealth's enrollment churn rate (defined as a gap in coverage of 45 days or more in a 1-year period) **did not increase** during the Demonstration due to the C&E programs/policies and coverage protections mandated during the federal COVID-19 Public Health Emergency period.

Ongoing programs, such as the Health Safety Net Trust Fund, Health Connector premium assistance, and cost-sharing subsidies to support Qualified Health Plan uptake, **showed continued use and value in supporting near-universal coverage for the state's residents under this Demonstration**.

New or newly financed programs, including CommonHealth 65+, Student Health Insurance Program Premium Assistance (SHIP PA), and disregard of state veteran annuity payments for Medicaid eligibility determination and post-eligibility treatment of income, **expanded coverage for individuals in Massachusetts**.

Goal 3 Recommendations

We suggest Massachusetts continue funding existing programs that protect access and create new programs to expand coverage, both of which can support the goal of making healthcare services more accessible. In addition to obtaining insurance coverage for those who are uninsured, we recommend other states explore policy options that increase post-eligibility benefits and make healthcare service use more accessible.

Goal 4: Sustainably support safety net providers to ensure continued access to care for Medicaid members and low-income uninsured individuals *(Chapter 4)*

Massachusetts used Safety Net Care Pool (SNCP) authorities, consisting of eight funding streams totaling more than $6 billion, to provide financial support to MassHealth safety net providers; fund specific state health programs; pay hospitals and community health centers (CHCs) for care provided to certain low income uninsured and underinsured patients; pay institutions for mental diseases (IMDs) for certain care provided to MassHealth members; and support delivery system transformation and infrastructure and capacity building for safety net providers. This Demonstration increased the proportion of risk-based payments to select safety net hospitals (SNHs) for quality performance and reduced uncompensated care costs through Public Hospital Transformation and Incentive Initiatives (PHTII) and Safety Net Provider Payments (SNPP).

Findings and Recommendations for MassHealth, CMS, and other state Medicaid programs arising from the IESR are summarized below and presented in more detail in **Sections 4.3 and 4.4.**

Goal 4 Key Findings

The findings below were based on the managed care population because a significant proportion of the fee-for-service (FFS) population received third-party liability insurance, which would bias the estimates for the FFS population without full claims information.

The PHTII and SNPP investment in SNHs had mixed results in improving their performance on quality metrics in relation to risk-based safety fund investments. Cambridge Health Alliance (CHA) met or exceeded PHTII performance targets on over 50% of all reported measures annually. During the Demonstration, the 15 SNHs, including CHA, had reduced unplanned acute hospitalizations and all-cause ED visits but also reduced rates of primary care, preventive care, and well-care visits. The BH-related ED visit rates declined, but the prevalence of timely follow-up care after ED visits also declined. Although the initiation rate of alcohol, opioid, or other drug abuse or dependence treatment declined, the engagement rate steadily increased, as did antidepressant medication management. Notably, many of the observed changes in healthcare utilization occurred during the COVID-19 pandemic, so the pattern of utilization changes is probably still confounded by that (e.g., fewer primary care visits during the early years of COVID-19 pandemic). The impact of COVID-19 on the healthcare landscape and the 2017-2022 Demonstration are described in Chapter 1.

The total cost of care fluctuated but was relatively stable. The per member per month cost increased compared to the baseline or pre-Demonstration period, but the rate of growth slowed down toward the end of the Demonstration after accounting for inflation.

Hospitals' uncompensated care costs did not decline as expected. Despite the initial decline from the baseline in FY2018, the total uncompensated care costs for the 14 non-CHA SNHs increased annually from FY2018–FY2022, with each SNH showing higher costs in FY2022 compared to FY2017.

Goal 4 Recommendations

SNHs treat a disproportionally higher percent of uninsured or underinsured patients, many of whom have complex medical conditions. SNHs also face added complexity in quality improvement efforts amid delivery system and payment reforms from multiple payers with competing priorities. The COVID-19 pandemic also influenced the care burdens the SNHs assumed and quality improvement priorities. To continue supporting healthcare access for uninsured and underinsured patients and capitalize on established success through the Demonstration, we recommend continued investment to help SNHs sustain their quality improvement and expand improvement efforts in more areas. We also recommend continuing the evaluation of the SNH payment during the post-pandemic period.

Goal 5: Address the opioid addiction crisis by expanding access to a broad spectrum of recovery-oriented substance use disorder services *(Chapter 5)*

This Demonstration goal expanded substance use disorder (SUD) services to improve statewide capacity, divert SUD patients from inpatient hospital settings to community-based environments,

and respond to the opioid crisis. Goal 5 activities included coverage for residential rehabilitation services, recovery support navigators, and recovery coaches. MassHealth implemented coverage in a phased approach, starting in March 2018.

Findings and Recommendations for MassHealth, CMS, and other state Medicaid programs arising from the IESR are summarized below and presented in more detail in **Sections 5.3 and 5.4.**

Goal 5 Key Findings

Utilization of new SUD services covered by MassHealth increased over the initial Demonstration period. Utilization of the new services covered by MassHealth as part of the Demonstration, American Society of Addiction Medicine Level 3.1 residential rehabilitation services, and recovery coaches increased through the 20 calendar quarters after implementation.

Trends in care quality and outcomes improved post-implementation of expanded SUD services. Summative analyses indicate encouraging changes in the trends of multiple measures, including fatal overdoses, all overdoses, utilization and continuity of opioid use disorder (e.g., pharmacotherapy), cost of care, readmission for SUD care, and inpatient and ED visits, all of which improved relative to baseline trends). Several external factors, including exacerbations of the opioid epidemic; multiple concurrent initiatives conducted at the state, local, and national level during the Demonstration to address the opioid crisis; ACO implementation; and the COVID-19 pandemic, may impact these findings.

Goal 5 Recommendations

We recommend interviews with BH providers, which will be conducted in the 2022-2027 Demonstration evaluation, to provide additional insight into these findings. We also recommend examining the duration of members' SUD diagnosis as it relates to healthcare utilization and outcomes over time. Finally, we recommend ensuring greater consistency among health plans in coding SUD-related services to facilitate monitoring of service utilization through claims data.

Goal 6: Continue to provide coverage to former foster care (FFC) youth who age out of foster care under the responsibility of another state *(Chapter 6)*

The Affordable Care Act (ACA) offered state health coverage to former foster care (FFC) youth who aged out of foster care while under the responsibility of another state and are currently living in Massachusetts. As required by CMS, this Demonstration shifted expenditure authority from the State Plan to the 1115 Waiver to continue Medicaid coverage for these out of state FFC youth. Our evaluation tracked health insurance coverage among FFC youth over time and compared the healthcare utilization of FFC youth with non-FFC youth matched by demographic characteristics, Medicaid coverage type, and clinical characteristics.

Findings arising from the IESR are summarized below and presented in more detail in **Sections 6.3 and 6.4.**

Goal 6 Key Finding

The Demonstration was successful in providing continuous health insurance coverage for out-of-state FFC youth. The percentage of such FFC youth continuously enrolled in MassHealth was 60.5% in CY2018 and 85.3% in CY2022, for an average of 283 days in CY2018 and 336 days in CY2022. Out-of-state FFC youth utilized physical and behavioral health services at a rate comparable to non-FFC youth.

Goal 6 Recommendations

Because this goal involved only a change to its funding source and no programmatic changes, we have no recommendations.

Goal 7: Ensure the long-term financial sustainability of the MassHealth program through refinement of provisional eligibility and authorization for SHIP Premium Assistance *(Chapter 7)*

This Demonstration removed provisional eligibility (PE) coverage for non-exempt Medicaid applicants without income verification. The Demonstration also authorized MassHealth to pay for premiums, cost-sharing assistance, and wrap-around services for Medicaid student members to enroll in commercial plans offered by post-secondary schools through its SHIP PA program.

Findings and Recommendations for MassHealth, CMS, and other state Medicaid programs arising from the IESR are summarized below and presented in more detail in **Sections 7.3 and 7.4.**

Goal 7 Key Findings

Refinement of the PE policy reduced the number of individuals deemed provisionally eligible for MassHealth. The percentage of members with PE fluctuated over time. A wide range of individuals (2% to 38%) were deemed ineligible each quarter under the refined PE policy. The estimated per member per month cost among those with unverified eligibility decreased from $564 in CY2019 to $478 in CY2022 during the Demonstration.

SHIP PA provided premium and cost-sharing assistance and wrap-around coverage for Medicaid member students to reduce MassHealth expenditures. The actual cost to MassHealth for the SHIP PA program was about half the estimated cost compared to other coverage options. The savings to MassHealth was estimated at approximately $210 million over four years. In a MassHealth survey, SHIP PA members indicated satisfaction with the program and improved healthcare service access. Despite this, MassHealth decided, after internal data analysis, to end the program at the end of the 2019-2020 academic year due to a large projected premium increase that would impact non-MassHealth students enrolled in SHIPs but who were not enrolled in the MassHealth SHIP PA program.

Goal 7 Recommendations

Because the stability of a program like SHIP PA relies on a public-private partnership, we recommend that state Medicaid agencies investigate and balance program advantages to both

Medicaid and non-Medicaid stakeholders when considering program implementation. Regarding PE, we recommend states capture detailed documentation for provisional eligibility status changes to more accurately monitor non-eligible PE members.

Summary

The summative findings confirm that MassHealth has made significant progress in meeting the overall goals of the 2017-2022 Demonstration. The goal-specific chapters that follow provide greater details on the evaluation approach, methods, findings, and discussion of lessons learned, policy implications, and recommendations for consideration by the Commonwealth, CMS, and other state Medicaid programs.

1. Overview of the Massachusetts Section 1115 Demonstration and Independent Evaluation

1.1. General Background Information

Massachusetts has used 1115 Demonstrations to pilot innovative strategies for delivering and financing health care for many of its MassHealth enrollees since the launch of the Commonwealth's first 1115 Demonstration in 1997. 1115 Demonstrations have served as vehicles for expanding coverage, encouraging better coordination and cost containment through managed care, and supporting safety net providers. The 1115 Demonstration was an essential component of Massachusetts' 2006 healthcare reform efforts, which included changes in MassHealth eligibility and the establishment of the Massachusetts Health Connector insurance marketplace.

CMS approved the Independent Evaluation Design Document for the 2017-2022 Demonstration in December 2018.[1] The Independent Evaluation Interim Report (IEIR), addressing the early years of the 2017–2022 Demonstration, was reviewed and approved by the Centers for Medicare and Medicaid Services (CMS) in September 2022.[2] This document is the Independent Evaluation Summative Report (IESR) for the MassHealth Section 1115 Demonstration (i.e., the 2017–2022 Demonstration), approved by CMS for the period of July 1, 2017, to September 30, 2022.[3]

This chapter provides an overview of the Demonstration Goals and Evaluation design. We then point readers to the goal-specific chapters for details about research questions,[4] hypotheses, evaluation methodologies, key findings, and discussion. We also discuss the general impact of the COVID-19 pandemic on the implementation of Demonstration policies and program adjustments to the Evaluation necessitated by the COVID-19 pandemic.

1.1.1. Overview of the 2017–2022 Demonstration

Through the 2017–2022 Demonstration, MassHealth sought to advance seven goals:

1. Enact payment and delivery system reforms that promote integrated, coordinated care and hold providers accountable for the quality and total cost of care.
2. Improve integration of physical, behavioral, and long-term services.
3. Maintain near-universal coverage.
4. Sustainably support safety net providers to ensure continued access to care for MassHealth members and low-income, uninsured individuals.

[1] MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017-2022* . Mass.gov. Independent Evaluation Design Document

[2] UMass Chan Medical School. (2022, September) *Independent Evaluation Interim Report Massachusetts Medicaid 1115 Demonstration Extension 2017-2022.* https://www.mass.gov/doc/cms-approved-interim-evaluation-report/download

[3] The original Demonstration was for the period of July 1, 2017, to June 30, 2022. On June 9, 2022, CMS approved a temporary extension of the Demonstration to September 30, 2022, to allow the state and CMS to continue negotiations about the 2022-2027 Demonstration renewal. Period 5 of the DSRIP ACO program of the Demonstration also was extended to March 31, 2023.

[4] See Appendix A for the complete list of Research Questions and Hypotheses.

5. Address the opioid addiction crisis by expanding access to a broad spectrum of recovery-oriented substance use disorder (SUD) services.
6. Ensure access to MassHealth services for former foster care individuals between the ages of 18 and 26 who previously resided in another state.
7. Ensure the long-term financial sustainability of the MassHealth program through the refinement of provisional eligibility and authorization for Student Health Insurance Program (SHIP) Premium Assistance.

To achieve these goals, MassHealth supported the development of new delivery systems and programs, expanded coverage for SUD treatment, continued and modified authority for expanded coverage, and modified supplemental hospital payments, as described below.

New Delivery Systems and Programs (Chapter 2)

The 2017–2022 Demonstration sought to transform the delivery of care for most MassHealth members through the implementation of the Medicaid Accountable Care Organization (ACO) program, the Community Partner (CP) Program, the Flexible Services (FS) Program, and a series of Statewide Investments (SWIs). The Delivery System Reform Incentive Payment (DSRIP) program supported these care delivery transformation efforts.

MassHealth ACOs were responsible for integrating care and moderating rising healthcare costs while maintaining or improving quality. ACOs were held financially accountable for the cost and quality of their members' care and members' experience of their care. MassHealth contracted with 17 ACOs, and the program began in March 2018. Three types of MassHealth ACOs were established under this Demonstration:

1. Accountable Care Partnership Plans (ACPPs): A partnership between a provider-led organization and a single health plan; 13 of the 17 ACOs were ACPPs.
2. Primary Care ACOs (PCACOs): Provider-led ACOs that contracted directly with MassHealth; there were three PCACOs.
3. Managed Care Organization-Administered ACOs (MCO-ACOs):These ACOs are required to contract with one or more MCOs, which, in turn, contracted with MassHealth; there was one MCO-ACO that contracted with two MCOs.

As of December 31, 2022, 1.2 million MassHealth members were enrolled in an ACO, representing about 85% of the managed care population of 1.5 million members.

MassHealth CPs were responsible for coordinating and managing care for individuals with behavioral health (BH) and/or long-term services and supports (LTSS) needs. CP supports were made available to certain members enrolled in ACOs and MCOs and a subset of clients of the Massachusetts Department of Mental Health (DMH). MassHealth contracted with 27 CPs, including 18 BH CPs and nine LTSS CPs. The CP Program, launched in July 2018, provided supports to at least 40,000 MassHealth members in each Demonstration year. MassHealth also provided infrastructure and capacity-building funds to CPs via DSRIP and to 19 Community Service Agencies (CSAs) that provide targeted case management for children with BH needs.

MassHealth launched the FS Program in January 2020, investing approximately $150 million in funding over three years to address specific health-related nutritional and housing needs for

ACO members. The investments were initially intended to cover five years of services. Due to delays in gaining approval for the FS protocol, MassHealth spread the investments across the final three years of the Demonstration. As of December 2022, 17 ACOs had partnered with 51 Social Services Organizations (SSOs) to offer 93 FS programs.

Additionally, approximately $115 million of DSRIP funds were directed to support a series of 18 SWIs. The SWIs were designed to address gaps in the statewide delivery system and to build the capacity of community-based primary care and the behavioral health workforce to offer integrated, high-quality care for all members. The SWIs were divided into three categories of programs: 1) building and training the primary care and behavioral health workforce; 2) capacity building for ACOs, CPs, and providers; and 3) initiatives to address statewide gaps in coverage.

Expanded Substance Use Disorder Treatment Coverage (Chapter 5)

In response to the opioid epidemic, the 2017–2022 Demonstration allowed for an expansion of SUD treatment services and populations (i.e., members over 65). The Demonstration gave MassHealth expenditure authority for residential rehabilitation services (RRS) as defined in the American Society of Addiction Medicine (ASAM) 3.1, previously provided at state cost by the Massachusetts Department of Public Health's (DPH) Bureau of Substance Addiction Services (BSAS). MassHealth also added two new services:

1. Recovery Support Navigator services, providing individuals with SUD with a navigator to develop and monitor a recovery plan in conjunction with the member.
2. Recovery Coach services, providing individuals with SUD with a recovery guide who has SUD lived experience and can serve as a role model, providing non-judgmental problem-solving and advocacy to help members meet their recovery goals.

Continued and Modified Authority for Expanded Coverage (Chapters 3, 6, and 7)

The 2017–2022 Demonstration supported several processes, programs, and policies to facilitate and sustain enrollment in insurance coverage. Some have been ongoing, such as:

- Expanded Medicaid eligibility.
- Streamlined redetermination procedures for select MassHealth members.
- Premium subsidies to low-income individuals to purchase commercial health insurance through the Health Connector.
- Premium Assistance, coverage of out-of-pocket expenses, and a coverage wrap for members with Employer-Sponsored Insurance (ESI) through the Premium Assistance program.

Other programs were new or newly funded by Waiver authority in the 2017–2022 Demonstration, including:

- Premium Assistance for the Student Health Insurance Program (SHIP).
- Health Connector cost-sharing subsidies for members in ConnectorCare.
- The CommonHealth 65+ program (extending federal financial participation to CommonHealth coverage for individuals over the age of 65).

Changes to the Safety Net Care Pool and Modified Hospital Supplemental Payments (Chapter 4)

The 2017–2022 Demonstration included changes to the Safety Net Care Pool (SNCP). The SNCP consists of multiple payment streams, including DSRIP (described above), Designated State Health Programs (DSHP) that cover Health Connector subsidies, Public Hospital Transformation and Incentive Initiatives, and provider payments made to acute care, public service, or safety net hospitals, community health centers (CHCs), institutions for mental diseases (IMDs), and other providers.

1.1.2. Waiver Amendments and Implications for the Evaluation

CMS has approved four amendments to the 2017–2022 Demonstration:

- The December 2017 amendment modified which MassHealth members may self-attest their income and receive provisional eligibility while their eligibility is undergoing verification. This amendment also expanded authority to cover former foster care youth who "age out" of foster care in another state but now live in Massachusetts.[5]
- The June 2018 amendment allowed certain members who receive state-funded veteran annuity income to disregard it as income against MassHealth eligibility.[6]
- The May 2019 amendment further addressed how individuals with a state-funded veteran annuity may count that income.[7]
- The August 2022 amendment enabled the Commonwealth to receive federal funding for certain services provided to eligible MassHealth members who receive treatment for serious mental illness (SMI) and serious emotional disturbance (SED). This amendment also extended Community Support Program services to individuals with justice involvement (CSP-JI), and extended Medicare Savings Program (MSP) cost-sharing assistance by expanding MSP income eligibility for MassHealth Standard members. Due to the timing of the approval, the August 2022 amendment will be evaluated as part of the 2022-2027 Demonstration.[8]

1.1.3. COVID-19 Implications for the Demonstration Implementation and Evaluation

The COVID-19 pandemic altered health and healthcare delivery around the world. In Massachusetts, COVID-19 and its consequences dramatically impacted the healthcare workforce, access to clinical services, individual health behaviors, and, inevitably, the implementation and evaluation of programs and initiatives in the 2017–2022 Demonstration.

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[5] Mass.gov. (December 14, 2017). *CMS approval of MassHealth Demonstration amendment.* Centers for Medicare & Medicaid Services. download (mass.gov)

[6] Medicaid.gov. (June 27, 2018). *CMS approval of MassHealth Demonstration amendment.* Centers for Medicare & Medicaid Services. https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/ma/MassHealth/ma-masshealth-demo-amndmnt-appvl-jun-2018.pdf

[7] Medicaid.gov. (May 23, 2019). *CMS approval of MassHealth Demonstration amendment.* Centers for Medicare & Medicaid Services. https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/ma/MassHealth/ma-masshealth-appvd-demo-amndmnt-20190523.pdf

[8] Mass.gov (August 11, 2022). *CMS approval of MassHealth Demonstration amendment.* Centers for Medicare & Medicaid Services. https://www.mass.gov/doc/masshealth-amendment-approval-letter/download

This section summarizes the Commonwealth's responses to the COVID-19 pandemic as they pertain to the 2017–2022 Demonstration implementation and evaluation.

Massachusetts' Response to the COVID-19 Pandemic

With support from the federal government, Massachusetts implemented multiple time-limited and extended policy and programmatic changes to promote continued access to healthcare services and health insurance coverage during the height of the COVID-19 pandemic. MassHealth members maintained their benefits, and redeterminations were paused during the COVID-19 pandemic to facilitate continued coverage.

MassHealth used a federally supported COVID-19 Public Health Emergency Demonstration to implement onsite COVID-19 testing at state-funded congregate sites, provide retainer payments to adult day habilitation providers to relieve the loss of revenue due to stay-at-home restrictions and remove cost-sharing requirements for some eligible populations. MassHealth also contracted with telemedicine network providers to maintain a platform capable of furnishing covered telemedicine encounters, including COVID-19 screening, counseling, and referrals to testing and treatment for all eligible MassHealth members.[9]

Between April 2020 and January 2022, the Commonwealth implemented six 1915(c) Appendix K Emergency Preparedness Response and COVID-19 Addendums[10] that allowed for flexibility in the operation of Home and Community-Based Services (HCBS) waivers, primarily for increased funding and reimbursement to providers. Several Disaster Relief State Plan Amendments were also implemented to facilitate policies related to service rate increases, supplemental payments, payment method revisions, and access to additional resources. Four 1135 Waivers were implemented in 2020 to waive the requirement for specific provider signatures and allow services to be provided in alternative settings.

COVID-19 Pandemic Impacts on the Demonstration

The COVID-19 pandemic required MassHealth to make several real-time policy changes that modified the timing of Demonstration implementation activities and took advantage of Demonstration programs to mitigate the impact on MassHealth members. For example:

- Public Health Emergency (PHE) regulations significantly impacted approaches used by ACOs and CPs to deliver integrated care. For example, requirements for the use of telehealth services were relaxed to allow participating providers to provide care to more members remotely.
- MassHealth introduced changes to the FS Program to mitigate the impact of the COVID-19 pandemic on members and facilitate timely access to housing and nutritional supports, including an expedited approval process for proposed COVID-19-specific FS programs.
- The Delivery System Reform Implementation Advisory Council (DSRIC), which is comprised of participating providers and Demonstration stakeholders and convened by

[9] The evaluation findings of the MassHealth 1115 Emergency Waiver programs will be in a separate report.

[10] Mass.gov. (n.d.). Federal Authorities Related to COVID-19. Mass.gov. Retrieved June 25, 2024, from Federal Authorities Related to COVID-19 | Mass.gov

MassHealth, was utilized to share best practices among DSRIP stakeholders during the COVID-19 pandemic.

- With approval from CMS, MassHealth used pre-pandemic performance measures to determine ACO and CP quality scores for 2020 and extend when certain ACO and CP measures transitioned to pay-for-performance.

A description of pandemic-era policy changes to Demonstration programs can be found in MassHealth's Section 1115 annual report for Demonstration Year 2023.[11] COVID-19 impacts on specific Demonstration Goals and programs are discussed in the IESR chapters that follow this overview.

COVID-19 Pandemic Impacts on the Independent Evaluation

As recommended in the CMS technical assistance guidance published in the fall of 2020,[12] the evaluation team has responded to the challenges posed by the COVID-19 pandemic in several ways. The evaluation team collaborated with MassHealth during and after the peak of the COVID-19 pandemic on the changes needed in data collection and analysis methodologies to maintain a rigorous evaluation of the 2017–2022 Demonstration.

The evaluation team adjusted the timing of evaluation activities, methods of data collection, analytic plans, and interpretation of findings as described in detail in the methods and discussion sections of the IESR Chapters. For example, the evaluation team modified the timing and methods for primary data collection due to the risks of in-person gatherings and the related restrictions in place. After the onset of the COVID-19 pandemic, most in-person primary data collection efforts (i.e., stakeholder interviews and case studies) were conducted remotely via videoconference. The evaluation team updated its plans to conduct outcome analyses for each Demonstration year to distinguish outcomes during and after the COVID-19 pandemic. Additionally, when appropriate, the evaluation team conducted supplemental analyses to measure or account for the COVID-19 pandemic and the policy responses to it. Methodologies are covered in **Section 2.2** (DSRIP) and in **Chapters 3-7**.

In summary, our methods accounted for the impacts of the COVID-19 pandemic in several ways, including:

- Revisions to data collection protocols and instruments to collect information from interview and survey participants on their experiences and perceived effects of the COVID-19 pandemic.
- Propensity-score overlap weighting to balance sociodemographic and clinical confounders, including COVID-19 diagnoses and hospitalizations, between program and comparison groups.
- Use of a comparison group and baseline period with a difference-in-differences approach to account for the secular effects of the COVID-19 pandemic (e.g., shifts in medical morbidity, declines in cost and utilization).

[11] https://www.mass.gov/doc/section-1115-demonstration-waiver-annual-report-fy20-0/download

[12] Medicaid.gov. (n.d.). *Implications of COVID-19 for Section 1115 Demonstration Evaluations: Considerations for States and Evaluators*. Retrieved June 25, 2024, from https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/1115-covid19-implications.pdf

- Estimations of annual differences to facilitate interpretation of Demonstration and COVID-19 pandemic effects in each year.
- Modeling of pre-pandemic trends for several key measures to extrapolate what may have occurred among the program and comparison groups in the absence of the COVID-19 pandemic.

Despite such efforts, considering the complex effects of the COVID-19 pandemic on individuals and the healthcare system, there are likely effects of the pandemic that were unaccounted for and remain unknown. Thus, we recommend a cautious and nuanced interpretation of our evaluation findings for the 2017–2022 Demonstration programs within the context of co-occurring changes precipitated by the COVID-19 pandemic.

1.2. Independent Evaluation Design

1.2.1. Introduction to the Evaluation Design

MassHealth selected the UMass Chan Medical School (UMass Chan) as the Independent Evaluator for the 2017-2022 Demonstration. Massachusetts submitted a draft evaluation design document (EDD) developed by UMass Chan for the 2017–2022 Demonstration to CMS in March 2017 and received CMS comments in January 2018. In February 2018, CMS approved Massachusetts' request to combine the 2017–2022 Demonstration and DSRIP evaluation designs and extended the deadline for submitting the revised EDD to June 2018. Massachusetts received and responded to several rounds of CMS comments on the evaluation design and submitted a revised EDD to CMS in December 2018. Massachusetts received official approval of the EDD in January 2019, at which time the Commonwealth posted the EDD to its website.[13] The development of the EDD was guided by the Demonstration Special Terms and Conditions (STCs), CMS comments on drafts of the EDD, and communications with CMS. The EDD also incorporated feedback from MassHealth stakeholders and advisory groups and guidance from an independent Scientific Advisory Committee comprised of national health services researchers and Medicaid transformation experts.

In September 2021, the Commonwealth submitted the IEIR to CMS for the 2017–2022 Demonstration, as well as a revised version in March 2022. CMS approved the IEIR on September 29, 2022.[14] The IEIR examined the early implementation of the Demonstration from July 1, 2017, through December 31, 2020, whereas this IESR examines the full 2017–2022 Demonstration period of July 1, 2017, through September 30, 2022.

1.2.2. Logic Model Frameworks for the Demonstration

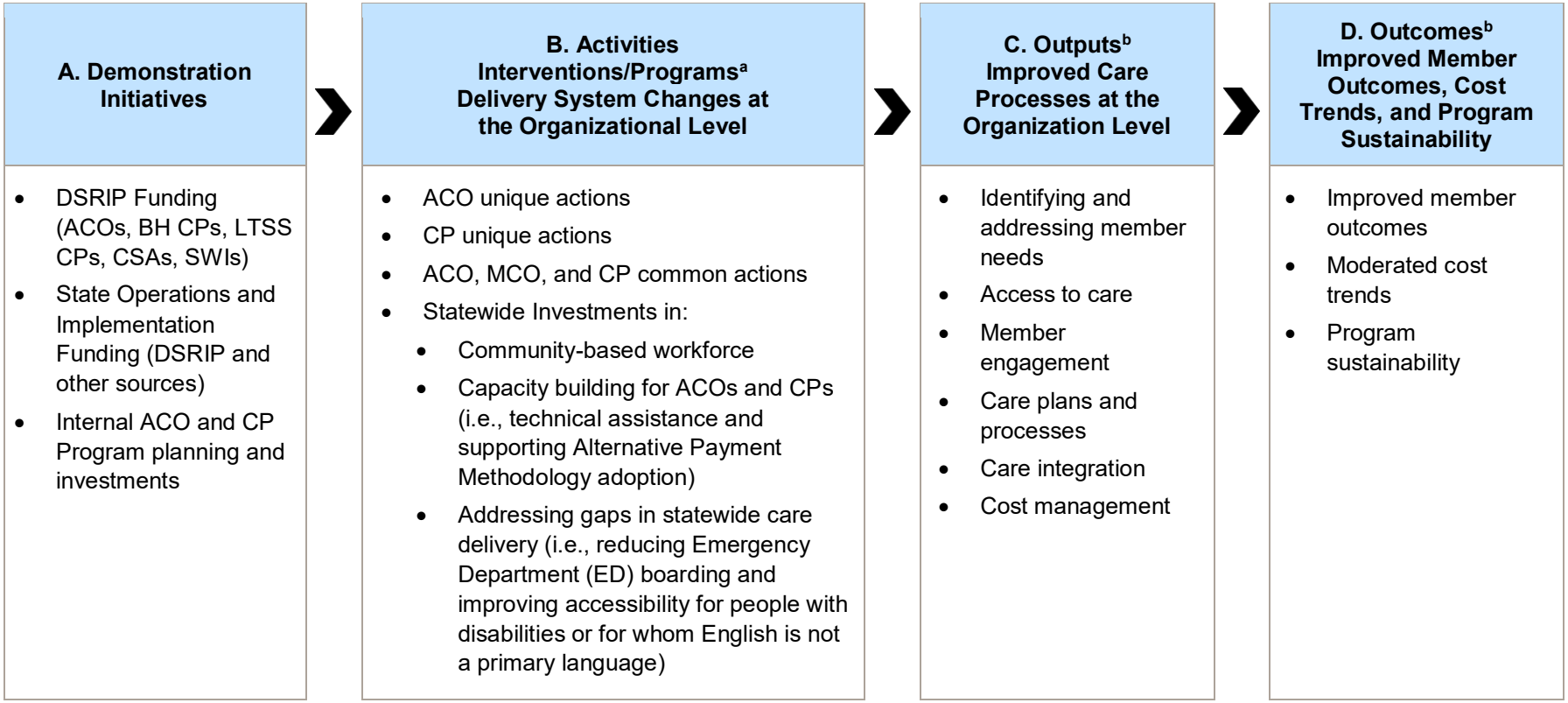
Summary logic models below detail the evaluation frameworks for Demonstration Goals 1 and 2 (see **Figure 1.1**) and Goals 3 through 7 (see **Figure 1.2**). These logic models link the Demonstration Goals to the Demonstration initiatives and to the specific desired *Activities* (secondary drivers), *Outputs* (primary drivers), and *Outcomes* (purpose) of the Demonstration.

[13] MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017-2022*. Mass.gov. Independent Evaluation Design Document

[14] MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017-2022*. Mass.gov. Independent Evaluation Design Document

Evaluation methods and data analysis vary by Goals, research questions, and related hypotheses. Specific methods and analyses are detailed in subsequent Chapters of this IESR and are associated with each Demonstration Goal. Overall, the most appropriate qualitative, quantitative, and mixed methods approach for each research question has been deployed based on the data available.

Figure 1.1 Demonstration Logic Model for the DSRIP Program: Goals 1 and 2



Note: The IEIR used a mixed methods design to evaluate delivery system actions, preliminary changes in care delivery, and preliminary outcomes during the period Performance Year (PY) 0 to PY3 (07/01/2017 to 12/31/2020). The IESR used a mixed methods design to evaluate delivery system actions, changes in care delivery, and outcomes for the entire Demonstration period PY0-PY5 (07/01/2017 to 12/31/2022)

[a] See **Appendix A** for the complete list of DSRIP Research Questions and Hypotheses for more detail

[b] See **Appendix H** for the full list of access and quality measures

Figure 1.2. Demonstration Logic Model: Goals 3 to 7

Goal 3: Maintain near-universal coverage

A. Demonstration Initiatives	B. Activities Interventions/Programs[a]	C. Outputs	D. Outcomes
• SHIP • CommonHealth 65+ • ConnectorCare • ESI	• Implementation of new and modified initiatives • Continued operation of existing programs	• Progressive increases in SHIP and Commonwealth 65+ enrollment • Maintenance of enrollment in ESI • Increased LTSS utilization among CommonHealth 65+ members	• Overall insurance rate remains high • Decrease in percentage of MassHealth members with a gap in coverage 45 days or longer

Goal 4: Sustainably support safety net providers to ensure continued access to care

A. Demonstration Initiatives	B. Activities Interventions/Programs[a]	C. Outputs	D. Outcomes
• Public Hospital Transformation and Incentive Initiative (PHTII) • Disproportionate Share Hospital-like Pool • Uncompensated Care Cost Pool	• Implementation of modified SNCP, including increased performance-based payments ○ Increased portion of at-risk funding under PHTII and Safety Net Provider Payments to help improve care quality	• Improved care quality at SNCP hospitals • Uncompensated care costs do not increase	• SNCP hospitals exhibit quality improvement, including access measures • Delivery reform efficiencies lead to savings for hospitals that counter-balance reduced supplemental payments, without compromising patient care

Goal 5: Address the opioid addiction crisis by expanding access to a broad spectrum of recovery-oriented substance use disorder services

A. Demonstration Initiatives	B. Activities Interventions/Programs[a]	C. Outputs	D. Outcomes
• Implementation of new SUD residential and recovery support services	• Improved SUD service capacity • Diversion from inpatient to outpatient services • New residential and recovery support services	• Improved SUD identification, treatment initiation, and engagement • Improved access to care for comorbid physical and mental health conditions for anyone with SUD diagnosis • Improved adherence to treatment among individuals with SUD diagnosis	• Decreased ED utilization and inpatient hospital settings • Fewer opioid-related deaths

Goal 6: Ensure access to Medicaid services for former foster care members 18-26 years of age

A. Demonstration Initiatives	B. Activities Interventions/Programs[a]	C. Outputs	D. Outcomes
• Strengthening coverage for former foster care youth	• Provide continuous coverage for foster care youth who previously resided in another state	• Continuous eligibility for health coverage for foster care youth • Foster care youth access care at rates comparable to other MassHealth members	• Former foster care individuals have positive health outcomes comparable to members with similar characteristics using established measures

Goal 7: Ensure long-term MassHealth sustainability

A. Demonstration Initiatives	B. Activities Interventions/Programs[a]	C. Outputs	D. Outcomes
• Updated Provisional Eligibility requirements • SHIP Premium Assistance (SHIP PA)	• MassHealth implements changes to provisional eligibility • MassHealth implements new SHIP PA	• Fewer provisionally eligible individuals ultimately deemed ineligible • Progressive increase in SHIP enrollment	• Lower expenditures due to less provisional coverage unnecessarily provided to ineligible individuals • Cost savings due to SHIP • Improved member experiences and network access due to SHIP PA program

The Interim Evaluation used a mixed methods design to evaluate delivery system actions, preliminary changes in care delivery, and preliminary outcomes during Performance Years PY0 to PY3 (07/01/2017 to 12/31/2020). The Summative Evaluation used a mixed methods design to evaluate delivery system actions, changes in care delivery, and outcomes for the entire Demonstration period PY0-PY5 (07/01/2017 to 12/31/2022)

[a] See **Appendix A** for the complete list of Research Questions and Hypotheses for more detail

2. Goals 1 and 2: Payment/Delivery Reform and Integration of Care

2.1. Overview of the DSRIP Program

2.1.1. Program goals and description

In response to unsustainable healthcare cost growth and fragmented care, MassHealth devised a strategy in 2016 to improve care integration, quality, and population health while moderating rising costs, shifting the system towards value-based arrangements and away from fee-for-service (FFS) payments. In July 2016, MassHealth submitted an 1115 Demonstration Waiver Extension Request to the Centers for Medicare and Medicaid Services (CMS), proposing the most substantial delivery system reforms seen in Massachusetts in over two decades. In its request, MassHealth included a proposal for $1.8 billion in Delivery System Reform Incentive Payment (DSRIP) program investments over five years to transition the Massachusetts delivery system to accountable care models (see **Table 2.1-D1.1**). Testing new approaches to delivering health care, the primary goals of the DSRIP program were to:[15]

1. Promote member-driven, integrated, coordinated care and hold providers accountable for the quality and total cost of care (TCOC).
2. Improve integration among physical health, behavioral health, long-term services and supports, and health-related social services.
3. Sustainably support safety net providers to ensure continued access to care for Medicaid and low-income, uninsured individuals.

At the center of the delivery system reform efforts were 17 new Medicaid Accountable Care Organizations (ACOs) that would be held responsible for the cost and quality of care. The ACOs assumed upside and downside risk for their members' total cost of care and were financially accountable for specific quality measures. The "building blocks" of the ACOs were primary care practices. Primary care (PC) practice sites serving MassHealth members were given a choice to affiliate with one ACO or to remain in the legacy managed care system serving members enrolled with managed care organizations (MCOs) and those enrolled with MassHealth's primary care clinician (PCC) plan. Before the launch of the ACOs on March 1, 2018, every MassHealth member in an MCO or the Primary Care Clinician Plan (PCCP) was assigned to a primary care provider (PCP), generally based on historical PCP assignments indicative of an existing relationship. Members were assigned to ACOs, MCOs, or the PCCP based on their PCP assignment. Members then had the option to change their plan until June 30, 2018, and annually thereafter during MassHealth's 90-day Plan Selection Period.[16]

Beyond regular ACO payments for healthcare delivery, DSRIP program funding provided time-limited financial support to assist ACOs in their transformation to population health management and value-based care. MassHealth calculated DSRIP allocations to ACOs for administrative expenses using a point-in-time member enrollment count, in part to incentivize ACOs to recruit practices and their members.

[15] MassHealth. (n.d.). *Attachment M Massachusetts Delivery System Reform Incentive Payment (DSRIP) Protocol.* Mass.gov. Retrieved June 6, 2024, from download (mass.gov).

[16] There are exceptions to this Plan Selection Period. For more information, see 130 CMR 508.003

In addition to supporting ACO development, the DSRIP funding provided support for the Flexible Services (FS) and Community Partners (CP) Programs. The FS Program sought to improve health outcomes and reduce the total cost of care for certain eligible ACO members using tenancy and nutritional supports targeted to address health-related social needs (HRSNs). ACOs developed individual FS programs, usually in partnership with Social Services Organizations (SSOs). The CPs established relationships with ACOs and MCOs for the purpose of delivering care coordination and other supports to their enrollees with significant behavioral health (BH) and/or complex long-term services and supports (LTSS) needs. Similarly, the DSRIP program provided infrastructure funding to Community Service Agencies (CSAs) that provide targeted case management for children with serious emotional disturbance. Neither the FS nor CP programs were entitlements; each had pre-set funding.

Finally, MassHealth used DSRIP funds for a series of Statewide Investments (SWIs) designed to improve the healthcare system's capacity to serve MassHealth members. SWIs financially supported various initiatives, including workforce development, accessibility initiatives, and delivery and payment reform readiness.

Table 2.1-D1.1 DSRIP Proposed Funding Streams by Demonstration Year (DY)[a]

Funding Stream	DY1	DY2	DY3	DY4	DY5	Total	% of Total
ACOs (including Flexible Services)	$329M	$290M	$229M	$152M	$65M	$1,066M	59.2%
CPs (including CSAs)	$57M	$96M	$132M	$134M	$128M	$547M	30.3%
SWIs	$24M	$25M	$24M	$25M	$17M	$115M	6.4%
State Operations and Implementation	$15M	$15M	$15M	$15M	$15M	$73M	4.1%
Total	**$425M**	**$425M**	**$400M**	**$325M**	**$225M**	**$1,800M**	**100.0%**

[a] Table and descriptions taken and modified from the DSRIP protocol. MassHealth. (n.d.). *Attachment M Massachusetts Delivery System Reform Incentive Payment (DSRIP) Protocol.* Mass.gov. Retrieved June 6, 2024, from download (mass.gov).

2.1.2. ACOs

ACOs, which were central to the DSRIP program and consisted of groups of doctors, hospitals, and other healthcare providers who were held financially accountable for the TCOC, the quality of care, and the overall member experience of their attributed members. ACOs worked across roles and systems in various service areas to coordinate and provide essential care to members. ACO service areas were defined as a series of cities and towns in which the ACOs operated. Most ACOs operated in multiple service areas with some ACOs operating in all. Each ACO enrollee was assigned a PCP, with PC as the key focus of the ACO program. ACOs were meant to deliver care to members that was timely, efficient, and accessible, accounting for members' linguistic preferences and cultural needs, and identifying and addressing members' HRSNs.

ACO Models

There were three types of MassHealth ACOs in the 2017-2022 Demonstration:

1. Model A: Accountable Care Partnership Plans (ACPPs)

2. Model B: Primary Care ACOs (PCACOs)
3. Model C: MCO-Administered ACOs (MCO-ACOs)

At the start of the DSRIP program in Calendar Year (CY) 2018, MassHealth contracted with 17 ACOs.

Table 2.1-D1.2 Select Characteristics of MassHealth ACOs and Distribution of ACO Members as of December 31, 2022

Characteristic[a]	ACOs, n (%)	MassHealth Members[b], n (%)
Overall	**17 (100)**	**1,182,383 (100)**
ACO Model		
ACPPs	13 (76.5)	698,508 (59.1)
PCACOs	3 (17.6)	474,031 (40.1)
MCO-ACOs	1 (5.9)	9,844 (0.8)
ACO Characteristics		
No prior risk experience	4 (23.5)	277,113 (23.4)
For-profit	2 (11.8)	193,817 (16.4)
ACO Type		
Physician or community health center (CHC) anchored	3 (17.6)	257,015 (21.7)
Community hospital anchored	5 (29.4)	143,217 (12.1)
Teaching hospital anchored	9 (53.0)	782,151 (66.2)
ACO size (enrollees, risk contracts across all payers)[c]		
Small (<50,000)	5 (29.4)	160,375 (13.6)
Medium (50,000-150,000)	6 (35.3)	562,508 (47.6)
Large (>150,000)	6 (35.3)	459,500 (38.9)

[a] Characteristics based on the 2019 ACO profiles published by the Massachusetts Health Policy Commission

[b] MassHealth enrollment numbers were derived from analyses conducted on eligibility files included in the Mega Extract

[c] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO Certification applications (excluding any reported Medicare Advantage, Senior Care Options, or Program of All-inclusive Care for the Elderly risk contract lives).

ACO Structure and Funding

The three ACO models and the funding structure within the models varied. ACPPs comprised a partnership between a provider-led ACO and a single health plan; 13 of the 17 ACOs were ACPPs during the 2017-2022 Demonstration. PCACOs were provider-led ACOs that contracted directly with MassHealth; there were three PCACOs. Finally, MCO-ACOs were required to

contract with one or more MCOs, which, in turn, contracted with MassHealth. There was only one MCO-ACO that contracted with two MCOs.

All ACO models participated in upside and downside risk-sharing; however, levels of risk-sharing varied among the models. The varying levels of risk-sharing were designed to provide flexibility and allow for the participation of small and large health systems in Massachusetts. All ACO models had accountability for quality, with shared savings and shared loss amounts adjusted based on quality scores. Each ACO's DSRIP program funding amounts were also adjusted based on quality and cost performance.

ACPPs received prospective capitated payments, risk-adjusted for clinical, social risk, and demographic factors. Like traditional MCOs, ACPPs bore insurance risk (i.e., the degree to which population acuity varies from what was projected during rate development). Services provided to PCACO members were paid on a fee-for-service basis by MassHealth but then PCACOs were held accountable retrospectively to a TCOC benchmark. PCACOs did not bear insurance risk but bore risk for utilization levels, which determined whether they met their TCOC benchmark. MassHealth retrospectively adjusted the final PCACO TCOC and MCO-ACO benchmarks to account for unforeseen fee schedule and other program changes, as well as miscellaneous items that were unknown or otherwise unaccounted for in preliminary TCOC benchmarks. The MCO-ACO was required to share savings and losses with its contracted MCO.

To better account for differences between populations, MassHealth set capitation rates and TCOC benchmarks individually for thirty rate cells (five regions of the state and six rating category populations). The ACOs' TCOC performance (i.e., actual healthcare expenditures) was compared against their final capitated revenue or benchmark to calculate shared savings or shared losses between the ACO and MassHealth either at the rating category level or aggregate level, depending on the contract year.

The six MassHealth rating category (RC) populations during the 2017-2022 Demonstration were:

1. RC I Child: Enrollees who were non-disabled and under the age of 21
2. RC I Adult: Enrollees who were non-disabled and ages 21 to 64
3. RC II Child: Enrollees who were disabled and under the age of 21
4. RC II Adult: Enrollees who were disabled and ages 21 to 64
5. RC IX: Adult-only enrollees who were ages 21 to 64, and in the Executive Office of Health and Human Services (EOHHS) CarePlus coverage type, as well as not receiving Emergency Aid to the Elderly, Disabled, and Children through the EOHHS Department of Transitional Assistance
6. RC X: Adult-only enrollees who were ages 21 to 64 and in the EOHHS CarePlus coverage type, and are receiving Emergency Aid to the Elderly, Disabled, and Children through the EOHHS Department of Transitional Assistance

The amount of risk borne by ACOs varied for different categories of services (see **Table 2.1-D1.3**). Certain covered services were not included in risk-sharing arrangements (e.g., LTSS)

and were paid on a fee-for-service basis by MassHealth. Among the services included in risk-sharing arrangements between ACOs and MassHealth, certain services were carved out into targeted risk corridors where ACOs took on less risk. Similarly, for some calendar years (CY), certain higher acuity populations (e.g., those with substance use disorder) or subsets of services (e.g., applied behavioral therapy) were carved out into targeted risk corridors where ACOs took on less risk. These targeted risk corridors made up a proportionally small amount of TCOC. All other TCOC spend was included in the core medical component where the ACOs take on greater risk. For core medical and each of the carved-out targeted risk corridors, the amount of shared risk differed among each of the three ACO models. The risk levels described in **Table 2.1-D1.3** were specific to the first year (CY2018) for illustrative purposes. PCACOs and MCO-ACOs had the option to select a minimum threshold of either 1% or 2% of the core medical component which triggers risk-sharing (i.e., risk-sharing occurs for all savings or losses if the threshold is exceeded, but no risk-sharing occurs if the threshold is not exceeded). PCACOs had the option to choose from two risk tracks, 1) shared accountability (less risk), and 2) full accountability (more risk) (see **Table 2.1-D1.3**). MCO-ACOs could choose from three risk tracks, 1) limited accountability (least risk), 2) moderate accountability, and 3) increased accountability (most risk) (see **Table 2.1-D1.3**).

Table 2.1-D1.3 Risk-Sharing Arrangements for MassHealth ACOs by Model Type, CY2018[a]

Component of TCOC	ACPPs	PCACOs	MCO-ACOs
Core medical[b]	100% risk up to +/- 3% risk corridor; 50% risk outside of the risk corridor	Risk Track 1[c] 50% of gains up to + 3%; 25% of gains up to + 3 to 10%; 40% of losses up to - 3%; 20% of losses up to - 3 to 10%; Risk/gains capped at 10% of the benchmark Risk Track 2[c] 70% of gains up to + 3%; 35% of gains up to + 3 to 10%; 50% of losses up to - 3%; 25% of losses up to - 3 to 10%; Risk/gains capped at 10% of the benchmark	Risk Track 1[c] 20% of gains up to + 3%; 10% of gains above + 3%; 20% of losses up to - 3%; 10% of losses above - 3%; Risk Track 2[c] 30% of gains up to + 3%; 15% of gains above + 3%; 30% of losses up to - 3%; 15% of losses above - 3%; Risk Track 3[c] 50% of gains up to + 3%; 25% of gains above + 3%; 40% of losses up to - 3%; 20% of losses above - 3%;
HCV drugs	100% risk for +/- 5%; 5% risk for more than +/- 5%	100% risk for +/- 5%; 5% risk for +/- 5 to 10%	100% risk for +/- 5%; 5% risk for +/- 5 to 10%
Non-HCV high-cost drugs	+/- 2% risk corridor; 0% risk outside of the risk corridor	FFS, not at risk	FFS, not at risk
CBHI, ABA, and a subset of	$100,000 risk corridor for each with 1% risk inside corridor;	FFS, not at risk	FFS, not at risk

Component of TCOC	ACPPs	PCACOs	MCO-ACOs
newly covered SUD services[d]	0% risk outside of the risk corridor		
LTSS[e]	FFS, not at risk	FFS, not at risk	
Maternity[d]	Per event payment	Per event adjustment to the core medical benchmark	Per event adjustment to the core medical benchmark
Specialized inpatient psychiatric services	Per event payment	Per event adjustment to the core medical benchmark	Per event adjustment to the core medical benchmark

Abbreviations: accountable care organization (ACO), total cost of care (TCOC), hepatitis C virus (HCV), Children's Behavioral Health Initiative (CBHI), applied behavior analysis (ABA), substance use disorder (SUD)

[a] Risk-sharing arrangements changed year to year during the Demonstration and this table includes only 2018 for illustrative purposes.

[b] The core component of TCOC is composed of two sub-categories based on age and MassHealth rating category for ACOs that opted into an optional second risk corridor. For those ACOs that opt-in, risk-sharing for one rating category cell (adults in rating category II) is managed in a separate risk corridor from the core medical risk-sharing for other rating categories. ACPPs have full risk up to +/- 2% for adults in rating category II and have no risk above +/- 2%. PCACOs have 50% or 70% risk up to +/-2% based on their risk track selection and bear no risk above +/- 2%. MCO-ACOs in Risk Track 1, 2, and 3 have 20%, 30%, and 50% shared savings up to +2% and 20%, 30%, and 40% shared losses up to -2%, respectively, with no risk above +/- 2%.

[c] Risk sharing applies to all savings or losses (i.e., from the first dollar) if the minimum threshold selected by the ACO of 1% or 2% is exceeded.

[d] The risk corridor for the new SUD services was not introduced until rating year 2019, the second year of the program.

[e] LTSS refers to services available to members via a wrap (e.g., durable medical equipment).).

In 2018, both the core medical capitation rate for ACPPs and MCOs and the core TCOC benchmark for PCACOs and MCO-ACOs were based on a weighted average of the historical cost experience for the specific ACO (90%) and the market average historical cost experience across all ACOs, MCOs, and PCCPs (10%). Over the course of the Demonstration, the weight on an ACO's historical cost experience declined, and the weight increased for the market standard. To account for price differences, MassHealth price normalized capitation rates and TCOC benchmarks as well as reconciled plan performance on a price-normalized basis when an ACO was in losses. Price normalization assigned a standard payment rate from the MassHealth fee schedule for each service, which has two primary effects: holding ACPPs accountable to MassHealth fee schedule payment levels, and, ensuring differences in MassHealth fee schedules over time are reflected in capitation rates and TCOC benchmarks. Throughout the Demonstration, MassHealth applied risk adjustment to account for differences in member demographic, social, and clinical characteristics between ACOs. Ultimately, the goal was for all ACOs to be held to a risk-adjusted market standard without any additional adjustments for an ACO's prior cost performance.

For 2021 and beyond, MassHealth made changes to the risk sharing and rate policy strategy that were informed by the COVID-19 pandemic and other macroeconomic system factors. These changes reduced certain types of insurance risk and enhanced payment accuracy while increasing the incentive for each ACO to perform better than the market. The changes included concurrent risk score adjustments to adjust for member acuity, stop-loss protection for

ACPPs/MCOs, and market-wide risk-sharing (i.e., market corridor) in which MassHealth shared two-sided risk with the whole ACO/MCO market.[17]

Both ACPPs and PCACOs received an administrative per member per month (PMPM) payment for all years of the Demonstration. There was no risk sharing on the administrative PMPM amounts, meaning that ACPPs and PCACOs bore all the risk for administrative expenses.

ACOs were required to submit annual participation plans that included budgeting details on how DSRIP funds would be spent. ACO participation plans and budgets were reviewed and approved by MassHealth with recommendations from the Independent Assessor (IA).[18] The total amount of DSRIP funding declined over the course of the 2017-2022 Demonstration, while the percentage of funding at risk increased over the course of the program (see **Table 2.1-D1.4**). For ACOs, the amount of at-risk DSRIP funding the ACO earned was determined based on a weighted average of scores reflecting their quality and TCOC performance (see **Table 2.1-D1.5**). ACO DSRIP funding included four sub-streams (see **Table 2.1-D1.6**) (described in detail in **Section 4.2** of the DSRIP Protocol):[19]

> **Sub-streams 1 and 2: Startup/Ongoing Investments** were split into two sub-streams. Sub-stream 1 (startup investments) was dedicated to primary care investment. ACOs were required to spend these funds on state-approved investments that support the ACO's primary care providers such as capital investments in primary care practices (e.g., inter-operable Electronic Health Record (EHR) systems), trainings for PCPs and support staff in population health management protocols, and administrative staff to support frontline providers with clinical quality initiatives. Sub-stream 2 (ongoing investments) was discretionary funding used by ACOs for other state-approved investments, such as health information technology (HIT), contracting/network development, project management, care coordination/management investment, assessments for members with identified LTSS needs, workforce capacity development, and new or expanded telemedicine capability. Sub-streams 1 and 2 were used for care coordination and community-based care initiatives, integration projects, data analytics, population health, and HIT and other activities (see **Figure 2.1-D1.1**). ACOs spent most of their DSRIP funds on care coordination and community-based care initiatives (see **Figure 2.1-D1.1**). A portion of this funding was reserved for investment in patient-centered PC models, with the option to invest additional discretionary funding in PC. The amount of startup and ongoing funding for an ACO was allocated based on a point-in-time member enrollment calculation, adjusted according to several factors: 1) the number of attributed members; 2) the ACO model type and risk track; 3) the number of ACO members attributed to CHCs and certain hospital-licensed health centers; and 4) the proportion of an ACO's revenue derived from Medicaid and uninsured members.

[17] MassHealth. (n.d.). *Massachusetts Delivery System Reform Incentive Payment*. Mass.gov. Retrieved June 6, 2024, from Massachusetts Delivery System Reform Incentive Payment Program

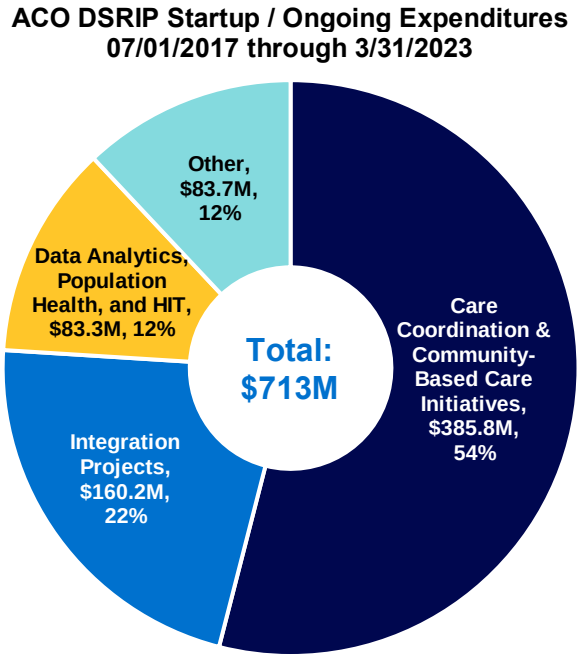
[18] Per the MassHealth 1115 Demonstration Special Terms and Conditions, the Independent Assessor is a designated entity that reviews ACO and CP participation plans and other documents, makes recommendations to the state regarding those plans, develops a Midpoint Assessment, and engages in other activities.

[19] MassHealth. (n.d.). *Attachment M Massachusetts Delivery System Reform Incentive Payment (DSRIP) Protocol.* Mass.gov. Retrieved June 6, 2024, from download (mass.gov).

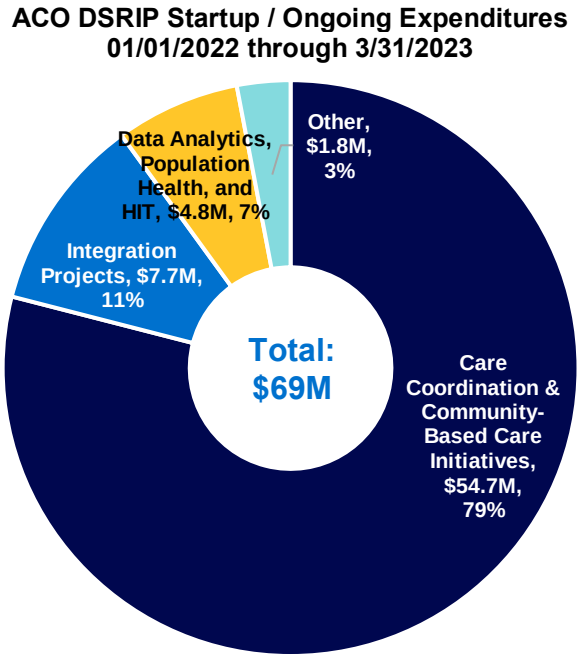
Sub-stream 3: Flexible Services funding was used for two main purposes: 1) to build the necessary capacity and infrastructure to implement and support ongoing administration/overhead of the FS Program, including but not limited to personnel for the FS Program and social service integration, HIT, software, assessments and reporting costs surrounding FS Program and social service integration; and 2) prospective funding provided to ACOs, or SSOs through ACOs, for Tenancy Preservation Supports (TPS) and Nutrition Sustaining Supports. Funding was based on an anticipated PMPM rate outlined in the DSRIP protocol and changed year over year as described in **Table 2.1-D1.3.**

Sub-stream 4: Delivery System Transformation Initiative (DSTI)[20] Glide Path funding was provided to hospitals that previously participated in the DSTI and had a contract or provider arrangement with an ACO. The amount of DSTI Glide Path funding for each hospital was established in the DSRIP Protocol.

Figure 2.1-D1.1 ACO DSRIP Startup/Ongoing Expenditures 07/01/2017 through 12/31/19[a] and CY2021[b]



[a] Source: DSRIP Protocol



[b] Source: ACO 2021 Legislative Report

[20] Delivery System Transformation Initiatives (DSTI) is an incentive payment program to support eligible safety net hospitals' investments in delivery system transformation initiatives that aim to enhance the quality of care, improve population health, and lower health care costs. In addition, DSTI supports these safety net providers' investments in the infrastructure and capacities necessary to participate in alternative payment arrangements that hold providers accountable for the quality and cost of care. DSTI was originally authorized under MassHealth's section 1115 Demonstration Waiver for SFY 2012-2014, and was renewed under the current 1115 Waiver for SFY 2015-2017." source: https://www.mass.gov/files/documents/2016/07/oi/dsti-delivery-system-transformation-initiatives-status-report-03-16-16.pdf

Table 2.1-D1.4 ACO and CP Accountability to MassHealth by DSRIP Budget Period (BP)[a,b]

		Prep BP	BP 1	BP 2	BP 3	BP 4	BP 5	Total
ACOs (Accountability to State)	**Total Funds**	**$138.2M**	**$284.1M**	**$238.0M**	**$192.5M**	**$132.7M**	**$64.0M**	**$1,049.5M**
	At-Risk %	**0%**	**4%**	**10%**	**19%**	**27%**	**20%**	**11%**
	At-Risk Funds	**$0.0M**	**$10.0M**	**$24.1M**	**$36.8M**	**$36.4M**	**$12.9M**	**$120.3M**
Startup/Ongoing: Primary Care Investment (Not At-Risk)	Total Funds	$21.8M	$43.6M	$29.6M	$30.5M	$10.5M	$10.8M	$146.7M
Startup/Ongoing: Discretionary	Total Funds	$94.9M	$165.1M	$153.3M	$117.2M	$86.5M	$23.7M	$640.7M
	At-Risk %	0%	5%	15%	30%	40%	50%	18%
	At-Risk Funds	$0.0M	$8.3M	$23.0M	$35.2M	$34.6M	$11.9M	$112.9M
Flexible Services (Not At-Risk)	Total Funds	$0.0M	$40.8M	$32.1M	$27.9M	$23.6M	$24.3M	$148.7M
DSTI Glide Path Funding	Total Funds	$21.5M	$34.6M	$23.0M	$16.8M	$12.2M	$5.2M	$113.4M
	At-Risk %	0%	5%	5%	10%	15%	20%	7%
	At-Risk Funds	$0.0M	$1.7M	$1.1M	$1.7M	$1.8M	$1.0M	$7.4M
Community Partners (Accountability to State)	**Total Funds**	**$15.8M**	**$59.0M**	**$105.6M**	**$125.5M**	**$122.0M**	**$118.9M**	**$546.7M**
	At-Risk %	**0%**	**0%**	**3%**	**11%**	**16%**	**20%**	**11%**
	At-Risk Funds	**$0.0M**	**$0.0M**	**$3.6M**	**$14.3M**	**$19.9M**	**$23.6M**	**$61.4M**
Behavioral Health CPs	**Total Funds**	**$11.7M**	**$46.3M**	**$80.2M**	**$91.1M**	**$86.5M**	**$83.1M**	**$398.9M**
	At-Risk %	**0%**	**0%**	**3%**	**11%**	**16%**	**20%**	**11%**
	At-Risk Funds	**$0.0M**	**$0.0M**	**$2.5M**	**$9.9M**	**$13.7M**	**$16.2M**	**$42.3M**
Care Coordination Supports	Total Funds	$0.0M	$21.9M	$60.3M	$66.4M	$66.2M	$65.9M	$280.6M
Infrastructure and Capacity	Total Funds	$11.7	$24.4M	$19.9M	$23.6M	$19.3M	$16.2M	$115.3M

		Prep BP	BP 1	BP 2	BP 3	BP 4	BP 5	Total
Building (including CSAs)	At-Risk %	0%	0%	13%	42%	71%	100%	37%
	At-Risk Funds	$0.0M	$0.0M	$2.5M	$9.9M	$13.7M	$16.2M	$42.3M
Outcomes-Based Stream (Incentive Pool, Not At-Risk)	Total Funds	$0.0M	$0.0M	$0.0M	$1.0M	$1.0M	$1.0M	$3.0M
LTSS CPs	**Total Funds**	**$4.0M**	**$12.7M**	**$25.3M**	**$34.4M**	**$35.5M**	**$35.8M**	**$147.8M**
	At-Risk %	**0%**	**0%**	**4%**	**13%**	**18%**	**21%**	**13%**
	At-Risk Funds	**$0.0M**	**$0.0M**	**$1.0M**	**$4.5M**	**$6.2M**	**$7.4M**	**$19.1M**
Care Coordination Supports	*Total Funds*	*$0.0M*	*$5.7M*	*$17.1M*	*$23.3M*	*$26.3M*	*$27.9M*	*$100.3M*
Infrastructure and Capacity Building	*Total Funds*	*$4.0M*	*$6.9M*	*$8.2M*	*$10.7M*	*$8.8M*	*$7.4M*	*$46.0M*
	At-Risk %	*0%*	*0%*	*13%*	*42%*	*71%*	*100%*	*41%*
	At-Risk Funds	*$0.0M*	*$0.0M*	*$1.0M*	*$4.5M*	*$6.2M*	*$7.4M*	*$19.1M*
Outcomes-Based Stream (Incentive Pool, Not At-Risk)	*Total Funds*	*$0.0M*	*$0.0M*	*$0.0M*	*$0.5M*	*$0.5M*	*$0.5M*	*$1.5M*

Source: MassHealth DSRIP Protocol effective July 1, 2017 – June 30, 2022

[a] Preparation Budget Period (Prep BP) corresponds to 07/1/2017 to 12/31/2017, and BPs 1 to 5 correspond to CY2018 to CY2022

[b] Details of the payment formula can be found in Sections 5.2 and 5.3 of DSRIP Protocol Attachment M: https://www.mass.gov/doc/dsrip-protocol-0/download

Table 2.1-D1.5 Accountability Score, by Budget Period (BP)

ACO DSRIP Accountability Domain	Prep BP	BP 1-2	BP 3-5
Quality component of the ACO DSRIP Accountability Score	N/A	100%	75%
Total cost of care component of the ACO DSRIP Accountability Score[a]	N/A	N/A	25%

Source: MassHealth DSRIP Protocol

[a] The total cost of care (TCOC) component of the ACO DSRIP accountability score was based on a comparison of the ACO's performance (expenditures) against either a TCOC benchmark specified by MassHealth (for PCACOs and MCO-ACOs) or the value of capitation payments to the ACO from MassHealth (for ACPPs), after taking into account risk-sharing arrangements with MassHealth for the BP.

Table 2.1-D1.6 ACO DSRIP Accountability Mechanism by Funding Sub-Stream

Funding Sub-Stream	Mechanism for Individual Accountability
Start-up/Ongoing: Primary Care Investment[a]	Fixed amount, not withheld or at-risk
Start-up/Ongoing: Discretionary[b]	Withheld portion is fully at-risk each BP based on ACO's Accountability Score
DSTI Glide Path[b]	Withheld portion is fully at-risk each BP based on ACO's Accountability Score
Flexible Services	Not at performance risk. ACOs entirely at risk for any expenses not approved by the state

Source: MassHealth DSRIP Protocol

[a] The portion of Start-up/Ongoing funding that was provided for each ACO to support primary care investments was not at performance risk to give some measure of predictability and stability in this funding stream, to encourage innovative investments in primary care infrastructure, and to mitigate the risk of costly delays or changes in funding that may have made frontline primary care providers more hesitant to invest in practice-level change.

[b] The at-risk withheld amount differed between the discretionary Startup/Ongoing stream and the DSTI Glide Path. In general, a smaller percentage of the DSTI Glide Path funding was at risk. This difference reflects the safety net status of these hospitals.

ACOs and Quality

As described in detail in the DSRIP protocol, ACOs were responsible for performance on a slate of 22 quality measures. ACO DSRIP funding and payments for potential shared savings/losses were subject to adjustment based on each ACO's quality performance. The ACO quality measure slate consisted of 22 measures, including 12 administrative-only measures, 8 hybrid measures (where medical or chart review was used), and 2 survey measures. ACOs were eligible to earn two types of points toward their quality score for each quality measure: achievement against a program benchmark and improvement for that ACO. All quality measures were reporting-only or pay-for-reporting (P4R) only in the first year of the DSRIP program. In subsequent years, these measures shifted into pay-for-performance (P4P) (see **Table 2.1-6**), meaning ACOs were held accountable based on performance. To account for disruptions caused by the COVID-19 pandemic, MassHealth and CMS made changes to quality scoring methodologies for 2020, including allowing ACOs to use 2019 performance (their own or the median across ACOs) and delaying transitioning of measures in reporting-only to P4P. In 2021, quality benchmarks were also adjusted for measures with a negative change in median-level performance from CY2019 to CY2020.

Table 2.1-D1.7 ACO Quality Domains and Domain Weights by Budget Period (BP)

Quality Domain	Domain Weight: BP 1	Domain Weight: BP 2	Domain Weight: BP 3	Domain Weight: BP 4-5
Clinical Quality Measures				
1. Prevention & Wellness	100% (P4R only)	85%	65%	45%
2. Care Integration	100% (P4R only)	--	20%	40%

Quality Domain	Domain Weight: BP 1	Domain Weight: BP 2	Domain Weight: BP 3	Domain Weight: BP 4-5
Patient Experience Surveys				
3. Overall Rating and Care Delivery	--	15%	15%	7.5%
4. Person-centered Integrated Care	--	--	--	7.5%

Source: MassHealth DSRIP Protocol

ACOs and Care Delivery

ACOs were expected to promote coordinated and integrated member care. ACO expectations included screening all members for their care needs, identifying high- and rising-risk members, and providing them with care coordination and care management. ACOs were required to provide a comprehensive assessment and care plan to certain members with BH, LTSS, and special health care needs.

ACPPs and PCACOs were required to complete the care needs screening within 90 days of a member's enrollment, while MCO-ACOs were required to assist their contracted MCO with completing the screening within 90 days of enrollment. The care needs screening included member demographics, health history, self-reported health status, need for culturally and linguistically appropriate services, need for accessible medical diagnostic equipment, and overall health concerns and goals. ACOs were also required to conduct HRSNs screening annually for all members.

The member care needs screening also identified members' special health care needs. These members included:

- Members who had complex or chronic medical needs.
- Members who were at increased risk of institutionalization.
- Members who experienced chronic homelessness.
- Members who were at high risk for admission or readmission to a 24-hour level of care.
- Members who were at increased risk of emergency department (ED) visits.
- Members who had significant mental health and/or substance use disorder needs.
- Members who were at high risk of inpatient admission.
- Members who received care from other state agency programs, such as the Massachusetts Department of Mental Health (DMH).

A member with special health care needs could also receive additional care coordination and management offered within the ACO and/or from a CP. CPs were responsible for coordinating member care for their enrolled members with BH and LTSS needs, and ACOs and CPs were required to enter formal arrangements. Beginning in 2020 and for the remainder of the Demonstration, ACOs could also identify members to receive FS to help address tenancy and nutrition needs. The CP (**Section 2.1.3**) and FS programs (**Section 2.1.4**) are described in detail below.

2.1.3. Community Partners (CPs)

Launched in July 2018, the CP Program helped coordinate and manage care for individuals with significant BH and/or LTSS needs. CPs are community-based entities that worked with ACO- and MCO-enrolled members to provide coordination and management services. BH CPs also provided care coordination supports to enrollees receiving services through the DMH Adult Community Clinical Services (ACCS) program and to those transitioning out of the ACCS Program to Post-Adult Community Clinical Services status (PACC). MassHealth initially required ACOs and MCOs to partner with all CPs that operated in their service areas.

MassHealth contracted with 27 CPs, including 18 BH CPs and 9 LTSS CPs, to provide CP supports. For members enrolled in a BH CP, the CP was responsible for leading the member's care coordination, serving as the primary point of contact for the member and the primary convener of the care team. Member engagement required completing a comprehensive assessment and person-centered care plan, signature or approval of the care plan by the member, and signature or approval of the care plan by the member's PCP or their designee. MassHealth also required the submission of a specific qualifying activity to document that the engagement process was completed.

BH CPs were expected to:

- Conduct outreach and engagement
- Perform a comprehensive assessment and engage in person-centered planning
- Develop a person-centered treatment plan
- Coordinate and manage care
- Support care transitions
- Perform medication reconciliation
- Engage in health and wellness coaching
- Facilitate connections to community-based services and social supports

For members in an LTSS CP, the CP was a resource that worked with the ACO’s or MCO's care team and helped the member navigate the LTSS delivery system. For LTSS CPs, member engagement required completion of an LTSS care plan, signature or approval of the care plan by the member, signature or approval of the care plan by the member's PCP or their designee, and submission of a specific qualifying activity to MassHealth to document that the engagement process was completed.

LTSS CPs were expected to:

- Conduct outreach
- Engage in care planning
- Engage in care coordination
- Support care transitions
- Engage in health and wellness coachin

- Facilitate connections to community-based services and social supports

To facilitate these activities, CPs were also expected to form collaborative relationships with state agencies (e.g., DMH, the Department of Developmental Services (DDS), the Department of Children and Families (DCF), and the Massachusetts Rehabilitation Commission (MRC)) and other providers.

Assignment of members to the CP Program was initially performed by MassHealth using algorithms based on diagnoses and healthcare utilization identified in administrative claims data. Starting in 2020, ACOs, MCOs, and their providers independently identified eligible members and assigned them to CPs. MassHealth also provided a quarterly "Identified Member" list to ACOs and MCOs, generated based on internal algorithms, to assist ACOs and MCOs in identifying members for referral to CPs. The CP Program had limited enrollment capacity and was not an entitlement program. As of December 31, 2022, 28,753 members enrolled in an ACO or MCO were enrolled with a BH CP and 8,575 with an LTSS CP.

CP Funding

CP supports for ACO/MCO members were funded through time-limited DSRIP funds. **Figure 2.1-2** provides a summary of CP DSRIP expenditures in 2017-2019 and 2021. The expenditure percent for care coordination increased for LTSS and BH CPs; the expenditure percent for infrastructure decreased for LTSS and BH CPs. The increase in care coordination expenditures may be attributed to a rate increase implemented in January 2020. The PMPM rate for members enrolled in BH CPs and LTSS CPs increased from $180 to $250 and from $80 to $150, respectively. CP DSRIP funding included three sub-streams (described in further detail in **Section 4.3** of the DSRIP Protocol):[21]

> **Sub-stream 1: Care Coordination Supports Funding**, paid on a PMPM basis for one qualifying activity per month as long as the qualifying activity was successfully processed in Medicaid Management Information System (MMIS) and milestones were met. For the first 90 days after a member was assigned to a CP, the CP was paid for the time up to the documented outreach qualifying activities. After those 90 days, a CP had to perform a qualifying activity (other than outreach) to continue to receive care coordination payments. However, the post 90-day requirements changed over the course of the Demonstration. For example, for individuals assigned to a CP between July and October 2018, CPs were paid for qualifying activities other than outreach during the first 11 months of a member's assignment as long as the member signed a participation form by the fourth month. After the first 11 months of assignment, the Commonwealth would not pay a BH CP for qualifying activities performed for a member unless that member was engaged and had a signed care plan. For members assigned to a CP beginning in November of 2018, the CP could be paid for qualifying activities other than outreach during the first 150 days of a member's assignment. After the first 150 days of assignment, the Commonwealth would not pay the BH CP for qualifying activities unless the member was engaged and had a signed care plan.

[21] MassHealth. (n.d.). *Attachment M Massachusetts Delivery System Reform Incentive Payment (DSRIP) Protocol.* Mass.gov. Retrieved June 6, 2024, from download (mass.gov).

Sub-stream 2: Infrastructure and Capacity Building Funding CPs. received funds to make infrastructure investments to advance their capabilities to support their member populations and to form partnerships with MCOs and ACOs. Funding was disbursed across four categories:

Technology – e.g., HIT and care management software, information technology (IT) project management resources, data analytics capabilities, mobile technology including tablets, laptops, and smartphones for CP staff, service delivery technology such as remote monitoring or electronic medication dispensers, and reporting software;

Workforce Development – e.g., recruitment support, training and coaching programs and certifications; and

Business Startup Costs – e.g., staffing and startup costs to develop full caseloads.

Operational Infrastructure – e.g., project management, system change resources and performance management capabilities, and additional operational support.

The State designated a portion of the CP's Infrastructure and Capacity Building Funding as at-risk. The CP received a percentage of their withheld funds based on their Accountability Score (e.g., if a CP scores 0.6, it will receive 60% of the at-risk funds). The amount of CP funds that were at-risk increased over the course of the program, beginning in budget period 1 with 0% at-risk, and increasing by 5% in each budget period thereafter.

Sub-stream 3: Outcomes-Based Payments, CPs had the opportunity to earn additional payments in Budget Periods 3 through 5 by reaching high levels of achievement on avoidable utilization metrics.

As part of the DSRIP program, MassHealth also provided infrastructure and capacity-building funds for 19 CSAs currently supporting children with serious emotional disturbance.[22]

CP Structure

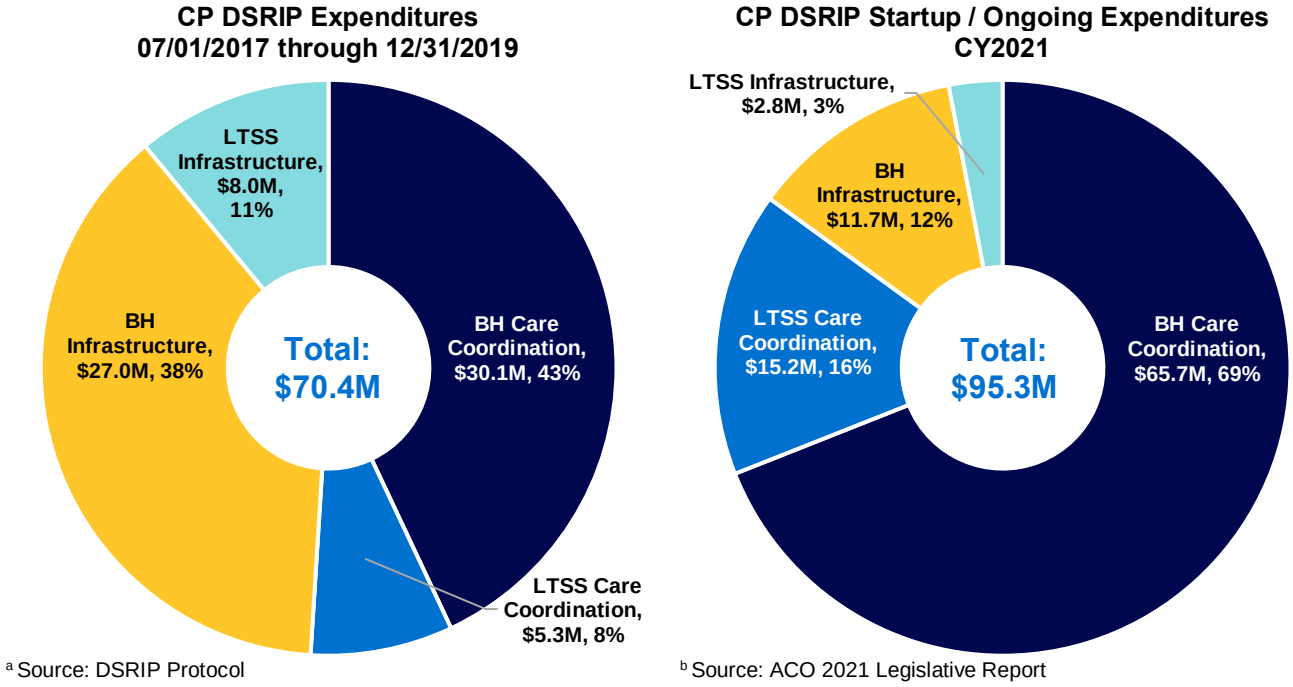
CPs had the ability to contract with MassHealth as stand-alone organizations, organizations comprised of one or more consortium entities, or organizations with affiliated partners. Of the 27 procured CPs, eight were individual community-based organizations (CBOs), five comprised consortium entities, 12 had affiliated partners, and two included consortium entities with affiliated partners.

At the start of the Demonstration, ACOs and MCOs were required to contract with all BH CPs serving their shared service areas and at least two LTSS CPs serving their shared service areas. Through these contracts, CPs and ACOs/MCOs jointly developed documented processes that established strong working relationships between the entities to coordinate care for members. Requirements for CPs to partner with all ACOs and MCOs in their service area were modified in 2020, allowing the formation of "preferred relationships." From 2020 to 2022, ACOs and MCOs were given the opportunity to request permission from MassHealth to end CP

[22] Specifically, CSAs provide Intensive Care Coordination and Family Support and Training, part of a number of services and supports available under the Children's Behavioral Health Initiative (CBHI).

relationships in order to focus on working with fewer CPs in their service areas. The most often cited reason for ending the relationship was low CP enrollment volume.

Figure 2.1-D1.2 CP DSRIP Expenditure 07/01/2017 through 12/31/19[a] and CY2021[b]



[a] Source: DSRIP Protocol

[b] Source: ACO 2021 Legislative Report

2.1.4. Flexible Services Program

The FS Program allowed ACOs to pilot innovative approaches to address their members' HRSNs. The goal of the FS Program was to improve health outcomes and reduce the total cost of care by providing nutrition and tenancy sustaining supports. The FS Program provided two domains of services:

- Nutrition Sustaining Supports
- Tenancy Preservation Supports

Services in the nutrition domain included the provision of food, including medically tailored meals, produce prescriptions, grocery boxes, and food vouchers, plus transportation to nutrition flexible services, and nutrition education. Supports in the tenancy domain consisted of pre-tenancy supports, tenancy sustaining supports, and home modifications. Pre-tenancy supports included both individual supports (e.g., assistance with obtaining housing) and transitional supports (e.g., payment for one-time costs such as security deposits, first month's rent, moving expenses, and some furnishings); they did not include ongoing payments for rent or utilities. Tenancy sustaining supports included tenancy coaching, support, and education for the member, transportation to tenancy services, and assistance in maintaining housing. Home modifications included limited physical improvements to members' housing that protected their health, safety, and independence or enabled them to function independently in a community-based setting (e.g., installing a ramp to accommodate a wheelchair, High Efficiency Particulate

Air (HEPA) filters, pest management supplies and services, and in-home environmental risk assessments).

Each ACO developed specific FS programs and chose populations eligible to receive FS and which supports were available to which members, per the criteria below. As with other DSRIP programs, MassHealth reviewed and approved the ACO FS section of their participation plans, budgets, and budget narratives for programs before the ACO launched them. FS supports were generally delivered by Social Service Organizations (SSOs), which were typically community-based organizations (CBOs). In rare cases where no CBO could offer the needed services (for example, due to geography or SSO capacity), the ACOs were approved to deliver the FS supports themselves. Additionally, some organizations that were CPs or part of a CP also operated as SSOs.

The FS Program was intended to supplement but not duplicate existing state and federal social service entitlements and discretionary programs. The FS Program was not an entitlement program; there was limited funding which led to limited capacity for enrollment.

To be eligible to receive FS supports, MassHealth members needed to meet each of the following criteria at a minimum:

1. Be an ACO member.
2. Have at least one health-needs-based criteria (HNBC) (i.e., BH need, complex physical need, need for assistance with activities of daily living or need for assistance with instrumental activities of daily living, high ED or in-patient use, or high-risk pregnancy, including 12 months post-partum).
3. Have at least one risk factor (experiencing homelessness, at risk of homelessness, at risk for a nutritional deficiency or nutritional imbalance due to food insecurity).

Furthermore, due to limited funding availability, ACOs narrowed their FS population based on the specific needs identified within their ACO. Though a member could be eligible based on the program requirements above, they may not have been eligible based on the specific program or program requirements set by their specific ACO (e.g., services limited by geographic region, specific HNBC, or limited to enrollment in care management services).

ACOs were allocated a set dollar amount based on their ACO enrollment that could be used for direct costs to deliver those social supports or for administrative costs related to FS at the ACO or the SSO. ACOs could also use DSRIP startup funds to build infrastructure related to FS. Through DSRIP, SSO preparation funds, technical assistance (TA), and capacity-building resources were also available to SSOs to prepare their organizations for FS support delivery.[23] FS funds could also be utilized for SSO administrative costs.

In response to the COVID-19 pandemic, MassHealth made several changes to the FS Program, such as removing in-person HRSNs screening requirements for members receiving services to lessen the risk of viral transmission. Additionally, MassHealth established an expedited approval process for specific FS programs with more flexibility to quickly support the ACO rollout of FS for

[23] CPs were not eligible for the SSO Preparation Fund given the additional infrastructure funding they received in other DSRIP Streams.

eligible members. These specific FS programs were intended to address needs related to the COVID-19 pandemic, were time-limited, and could only be implemented through December 31, 2020.

As of December 2022, 17 ACOs had partnered with 51 SSOs to offer 93 approved FS programs.

2.1.5. Statewide Investments

A portion of DSRIP funding was allocated for the SWIs, a series of 18 programs designed to enhance and improve workforce initiatives, increase capacity building, and address statewide gaps in care delivery. Detailed information regarding specific SWI programs can be found in **Section 2.2.**

There were three categories of SWI programs:

Category 1 of the SWIs, Building and Training the PC and Behavioral Workforce, initially included 11 programs:

- The **Student Loan Repayment Program** provided student loan repayment for primary care and behavioral health providers in exchange for a 4-year commitment to work in a community setting, and offered Learning Days to support skill growth and to help address provider burnout.
- The **Community Partner Recruitment Incentive Program** provided student loan repayment support to care coordinators, registered nurses (RNs), and licensed practical nurses (LPNs) working in CPs in exchange for an 18-month (for care coordinators) and a 4-year (for RNs and LPNs) commitment to the CP organization.
- The **PC / BH Special Projects Program** provided grant funding for providers to work on projects related to ACO implementation and/or primary care/BH integration.
- The **Family Medicine and NP Residency Training Program** provided funding to increase the number of CHC-based family medicine resident and family NP resident training slots available in Massachusetts.
- The **Community Mental Health Center BH Recruitment Fund** made recruitment packages available for psychiatrists and NPs with prescribing privileges.
- The **Community Health Worker Training Capacity Grants** expanded access to training for community health workers including advanced training on telemedicine, mental health, and substance use disorder (SUD).
- The **Peer Specialist Training Capacity Expansion Grant** expanded access to peer specialist training for individuals with lived experience of a variety of behavioral health conditions.
- The **Community Health Worker Supervisors Training Program Grant** expanded capacity and access to training for supervisors of community health workers.
- The **Recovery Coach Supervisor Training Incentive Fund** had a goal to increase the number of certified recovery coach supervisors in ACOs and CPs. This program was never

implemented.

- **Competency-based Training for ACOs and CPs** created capacity-building training for the frontline care workforce with less than an associate's degree**,** which enabled workers to earn a Healthcare Management Fundamentals Certificate from Southern New Hampshire University.
- The **BH Partnership Expansion Grant** had a goal to train and increase the skills of the community-based mental health and BH workforce.

Category 2 of the SWIs, Capacity Building for ACOs, CPs, and Providers, included 5 programs:

- **Targeted TA for ACOs and CPs** provided funding to each ACO and CP to access technical support.
- **Learning Collaboratives** established scheduled opportunities for ACOs and CPs to exchange best practices, share information, and learn from each other's experiences.
- The **CHC Readiness Program** supported CHCs through learning collaboratives and TA funding.
- **Standardized Trainings for CPs and CSAs** provided online training modules to CPs and CSAs on various topics.
- The **Alternative Payment Methods (APMs) Preparation Fund** provided funds to organizations transitioning from older fee-for-service models toward alternative payment structures.

Category 3 of the SWIs, Initiatives to Address Statewide Gaps in Coverage, included 2 programs:

- **Enhanced Diversionary BH Activities** had two components; one supported a data-sharing platform within hospital EDs and the other supported the Community Behavioral Health Center (CBHC) Preparation Fund. These activities provided support to ensure members with behavioral health needs received care in the most appropriate, least restrictive settings.
- **Improved Accessibility for People with Disabilities or for whom English is not their Primary Language** offered grants to MassHealth fee-for-service providers to improve healthcare access for people with disabilities or for whom English is not their primary language and included two parts – an Accessibility Grant Program and a Provider Directory.

2.2. Evaluation of the DSRIP Program Approach and Evaluation Domains

The evaluation design summarized in this section is specific to the evaluation of the DSRIP program and the 2017-2022 Demonstration Goals 1 and 2.

- **Goal 1:** Enact payment and delivery system reforms that promote integrated, coordinated care and hold providers accountable for the quality and total cost of care.
- **Goal 2:** Improve integration of physical, behavioral, and long-term services.

The previously completed and CMS-approved Independent Evaluation Interim Report examined the early implementation of the DSRIP program from July 1, 2017, through December 31, 2020, including analyses of Medicaid administrative data available for the period of July 1, 2017, through December 31, 2019. This Independent Evaluation Summative Report (IESR) (covering the full 2017-2022 Demonstration period July 1, 2017, through September 30, 2022, and the entire DSRIP period July 1, 2017 through March 31, 2023) evaluates the extent to which the investments made through the DSRIP program contributed to achieving Demonstration Goals 1 and 2, as described in the Special Terms and Conditions (STCs).

As described in the Evaluation Design Document (EDD) approved by CMS, the goals of the evaluation of the DSRIP program are to:

1. Measure progress towards improving care integration, meeting members' needs, and moderating cost trends while maintaining or improving care quality.
2. Ascertain stakeholders' (i.e., members, providers, representatives from participating organizations, and MassHealth employees) perspectives regarding DSRIP implementation, successes, and challenges.[24]

The evaluation team identified six evaluation domains in collaboration with MassHealth that align with the DSRIP implementation logic model (see **Figure 2.1-D1.1**) and meet the broad goals of the evaluation of the DSRIP program.

- **DOMAIN 1**: State, organizational, and provider-level actions promoting delivery system transformation
- **DOMAIN 2**: Changes in care processes
- **DOMAIN 3**: Changes in member outcomes
- **DOMAIN 4**: Changes in healthcare cost trends
- **DOMAIN 5**: Sustainability of innovative delivery system changes, including ACOs, CPs, and FS
- **DOMAIN 6**: Effects of specific DSRIP investments and actions

Key programmatic elements of the DSRIP program were evaluated at the member, provider, system, and state levels using qualitative and quantitative data relevant to each of the six evaluation domains.

As described in detail in the EDD, mixed qualitative and quantitative methods were used to evaluate the extent to which state-, organizational-, and provider-level actions promoted delivery system transformation and improved outcomes across the six domains.[25]

A complete list of research questions and hypotheses corresponding to each of the six domains listed above is presented in Appendix D of the EDD.[26] Hypotheses include those suggested by

[24] MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017-2022*. Mass.gov. Independent Evaluation Design Document
[25] MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017-2022*. Mass.gov. Independent Evaluation Design Document
[26] Ibid.

the STCs, supplemented by a number of additional hypotheses developed to evaluate other important aspects of the Demonstration.

Table 2.2-D1.1 summarizes the analytic approach by Domain. Methods specific to each of the Domains follow. **Table 2.2-D1.1** illustrates the implementation timeline of DSRIP programs in relation to crucial evaluation activities and milestones. It is important to note that many of the critical primary data collection activities—including key informant interviews (KIIs), provider and staff surveys, and member experience surveys—took place during the COVID-19 pandemic and were impacted by it to varying degrees.

Table 2.2-D1.1 Summary of Analytic Approach by DSRIP Domain

Domain	IESR Analyses
1: State, organizational, and provider-level actions promoting delivery system transformation	• Qualitative analysis of existing documents • Qualitative analysis of data collected through key informant interviews • Qualitative analysis of case study data • Surveys of ACO providers and CP staff
2: Changes in Care Processes 3: Changes in member outcomes 4: Changes in healthcare cost trends	• Descriptive analyses (to understand what happened during the Demonstration and for whom) • Predictive modeling (to understand how what happened during the Demonstration compared to what would have been expected based on conditions in the baseline and pre-COVID-19 pandemic period) • Propensity score-balanced difference-in-difference comparisons (to estimate the difference between what happened during the Demonstration and what would have been expected in the absence of the Demonstration, while accounting for background trends) • Member surveys
5. Sustainability of innovative delivery system changes	• Key Informant Interviews (KIIs) • Case studies with site visits • Cost-effectiveness and return on investment analyses
6. Effects of specific DSRIP effects and actions	• Propensity score-balanced comparisons between: • Demonstration populations exposed and unexposed to key DSRIP programs and; • Health system characteristics (to understand associations between specific elements of delivery system reform [e.g., FS] and member outcomes)

2.2.1. Domain 1 Evaluation Approach

Domain 1, RQ1: To what extent did the state take actions to support delivery system transformation?

Domain 1, RQ2: To what extent did ACOs take organizational-level actions to transform care delivery under an accountable and integrated care model?

Domain 1, RQ3: How and to what extent did CPs target resources and take actions to operate under an accountable and integrated care model?

Domain 1, RQ4: How and to what extent did ACOs, MCOs, and CPs align resources and take common actions to operate under an accountable and integrated care model?

In this IESR, Domain 1 findings build on the early impacts of the DSRIP program on participating entities' activities, facilitators, and barriers described in the Independent Evaluation Interim Report to characterize changes over time during the entirety of the 2017–2022 Demonstration and plans for post-Demonstration sustainability. The evaluation team identified successes and challenges across all aspects of the DSRIP program, including funding, leadership, relationship building, communication, data availability and usage, organizational capacity, workforce development, and member engagement.

We relied on multiple varied data sources and methods, including document review, KIIs with diverse stakeholders, and surveys to explore these research questions and their associated hypotheses in depth. The evaluation team collected data from diverse stakeholder participants to gather a wide range of viewpoints about the DSRIP implementation. Data were rigorously analyzed to identify themes relevant to the evaluation goals and the facilitators and barriers to implementation. The first wave of data was collected between March 2019 and December 2020, while the second wave of data was collected between October 2021 and December 2022. **Table 2.2-D1.2** provides an overview of the study participants, methods, topics of interest, and timing of each data collection activity.

Table 2.2-D1.2 Data Collection: Participants, Methods, Focus, Timing and Sample

Target Participants	Methods	Topics	Wave 1 Timing and Sample	Wave 2 Timing & Sample
ACO, MCO, and CP key informants 17 ACOs; 2 MCOs; 27 CPs	Individual or group interviews lasting 60-90 minutes; Wave 1: In-person, telephonic, videoconference Wave 2: videoconference	ACO, CP, and MCO unique and common implementation actions, facilitators, and barriers; Member needs, access, and engagement; care coordination; cost management; sustainability	Mar–Jun 2019 (ACOs and CPs) Sep–Oct 2020 (MCOs) 98 interviews with 108 key informants	Oct 2021–Jan 2022 (ACOs/CPs) Mar–Apr 2022 (MCOs) 48 interviews with 264 key informants
ACO, CP, and SSO in-depth case study key informants 4 ACOs (both Waves), 4 CPs (both Waves), and 4 SSOs (Wave 2 only)	Interview or group interviews lasting 60-90 minutes; videoconference	In-depth understanding of implementation process and progress to promote integrated and accountable care and unique, innovative actions implemented under DSRIP; sustainability	Sep–Dec 2020 35 interviews with 139 key informants	Sep–Dec 2022 43 interviews with 120 key informants
MassHealth member interviews	Individual interviews lasting 30-60 minutes Wave 1: Individual interviews lasting 30-60 minutes; telephonic Wave 2: Individual interviews lasting 60 minutes; telephonic	Health status, knowledge, and utilization of DSRIP programs (e.g., CPs, FS); experiences with care coordination, telemedicine, and the impact of COVID-19 pandemic on care access	Mar–Jun 2020 30 interviews with 25 adults and 5 parents of pediatric members	Jul–Oct 2022 57 interviews with 44 adults and 13 parents of pediatric members
MassHealth staff key informant interviews	Individual or group interviews lasting 30-60 minutes; videoconference	State operations and implementation of DSRIP programs, state-wide investments in capacity-building; actions taken to support DSRIP programs;	Jun–Sep 2020 8 interviews with 19 staff	May–Jun 2022 9 interviews with 25 staff

Target Participants	Methods	Topics	Wave 1 Timing and Sample	Wave 2 Timing & Sample
		ongoing barriers, facilitators; solutions and innovations		
ACO practice site administrator survey	Online survey of group practice or health center site administrators	ACO implementation; organizational characteristics; early implementation changes	Jul–Sep 2019	Jul–Sep 2021
ACO primary care provider survey	Online survey of PCPs, nurses, and social workers	Provider experience delivering care within newly formed Medicaid ACOs	Mar–Dec 2020	Jun–Oct 2022
CP staff survey	Online survey of staff delivering care coordination supports to MassHealth members	Staff experience delivering care within newly formed CPs	Aug–Nov 2020	Jun–Nov 2022

KII Methods

Participants and Entities

The selection and recruitment of interview participants in selected entities is described below. Background and demographic characteristics of all interview participants are provided in **Table 2.2-D1.3.**

Table 2.2-D1.3 Key Informants in Wave 1 and Wave 2 Interviews: Background and Demographics

	Wave 1 ACO (n=53)	Wave 2 ACO (n=91)	Wave 1 CP (n=46)	Wave 2 CP (n=91)	Wave 1 MCO (n=4)	Wave 2 MCO (n=12)	Wave 1 MH Staff (n=18)	Wave 2 MH Staff (n=25)
Role								
Executive Leadership	17	11	14	21	1	1	4	7
Mid-Level Leadership	13	24	9	13	2	4	6	8
Program Mgmt.	23	53	22	51	1	7	7	10
Other (e.g., Coordinator)	0	3	1	6	0	0	0	0
Years in Current Role								

	Wave 1 ACO (n=53)	Wave 2 ACO (n=91)	Wave 1 CP (n=46)	Wave 2 CP (n=91)	Wave 1 MCO (n=4)	Wave 2 MCO (n=12)	Wave 1 MH Staff (n=18)	Wave 2 MH Staff (n=25)
<1 year	1	17	0	8	0	7	2	6
1-5 years	24	61	17	72	3	4	14	16
6-10 years	5	9	0	6	1	0	2	3
> 10 years	8	4	3	5	0	1	0	0
Race								
Caucasian/White	N/A	77	N/A	74	4	10	N/A	14
African American/Black	N/A	3	N/A	4	0	0	N/A	1
Asian/Pacific Islander	N/A	6	N/A	4	0	0	N/A	9
Other	N/A	3	N/A	2	0	2	0	0
Ethnicity								
Hispanic	N/A	4	N/A	6	0	1	N/A	0
Non-Hispanic	N/A	83	N/A	81	4	10	N/A	24
Years of Experience								
<1 year	0	6	0	5	0	4	0	6
1-5 years	5	44	2	48	0	4	8	16
6-10 years	4	24	3	15	0	2	2	3
> 10 years	28	17	32	17	4	2	8	0

Note: Wave 1: 108 interviewees (ACO, MCO, & CP), 18 MH Staff

Wave 2: 264 interviewees (ACO, MCO & CP), 25 MH Staff

In some cases, Wave 1 and Wave 2 interviewees may be the same (e.g., participated in both rounds of interviews). Therefore, not all numbers in the table represent unique interviewees.

Numbers reported in the table represent interviewees who provided demographic information; numbers do not represent the total sample of interviewees.

Totals do not always reach 100% due to sporadic missing data.

ACO, MCO, and CP KIIs – Waves 1 and 2

For the KIIs, the evaluation team interviewed representatives from each entity, including executive-level leadership, mid- to senior-level administrators, and program managers at each of the 17 ACOs, 2 MCOs, and 27 CPs in each wave of data collection. Entities identified staff who could respond to questions corresponding to several topic areas about the organization and implementation process. Interview protocols were provided in advance to facilitate the identification of participants. While many of the key informants were interviewed in both Waves 1 and 2, some new informants participated in Wave 2, given staff turnover and organizational growth and change.

ACO and CP Case Study Interview Participants – Waves 1 and 2

In both Waves 1 and 2, in-depth case study interviews were conducted with a cross-section of leadership and staff at four ACOs and four CPs, selected to represent diverse organizational types and structures as well as geographic variation. Each site identified staff members, including frontline care coordinators or nurse managers, program managers, and mid- or senior-level administrators (e.g., medical directors, clinical and operational leads, heads of HIT/Health Information Exchange (HIE), quality improvement, and human resources (HR). These staff were able to respond to questions corresponding to the topic areas included in the case study interview protocols, which were provided to participants in advance. The goal of the case study interviews was to obtain a more detailed understanding of the factors affecting implementation and, ultimately, providing the foundation for improved outcomes over the course of the 2017-2022 Demonstration.

ACO Case Study Entities – Waves 1 and 2

In Wave 1, ACOs were selected for in-depth case study interviews to represent a range of progress on implementation as well as a variety of organizational characteristics. Selection criteria included organizational type (e.g., ACPP, PCACO, MCO-ACO), prior risk-sharing experience, for-profit status, size, geography, and focus on special populations.

For site selection in the second wave, quality and financial performance were prioritized as primary criteria, supplemented by a range of other available data points. Organizations were selected based on preliminary analyses of these data and were classified according to several key characteristics, including: (1) quality and financial performance; (2) organizational type (e.g., physician-anchored, hospital-anchored; (3) ACO type; (4) prior risk sharing experience; (5) for-profit status; (6) size across payers and share of MassHealth enrollment; (7) geography; (8) focus on special populations; and (9) FS Program utilization.

As with the first wave, the selected ACOs for case studies in Wave 2 also represented a range of progress on implementation. We purposely re-selected two ACOs from the first wave to explore changes over time within those organizations. Two additional ACOs were selected to reflect perspectives and patterns that were not necessarily captured in the first wave of data collection.

CP Case Study Entities – Waves 1 and 2

The goal of the first wave of CP case studies was to interview a sub-sample of entities as they implemented organizational change (i.e., implemented DSRIP-funded investments and adopted core CP competencies), to examine differences between BH and LTSS care coordination efforts, relationships within the community, member engagement, and workforce development. Therefore, criteria used to select CPs included BH, LTSS, and BH/LTSS types, geography, workforce development and innovations, and partnerships with ACOs.

For site selection in the second wave, quality performance was prioritized as a primary criterion, supplemented by a range of other available data points. Organizations were selected based on preliminary analyses of these data and were classified according to several key characteristics, similar to those used in the first wave, including: (1) overall quality performance; (2) CP type (i.e., BH, LTSS, or both); (3) distinct care coordination process; (4) workforce development and innovations specific to DSRIP; (5) geography; (5) focus on special populations; and (6) partnerships with ACOs. CPs selected for Wave 2 case study interviews represented a variety of organizational characteristics and stages of progress in implementation.

Social Service Organization (SSO) Case Study Interview Participants and Entities – Wave 2 only

The goal of the SSO interviews was to develop an in-depth understanding of the SSO programming from a sub-sample of SSO entities as they implemented organizational change (i.e., implement DSRIP-funded investments). SSOs determined which staff would serve as key informants by reviewing items of interest in interview protocols, which were sent to the entities ahead of time. The majority of staff who participated in SSO case study interviews were mid-level administrators and program managers, with direct service staff participating as well. Four SSOs were selected to represent diverse organizational characteristics and different stages of progress in the implementation of the FS Program from among the SSOs that did not receive infrastructure funding through the DSRIP program's SSO Flexible Services Preparation Fund, which helped SSOs make the investments they needed to develop and thrive within ACO partnerships.[27] MassHealth contracted with a separate organization to collect data from the SSO Prep Fund enrollees. One SSO entity that participated in case study interviews in Wave 2 also participated in the CP case study interviews in Wave 2 to provide the perspective of such organizations, which may be distinct from those participating only as either a CP or SSO. Selection criteria for the SSO case studies included the level of SSO performance as defined by the number of members engaged, services offered, and the number of partners contracted to explore their relationships with the MassHealth community, as well as geographical diversity.

MassHealth Members – Waves 1 and 2

The evaluation team interviewed thirty MassHealth members enrolled with ACOs in Wave 1 of data collection, five of whom were parents of pediatric members. Fifty-seven members were interviewed in Wave 2, 13 of whom were parents of pediatric members. Members across both waves of interviews included those who used CP supports, those who represented the diverse

[27] Kaye, Neva. (2021, March 12). Massachusetts Fosters Partnerships Between Medicaid Accountable Care and Community Organizations to Improve Health Outcomes. National Academy for State Health Policy. Massachusetts Fosters Partnerships Between Medicaid Accountable Care and Community Organizations to Improve Health Outcomes - NASHP

populations served by MassHealth, and those representing subgroups that DSRIP programs are intended to support (e.g., those with BH needs, LTSS needs, and HRSNs). To identify appropriate members, the evaluation team engaged and coordinated with EOHHS, member advocates, and healthcare providers to reach out to MassHealth members in both Waves 1 and 2. Nomination forms that included contact information and demographic characteristics were completed by members themselves or by ACO/CP staff on behalf of members and were submitted to and reviewed by the evaluation team.

MassHealth Key Informants – Waves 1 and 2

For this data collection effort, the evaluators interviewed staff within MassHealth with leadership roles, and responsibilities for overseeing aspects of the DSRIP program. Interviews were scheduled in blocks for particular topic areas (e.g., CP Program, FS Program, SWIs), and staff were assigned to interviews addressing particular topic areas.

Interview Guides

Semi-structured interview guides were developed for each data collection activity for each wave of interviews. The development and refinement of interview guides was informed by the evaluation design and logic model, review of ACO and CP program deliverables, the expertise of researchers on the evaluation team, and MassHealth subject matter experts. In each wave of interviews and for all interview types, the evaluation team conducted a review of documents that were either publicly available or that MassHealth provided to prepare for data collection. These documents included documents such as the Participation Plans, Progress Reports, and Program Evaluations, which were submitted by ACOs and CPs to MassHealth. Researchers extracted and summarized data from the documents to prepare interview protocols, prepare for interviews, and conduct the evaluation. Data prepared for the Midpoint Assessment by the IA, which assessed individual ACO and CP progress, were an additional resource. The evaluation team worked with Collective Insight, LLC, to convene and manage a Member Experience Stakeholder Workgroup during Wave 1 to gather and include their insights and feedback into the interview guide development process. MassHealth staff reviewed and provided feedback on the guides before interview administration in Wave 1 and Wave 2.

Interview Scheduling

In Wave 1, the researchers piloted the ACO and CP KII outreach, scheduling, and interview processes with one ACO and one CP in preparation for subsequent interviews. Researchers solicited feedback on the outreach and interview process, and based on that, made changes to documents and processes for subsequent interviews. The process of revising outreach and scheduling plans based on feedback from entities continued during Wave 2.

ACO, MCO, CP KIIs, ACO/CP Case Study Interviews, and SSO Case Study Interviews

In Waves 1 and 2, staff from the evaluation team were designated as site liaisons responsible for reaching out to and managing interview logistics for specific sites. The liaisons worked with a contact person at each site to identify appropriate respondents and schedule interviews. Interviews were scheduled in blocks with specific content and topic areas addressed over the course of one long interview with multiple blocks or multiple interviews with each entity. Interviews were scheduled with one or more person(s) at a time when requested by the

ACO/MCO/CP to address specific topics. KII in Wave 1 were performed both onsite and via teleconference. For interviews conducted onsite in Wave 1, all interviews with a specific ACO and CP were scheduled for the same day when possible. All interviews in Wave 2 were performed via videoconference.

In both Wave 1 and Wave 2, ACO, CP, and SSO case study interviews were scheduled with the assistance of a contact person at each site at the convenience of site participants. All case study interviews across both waves were conducted in groups via videoconference. For all interviews conducted, the EDD weblink, the interview protocol, and a fact sheet about the interview process were provided to each interviewee in an email confirming the schedule and format of the interview. Reminder emails were sent for all interviews approximately one to two days before the scheduled interview.

MassHealth Member Interviews

In Wave 1, evaluation team members were designated as liaisons responsible for reaching out to and managing the logistics of interviews with the members. As these interviews were conducted during the COVID-19 pandemic, all interviews were conducted by telephone. In Wave 2, Collective Insights, LLC, managed the outreach, scheduling, and conduct of all interviews. Wave 2 interviews with members were also conducted via telephone.

For Waves 1 and 2, member interviews were conducted at the time of the initial outreach telephone call or at a future date as requested by the member. For interviews that were scheduled for a future date, reminder phone calls were made approximately one day before the scheduled interview date. Reminder emails were also sent if an email address was available. The team verbally reviewed a fact sheet about the project with the member prior to the interview and sent it to the interviewee via email when an email address was available. Participants were asked to identify their accommodation needs prior to their interview to allow for these needs to be met during the interview. Three interviews were conducted in Spanish language in Wave 1 using an interpreter, and nine interviews were conducted in Spanish in Wave 2. Spanish interviews with interpreters allowed the interpreter to relay questions and answers between the interviewer and the respondent. Interviewees received their choice of a $50 Amazon, Target, or Walmart gift card via email or postal mail after completing their interview.

MassHealth KIIs

In each wave of data collection, a member of the evaluation team worked with a liaison at MassHealth to schedule the interviews. The number of interview participants in each session varied, depending on the interview topic and scheduling convenience. Reminder emails were sent approximately one to two days before the scheduled interview.

Interview Administration

Pairs of experienced researchers from the evaluation team participated in each interview: a lead interviewer and a notetaker. The notetaker also ensured all questions were asked and managed the audio recorder. After each interview, researchers typed field notes into Microsoft Word for documentation in a standardized template and saved them to a secure drive on the evaluation team’s computers. Field notes captured researchers' observations about participant non-verbal

communication, the interview environment, and other pertinent information that could contribute to the interview and analysis process.

All interviews were audio-recorded to enable researchers to ensure transcripts accurately reflected the discussion. The interviewers obtained verbal consent to be interviewed and have the interviews recorded from each participant at the start of each interview. Audio files were saved to a secure drive on the evaluation team's computers and sent to an external vendor for transcription via secure file transfer. The external vendor was instructed to redact participant names, locations, and identifying information of entities from all interview transcripts. Transcripts were quality-checked sporadically by the evaluation team. All contact information, contact attempts, and interview logistics were tracked in Microsoft Excel for all interview types. In Wave 1, demographic information regarding participants was entered into the Excel file after the interviews. In Wave 2, an online survey platform was used to create a demographic survey, and a link to the demographic survey was sent to all interview participants post-interview. For member interviews in both waves, demographic information was collected via the nomination form provided by the member.

To prepare the researchers for the first wave of interviews (the ACO/MCO/CP KIIs), a lead investigator conducted training sessions to review the interview process and mock interviews using the prepared guides. After each interviewer's first interview was completed, the lead investigator reviewed the audio recording and completed a quality assurance checklist to ensure that the interviewer followed the planned process, including that all necessary information was communicated to the interview participant and all questions in the guide were asked. Over time, and in Wave 2, as new staff members were added to the evaluation team, a similar orientation and training process was followed, with new staff initially serving as notetakers while experienced interviewers conducted interviews. As staff were trained and became experienced in note-taking, they assumed the primary interviewer role.

Interview Data Analysis

Demographic data for the interview participants were compiled in Microsoft Excel or downloaded from the online survey platform into Microsoft Excel and analyzed descriptively.

Interview transcripts were uploaded into Dedoose software for data management and coding.[28] Using a framework approach to qualitative data analysis, the team developed initial codes based on the evaluation logic model and interview protocol component areas and added themes and sub-themes that emerged during the interview process.[29] Initial transcripts were reviewed by the entire team. Coding was then conducted in multiple rounds, first by pairs of research team members and then individually. Coders met regularly to ensure the team had a shared understanding of code definitions and applied the codes consistently, and to share and resolve coding challenges. The evaluation team also met routinely to discuss coding until agreement on coding definitions and applications was reached and to resolve any issues. The inter-coder

[28] Dedoose Version 9.0.107, cloud application for managing, analyzing, and presenting qualitative and mixed method research data (2023). Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.

[29] Consolidated Framework for Implementation Research. (2022). *Technical Assistance for users of the CFIR framework*. The Consolidated Framework for Implementation Research – Technical Assistance for users of the CFIR framework (cfirguide.org).

agreement was assessed throughout the coding processes; Cohen's kappa coefficients of at least 0.90 were achieved.

Once the coding process was complete, researchers extracted reports of coded text from Dedoose and reviewed the coded themes in pairs to identify emerging patterns among themes and to compare and contrast interpretations. Pairs of team members then developed summary memos regarding the themes in Microsoft Word using a template developed for this process. Finally, the team reviewed and discussed the summary memos to ensure that the themes were accurately conveyed and added additional nuance as needed.

Survey Samples

Practice-site Administrator Survey

The sampling frame for the ACO practice site administrator survey included group practices, community health centers, and hospital-licensed health centers participating in the ACO program at the time the program launched. The following sites were excluded from the survey: solo physician practices, outpatient hospitals, practice sites located outside of Massachusetts, sites with fewer than 50 MassHealth members, and sites with an unknown number of MassHealth members. From within the sampling frame, up to 30 practice sites per ACO were selected (including all sites for those ACOs with less than 30 sites and a random sample of practices for ACOs with more than 30 practice sites), thereby oversampling the ACOs with fewer practice sites. This yielded a sample of 353 unique practice sites to which the practice site administrator survey was sent in Wave 1 and 342 who received the survey in Wave 2 (after removing 11 sites that closed, merged, or were no longer affiliated with an ACO).

ACO Provider and CP Staff Surveys

The ACO frontline provider survey sampling frame included primary care providers practicing at the 353 practice sites identified as the sample for the practice site administrator survey. All providers from those sites were included in the sample, except for those from one ACO with a disproportionately large number of providers, where a sample of providers was included.
The CP staff survey sampling frame included all staff providing or directly supervising staff providing care coordination supports to MassHealth members. Sampling was not performed and all CP staff in the sample frame were included.

Survey Instruments and Procedures

Practice Site Administrator Survey and Administration

After a thorough literature review, the Wave 1 questionnaire used for the survey was drafted collaboratively by the IA evaluation team and a research group administering similar surveys. The survey was shared with stakeholders to gather feedback, field tested with ACO administrators, and further refined before administration. The Wave 2 questionnaire was largely consistent with Wave 1, with the exception of a few questions that were added to address areas of interest not covered by the original instrument and questions that were retired that were deemed of lower priority to keep the instrument length from growing longer and placing a greater burden on respondents. A full list of practice sites and contact information for appropriate respondents was collected from ACO administrators. One administrator was

allowed to respond for multiple sites when necessary. The survey was administered via email with multiple reminders from July 2019 to September 2019 in Wave 1, and then from September 2022 to November 2022 in Wave 2.

ACO Provider and CP Staff Survey Development and Administration

The questionnaire used for the survey incorporated the previously validated measures of perceptions of care integration from the Provider and Staff Perceptions of Integrated Care (PSPIC) survey[30] and new questions developed and pilot-tested by the research team to address specific aspects of DSRIP implementation. Efforts were made to align questions between the practice site administrator survey conducted by the IA and the provider survey so that differences, if any, could be assessed at the administrator versus provider levels. The questionnaire was pilot-tested with a convenience sample of ACO providers and CP staff and revised based on cognitive testing and assessments for clarity, completeness, and respondent burden. As with the practice site administrator survey, modest changes were made to the survey instruments from Wave 1 to Wave 2.

The research team collected provider contact information from practice and ACO administrators for the ACO primary care provider survey. The questionnaire was emailed to eligible providers (i.e., MDs, DOs, NPs, PAs, RNs, LPNs, and LCSWs) practicing at each ACO's selected practice sites. The CP staff contact information was collected from administrators at all 27 CPs, and the questionnaire was emailed to all staff identified as eligible. Reminder emails were sent approximately weekly to non-respondents to encourage participation. The first wave of the ACO survey was administered between September 2020 and December 2020, while the CP survey was administered between August 2020 and November 2020. The second wave of the CP survey was administered between June 2022 and October 2022 (with administration extended into November 2022 for one CP). The sample size and response rates for both surveys (Waves 1 and 2) are presented in **Tables 2.2-D1.4 and 2.2-D1.5** below; characteristics of respondents follow in **Table 2.2-D1.6**.

Table 2.2-D1.4 Wave 1 Sample Sizes and Response Rates for the ACO Provider, CP Staff, and Practice Site Administrator (PSA) Surveys

	ACO Survey		CP Survey		PSA Survey	
	Count	Percent	Count	Percent	Count	Percent
Total Sample size	3,103	100%	716	100%	362	100%
Total Survey Responses	1,174	38%	497	69%	225	62%
Complete	871	28%	460	64%	225	62%
Partial (included)[a]	179	6%	22	3%	0	0%
Partial (excluded)	124	4%	15	2%	0	0%
No response	1,906	61%	174	24%	128	35%
Ineligible: Screened out[b]	23	1%	45	6%	9	2%

[30] Derrett S, Gunter KE, Samaranayaka A, Singer SJ, Nocon RS, Quinn MT, Breheny M, Campbell A, Schaefer CT, Heuer LJ, Chin MH. Development and Testing of the Provider and Staff Perceptions of Integrated Care (PSPIC) Survey. Med Care Res Rev. 2019 Dec;76(6):807-829.

	ACO Survey		CP Survey		PSA Survey	
	Count	Percent	Count	Percent	Count	Percent
Response Rate[c]	-	38%	-	74%	-	64%

[a] Partial cases that completed at least the first nine questions are included for data analysis and reporting

[b] Not eligible based on provider type, position, or responsibilities

[c] Equal to Total Responses / (Total Sample Size – Ineligible)

Table 2.2-D1.5 Wave 2 Sample Sizes and Response Rates for the ACO Provider, CP Staff, and Practice Site Administrator Surveys

	ACO Survey		CP Survey		PSA Survey	
	Count	Percent	Count	Percent	Count	Percent
Total Sample Size	4,205	100%	930	100%	362	100%
Total Survey Responses	1,419	34%	613	66%	150	44%
Complete	1,252	30%	567	61%	150	44%
Partial (included)[a]	167	4%	46	5%	0	0%
No Response	2,542	60%	288	31%	192	56%
Ineligible: Screened Out[b]	244	6%	29	3%	20	6%
Response Rate[c]	-	36%	-	68%	-	44%

[a] For the ACO provider and CP staff surveys, we included partial responses for those who completed at least the first nine questions (i.e., through at least the first question on the PSPIC).

[b] Not eligible based on provider type, position, or responsibilities. For the PSA survey, the 20 ineligibles may have been screened out during either the first and/or second wave of the survey.

[c] Equal to Total Responses / (Total Sample Size – Ineligible)

Table 2.2-D1.6 Wave 1 and Wave 2: Select ACO Provider and CP Staff Survey Respondent Characteristics[a]

	ACO Survey		CP Survey	
	Wave 1	Wave 2	Wave 1	Wave 2
Total respondents, n	1,050	1,355	482	590
Respondent type, %				
Physicians	49%	47%	<1%	<1%
NPs and PAs	20%	20%	<1%	<1%
Nurses	27%	29%	14%	15%
Social workers	4%	5%	7%	5%
Licensed counselors and therapists	-	-	5%	6%
Community health workers and peer support specialists	-	-	33%	32%
Other/unspecified	-	-	40%	39%
Years of professional experience, %				
< 5 years	24%	22%	35%	49%
5-14 years	28%	33%	29%	36%

	ACO Survey		CP Survey	
	Wave 1	Wave 2	Wave 1	Wave 2
≥15 years	48%	45%	36%	15%

[a] The number of respondents answering each question varies.

Analyses of PSA, ACO Provider, and CP Staff Survey Data

ACO provider, CP staff, and PSA survey results were analyzed by wave, by participating entity type (ACO, CP), and by ACO provider and CP staff type. Results were weighted by ACO to reflect the distribution of providers and practices in the population from which samples were drawn, accounting for the stratified sampling process for primary care practices by ACO. To adjust for non-response bias associated with differences between respondents and non-respondents, we used stabilized inverse probability of treatment weights at the individual (for the practice site, ACO provider, and CP staff surveys) and practice levels (for the ACO provider survey).[31,32] A binary variable was created to differentiate respondents from non-respondents. Logistic models estimated the probability of response based on individual-level covariates and practice-level covariates that were available for both respondents and non-respondents and that were imbalanced. To mitigate extreme weights, these weights were stabilized by dividing the mean weight in the sample by each observation's value.[33] Absolute differences between the weighted results for Wave 1 and Wave 2 were calculated, and in our results tables we use color shading to indicate potentially meaningful differences of at least 5%.

2.2.2. Domains 2 and 3 Evaluation Approach

Domain 2, RQ5: To what extent did the identification of member needs, including physical, BH, LTSS, and social needs, improve?

Domain 2, RQ6: To what extent did access to physical care, BH care, and LTSS improve?

Domain 2, RQ7: To what extent did engagement with physical care, BH care, and LTSS improve?

Domain 2, RQ8: To what extent did care processes improve for physical, BH, and LTSS?

Domain 2, RQ9: To what extent did integration between physical health, BH, and LTSS increase?

Domain 2, RQ10: How did the volume and mix of services change during the course of the Demonstration?

Domain 3, RQ11: To what extent did member outcomes improve?

Domain 3, RQ12: To what extent did member experience improve during the Demonstration?

[31] Little, RJA. Survey non-response adjustments for estimates of means. International Statistical Review, 1986. 54(2):139-
[32] Seaman SR, White IR. Review of inverse probability weighting for dealing with missing data. Stat Methods Med Res. 2013 Jun;22(3):278-95.
[33] Hernan MA, Robins JM (2020). Causal Inference: What If. Boca Raton: Chapman & Hall/CRC.

Populations

The primary populations of interest were adult and pediatric ACO enrollees and subpopulations of ACO enrollees that were the targets of Demonstration reforms, including those enrolled in ACO FS programs that address HRSNs, CP enrollees, and those with characteristics (significant BH or LTSS needs) that would make them appropriate for CP enrollment. To be eligible for enrollment with an ACO, MassHealth members had to be managed care eligible (e.g., <65 years of age, no other source of insurance coverage). Managed care eligible members could enroll with either an ACO, MCO, or MassHealth's PCCP. As managed care eligible members are exposed to similar MassHealth policies and secular trends affecting MassHealth members over time but are not all enrolled in ACOs, we selected MCO and PCCP enrollees as the comparison groups for most of our analyses (where feasible). During the baseline period (Calendar Year (CY)2015 - CY2017), although ACOs were not yet launched, managed care eligible members were attributed to either the ACO or MCO/PCCP group based on the member's Primary Care Provider (PCP) and whether the PCP was affiliated with an ACO, MCO, or PCCP when the program launched in 2018. For the CP Program, comparison groups were drawn from MCO/PCCP enrollees who met the criteria for CP enrollment but did not enroll. See **Appendix L** for pre- and post-matching characteristics of CP enrollees and comparison groups. For member survey measures (surveys of adult members and the parents of pediatric members) and hybrid quality measures, data are available only for samples of those enrolled with ACOs or CPs. Characteristics of ACO and MCO/PCCP enrollees over time are presented in **Tables 2.2-D1.7 and 2.2-D1.8**.

Table 2.2-D1.7 Characteristics of ACO Enrollees, CY2018-CY2022

Characteristics	CY2018	CY2019	CY2020	CY2021	CY2022
Population Size, n	655,353	697,783	860,611	1,018,786	1,104,726
Female, %	54%	53%	53%	53%	53%
Age in years, mean (SD)	26.0 (18.3)	25.4 (18.5)	25.3 (18.1)	26.2 (17.6)	26.7 (17.5)
Adults (18-64), %	54%	52%	55%	59%	60%
DxCG[a] RRS, mean (SD)	1.03 (2.22)	1.03 (2.22)	1.07 (2.32)	1.10 (2.36)	1.19 (2.53)
RxCG[b] RRS, mean (SD)	0.85 (2.58)	0.83 (2.59)	0.85 (2.66)	1.08 (2.88)	0.97 (2.82)
Housing Problems, %	10%	12%	13%	12%	11%
Any Disability, %	13%	14%	14%	14%	14%
NSS, mean (SD)	1.04 (1.00)	1.04 (1.01)	1.06 (1.00)	1.06 (1.01)	1.05 (1.00)

Note: Each year includes members who are managed care eligible (MCE) for at least 320 days that year. The ACO program was launched on March 1, 2018. During the first year of the Demonstration, we assigned MassHealth members to an ACO if the sum of the time spent enrolled with an ACO plus the time spent enrolled before March 1 with a PCP who would join an ACO on March 1 was greater than or equal to 320 days. The DxCG relative risk score (RRS) and RxCG RRS are summary measures of medical morbidity with the mean set to 1 in the MassHealth MCE baseline (2015-2017) population. NSS is the Neighborhood Stress Score[34], standardized to have mean = 0 and SD = 1 within the same

[34] Center for Health Care Strategies, Inc. (August, 2020) *Geographic Data Sources for Assessing Health-Related Social Risk Factors*. Chcs.org. https://www.chcs.org/media/RR-Geographic-TA-Tool_081920.pdf

population (e.g., MCEs, ACOs, and MCOs). Housing problems is either unstable housing defined by 3+ addresses within a CY or homelessness as identified by diagnosis code.

[a] DxCG: a diagnosis based medical complexity summary score

[b] RxCG: a pharmacy based medical complexity summary score

Table 2.2-D1.8 Characteristics of MCO and PCCP Enrollees, CY2018-CY2022

Characteristics	CY2018	CY2019	CY2020	CY2021	CY2022
Population Size, n	220,074	148,782	190,839	205,896	166,148
Female, %	54%	52%	52%	52%	52%
Age in years, mean (SD)	26.0 (18.1)	27.0 (18.2)	25.8 (18.4)	26.9 (17.9)	27.5 (18.4)
Adults (18-64), %	58%	60%	56%	58%	59%
DxCG RRS, mean (SD)	1.04 (2.22)	1.06 (2.27)	1.10 (2.35)	1.09 (2.36)	1.19 (2.54)
RxCG RRS, mean (SD)	0.91 (2.61)	0.89 (2.65)	0.85 (2.62)	1.06 (2.98)	1.16 (3.28)
Housing Problems, %	9%	12%	12%	12%	10%
Any Disability, %	14%	15%	14%	13%	14%
NSS, mean (SD)	0.86 (0.97)	0.83 (0.95)	0.80 (0.96)	0.80 (0.95)	0.79 (0.96)

Note: Each year includes members who are managed care eligible (MCE) for at least 320 days that year. The ACO program was launched on March 1, 2018. During the first year of the Demonstration, we assigned MassHealth members to an MCO if the sum of the time spent enrolled with an MCO plus the time spent enrolled before March 1 with a PCP who would join an MCO on March 1 was greater than or equal to 320 days. The DxCG relative risk score (RRS) is a summary measure of medical morbidity with a mean set to 1 in the MassHealth MCE baseline (2015-2017) population. NSS is the Neighborhood Stress Score, standardized to have mean = 0 and SD = 1 within the same population (e.g., MCEs, ACOs, and MCOs).

Summary of Measures

For the IESR, we used several process and outcome measures as specified in the EDD to address research questions in Domains 2 and 3, to evaluate changes in identifying member needs (**RQ5**), healthcare access (**RQ6**), member engagement (**RQ7**), care processes (**RQ8**), integration of care (**RQ9**), utilization patterns (**RQ10**), member outcomes (**RQ11**), and member experience (**RQ12**) over the course of the study period (CY2015-CY2022). MassHealth had specified a subset of these measures for calculating accountability scores for ACOs and CPs. MassHealth monitored other quality measures, and the remainder were endorsed by the National Quality Forum and/or were selected from sets of measures maintained by reputable stewards (e.g., Agency for Healthcare Research and Quality (AHRQ), National Committee for Quality Assurance (NCQA)). Other states' 1115 Waiver Demonstration Evaluations also informed measure selection (e.g., Michigan, New Hampshire, Oregon). Finally, a subset of measures was operationalized by the evaluation team, drawing from the peer-reviewed literature. We generally used 2018 specifications across years to enable consistent comparisons over time, but for measures where substantial revisions to specifications were made (e.g., to incorporate telemedicine in response to the COVID-19 pandemic), results based on revised specifications were designated as primary. In addition, the evaluation team used a mostly standard modeling approach for all measures and reported population-level average results. In contrast, MassHealth has reported results (e.g., medians) at the ACO level, typically used

updated measure specifications when changes occurred, and used custom risk adjustment models for two of its twenty performance measures.

For quantitative measures included in this report derived from existing data sources, measure descriptions are presented in Appendix A of the EDD.[35] Similar to recent evaluations in other states, the set of measures considered can provide a robust understanding of Demonstration program impacts. For measures with national benchmarks such as those included in the Medicare Shared Savings Program, NCQA Healthcare Effectiveness Data and Information Set measures, and the Medicaid-eligible Adult and Child Core Sets of Health Care Quality Measures, we interpret our findings in the context of these national benchmarks in the discussion section of the report.

Data Sources

MassHealth Administrative Data

This member-level database comprises eligibility, enrollment, and billing records for healthcare services for the MassHealth member population. The traditional services (e.g., medical, pharmacy, laboratory) included in this administrative database of claims and encounters were supplemented with new data on enrollment with and supports delivered by CPs (i.e., qualifying activities). Unique provider identification numbers included on billing records enabled linkage to the MassHealth provider characteristics file, containing information on provider type, demographics, and ACO affiliation. The MassHealth administrative data are of research quality.[36,37,38]

Hybrid Data

MassHealth contracted with analytics vendors (CareSeed and Telligen) to develop datasets, conduct analyses, and produce reports to support monitoring and accountability measurement activities. The vendors aggregated and maintained data submitted by ACOs and CPs with data obtained from MassHealth and CMS. We obtained selected fields for evaluation from the datasets maintained by the analytics vendors, including individual-level indicators of compliance with quality measures for a subset of each organization's members (~n=400 per ACO) to calculate hybrid quality measures for accountability. Hybrid measures required information extracted from medical charts and/or EHRs that could not be calculated from administrative data sources alone.

FS Utilization

Using DSRIP program expenditure authority, MassHealth allocated FS funding to ACOs on an annual basis. ACOs were required to submit to MassHealth plans and budgets for how they intended to utilize those funds and were only allowed to begin spending those funds after

[35] MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017-2022* . Mass.gov. Independent Evaluation Design Document
[36] Ash, A. S., Mick, E. O., Ellis, R. P., Kiefe, C. I., Allison, J. J., & Clark, M. A. (2017). Social determinants of health in managed care payment formulas. *JAMA internal medicine*, *177*(10), 1424-1430.
[37] Alcusky, M., Mick, E. O., Clark, M. A., & Ash, A. S. (2020). Calibrating Medicaid payment to need for long-term services and supports. *The American Journal of Managed Care*, *26*(12), e388-e394.
[38] Mick, E. O., Alcusky, M. J., Li, N. C., Eanet, F. E., Allison, J. J., Kiefe, C. I., & Ash, A. S. (2021). Complex patients have more emergency visits: don't punish the systems that serve them. *Medical care*, *59*(4), 362-367.

MassHealth review and approval. During the 2017–2022 Demonstration, MassHealth received quarterly member-level utilization and aggregate cost data from each ACO with active FS programs. FS utilization and cost data were categorized broadly as nutrition-sustaining supports, pre-tenancy individual supports, pre-tenancy transitional assistance, tenancy-sustaining supports, or home modifications.

Member Experience Surveys

Data from member experience surveys conducted by Massachusetts Health Quality Partners (MHQP) was used to assess changes in MassHealth member experience during the 2017–2022 Demonstration. Results from five rounds of PC, BH, and LTSS surveys are included in this report. Each round included a pediatric (<18 years of age) and an adult (>18 years of age) survey for each surveyed population. Sampling was designed to select no more than two single household members across all surveys and no more than one household member per survey within a CY. **Table 2.2-D1.9** presents the sample frame and sample size by survey type and year.

The first round asked about member experience during the CY2018 (i.e., the first ACO performance year). It was administered between January and April 2019 using mail and email survey modes for PC and BH surveys, and a phone survey was included for the LTSS survey. The second round asked about member experience during the CY2019. It was administered between January and May 2020 using mail, email, and web survey modes for primary care, BH, and LTSS surveys. MassHealth canceled the phone survey for the LTSS survey due to concerns raised by the COVID-19 pandemic.[39] The third round asked about member experience during the CY2020 and was administered between April and August 2021 using mail and email survey modes for PC and BH surveys. It also included a phone survey for the LTSS survey. The fourth round asked about member experience during the CY2021 and was administered between February and May 2022 using mail and email survey modes for PC and BH surveys. It included a phone survey for the LTSS survey. The fifth round asked about member experience during the CY2022. It was administered between March and August 2023 using mail and email survey modes for PC and BH surveys. It also included a phone survey for the LTSS survey.

The PC survey items were drawn from the Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS). Items included in the BH and LTSS surveys were drawn from several existing surveys, including the MassHealth One Care survey (of dual eligible members), the MA DMH Member Experience Survey, CG-CAHPS, the Family Experiences with Care Coordination survey, and the Behavioral Risk Factor Surveillance Survey (BRFSS). Additional customized questions were developed and added by MHQP after cognitive testing and piloting.

PC Surveys

MassHealth members were attributed to primary care practices based on their PCP, and each medical practice was assigned to a medical group, each exclusively associated with one of the 17 MassHealth ACOs. The number of medical groups varied during the 2017-2022

[39] MHQP June 2020, MassHealth Patient Experience of Primary Care, Behavioral Health and Long-Term Services and Support Surveys: 2019-2020 Program Technical Reports. Page 24

Demonstration from 56 during the measurement years 2018 and 2019 to 36 during the measurement years 2020 and 2021 and 35 medical groups during the measurement year 2022.

The eligibility criteria for MassHealth members to be included in the sample frame for the primary care surveys included:

1. The member was actively enrolled in one of the ACOs and/or one of the CPs on October 31, 2018, of the measurement year 2018; on November 29, 2019, of the measurement year 2019; on December 31, 2020, of the measurement year 2020; on November 24, 2021, of the measurement year 2021; and on December 31, 2022, of the measurement year 2022.
2. The member received PC, BH services, and/or LTSS services during the measurement year: between March 1 and October 31, 2018; January 1 and November 29, 2019; and January 1 and December 31 in 2020, 2021, and 2022.
3. Starting in 2020, members who only had PC telemedicine visits during the measurement year were excluded from the PC sample frame.

BH Surveys

The eligibility criteria for MassHealth members to be included in the sample frame for the BH surveys included:

- The member was actively enrolled in MassHealth on October 31, 2018, of the measurement year 2018; on November 29, 2019, of the measurement year 2019; on December 31, 2020, of the measurement year 2020; on November 24, 2021, of the measurement year 2021; and on December 31, 2022 of the measurement year 2022.
- The member was attributed to one of the 17 participating ACOs and/or one of the 18 participating BH CPs.
- The ACO and/or CP enrollee had a certain BH diagnosis, such as Substance Use Disorders, (within the first five diagnoses on any encounter) and at least one BH service during the measurement year.
    - Members with just one diagnostic BH service (such as a depression screen) were excluded.
    - The BH diagnoses and services were reviewed/approved by MassHealth's Office of Behavioral Health (OBH).
    - Services included Massachusetts Behavioral Health Partnership (MBHP) covered services plus BH Current Procedural Terminology (CPT) codes supplied by MassHealth's OBH.
- For ACO members, the BH services had to occur while the member was enrolled in their attributed ACO.
- BH sample criteria did not require that members have an in-person BH visit during the measurement year. Members who only had BH telemedicine visits during the measurement year were included in the BH sample frame.

We limited our analyses to ACO enrollees. For the BH survey, we performed subgroup analysis by CP enrollment.

LTSS Surveys

The eligibility criteria for MassHealth members to be included in the sample frame for the LTSS surveys included:

- The member was actively enrolled in MassHealth on October 31 of the measurement year 2018; on November 29, 2019; on December 31, 2020; on November 24, 2021; and on December 31, 2022.
- The member was enrolled with one of the 17 participating ACOs and/or one of the 9 participating LTSS CPs.
- The member had at least three consecutive months of any LTSS services during the measurement year.
- The last LTSS service had to occur while the member was enrolled with their attributed ACO.
- LTSS sample criteria did not require that members have an in-person LTSS visit during the measurement year. Members may have had either in-person or telemedicine visits during the measurement year.

We limited our analyses to ACO enrollees. For the LTSS survey, we performed subgroup analysis by CP enrollment.

Usable Responses and Weighting

Ineligible cases were identified and removed from the survey count and denominator. Ineligible cases were defined as those who met any of the following criteria:

- Resided outside MA.
- Did not pass the screening question (Q1: Our records show that you got care from a provider in the practice named below in the last 12 months. Is that right? [Yes/No]).
- Were deceased at the time of survey administration.
- Did not get the specified type of care.
- Were not MassHealth members.
- For the primary care survey, the member contacted the survey vendor to report that the specified provider was not their primary care provider.

Usable responses were defined as survey respondents who answered yes to the screening question and answered 50% of survey questions prior to the demographics section at the conclusion of the survey. Eligible non-respondents were defined as those who had language barriers, were mentally/physically unable to complete the survey, refused to complete the survey, non-responses, and those who returned a less than 50% completed survey. **Table 2.2-D1.9** presents the number of usable responses by survey and the final response rates.

We compared observed characteristics of respondents and non-respondents to explore the potential for non-response bias. These characteristics included sex, age, MassHealth rating category, MassHealth region, member's primary language, and Census-based area-level measures of education, poverty, and race/ethnicity. Stabilized inverse probability weighting was used to address potential bias due to differences between respondents and non-respondents.[40,41,42] All member experience survey findings presented in this IESR are weighted results.

Table 2.2-D1.9 Sample Sizes and Response Rates by Demonstration Performance Year (CY2018-CY2022) for the PC, BH, and LTSS Member Experience Surveys

	Eligible Sample	Total Responses	Usable Responses	Response Rate
PC Survey				
CY2018				
Child	111,190	11,344	10,890	9.80%
Adult	66,879	12,062	11,526	17.25%
CY2019				
Child	138,875	10,158	9,517	7.03%
Adult	89,953	12,474	11,724	13.29%
CY2020				
Child	126,044	6533	6,533	5.18%
Adult	85,819	9,242	9,231	10.76%
CY2021				
Child	154,822	7,208	7,207	4.66%
Adult	117,455	11,021	11,012	9.38%
CY2022				
Child	165,760	6,337	6,335	3.82%
Adult	121,352	9,626	9,616	7.92%
BH Survey				
CY2018				
Child	9,855	1,123	987	10.02%
Adult	Total: 42,802	Total:5,073	Total: 4,380	10.24%
	ACO: 22,369	ACO: 3,003	ACO: 2,545	
	CP: 20,433	CP: 2,070	CP: 1,835	
CY2019				

[40] Little, RJA. Survey non-response adjustments for estimates of means. International Statistical Review, 1986. 54(2):139-157

[41] Seaman SR, White IR. Review of inverse probability weighting for dealing with missing data. Stat Methods Med Res. 2013 Jun;22(3):278-95.

[42] Austin, P.C. and Stuart, E.A. 2015. Moving towards best practice when using inverse probability of treatment weighting (IPTW) using the propensity score to estimate causal treatment effects in observed studies. *Statistics in Medicine*. 34: 3661-3679. DOI: 10.1002/sim.6607.

	Eligible Sample	Total Responses	Usable Responses	Response Rate
Child	9,819	913	903	9.20%
Adult	Total: 30,069	Total: 4,009	Total: 3,982	13.25%
	ACO:16,079	ACO: 2,065	ACO: 2,052	
	CP: 13,990	CP: 1,944	CP: 1,930	
CY2020				
Child	9,988	710	710	7.11%
Adult	Total: 39,743	Total: 3,783	Total: 3,220	8.22%
	ACO: 28,531	ACO: 2,479	ACO: 1,940	
	CP: 14,991	CP: 1,304	CP: 1,280	
CY2021				
Child	8,962	628	627	7.00%
Adult	Total: 39,023	Total: 3,487	Total: 2,968	7.71%
	ACO: 27,915	ACO: 2,347	ACO: 1,854	
	CP: 13,821	CP: 1,140	CP: 1,114	
CY2022				
Child	10,389	612	612	5.89%
Adult	Total: 41,887	Total: 3,645	Total: 3,145	7.60%
	ACO: 30,737	ACO: 2,478	ACO: 2,006	
	CP: 14,057	CP:1,167	CP: 1,139	
LTSS Survey				
CY2018				
Child	Total: 9,911	Total: 814	Total: 813	8.20%
	ACO: 8,137	ACO: 637	ACO: 634	
	CP: 1,774	CP: 179	CP: 177	
Adult	Total: 14,496	Total: 1,895	Total: 1,649	11.38%
	ACO: 8,920	ACO: 1,187	ACO: 1,017	
	CP: 5,576	CP:708	CP: 632	
CY2019				
Child	Total: 17,339	Total: 1,362	Total: 1,347	7.77%
	ACO: 15,903	ACO: 1,195	ACO: 1,181	
	CP: 1,436	CP: 167	CP: 166	
Adult	Total: 17,642	Total: 2,472	Total: 2,423	13.73%
	ACO: 13,787	ACO: 1,829	ACO: 1,794	
	CP: 3,855	CP: 643	CP: 629	

	Eligible Sample	Total Responses	Usable Responses	Response Rate
CY2020				
Child	Total: 9,502	Total: 950	Total: 907	9.59%
	ACO:8,251	ACO: 786	ACO:743	
	CP: 1,251	CP: 164	CP:164	
Adult	Total: 12,747	Total: 3,054	Total: 2,499	20.50%
	ACO: 9,589	ACO: 2,129	ACO: 1,797	
	CP: 3,158	CP: 925	CP: 702	
CY2021				
Child	Total: 8,951	Total: 776	Total: 776	8.67%
	ACO: 8,086	ACO: 667	ACO: 667	
	CP: 865	CP: 109	CP: 109	
Adult	Total: 13,241	Total: 2,351	Total: 2,351	17.76%
	ACO: 10,214	ACO: 1,761	ACO: 1,761	
	CP: 3,027	CP: 590	CP: 590	
CY2022				
Child	Total: 9,219	Total: 804	Total: 804	8.72%
	ACO: 8,484	ACO: 709	ACO: 709	
	CP: 735	CP: 95	CP: 95	
Adult	Total: 13,493	Total: 2,299	Total: 2,299	17.04%
	ACO: 11,019	ACO: 1,877	ACO: 1,877	
	CP: 2,474	CP: 422	CP: 422	

Sources: Massachusetts Health Quality Partners, MassHealth Patient Experience of Primary Care, Behavioral Health, and Long-Term Services and Supports Surveys: 2018-2022. Technical Reports. Watertown, MA. Massachusetts Health Quality Partners.

Note: Usable responses are defined surveys returned by a member who answered yes to the screening question and answered 50% of survey questions prior to the demographics section at the conclusion of the survey. The final response rate is derived by dividing the number of usable responses by the number of members in the eligible sample.

ACO PSA Survey

The IA surveyed PSAs in CY2019 and CY2021 to examine the characteristics of ACO PC practice sites and to examine administrators' perspectives of the DSRIP program. Additional details of the survey methods are included in the Domain 1 methods.

ACO and CP Provider/Staff survey

To understand how providers and staff experience the delivery of care within the ACO model, we conducted two waves of ACO provider and CP staff surveys in 2020 and 2022 to assess the degree to which implemented projects and ACO/CP formation translated into changes in how care was actually delivered from the perspective of frontline ACO providers and CP staff.

Statistical Analyses

Member Surveys

Our primary analyses examined changes over time in survey composites that captured concepts aligned with the survey-based measures included in our evaluation design. We estimated changes in composites from the base year (CY2018) through CY2022 while adjusting for changes in respondents' characteristics over the five-year study using generalized estimating equations to mitigate observed sources of confounding. Logistic regression models (binomial for binary, multinomial for categorical, or ordinal for ordered responses) were used to produce adjusted frequencies for each individual survey item.

Hybrid Measures

For hybrid measures where data were available for only ACO enrollees during the Demonstration period (CY2018–CY2022), we report the results of descriptive analyses by year. The hybrid measure results in each year (CY2018–CY2022) are presented in aggregate across the 17 ACOs and ACO-specific results were plotted in figures. The measures were tested for linear trends using a two-sided Cochrane Armitage Test.[43] Tests were run using R statistical software (version 4.3.3 {2024-02-29}).[44]

Quality and Utilization Measures from Administrative Data

For most quality and utilization measures, data was available for a baseline period (CY2015–2017) preceding the launch of the ACO and CP programs in CY2018, and we present results by year for CY2015 through CY2022. For most measures, data was also available for a comparison group of MCO and PCCP enrollees.

To address measure confounding as a potential threat to the validity of comparisons between ACO and MCO/PCCP enrollees, we used propensity score overlap weighting to balance characteristics between groups for each measure. Overlap weighting mimics attributes of a randomized trial, including a clinically or policy-relevant target population covariate balance, and it overcomes a previous limitation of inverse probability weighting by giving less weight to extreme outliers. We created propensity scores annually using logistic regression models with “ACO” or “not ACO” in that year as the outcome (in baseline years, the two groups were those who would have been in an ACO or those who would have been in an MCO or PCCP if the ACO program had been operating at that time), and a set of potential confounders used in MassHealth risk adjustment models as the predictors. Characteristics included in propensity scores were age-sex indicator variables, disability status (i.e., Client of the Department of Mental Health, Client of the Department of Disability Services, Medicaid eligible due to disability), homeless (identified by Z-code), housing instability (3+ addresses in a year), DxCG relative risk score (a diagnosis based medical complexity summary score), RxCG relative risk score (a pharmacy based medical complexity summary score), COVID-19 diagnosis, COVID-19 hospitalization, and area-level socioeconomic stress measured by the Neighborhood Stress

[43] Signorell A (2024). _DescTools: Tools for Descriptive Statistics_. R package version 0.99.54. https://CRAN.R-project.org/package=DescTools.
[44] R Core Team (2024). _R: A Language and Environment for Statistical Computing_. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/.

Score (NSS). The DxCG and RxCG scores were calculated based on claims and encounters in the year prior so as not to adjust for differences in health and utilization due to performance during the measurement year, while other characteristics were defined concurrently.

To evaluate changes for the ACO enrollees versus MCO/PCCP enrollees, we used generalized linear models with robust error terms that accounted for repeated within-person measures over time. All outcome models were weighted with propensity score overlap weights. CY terms and interaction terms between the CY and the exposure term (separate annual indicator terms for ACO or MCO/PCCP enrollment) were combined to produce odds ratios for binary measures and incidence rate ratios for count measures that compared results for the ACO and MCO/PCCP groups. The coefficients from these models were also used to produce difference-in-difference (i.e., the pre-post difference in ACO versus MCO/PCCP differences) estimates on a relative scale. For example, for a healthcare utilization measure, the difference-in-difference estimate was a ratio of the ACO versus MCO/PCCP incidence rate ratio during a post-implementation year (2018-2022) to the ACO versus MCO/PCCP incidence rate ratio during the baseline period (2015-2017). These estimates can be interpreted as the relative increase for ACO enrollees versus MCO/PCCP enrollees from baseline to the post-implementation year, which can also be understood as the performance of the ACOs versus the MCO/PCCP comparison group in the post-implementation year after adjusting for pre-existing differences between the groups at baseline. A limitation of reporting results on a relative scale is that interpretation in the units of the outcome (e.g., percentage points for a binary quality measure) requires additional information. To better understand the larger clinical or policy significance of estimates reported on a relative scale, the relative estimates should be considered in the context of observed values at baseline (e.g., a 10% relative increase from a baseline value of 20% would be 2%). For continuous outcomes like cost, difference-in-difference estimates were reported on an absolute scale (i.e., the change in the cost difference between ACO and MCO/PCCP from baseline to the post-implementation year). The parallel trends assumption at baseline was assessed visually for each measure; outcome trends were generally similar at baseline for those who would have been ACO or MCO/PCCP enrollees had the ACO Program been implemented during 2015-2017.

For select measures, we include a figure depicting three sets of values for each year plotting changes over time separately for ACO enrollees and comparison group members (MCO or PCCP enrollees).

1. “Predicted” results: The propensity-weighted results, which reflect what actually occurred in the presence of the COVID-19 pandemic.
2. Model “Expected” results in the absence of the COVID-19 pandemic: Predicted results in each year from a model built on 2015-2019 that uses a linear calendar time term, instead of the indicators used in the primary analysis, to enable predictions of the ACO and MCO/PCCP values for 2020-2022 by extrapolating the trend observed in 2015-2019. This extrapolated line for 2020-2022 reflects what might have happened had existing trends continued in the absence of the COVID-19 pandemic.
3. Assumed “Average” results in the absence of COVID-19: The propensity-weighted results for 2015-2019 and values for 2020-2022 were replaced with an illustrative line that

reflects the average of the 2018 and 2019 results projected forwards as a constant for 2020-2022. This extrapolated line for 2020-2022 reflects what might have happened in the absence of the COVID-19 pandemic assuming performance in 2020-2022 did not change from 2018-2019 levels.

A few analyses and measures that were described in the approved CMS evaluation design were modified or not included in this report. Consistent with the evaluation design, we included observed to expected (O:E) ratios in the IEIR. An O:E ratio compares the actual value observed for a measure during the study period with what a model built on baseline data would predict. These values were most useful to supplement descriptive analyses in the IEIR, where we did not perform causal or quasi-experimental analyses because data were only available for the early implementation period of the Demonstration. Since O:E ratios do not estimate program impact and are less rigorous than the quasi-experimental analyses performed for the IESR, we chose to not include them in this report to improve interpretability. In our evaluation design, we also contemplated comparative analyses using the member experience survey data to estimate DSRIP program effects. We were unable to obtain a crosswalk that enabled linkage between survey responses and administrative data, which was needed to define a comparison group, exposure periods, and covariates to perform such analyses. The asthma medication ratio measure was not included in this report because a key variable needed was not available in MassHealth's encounter records. Specifically, managed care organizations do not report a dispensed quantity of medication to MassHealth, and this field is needed to accurately calculate the units of controller and total asthma medications for the numerator of the measure. We reported on acute unplanned admissions rather than all-cause admissions to align with MassHealth's ACO quality measure (Acute Unplanned Admissions for Adults with Diabetes) and because we were not hypothesizing that ACO implementation would affect planned hospital admissions, which are typically for major procedures that are generally not considered preventable.

2.2.3. Domain 4 Evaluation Approach

RQ13: To what extent were Medicaid total cost of care trends moderated for the ACO population?

Data Sources

For this IESR, we conducted two sets of analyses using distinct data sources:

- Analyses of financial performance across the 17 MassHealth ACOs during the first three years of the implementation (CY2018-CY2020); data for CY2021-CY2022 were not yet available.
    - Data sources: ACO and MCO financial reconciliation reports from MassHealth and MassHealth's actuaries.
- Analyses of changes in healthcare costs during CY2015-CY2022 (overall and within service categories).
    - Data sources: MassHealth administrative data (eligibility, claims, encounters) that include amounts paid by MassHealth (for fee-for-service claims) or the managed care

entities (on encounter records for ACPP ACOs and MCOs who receive capitation payments from MassHealth). Supplemental analyses were performed using price-normalized information from MassHealth's actuaries, where amounts paid by managed care entities on encounters were adjusted to reflect what MassHealth would have paid fee-for-service per the MassHealth fee schedule.

Analyses

In this section, we describe the ACOs' financial performance during the first three years of the Demonstration (CY2018-CY2020) in terms of total shared savings and shared losses by ACO type, and risk corridor (e.g., core medical, carved-out targeted risk corridors). The amount of risk borne by ACOs varied for different categories of services (see **Table 2.1-D1.3** above). We also describe the implications of quality score performance for shared savings and losses. We summarize the number of organizations achieving shared savings and losses and present the distribution of payments and expenditures covered by shared risk arrangements across organizations (see **Section 2.3.4**).

We used propensity-weighted generalized linear models to compare changes in healthcare costs for ACO enrollees versus MCO/PCCP comparison groups during the baseline (CY2015-CY2017) and Demonstration (CY2018-CY2022). This modeling approach is consistent with analyses of quality and utilization described further in the Domains 2 and 3 methods. For each year, expenditures were calculated based on all MassHealth covered services and separately based on what services were included in the core medical TCOC risk corridor. To better understand changes in expenditure patterns over time that may be driving TCOC performance, we also evaluated expenditures by MassHealth-defined service categories (e.g., physical health inpatient, BH inpatient) and types of expenditures (non-medical/administrative, FFS).

2.2.4. Domain 5 Evaluation Approach

RQ14: To what extent will innovative delivery system changes including ACOs, CPs, and FS be sustainable without DSRIP funding?

RQ15: To what extent did alternative and value-based payments constitute an increasingly larger proportion of the payments to organizations and providers managing the care of MassHealth members?

Qualitative Methods

The Domain 5 evaluation approach used mixed qualitative and quantitative methods. Qualitative data were collected through semi-structured interviews with ACO and CP representatives, as described in the Domain 1 methods**, Section 2.2.1**. Specific interview questions in the Wave 2 key informant guides elicited responses about ACO and CP plans for continuing to operate as accountable and integrated delivery systems absent DSRIP funding, and the factors that facilitate and impede sustainability of the model overall and its parts, including FS and ACO/CP partnerships. In turn, the Wave 2 case studies of selected ACOs and CPs described in detail under Domain 1 provided a more in-depth examination of sustainability issues facing those organizations. This two-pronged approach aimed to assess sustainability across all ACOs and CPs at a high level and to probe more deeply into a sub-sample of ACOs and CPs about decision-making related to maintaining DSRIP-funded innovations (i.e., barriers, facilitators, modifications). Details on the methods of qualitative data collection and analyses are presented under the Domain 1 Evaluation Approach, **Section 2.2.1**.

Quantitative Methods

In Domain 5, two methods were used to quantify the impact of the DSRIP program: 1) return on investment (ROI), and 2) cost-effectiveness analyses (CEA). The overarching economic benefit intended with the DSRIP program from the perspective of MassHealth was a reduction in TCOC. This benefit was estimated using ROI methods.

Cost is not the only relevant factor for evaluating the economic impact of the DSRIP program since the investment might lead to non-cost benefits such as improved care quality and outcomes. Therefore, eight measures of effectiveness were evaluated to estimate the impact of the investment at the program level using a cost-effectiveness framework.

In order to conduct the ROI analysis and CEA, we performed cost analyses of the DSRIP programs (i.e., costs of ACO, CP, FS, SWI, and MassHealth operations) which involved appropriately allocating the DSRIP program costs, estimating the benefits of the DSRIP programs, and finally computing the ROI and cost-effectiveness of the DSRIP programs.

Cost Analyses of DSRIP Programs

DSRIP ACO Program Expenditures

Data sources: ACO expenditures from DSRIP program funding only, excluding medical expenses or health plan programs financially supported through the administrative component of ACO funding, were collected from 2017 (Program Year (PY) 0) through the first quarter of 2023 (Q1 2023), an extension of PY5. Data was collected from the Final Annual ACO Expenditures reports. Other sources included the ACO Initial Budget Report, ACO Budget Narratives for PY1-PY5, ACO semiannual progress reports, ACO semiannual expenditure narrative reports, ACO Final Participation Plans, and reports of ACO accountability payments. In addition, ACO enrollment data were used to track the number of ACO enrollees over time and to estimate the DSRIP ACO program cost per enrollee.

Analysis: Documents and data sources were reviewed to identify the type of expenditure by line item, the targeted populations, and the focus of investments. The DSRIP ACOs' expenditures focused on health information technology, workforce development, and clinical and organizational integration, among others. Those expenditures were adjusted for inflation to 2022 dollars using the Consumer Price Index (CPI).[45] After reviewing the annual progress reports, budget, and budget justification, the expenditures were line-itemized and categorized as either personnel, recurrent, or capital costs. Capital items were amortized using a discount rate of 3%, which is consistent with standard practice. If the useful life, i.e., the number of years an item is likely to remain in service, was included in the budget narrative, we used the reported value; otherwise, we opted for the useful life determined by the Internal Revenue Service recommendation for property depreciation.[46]

Members' days spent enrolled in the ACO program (i.e., the total number of days MassHealth members were enrolled in an ACO) were computed and converted to the annual and total (full study period) number of person-years of enrollment for each ACO during the study period (61 months: March 1, 2018, through March 31, 2023). The corrected person-year totals were used to compute the cost per person-year enrolled in the ACO program overall and by ACO model. The results are expressed as expenditures when referring to the ACO program (i.e., spending by the ACO) and costs when referring to ACO enrollees. The cost analysis is conducted from the perspective of MassHealth. However, it is worth noting that the cost per ACO enrollee might be lower from a broader (e.g., societal) perspective since the skills, relationships, and systems developed through DSRIP might benefit other enrollee who seek care at practice sites that have contractual relationships with the ACOs, as well as family and caregivers of MassHealth members.

[45] U.S. Bureau of Labor Statistics. (n.d.). *Consumer Price Index*. Bls.gov. Retrieved July 15, 2024, from CPI Home : U.S. Bureau of Labor Statistics (bls.gov).
[46] Source: IRS. Publication 946 (2022), How to Depreciate Property. See Recovery Periods Under ADS. Accessed May 15, 2023. https://www.irs.gov/publications/p946

DSRIP CP Program Expenditures

Data sources: CP expenditures were collected from budget period 1 (BP1) starting July 2018 through BP5, i.e., the second quarter of 2023 (Q2 2023), an extension of BP5.[47] Data were collected from the CP preliminary and final participation plans, initial and final CP expenditure reports (i.e., Attachment A of the participation plans), and CP annual progress reports. In addition, CP annual enrollment data were used to estimate the program cost per member.

Analysis: The team reviewed the DSRIP protocol and CP documents to determine the purpose and nature of the CP expenditures. DSRIP CP expenditures focused on non-medical activities, such as health information technology and workforce development, and were adjusted to 2022 dollars using the CPI to account for inflation. The expenditures were line-itemized and categorized as personnel, recurrent, or capital costs. Capital items were amortized using a discount rate of 3%. If the useful life was included in the budget narrative, we used the reported value; otherwise, we opted for the useful life determined by the Internal Revenue Service recommendation for property depreciation. The total annual expenditures are presented as nominal (undiscounted) expenditures. The expenditures are presented as the aggregate expenditures by line item, CP type, type of expenditures, and the overall CP's expenditures allocated to members enrolled in the ACO program.

Members' days enrolled in the CP Program (i.e., the total number of days all members were enrolled with a CP) were computed and used to estimate the person-years of enrollment for each CP annually and over the full study period (60 months from July 1, 2018, through June 30, 2023). The person-years of enrollment were used to compute the overall cost per member enrolled in the CP Program and by CP type (i.e., BH vs. LTSS). In addition, CP enrollees were categorized based on their enrollment with ACOs or other managed care systems (i.e., MCO, PCCP) as either ACO enrollees or non-ACO enrollees, and the DSRIP CP Program cost was allocated to each ACO, MCO, or PCCP based on each plan's proportion of total enrollees. The results are expressed as expenditures when referring to the CP Program (i.e., spending by the CP) and costs when referring to CP enrollees.

DSRIP FS Expenditures

Data sources: FS expenditures were collected from PY3 starting January 2020 through PY5 ending in March 2023, an extension of PY5. Data were collected from initial and final expenditure reports (i.e., Attachment I of the ACO participation plans), budget and expenditure narratives (Attachment J of the ACO participation plans), FS section of the participation plans (Attachment H of the ACO participation plans), quarterly lists of FS Program enrollees, and quarterly total costs by FS category that were provided to MassHealth by the ACOs, including the 15% rate for administrative cost.

Analysis: The FS Program financially supported two categories of activities: nutrition and tenancy sustaining supports. The tenancy supports were organized into four sub-categories: pre-tenancy, pre-tenancy transitional, tenancy sustaining, and home modifications. The spending on these supports was adjusted to 2022 dollars using the CPI.

[47] CP Program used Budget Period (BP) and ACO programs used Performance Year (PY).

Members' days of enrollment (i.e., the total number of days all members were enrolled in an ACO FS program) were computed and used to estimate the person-years of FS Program enrollment for each ACO during the FS Program period (39 months: January 1, 2020, through March 31, 2022). The person-years of enrollment were used to compute the annual and overall FS Program cost per member enrolled in an ACO FS program and stratified by ACO model type. The results were expressed as expenditures when referring to ACO spending on the FS Program and costs when referring to ACO enrollees. We used FS enrollment and cost data to estimate the cost per ACO member enrolled in the FS Program overall and in each of the five FS categories.

DSRIP SWI Expenditures

Data sources: The DSRIP protocol, publicly available documents, websites, and SWIs program documents, including evaluation reports and allocated budget, were reviewed to identify the objectives and target population of each SWI program. Data collection tools were developed for 17 of the 22 programs to capture the administrative and program expenditures, the awardee's agency, the agency's affiliation with an ACO or CP, and the award duration. In addition, interviews were conducted with MassHealth SWI managing vendors (the Massachusetts League of Community Health Centers, Commonwealth Corporation, Abt Associates, Center for Health Care Strategies, and the Training and Workforce Development unit in ForHealth Consulting at UMass Chan Medical School).[48]

Analysis: A desk review was conducted to identify the objectives and target population of each SWI program. If the primary enrollees of SWI programs were entities affiliated with an ACO or CP, then we analyzed that program. When the benefits associated with the SWI program were generalizable to all MassHealth members regardless of ACO membership, we excluded those SWIs because the cost associated with these programs would apply to both ACO and non-ACO members (who comprise the comparison group for our analysis).

Due to the SWI program's diversity in objectives, targets, and scope, several approaches were used to estimate the cost of these programs. SWI programs were grouped below based on the method used to estimate and allocate their cost to ACOs, CPs, and other entities.

Group 1 - Student Loan Repayment: This group includes SWI 1a Student Loan Repayment, SWI 1b BH Workforce Development Program, SWI 1c CP Recruitment Incentive Program, and the student loan repayment component of SWI 3b Community Mental Health Center BH Recruitment Fund. For programs included in this group, expenditures on student loan repayment, salary replacement payment associated with shared learning days, and the vendor's administrative cost were adjusted to 2022 dollars using the CPI. Student loan repayments were amortized, using a discount rate of 3%, for the duration of the contract years (i.e., if the loan was paid in 2018 with a four-year work commitment, then the loan repayment was amortized over the four-year commitment and allocated to the years 2018 through 2021). Annual administrative costs incurred before and after program implementation were allocated to the awarded entities based on the proportion of members who attended from each entity. The vendors' administrative

[48] The Training and Workforce Development unit in ForHealth Consulting at UMass Chan Medical School is a different unit and team from Research & Evaluation.

costs were allocated to the affiliated ACO, CP, and other entities not affiliated with the ACO or CP programs.

Group 2 - Special Projects: This group includes SWI 2 PC/BH Special Projects Program and the special project component of SWI 3b Community Mental Health Center BH Recruitment Fund. For programs included in this group, payment for special projects and the vendor's administrative costs were adjusted to 2022 dollars. If the project lasted more than one year, the cost of that program was amortized, using a discount rate of 3%, for the duration of that program. Finally, the special projects and vendor administrative costs were allocated to the affiliated ACO, CP, and other providers not yet part of the ACO or CP programs.

Group 3 - Training: This group includes SWI 3a Family Medicine and NP Residency Training, SWI 4a Community Health Worker Training Capacity Expansion Grant, SWI 4b Peer Specialist Training Capacity Expansion Grant, SWI 4c Community Health Worker Supervisors Training Grant, SWI 4e Competency-Based Training Program for ACOs and CPs, SWI 5a Targeted TA for ACOs and CPs, SWI 5a Learning Collaboratives, SWI 5b Community Health Center Readiness Program, SWI 5c SWI Pop-Ups, SWI 5c Standardized Training, and SWI 6 Alternative Payment Methods Preparation Fund. For programs included in this group, payment for residency, training, peer specialist training, and readiness, in addition to vendor administrative costs, were adjusted to 2022 dollars using the CPI. Annual administrative costs incurred before and after the program implementation were allocated to the awarded entities based on the proportion of members who attended from each entity. The training and vendors' administrative costs were allocated to the affiliated ACO, CP, and other entities not affiliated with the ACO or CP programs. For the SWI 5c Standardized Training, the cost associated with developing each training program was allocated based on the vendor's reported effort in developing the course materials, adjusted to 2022 dollars using the CPI, and the adjusted cost was allocated to ACOs and CPs based on the number of attendees from each entity.

DSRIP State Operations and Implementation Funding Expenditures

Data sources: The evaluation team developed a data collection tool to capture annual MassHealth State Operations and Implementation DSRIP expenditures; the expenditure breakdown by DSRIP programs; and activities such as program development and conceptualization, stakeholder engagement, provider engagement and guidance, monitoring activities, and evaluation. In addition, for each program, the tool identified expenditures allocated to activities similar to those taken to administer the MCO and PCCP programs. MassHealth populated the data collection tool, and data were reviewed with the research team. Resources used for DSRIP but financially supported through other resources were included in this analysis.

Analysis: The overall DSRIP State Operations and Implementation expenditures were allocated to DSRIP programs, including the overall DSRIP administration, which covered staff efforts and expenditures across all programs, such as IA and DSRIP Finance and Compliance staff. The analysis focused on the marginal expenditures associated with the DSRIP program that impact members' care. Expenditures on activities related to monitoring and evaluation were excluded from the cost analysis. Activities similar in purpose to actions taken to administer the MCO and PCCP programs were also excluded since those expenditures would have been incurred

regardless of which program managed members' care. Additionally, they would have been incurred to administer the programs associated with the control group.

The expenditures were adjusted to 2022 dollars using the CPI. The marginal expenditures associated with DSRIP State Operations and Implementation Funding (i.e., the expenditures unique to the DSRIP program) were allocated to the four DSRIP programs, i.e., ACO, CP, SWI, and FS programs. Expenditures on CPs and SWIs were then assigned to ACOs using the methods discussed in the CP and SWI sections.

Return on Investment

The ROI compares the cost of the overall DSRIP program and the costs of two key DSRIP programs (CP and FS) targeted to a subset of members with specific needs to the monetary benefits of the programs from the MassHealth perspective using the following formula. A value of 0 indicates the program generated cost savings that offset (i.e., were equal to) program costs, a value over 0 indicates the program generated a positive return on investment, and a value under 0 indicates the investment generated net costs.

The equation below shows how the ROI is computed, where the numerator estimates the overall savings or losses associated with the program – the program's cost.

$$ROI = \frac{(Net\ Healthcare\ Cost\ Savings - Program\ Costs)}{Program\ Costs}$$

The net healthcare cost savings or losses are computed as the difference in the TCOC between ACO enrollees and MCO/PCCP enrollees (i.e., the incremental TCOC). For ACOs, the program cost includes the cost of the DSRIP program allocated to the ACO program from five sources: ACO program funding, State Operations, and Implementation Funds, SWI expenditures allocated to ACOs, FS Program, and the CP expenditures allocated to ACO enrollees. For the CPs, the program cost includes the mid-year annualized CPs cost attributed to ACO enrollees from three sources: State Operations and Implementation Funds, CP program, and SWI programs. For the FS CEA, the program cost includes the State Operations and Implementation Funds and the FS Program cost.

For the overall DSRIP program, the net healthcare cost savings or losses was the estimated net difference in ACO enrollees' TCOC (in the presence versus in the absence of the DSRIP Program) and the overall cost of DSRIP-funded programs (i.e., State operations and Implementation funds, ACO Program, CP Program, FS Program, and SWI programs) allocated to ACO enrollees (as described in the preceding section: **Cost Analyses of the DSRIP Programs**). Net healthcare cost savings were calculated as the difference between TCOC related to care delivery to members enrolled with ACOs and TCOC among a comparison group of non-ACO members in the MCO and PCCP programs. These net healthcare cost savings were estimated in each year of the Demonstration by contrasting predicted values from the propensity-balanced generalized linear models developed for comparing TCOC in Domain 4 (i.e., contrasting predicted values for ACO enrollees with predicted values for ACO enrollees if they had been enrolled in the MCO/PCCP group). The annual estimates were multiplied by the ACO enrollment each year and summed to obtain values for the entire Demonstration period (CY2018-CY2022).

For the CP and FS programs, net healthcare cost savings were calculated during periods of enrollment in the programs. Two comparison groups were used to estimate the ROI for the FS Program. In the first approach, the TCOC associated with FS Program enrollees was compared to ACO enrollees who screened eligible for those programs but did not use them. For this analysis, the FS Program cost included the per-member cost of the FS Program. In the second approach, which was used for the CP and FS programs, the TCOC for enrollees in the CP and FS programs were compared to MCO and PCCP members. Propensity overlap-weighted generalized linear models were used to compare costs between the exposed and comparison groups. The program costs included the cost of DSRIP-funded programs allocated to ACO enrollees who utilized CP or FS.

To project DSRIP ROI over 10 years (i.e., five years after the end of the Demonstration), the following general assumptions were made: 1) there will be a continuation of some of DSRIP program costs that will be paid by the state from other sources (i.e., program investment in CP, FS, and state implementation and operation funds), and 2) that the number of ACO enrollees will decline over time because of redeterminations following the end of the COVID-19 public health emergency (PHE). We developed three scenarios based on the following assumptions regarding the benefit of the program, i.e., reduction in enrollees TCOC: For scenario 1 (central scenario), we assumed the reduction in the incremental TCOC will be constant over time (i.e., fixed at 2022); for scenario 2, i.e., the lower bound, we assumed an annual decline of 60% (change year over year between CY2021 and CY2022) in ACO TCOC savings; and for scenario 3, i.e., the upper bound, we assumed an annual increase of 17% (on the average change year over year during the 2017–2022 Demonstration).

Cost Effectiveness Analyses

We measured cost-effectiveness in terms of the incremental cost per difference in effectiveness measures (i.e., incremental cost-effectiveness ratios or ICER) between the program populations and the comparison populations. Eight CEAs were conducted for the ACO, CP, and FS programs from the MassHealth perspective for the 2017–2022 Demonstration.

Cost-effectiveness of the ACO Program for the following effectiveness measures:

- All-cause hospitalization for all ACO enrollees; and
- Ambulatory-care-sensitive condition hospitalizations for all ACO enrollees

Cost-effectiveness of the BH CP Program for the following effectiveness measures:

- Acute unplanned hospital admissions for BH ACO enrollees; and
- Primary-care-sensitive ED visits for BH CP enrollees

Cost-effectiveness of the LTSS CP Program for the following effectiveness measures:

- Acute unplanned hospital admissions for LTSS CP enrollees[49]; and
- Nursing home admissions for LTSS ACO enrollees

[49] This measure was substituted for the acute unplanned hospital readmissions measure included in our original evaluation design because there were relatively few hospital readmissions and comparative estimates were imprecise.

Cost-effectiveness of the FS Program for the following effectiveness measures:

- ED admissions for members receiving FS;
- Inpatient admissions for members receiving FS; and
- Primary-care-sensitive ED visits for members receiving FS

The difference in effectiveness measures for each program was estimated annually and summed over the Demonstration period (2018-2022) from propensity score overlap-weighted generalized linear models comparing program enrollees to non-enrollees. The costs were the net cost to MassHealth as the difference between the program (i.e., DSRIP ACOs, DSRIP CPs, or DSRIP FS) costs and TCOC (healthcare costs) described in the prior section for the ROI analyses. Deterministic sensitivity analysis (e.g., varying one or two key inputs at a time to examine if the findings change enough to alter the interpretation) was conducted to evaluate the range of plausible results for all cost-effectiveness analyses based on uncertainty in healthcare costs and outcomes. We calculated forward-looking incremental cost-effectiveness ratios that assumed varying program costs in a post-DSRIP program period.

2.2.5. Domain 6 Evaluation Approach

RQ16: To what extent can observed changes in care processes, outcomes, and costs be attributed to DSRIP?

Domain 6 analyses evaluated how specific DSRIP programs affected care processes, member outcomes, and total cost of care trends. The two programs that were the primary focus of Domain 6 analyses were the FS and CP programs. In addition to analyses of these specific DSRIP-funded programs, we also examined the heterogeneity of program impacts based on organizational characteristics and contextual factors, including the COVID-19 pandemic.

Study Populations

Given the broad eligibility criteria for the FS Program, there was a wide range of member populations enrolled. Primary analyses combined all participating members together but were conducted separately by tenancy programs and nutrition programs. Secondary analyses assessed impacts for specific member populations and were guided by the HNBC for FS Program eligibility and policy areas of interest (e.g., adults and children separately, members with behavioral health conditions, and members who received medically tailored meals). Subpopulations were identified using FS administrative data and DxCG diagnostic categories. Consistent with primary analyses, secondary analyses were conducted separately for those enrolled in tenancy and nutrition programs.

Analyses of the BH and LTSS CP programs were conducted separately for BH CP enrollees and LTSS CP enrollees. The study population included ACO enrollees who were enrolled with either a BH or an LTSS CP for at least 320 days within one or more CYs during 2019-2022. Since the CP Program launched in July of 2018, CY2018 was excluded from the analysis because no enrollee could meet the criterion of at least 320 days of enrollment. Enrollees could contribute multiple records to the analysis for each year that they met inclusion criteria.

Comparison Groups

To analyze the impacts of the FS programs on member healthcare utilization and costs, we employed a design that compared outcomes between program enrollees and propensity score-weighted comparators who did not enroll. For the FS Program, the comparison group was comprised of ACO enrollees aged 18-64 with at least six months of MassHealth enrollment prior to their start date, at least 3 months of MassHealth enrollment after their start date, and who were screened and identified as eligible for FS but did not enroll, making them potentially most similar to FS participants in terms of qualifying health needs and risk factors. Comparison groups were separate for housing and nutrition, although some members could contribute to both comparison groups if they were both housing insecure and food insecure. Similarly, some members served in both the tenancy preservation and nutrition treatment groups if they were enrolled in both tenancy preservation and nutrition programs.

For the CP Program, comparison groups were drawn from MCO/PCCP enrollees who were enrolled as managed care eligible for at least 320 days during a CY and who met the criteria used by MassHealth for CP enrollment in the year prior to the measurement year, and who did not enroll during the measurement year. CP comparison group members could contribute one or more records for each year they met the criteria for being in the comparison group.

Study Design

The study design for the FS Program analysis was a retrospective cohort study. The MassHealth data contained quarters of FS enrollment rather than exact start and end dates. Index dates for FS Program participants were defined as the midpoint of the first quarter of enrollment, with the end date defined as the midpoint of the last quarter of enrollment (enrollment data were only available quarterly). For members who were only enrolled in one quarter, their index date was the first day of the middle month in that quarter, and their end date was the last date in the middle month of the quarter. For a subset of FS participants receiving medically tailored meals, the evaluation team had access to the actual start and end dates from the service provider, and these dates were used when known. For the nutrition and tenancy preservation comparison groups, paired index dates and end dates were randomly assigned to comparison members from the distribution of dates among the FS participants to ensure that the distributions of start and end dates were equivalent between the two groups. This resulted in an equivalent mean per person observation time in the treatment and comparison groups and balance across calendar years. Outcomes were then assessed across multiple time periods: the first for the change in the 6 months pre-intervention to intervention completion. Secondary analyses explored if there were differential outcomes among participants during the COVID-19 pandemic and after the COVID-19 pandemic emergency declaration ended by examining outcomes separately in PY3 - PY4 (CY2020–CY2021) and PY5 (CY2022 and Q1 2023).

The study design for the CP Program analysis was a retrospective repeated measures cross-sectional study. Comparisons were made between ACO enrollees who were enrolled with CPs versus MCO/PCCP non-CP enrollees within each CY during 2019-2022.

Propensity Scores

Propensity scores were calculated through logistic regression modeling in which the outcome is selection into the treatment group, and the explanatory variables are covariates that may act as confounders, with random effects for ACO or MassHealth region (FS nutrition analyses used ACO, FS housing and CP analyses used MassHealth region) to account for health-system and regional effects and participant clustering. Covariates in the propensity score models for the FS Program analyses included age, sex (as a biologic variable), race/ethnicity (self-reported by participants and listed in members' enrollment file), DxCG score (summarizing medical complexity based on diagnosis codes and is used in MassHealth risk adjustment models), RxCG (summarizing medical complexity based on prescription medications and is used in MassHealth risk adjustment models), disability status (based on MassHealth data indicating a member's status as a client of the MA Department of Mental Health (DMH), client of the MA Department of Developmental Services (DDS), or eligible for Medicaid due to disability), NSS-7 (neighborhood stress score), participation in the CP program (for FS analyses only), COVID-19 diagnosis in the year prior to enrollment, smoking, alcohol, and drug use in the year prior to enrollment, common diagnoses of comorbid mental health and physical health conditions that align with the FS program eligibility criteria, plus healthcare utilization (e.g., number of ED visits, inpatient admissions, primary care visits) and TCOC in the 6 months prior to participants' index date. Propensity score models were calculated separately for each population (i.e., nutrition support, tenancy preservation support, adult, children, and medically tailored meal enrollees, and adult enrollees of tenancy preservation supports with BH conditions).

For BH CP enrollees, other covariates were included in the propensity score to indicate whether an individual met MassHealth's diagnosis and utilization-based criteria for enrollment with a BH CP based on membership in one or more of three qualifying groups (1. Highest risk BH; 2. High-risk BH; and 3. SUD) during the year prior to the measurement year. For LTSS CP enrollees, additional covariates were included to indicate whether an individual had at least three consecutive months of LTSS spending of $300 (the criterion for MH assignment to an LTSS CP) and the total amount of LTSS spending in the year prior to the measurement year.

Propensity scores were then used to create overlap weights. Overlap weights have the advantage of producing near-perfect covariate balance between treatment and comparison groups across all covariates included in the propensity score model. They also give the most weight to study participants who are equally likely to enter either the treatment or comparison group, mimicking a key attribute of randomized trials, while down-weighting participants who are likely to always end up in either the treatment or comparison group. This statistical approach may help reduce selection bias and confounding in a quasi-experimental study.

Analysis

To assess the impact of the CP and FS programs on continuous outcomes of costs (TCOC and by service category) and number of days hospitalized, we used generalized estimating equations (GEE) that accounted for repeated within-person measures over time that were weighted with propensity score overlap weights. To evaluate CP and FS Program impacts on utilization (inpatient admissions, ED admissions, primary-care sensitive ED admissions, primary care visits, 30-day readmissions, and ED admissions), we used GEE with a negative binomial link, which is best suited for count data with rare events. GEE models are compatible with propensity score weights and produce reliable estimates when the propensity scores are estimated with mixed models that account for the multilevel data structure (i.e., clustering by ACO or MassHealth region).

2.2.6. Limitations

There were several limitations in primary data collection due to COVID-19. In-depth interviews to provide case study data are typically performed in person to observe activities in context and obtain relevant materials to develop an in-depth understanding of processes and behaviors. However, due to the COVID-19 pandemic, all in-depth case studies and KIIs were conducted via videoconference. While this limited our ability to view organizational contexts firsthand, we solicited responses from a range of staff and probed for specifics about processes and workflows to achieve a nuanced understanding of each organization's activities. Conducting interviews using videoconferencing became the norm during the COVID-19 pandemic. We continued this process post-pandemic as we became facile in using the technology and skilled in conducting virtual interviews. Along with the change in data collection methods, the timelines for some data collection were delayed to mitigate challenges presented by the COVID-19 pandemic. Finally, we were cognizant of the impact the COVID-19 pandemic might have on members when recruiting and interviewing them. Some members who had expressed interest when first recruited were no longer interested or were unable to participate in an interview due to anxiety about COVID-19. Because we had a sufficient pool of potential interviewees from which to draw, we were able to complete the planned number of interviews, both during the COVID-19 pandemic in Wave 1 and the post-COVID-19 pandemic in Wave 2. Beyond COVID-19- pandemic-related challenges to data collection, our qualitative findings are subject to typical limitations of such data, including the potential for interviewer and respondent biases that may have affected the content of data that was collected.

Concurrent non-Demonstration-related policy changes at the state and federal levels may also have introduced time-varying confounding. Of particular importance during our evaluation period, public health challenges and policy responses to the COVID-19 pandemic were a source of time-varying confounding. Throughout the federal PHE, for example, many organizations experienced financial, workforce, and technological challenges affecting their performance. Viral transmission and stay-at-home orders completely disrupted the lives of individuals and families, taking massive tolls on health and well-being. There were large-scale effects on care-seeking behavior and access to care and shifts in the healthcare delivery system that delayed care for many, which often changed the modality through which it was delivered. MassHealth enrollment

increased throughout the PHE due to the continuous enrollment provision of the Families First Coronavirus Response Act, helping many members maintain continuous coverage.[50] Changes in the enrolled member population were not random and introduced confounding into longitudinal analyses that may only partially be addressed analytically when evaluating Demonstration policies. However, our evaluation captured the trend of changes pre-PHE and used comparison groups to mitigate confounding, while also extrapolating pre-PHE trends forward to provide a hypothetical approximation of what may have occurred absent the COVID-19 pandemic.

Multiple data sources, including member surveys, hybrid quality measures, ACO provider and CP staff surveys, and practice site administrator surveys, were only available for a subset of the populations and years of interest. Furthermore, analyses using these data sources lack a comparison group, limiting the strength of inference that can be drawn regarding whether changes were caused by the DSRIP program. Other data limitations affected the evaluation of the FS programs, including the lack of start and end dates (only quarters of enrollment were available) and the absence of detailed information on which services and in what quantities were delivered. HRSNs screening results were not available to facilitate selection of comparison groups.

For analyses using administrative data, our approach using MassHealth's algorithm to assign members to the virtual ACO, MCO, and PCCP populations based on their PCP's affiliation at the time of the launch of the ACO program may have misclassified PCPs and misattributed some members. Some organizations may have enhanced the comprehensiveness of their data submissions and coding practices over time. We observed an increase in the managed care eligible population's medical morbidity in 2018 and 2019, which was likely due in part to these changes in recorded medical conditions and due to a secular trend where healthier members were exiting the MassHealth program to the private insurance market. After 2020, the managed care eligible population appeared to become healthier, likely driven by the pause of eligibility redeterminations during the COVID-19 pandemic PHE. By pausing redeterminations, individuals who would normally have been terminated from MassHealth continued to be enrolled, and these individuals tend to be on average healthier than those who are continuously Medicaid eligible. We used comparison groups exposed to similar secular trends, and our modeling adjusted for medical morbidity changes, but to the extent that ACO providers coded more or less aggressively than MCO and PCCP providers, this could introduce bias. Moreover, the size of the MCO and PCCP comparison group declined over time, while enrollment in ACOs increased, which may represent selection forces and contribute to unmeasured differences between ACO and MCO/PCCP enrollees. Generally similar distributions and trends in observed characteristics over 2018-2022 (**Table 2.2-D1.7** and **Table 2.2-D1.8**) increase confidence that the MCO/PCCP population remained an appropriate comparison group throughout our study period. However, like all propensity score methods, overlap weighting cannot adjust for member characteristics that are not measured (except to the extent unmeasured variables are correlated with those that are measured) or not included in the propensity score model. Residual confounding may occur, however, this is inherent in quasi-experimental evaluations of natural policy experiments, which by their nature and scale are not randomized controlled trials. These same considerations

[50] Congress.gov. (March 18, 2020). H.R.6201 - Families First Coronavirus Response Act. Congress.gov. H.R.6201 - 116th Congress (2019-2020): Families First Coronavirus Response Act | Congress.gov | Library of Congress.

regarding potential unmeasured confounding apply to our comparisons of CP and FS Program enrollees with comparison groups. Our methods for including carefully balanced and weighted comparison groups help mitigate the influence of confounding.
We have focused most of our evaluation on members enrolled in MassHealth for almost the entire CY (320+ days). Since members with shorter periods of enrollment in MassHealth comprise almost one-third of MassHealth members in any given year outside of the PHE, further analyses are needed to examine differences for members with shorter periods of enrollment within a CY. For select measures and programs, we performed analyses among members with shorter periods of enrollment.

The member experience surveys have several limitations:

1. Low response rates and the potential for residual non-response bias despite weighting adjustments to correct for it.
2. Limited data on clinical conditions and healthcare utilization to adjust for non-response bias.
3. Changes to BH and LTSS surveys across survey waves, including clearer definitions of BH services, clearer definitions of LTSS and LTSS providers, expanded response categories for several questions to accommodate for a wider range of values for response options to better detect variation.
4. 2019 data were collected between January and May 2020, the beginning of the COVID-19 pandemic, which might have impacted members memories of services and care received before the COVID-19 pandemic.
5. The BH and LTSS survey instruments were developed early in the 2017-2022 Demonstration, and newer items may require further refinement and validation.
6. Members may have been surveyed in multiple years but member responses are de-identified where unique member IDs to account for repeated measurements within individuals are not available.
7. Large sample sizes increased the likelihood of detecting statistically significant differences between 2018 and 2019 results that were not of clinical or policy significance.

The ACO provider and CP staff surveys' administration was paused and delayed due to the COVID-19 pandemic. To collect results that reflected the early Demonstration implementation period and reduce potential confounding associated with changes in perceptions due to the COVID-19 pandemic, survey instruments were revised to ask respondents to base their responses on the pre-pandemic period. This may have increased recall bias. The surveys are also susceptible to non-response bias. However, the response rate was very good for the CP staff survey, while the ACO response rate was consistent with other provider surveys, and for both surveys, we applied inverse probability of response weights to adjust for observed sources of non-response bias.

The ROI analysis and CEA have several limitations. A limited perspective was used to estimate the ROI and CEA, i.e., the MassHealth perspective. Limiting the analysis to MassHealth instead of a societal perspective might conceal the positive effects DSRIP has on the healthcare system as a whole, therefore underestimating the benefits of the DSRIP program. For example, the

skills, relationships, and systems developed through DSRIP might benefit other members who seek care at practice sites who have contractual relationships with the ACOs, as well as family and caregivers of MassHealth members. In addition, the benefits associated with the FS Program might exceed the benefit to the enrollee to impact their entire household.

In estimating the cost of the DSRIP program, the costs of activities associated with the DSRIP program and covered by financial sources other than the State Operation and Implementation Funding were not included in the cost estimate. However, other sources might have been used but not identified, which might underestimate the cost of the DSRIP program. The expenses from other sources the team identified are marginal and would not have an impact on the overall cost of the DSRIP program.

The ROI focuses on the incremental change in the TCOC compared to the cost of the DSRIP program. The COVID-19 PHE affected MassHealth members' use of and access to healthcare, which impacted members' TCOC, and led to some changes in the DSRIP program, such as postponing programs or shifting the focus of investments. While the change in the DSRIP cost might be marginal, the shift in members' care, especially during 2020, was substantial. This could under- or overestimate the benefit of the DSRIP program and its impact on members' TCOC if the impacts were differential for ACO versus MCO/PCCP enrollees. Moreover, we expect progress on delivery system transformation was interrupted and delayed by the COVID-19 pandemic, while some shifts in care delivery (e.g., widespread telemedicine adoption) were accelerated.

The DSRIP program represents a wholesale reorganization of the delivery and payment system. Its effects are much broader than the eight measures included in the CEA. The measures that were selected were chosen in large part because they are measurable, and they only capture small components of the DSRIP program's effects. In addition, the benefits were hypothesized to accumulate over time, however, due to COVID-19 pandemic PHE, there is a small window to properly measure the impact of the program. The first year of the program did not finalize ACO attributions and begin CP enrollments until the midpoint of the CY in July 2018, which translates into fewer than two full years of implementation before the onset of the PHE in March 2020. Finally, we did not have utility information collected using scales that measure health-related quality of life and, therefore, could not perform a cost-utility analysis.

Finally, due to differences in purpose and scope, our evaluation approach differs in several respects from MassHealth's internal monitoring of its programs and accountability calculations. Our populations of interest are programs (i.e., ACO, CP, FS) or subgroups of members or organizations within those programs with a specific characteristic, whereas MassHealth's focus is often on the performance of specific organizations. As such, MassHealth typically reports median ACO performance for a given measure (i.e., an n of 17 ACOs) in contrast to our reporting of aggregate results for the ACO program (i.e., an n of all members in the denominator for the measure). Another key difference related to our focus on entire program level performance is our application of looser continuous enrollment requirements (e.g., at least 320 days in any ACO) versus MassHealth's stricter requirements (e.g., at least 320 days in a specific ACO). Other differences were noted elsewhere in this section. We primarily use 2018 measure specifications and hold specifications constant over time, except where substantial changes in specifications were made (e.g., to incorporate telemedicine post-the COVID-19

pandemic). For member experience surveys, we perform analyses at the composite and item level and use weighting for non-response, while MassHealth primarily performs analyses for composites and does not use weighting to address non-response bias.

2.3. Summative Findings by DSRIP Domain

2.3.1. Domain 1: State, organizational, and provider-level actions promoting delivery system transformation

Domain 1 examines the actions taken by the State and Delivery System Reform Incentive Payment (DSRIP) "participating entities" and other key entities, comprising Accountable Care Partnership Plans (ACPPs, also referred to as Model A ACOs), Primary Care Accountable Care Organizations (PCACOs, also referred to as Model B ACOs), and Managed Care Organization-Administered ACOs (MCO-ACOs, also referred to as Model C ACOs) (together Accountable Care Organizations, ACOs), ACPP managed care organizations (MCO) partners, Community Partners (CPs), and Social Services Organizations (SSOs), to facilitate delivery system transformation. Domain 1 addresses four research questions (RQs):

RQ1: To what extent did the state take actions to support delivery system transformation?

RQ2: To what extent did ACOs take organizational-level actions to transform care delivery under an accountable and integrated care model?

RQ3: How and to what extent did CPs target resources and take actions to operate under an accountable and integrated care model?

RQ4: How and to what extent did ACOs, MCOs, and CPs align resources and take common actions to operate under an accountable and integrated care model?

RQ1: To what extent did the state take actions to support delivery system transformation?[51]

RQ1 Summary

The state took several actions to achieve a significant restructuring of its managed care delivery systems. This included implementing the new ACO, CP, Flexible Services (FS), and Statewide Investments (SWI) programs, utilizing DSRIP funds to finance delivery system reform efforts, recruiting dedicated staff to oversee these programs, providing data and reporting support to ACOs and CPs, and regularly engaging with key stakeholders to communicate implementation plans, obtain feedback, and refine programs. ACOs and CPs appreciated the accessibility and responsiveness of MassHealth DSRIP program staff, acknowledging their significant role in addressing concerns and overcoming challenges during implementation.

MassHealth administered DSRIP funding to ACOs and CPs. These funds supported building Health Information Technology (HIT) systems and data analysis capabilities, hiring dedicated staff for care coordination, and launching FS Programs to address health-related social needs. Numerous entities that received DSRIP funding expressed their reliance on DSRIP funds to participate in the delivery system transformation process. While state actions

[51] Summative Findings described in RQ 1 come from Key Informant Interview (KII) data unless otherwise noted.

and DSRIP funding proved essential for implementing delivery system reform at the organizational level, stakeholders raised concerns regarding how to sustain the successes of various DSRIP-funded initiatives.

MassHealth implemented SWIs that were designed to enhance the supply, preparedness, and retention of the community-based healthcare workforce. Initiatives such as student loan repayment were described by ACOs and CPs as pivotal in recruiting and retaining staff, especially in community-based settings. Challenges persisted in recruiting and retaining certain types of clinicians, such as psychiatrists and nurse practitioners (NPs) with prescribing privileges, particularly in community-based settings, though some successes were reported. MassHealth also implemented SWIs to enhance access to care, with providers adapting practices to accommodate physical and mobility disabilities and investing in technology to address language, comprehension, and verbal communication needs.

In January 2020, MassHealth also launched the FS Program, investing approximately $150 million in funding over three years to address health-related social needs (HRSN), including tenancy and nutritional needs of eligible ACO-enrolled members. The investments were originally intended to cover five years of services, but because of delays in gaining approval for the Flexible Services Protocol, MassHealth spread the investments across the final three years of the Demonstration. As part of the ACO program, the FS Program supported MassHealth's broader objective of addressing the unmet HRSN of members.

H1.1. DSRIP ACO and CP funding will support delivery system transformation.

DSRIP Funding

DSRIP funding was a major facilitator of system transformation. ACOs and CPs used DSRIP funding for a variety of purposes, including to recruit, train, and retain staff; to improve or create new Electronic Medical Records (EMRs), Electronic Health Records (EHRs), other HIT systems (i.e., to facilitate case management, population health efforts, data use, and sharing, etc.), and general data analytics systems; and, in the cases of some ACOs and CPs, to form and begin operations. Organizational representatives stated that the infrastructure funding was necessary for implementing DSRIP-related changes as well as achieving organizational goals and system transformation.

> *"One of the frustrations as a (PC) primary care doc has always been the challenge of dealing with a population that had so many [social determinants of health] issues that were beyond the ability as a medical provider to deal with, and the referral process for and connection between community organizations that often dealt with these issues was tenuous, to say the least. I think… the DSRIP funding and the focus on building relationships between the medical system and the community resources... it's done nothing but improve the care and give providers a lot more ability to both understand and deal with some of the other issues that impact care."*
> *– an ACO interview participant.*

> *"DSRIP funding has allowed us to think about the [member's medical] record as being something that helps integrate care." – a CP interview participant.*

MassHealth provided ACOs and CPs with DSRIP funds to bolster capacity for high-quality, useful data and data analytics. For some organizations, this provided their first opportunity to integrate data analytics into their clinical processes.

> *"We're able to really leverage our DSRIP money to develop a data analytics department to really service those needs." – a CP interview participant.*

Some organizations described the benefits of DSRIP funding for staff capacity building and identified ways to internally fund staff positions initially hired with DSRIP funding. In other cases, there were concerns about how certain positions could be sustained long-term with internal funding sources; some organizations opted for some of these positions to be eliminated.

> *"We have a number of people in IT that are EHR developers and are data report writers, and analysts that are supported through DSRIP money. I would say that agency's capacity has increased substantially." – a CP interview participant.*

> *"The model of care staff is paid for by DSRIP. Our DSRIP [funding] really goes with nothing else but the model of care … it is people. And we have eliminated at least 15 to 20 positions … last year alone due to the declin[e] in DSRIP." – an ACO interview participant.*

To continue the path of restructuring and reaffirming accountable, value-based care and sustain progress towards a primary-care-centered integrated care model after the conclusion of the 2017–2022 Demonstration, MassHealth developed plans to build in sustainable funding to support ongoing investments to advance PC through a sub-capitated PC model, care coordination support for the most complex members, and investing in expanding behavioral health (BH) access and integration.

MassHealth's plans to increase payment for PC and to shift to a PC sub-capitation model (with risk adjustment phased into the model) for ACOs are clear in the 2022-2027 Demonstration.

> *"One big change… is we are going to be requiring in the next set of ACO contracts that ACOs pay for all PC using a sub-capitat[ed] per-member, per-month, risk-adjusted payment. We are going to be highly prescriptive about the design of that payment, and we will fund ACOs to do it. It will include… a pretty significant increase over baseline PC payments. We view this as a material investment in PC that comes with an expectation that we're moving off of fee-for-service to a value-based way of paying for [primary care services]… We also view this as a multi-year [effort] of moving our PC delivery system further on this journey towards being more effective, integrated, whole-person care centers." – a MassHealth staff interview participant.*

Risk-Adjustment of Capitation

In Q4 CY2016, MassHealth implemented a first-in-the-nation payment model that adjusted for social risk factors in addition to demographics and medical complexity, capable of better aligning

payments with needs across ACOs with varying levels of social risk among their members.[52,53] Some ACO representatives reported that although the health of the population remained fairly stable quarter to quarter, risk scores were not always stable, sometimes showing big changes or large corrections.

> *"We've found that risk adjustment model to really be very volatile … It's big swings quarter to quarter in various rating categories in ways that the health of our population is not changing that much quarter to quarter … MassHealth has been very clear that it is their policy objective to make this accurate and not necessarily stable, but if accuracy means big swings and corrections, that's really tough." – an ACO interview participant.*

Throughout the 2017–2022 Demonstration, MassHealth continued to recalibrate the risk-adjustment model as new data became available and to refine it to improve performance and achieve policy goals. For example, one ACO representative described the traditionally lower payments for children (who generally are healthier and less expensive than adults) to be a barrier to meeting pediatric member needs, especially for pediatric members with medically complex conditions. MassHealth responded by incorporating markers to calibrate payments for medically complex pediatric members and other complex subgroups in a CY2020 update to the risk adjustment formula. MassHealth made additional updates in CY2021 to reflect changes to newborn managed care enrollment as well as updates to state agency and other disability indicators.

> *"We were building brand-new risk-adjusted models, so we worked with our external risk-adjustment experts to do totally new regressions on new data to try to come up with something that would work."*
> *– a MassHealth staff interview participant.*

Total Cost of Care and Population Health Management

MassHealth staff supported ACOs in improving population health and reducing the total cost of care (TCOC) for their members by funding many Technical Assistance (TA) projects that impacted TCOC (see **RQ1 H1.3**).[54] MassHealth also provided market comparisons to the utilization and financial performance of other ACOs overall and for certain service types and subpopulations; MassHealth then helped ACOs identify areas where they may be able to develop population-specific interventions to improve clinical care and financial performance.

> *"I think the role that we try to play at MassHealth is showing ACOs market comparisons to be like, 'Okay, you know, your inpatient rates are a lot higher than everybody else, but look into your data. What populations are driving that?'... One really good specific example is we had one ACO... that had a really high C-section rate, which was helping to drive costs and potentially less clinically appropriate care for some members. One of our medical directors engaged with their medical directors and identified a couple of really minor clinical changes they could make to improve vaginal birth after C-section … we*

[52] Ash, A. S., and Mick E. (2016, October 11). *UMass Risk Adjustment Project for MassHealth Payment and Care Delivery Reform: Describing the 2017 Payment Model.* https://www.mass.gov/doc/umass-modeling-sdh-summary-report-3/download.
[53] Ash, A. S., Mick, E. O., Ellis, R. P., Kiefe, C. I., Allison, J. J., & Clark, M. A. (2017). Social determinants of health in managed care payment formulas. *JAMA internal medicine*, *177*(10), 1424-1430. DOI: 10.1001/jamainternmed.2017.3317 PMID: 28783811; PMCID: PMC5710209.
[54] MassHealth. (n.d.). TA Marketplace. ma-dsrip-ta.com. Retrieved June 29, 2024, from MA DSRIP TA Marketplace (ma-dsrip-ta.com)

try to help them really tailor initiatives to their population."
– a MassHealth staff interview participant.

Early on, MassHealth invested in data capabilities and infrastructure to bolster data and reporting support for ACOs and CPs. MassHealth provided ACOs and CPs with member-level claims and encounter data files, enabling the ACOs and CPs to conduct independent analyses. This supported population health management and Quality Improvement (QI) efforts within the ACOs. One MassHealth staff interview participant perceived this information to be easier for ACOs to work with than CPs due to their differing levels of experience with such data.

There's a little bit more intense support for our CPs that maybe don't have the infrastructure in-house or haven't procured a third-party vendor to assist them in that. So, I think we've given extra effort to some of those organizations that don't typically deal with this volume and complexity of data."
– a MassHealth staff interview participant.

MassHealth surveyed ACOs annually on how they were using MassHealth data and reports and requested that ACOs report any improvements needed. MassHealth was responsive to these survey findings, improving reporting to meet the needs of the ACOs. PCACOs were uniquely dependent on MassHealth data to understand the cost and service utilization of their members because MassHealth pays claims for their members, unlike other ACO models. Early in the 2017–2022 Demonstration, MassHealth conducted financial reporting workgroups with PCACOs to help with challenges they faced tracking financial performance. MassHealth also provided targeted education for PCACOs on how to estimate their TCOC using MassHealth-provided claims and encounters files.

There was a large incentive for ACOs to manage TCOC. In addition to opportunities for shared savings or shared losses based on TCOC performance, an ACO's shared savings or shared losses also directly impacted their DSRIP Accountability Score, which impacted how much at-risk DSRIP dollars the ACO earned. Additionally, MassHealth's pricing model was based on blending market rate and an individual plan's historic TCOC; over time, the blending was skewed more toward the market. Plans that were historically less cost-efficient had their rates move closer to the market over time, incentivizing them to find cost savings.

Contractual Requirements for the ACO and CP Programs

MassHealth's contracts with ACOs and CPs specified requirements for participation in the programs. For ACOs, these included accessible, linguistically and culturally competent care, screening and follow-up for care needs, network adequacy, scope of services offered, care coordination and transitional care management, continuous availability of a clinical advice and support line, financial arrangements and risk-sharing, quality measurement and reporting, and relationship building with CPs. CP requirements included accessible, linguistically and culturally competent care, care coordination and transitional care management, care management, financial arrangements and risk-sharing, quality measurement and reporting, and relationship building with ACOs.

To establish shared mutual expectations, MassHealth required ACOs and CPs to execute agreements establishing parameters for ACO-CP relationships, care timelines, and quality measures, outlining the operational procedures among the respective organizations.

MassHealth intentionally developed those initial requirements to leverage broad community expertise and experience effectively while recognizing that preferred relationships would eventually emerge.

Initially, MassHealth identified and assigned members to CPs based on a set of criteria to support ACOs and CPs at the initial program launch. As both programs matured, MassHealth transitioned member identification and assignment to ACOs. To support this transition, MassHealth supplied a quarterly identified member list to assist ACOs in the identification of members for potential CP assignments. ACOs reported that requiring ACOs to assign members to CPs fostered closer and more collaborative relationships between CPs and ACOs.

MassHealth required CPs and ACOs to designate key points of contact at their organizations, which was highlighted as a beneficial practice by ACO staff interview participants. The key contact provided pertinent information and helped to address issues. This decision streamlined communication efforts, ensuring that staff members were in contact with a consistent individual who was well-versed in their ACO's activities.

> *"Having this point of contact -- our community partner relationship manager … has really been helpful, and the CPs all cite having that one contact person as really a best practice" – an ACO interview participant.*

While MassHealth specified certain aspects of the relationship between ACOs and CPs, they also afforded organizations flexibility in the day-to-day management of these relationships. Both ACOs and CPs frequently encountered challenges with the volume of relationships, exacerbated by the fact that, in many cases, each organization maintained unique care coordination processes. This lack of standardization initially hindered ACOs' and CPs' care management processes. In response, MassHealth made changes to the structure of these relationships. To maximize continuity of care and member choice, ACOs were originally required to partner with all BH CPs in their service area and at least two Long-Term Services and Supports (LTSS) CPs. Many ACOs and CPs found this obligation burdensome. As reported by one CP representative in the spring of CY2019:

> *"[MassHealth] said to the ACOs, set up your own systems … How many ACOs are there? About 20. How many systems out there? About 20. We have to manage all that." – a CP interview participant*

After MassHealth changed the ACO-CP relationship requirements policy to allow fewer preferred partners, CPs still found the multiple systems difficult to manage. CPs stated having multiple partners made information-sharing between ACOs and CPs more challenging. Furthermore, many of the nuts-and-bolts requirements for these relationships, especially regarding the transfer of care plans between ACOs and CPs, were not prescribed by MassHealth. CPs stated the lack of standardization made implementation and operation difficult.

Information-Sharing and Care Coordination

A goal of the DSRIP program was to improve information-sharing and member care coordination among providers while achieving cost savings and improved health outcomes for members. Care coordination can be broadly defined as "the organization of patient care activities between two or more participants (including the patient) who are involved in care, to facilitate appropriate delivery of healthcare services. Organizing care involves the marshaling of

personnel and other resources needed to carry out care activities, and often managed by the exchange of information among participants responsible for different aspects of care."[55] The effectiveness of care coordination is bolstered by the integration of care, defined as "teamwork with a unified care plan that comprises all clinical and nonclinical disciplines as a standard approach to care for designated populations."[56]

MassHealth's requirements for care needs screenings, HRSN screenings, comprehensive assessments, and care plans stand as a notable illustration of how the DSRIP program was designed to foster both information-sharing and care coordination, emphasizing collaborative efforts within a care team to address the diverse needs of members. For CP enrollees, care plans were to be based on comprehensive assessments and co-developed through a collaborative process with the member, their CP, and their Primary Care Provider (PCP) from the ACO. Subsequently, care plans underwent review and were signed by the member, then forwarded to the PCP for their review and signature. Once signed by the PCP or the PCP's designee, the final version was returned to the CP and care team for their use. The care plan included both medical and non-medical goals (e.g., social support) and was tailored to meet the specific needs and preferences of the member as defined by the member and their care team.

Throughout the 2017–2022 Demonstration, MassHealth did not explicitly specify information-sharing procedures between ACOs/MCOs and CPs. This was, in part, based on the recognition that each organization may prefer adopting its own practices to foster relationship-building and collaboration with its partners. Instead, each ACO and collaborating CP was required to submit documentation outlining their information-sharing procedures and platforms to MassHealth as part of their "documented processes."[57] However, the absence of standards, guidelines, or specifications regarding methods for sharing information, such as care plans, between ACOs and CPs made processes confusing to navigate.

> *"It can be a little bit challenging because not every ACO or MCO has the same process … there's a lot to navigate, which can really delay the transmission of documents. And it's not always going to the right person initially for the request, and so it's been a little bit confusing to navigate."*
> *– a CP interview participant.*

Beginning in CY2019, MassHealth made efforts to standardize care plan elements across ACOs, MCOs, and CPs and began requiring CPs to use a care plan "cover sheet"[58] when sharing member care plans with PCPs. MassHealth prescribed the care plan cover sheet contents, which had to include pertinent information for the PCP to help facilitate their review and signature.

MassHealth respondents reported that issues with different information-sharing systems had been raised, and they understood why organizations would ask for standardization. However, MassHealth also recognized issues with standardizing the use of information-sharing practices

[55] Agency for Healthcare Research and Quality. (n.d.). *Lexicon Introduction*. Retrieved June 6, 2024, from Lexicon Introduction | The Academy (ahrq.gov).
[56] Ibid.
[57] Documented processes were appendices to the contractual agreements that were co-developed between ACOs/CPs to outline operational processes the ACOs and CPs would use to work together.
[58] MassHealth implemented a requirement for CPs to use a standardized cover sheet that helped to efficiently communicate CP documentation into a shared language and format that was easier for ACOs to understand and digest

and the use of interoperable systems. For example, standardizing processes for one CP may create additional challenges for CPs partnered with multiple MassHealth ACOs. Additionally, MassHealth predicted that ACOs and CPs would typically want standardization to match up with their preferred system. That would be challenging to implement when ACOs or CPs work on different systems. Standardizing what systems are used and how information is shared would require a system-wide change for many health systems and would require significant financial investment, which may or may not have been feasible for all organizations.

> *"Part of what is contributing to the diversity of approaches is the inherent diversity of the delivery system … Because it's not like everyone is using a fairly standard data infrastructure and we can… say, 'Okay, everyone's using [commercial EHR platform], so everyone give your CPs read access to your [EHR] system, and that's where you should store your care plans, that's how you should exchange your information.' We talk about, internally, whether the Massachusetts delivery system would benefit from much more top-down direction on IT integration overall."*
> *– a MassHealth staff interview participant*

Quality Measures

MassHealth established slates of ACO and CP quality measures that directed organizations' attention toward achieving program goals. ACO and CP performance on quality measures affected the amount of at-risk DSRIP funding they earned, and for ACOs, quality performance affected the amount of shared savings or shared losses they incurred based on their performance against TCOC benchmarks. Detailed information regarding the measure slates is available in MassHealth's DSRIP protocol.[59] Because the impact of quality scores depended on the amount of future shared savings or losses achieved against the TCOC benchmarks, ACOs had incomplete information to create budget forecasts for their future work. MassHealth recognized this unintended consequence and planned to adjust this approach in the next Demonstration.

> *"Whatever your shared savings or shared losses would be adjusted by your quality of performance ... One of the realities that became evident over the course of the last several years, however, was that … it made it difficult for ACOs … specifically to estimate what magnitude of incentive would be available to them. Because they didn't know in advance what their shared savings and shared losses would be. So, depending on the magnitude of that, their quality incentive would be more or less impactful, … so in the next Waiver cycle, we intend to move to an approach that more closely approximate[s] that." – a MassHealth staff interview participant.*

MassHealth curated the quality measures, ensuring they were clinically sound and evidence-based, and promoted the fulfillment of the program goals. A MassHealth staff participant described MassHealth's philosophy in developing these quality measures as not "just measurement for the sake of measurement, but measurement for meaning" and was "thus focused on priority issues and populations." MassHealth developed custom measures to address DSRIP priorities while soliciting stakeholder feedback when existing measures were

[59] MassHealth. (2018, January 10). *Attachment M: Massachusetts Delivery System Reform Incentive Payment (DSRIP) Protocol.* Mass.gov. https://www.mass.gov/doc/dsrip-protocol-amended-january-10-2018/download

unavailable or deemed not sufficiently relevant to DSRIP goals. Many of the custom measures were focused on CP enrollees and were used for both ACO and CP accountability and promoting alignment. While MassHealth intended for these measures to promote coordination by creating joint accountability, some organizations expressed concerns that these measures may hold one organization accountable for activities under the other's control.

> *"Things like that annual PCP visit - that's something that I feel like should be probably more focused on the ACO … at the end of the day, we have no control over the providers and whether or not a member sees a PCP …things like the engagement timeline, you know, we don't have any control over how long a PCP holds onto a care plan so if there's a way to split that out so it's only the parts that we're responsible for … I think it helps to have alignment between what we're responsible for and the ACO, because then we're kind of on the same team, working together with a mutual goal..."*
> *– a CP interview participant.*

Having member-level data allowed ACOs and CPs to develop internal systems to track progress toward quality measures themselves, rather than relying on reports from MassHealth at designated points throughout the year. While adding these data were helpful, some ACOs and CPs reported thinking they were duplicating MassHealth's work and expressed concerns that their internal tracking of measures may not be adequately aligned with what MassHealth was measuring and that there were too many measures to track.

> *"We did embark on using a data warehouse, and the associated software and dashboards with [redacted], so that we could start to track our own measures internally, but without that cross-check with how MassHealth is measuring us, it does kind of leave some gaps." – a CP interview participant.*

> *"I would also add, critically, ACO quality metrics, there are over 20, there's 23 or 27, that's too many for us to actively manage all of them. I think there's also a need for MassHealth to look at how they can better support the ACOs with reporting on the quality side." – an ACO interview participant.*[60]

MassHealth supported organizations in enhancing or establishing QI projects. MassHealth incentivized ACOs to address identified areas of low performance. ACO and CP interview participants indicated that MassHealth was helpful and willing to answer questions and provide guidance about quality metrics when approached. MassHealth provided an opportunity for ACOs and CPs to submit DSRIP Performance Remediation Plans (PRPs). In cases where organizations did not initially earn their at-risk DSRIP funds due to earning less than 100% on their DSRIP Accountability Scores (based on quality and TCOC performance for ACOs, and solely quality performance for CPs), MassHealth offered ACOs and CPs the opportunity to earn back up to 60% of these unearned funds based on their achievement of quantitative goals for certain quality metrics. While PRP participation was optional, all MassHealth ACOs and 25 of 27 CPs took advantage of this opportunity. Staff from a CP organization noted their positive experience receiving support from MassHealth on their PRP.

> *"I think it's been really positive … when we have had questions … [MassHealth staff] will readily jump on a [video meeting] with us, or come to a meeting with*

[60] There were 20 ACO quality metrics in the 2017-2022 Demonstration

us … people are very nice with explaining things, very patient with the questions that we have, and we always get a feeling like they welcome that opportunity to talk with you. … In between regular meetings, if we have questions or things like that, they are really responsive to emails that we send, so I think really across the board, it's been really good…"
– a CP interview participant.

MassHealth staff reported partnering with the Centers for Medicare & Medicaid Services (CMS), the National Committee for Quality Assurances (NCQA), and other quality measure stewards when drafting and developing the quality measure slate. MassHealth worked with these organizations to ensure that the measures were specified correctly and supported by the quality stewards, which was essential to receiving CMS's approval for the program. MassHealth also worked closely with CMS to finalize the quality slates for ACOs and CPs.

"We obviously regularly talk to CMS, and we have a fairly robust process with them, which is built around a tracker of open items that we use with them to pursue, finalizing all the things that we need to finalize approvals of with them to implement our quality program. So, measure design, benchmarks for every measure, and ultimately, the final scoring methodology."
– a MassHealth staff interview participant.

MassHealth also worked with several other stakeholder groups and subject matter experts (SMEs) to develop and manage the quality measures. These stakeholder groups included: the EOHHS Quality Measure Alignment Taskforce, a group of provider organizations, commercial and Medicaid managed care health plans, academic experts, consumer advocates, and state agencies tasked with building a consensus on aligned measure sets to be used publicly and privately; the Taskforce's DSRIP Quality Subcommittee tasked with advising MassHealth on measures and targets utilized in the DSRIP measure sets; the Delivery System Reform Implementation Advisory Council (DSRIC), a group of ACO representatives which broadly advises the state on implementation of the ACO program; New England States Consortium Systems Organization (NESCO), a charitable organization dedicated to strengthening and supporting the capacity of state government Health and Human Service agencies to effectively respond to the needs of the people they serve; State Health & Value Health Strategies (SHVS), a program focused on assisting states with transforming their healthcare systems to be affordable, equitable and innovative; other Medicaid agencies; ACO providers and staff; and CP staff. MassHealth staff described their relationship with the Quality Measure Alignment Taskforce:

"We, like all of the other payers in Massachusetts, are really trying to stay aligned to a Commonwealth-wide set of quality measures... that's definitely had an impact and has been a really rich forum for discussion, I think, across payers, around value, and quality, and how to balance the burden that quality measurement poses on our entities with the value of information."
– a MassHealth staff interview participant.

MassHealth staff described the DSRIP Quality Subcommittee as a subcommittee of the Quality Measurement Alignment Taskforce.

"… It includes representatives from a number of different stakeholders in our community, including some of the ACOs. These tend to be quality experts.

These are very well-known names in the field in Massachusetts. And they are our external advisory body on the Waiver quality program ... any changes that we're contemplating bringing to CMS, we actually bring it to that group first, work it through with them, get their recommendation."
– a MassHealth staff interview participant.

Stakeholder Engagement and Responsiveness to Feedback

MassHealth facilitated the implementation of DSRIP-funded programs by engaging with ACOs and CPs and adapting policies and guidance based on their feedback and concerns. As outlined in previous sections, MassHealth carried out comprehensive stakeholder engagement initiatives, collaborating with quality measure stewards, hosting regular office hours for ACOs and CPs, and maintaining an open line of communication for queries from and support for these stakeholders. ACOs and CPs reported that the regular office hours and conference calls held by MassHealth were helpful when implementing the DSRIP-funded program and tracking their progress toward quality measures. MassHealth sent out regular communications and ACO and CP digest emails to participating organizations. A CP staff member cited their positive experience with the previously described correspondence from MassHealth.

"We appreciate and attend regularly the MassHealth office hours and the quality office hours, we're on all of those. We appreciate the presentations they've done recently, and the slide decks, and the information that they put together. We appreciate the community partner weekly digest, the updates there that we might hear about verbally…" – a CP interview participant.

MassHealth also held Statewide Joint ACO/MCO-CP Meetings, which convened all ACOs, MCOs, and CPs to communicate policy, get feedback, discuss important updates, and share best practices about both programs. These were initially held monthly and then less frequently over time. These meetings were critical to communication between MassHealth and the ACOs and CPs collectively while implementing the CP Program.

MassHealth earned unanimous acknowledgment for its responsiveness to concerns raised by participating ACOs and CPs, as evidenced by adjustments in program requirements over time. For example, one quality measure was initially designed to allow CPs 90 days to initiate contact and engage members in care coordination supports. However, CPs encountered difficulties meeting this requirement, including:

1. Outdated or incomplete contact information available for members;
2. The length of time and effort required to reach members;
3. Differing expectations regarding the processes to assess members for BH and LTSS needs;
4. Developing the care plan with multi-stakeholder input; and
5. Obtaining the member and PCP signatures.

Acknowledging these concerns, MassHealth and CMS responded by extending the compliance timeline for the CP engagement quality measure to 122 days. While issues with accurate contact information for members and the time needed for member engagement and connection to supports persisted through the start-up and implementation period, the extended timeline

alleviated some of the barriers to success for CPs. ACO participants also indicated MassHealth was responsive to their reported challenges but suggested that MassHealth could share best practices to facilitate learning across organizations. Notably, certain forums for ACOs to share best practices did exist, such as in the regularly held Medical Director's Forums, in which ACOs were given the opportunity to share successes and challenges of their programs.

> *"MassHealth has been a really good partner in working with us...Obviously, we have to work very closely. I think the leadership at MassHealth has been very responsive when we've raised issues in trying to deal with them."*
> *– an ACO interview participant.*

> *"I think MassHealth has not done a very good job of really pushing out best practices. Are there some other ACOs where the health center, mothership hospitals, have succeeded well together and what was involved? What are the experiences of other health centers in implementing the program and have some succeeded? I think there's been a real paucity of MassHealth being a facilitator of learning across the programs." – an ACO interview participant*

MassHealth procured DSRIC and held meetings with this group to broadly advise the state on the implementation of the ACO program. DSRIC was comprised of representatives from ACOs, CPs, advocacy groups, and other stakeholders, including MassHealth members. DSRIC meeting agendas covered diverse topics such as payment structures, program restructuring, care coordination, ACO-CP alignment, FS programs, workforce development, SWIs, quality and performance improvement metrics, HRSNs, and health equity. Discussions in CY2020 focused on the COVID-19 pandemic response, including the importance of organizations reaching out to members about prevention, testing, and treatment. DSRIC meetings featured report-back sessions in which MassHealth and other state agencies provided updates on DSRIP financials, performance on quality measures, and other state initiatives linked to DSRIP work. Participating organizations and MassHealth staff found these meetings to be beneficial. Stakeholders were actively involved in discussions and provided feedback, which played a pivotal role in refining and redesigning aspects of the program to advance delivery system transformation. In response to health equity discussions initiated by DSRIC in CY2019, MassHealth formed a DSRIC Health Equity Subcommittee composed of DSRIC members or proxies. The subcommittee provided specific stakeholder input for MassHealth's consideration about further incorporating health equity into the ACO/MCO and CP programs, provided recommendations about health equity-related data collection, sharing, and utilization, as well as identified areas of focus for future health equity work.

MassHealth required ACOs to convene Patient-Family Advisory Councils (PFACs). ACO interview participants said they helped MassHealth members prepare for council discussions by meeting with them beforehand to review materials and answer any questions. MassHealth also solicited feedback from all stakeholders, including members, publicly through a formal request for information (RFI), asking about the ways MassHealth could better engage with members. Later in the 2017–2022 Demonstration, a MassHealth staff member spoke of their desire to include members' voices in decision-making in the future.

"We recently put out a request for information, a public RFI … asking what people would want to see from MassHealth in the way that we engage members to inform policy design, what types of forums and mechanisms and techniques would be effective. We've got some really rich responses back through that that we're currently working through to inform where we go on that topic. I think engaging members more broadly in policy design and strategy … is increasingly also a priority for us. But we have a way to go."
– a MassHealth staff interview participant.

The Social Services Integration Workgroup (SSIWG) was another stakeholder group MassHealth procured. Established at the start of the 2017–2022 Demonstration and continued through December 2020, the SSIWG was tasked with providing input and feedback on the integration of social services into the DSRIP-funded programs. The SSIWG played a key role in designing and launching the FS Program. The SSIWG provided valuable input and support for developing the FS screening tool and a Verification, Planning, and Referral (VPR) Form, along with taking steps to improve the collection of race, ethnicity, and language data of ACO enrollees.

Health-Related Social Needs Screenings

One goal of the DSRIP program was the integration of the healthcare system with community-based organizations (CBO) to address HRSNs, with a particular focus on tenancy preservation and nutrition. MassHealth facilitated this integration by introducing a related quality metric on the ACO slate and concurrently instituting contractual requirements for HRSN screening. In the final year of the 2017–2022 Demonstration, MassHealth staff stated that ACOs still reported low yet increasing HRSN screening rates, which we also report in **Section 2.3.2**.

MassHealth allocated DSRIP funding and provided TA to support organizations in conducting HRSN screenings and connecting members to services. HIT investments were expanded to incorporate screening into the EHR and to foster communication and member care coordination among providers. Simultaneously, ACOs made efforts to select and implement suitable screening tools. A wide range of TA vendors and dedicated funding were offered to ACOs and CPs including for accessing community resource databases and facilitating connections between ACOs and CBOs to address members' HRSNs. Additional details regarding ACO performance on HRSN screening measures and member experiences with HRSN screening are described in **H2.6**.

Flexible Services Program

In January 2020, MassHealth launched the FS Program, investing approximately $150 million in funding over three years to address health-related housing and nutritional needs of certain members.[61] The FS Program was originally intended to span the five years of the 2017-2022 Demonstration, but was shortened to three years based on the timing of the approval of the state's FS protocol.

[61] The $149M was intended to cover five years, but because of delays in gaining approval for the FS Protocol, MassHealth then only spread those dollars out across three years.

MassHealth directed ACOs to pilot evidence-based approaches to address these needs with the goals of reducing the TCOC and improving health outcomes for their members.[62] The FS Program was not an entitlement program, and it was not mandatory for ACOs to participate. Rather, FS was an ACO-focused grant-style program to address the HRSNs of a subset of eligible members. To be eligible, an ACO-enrolled member must meet one of several approved Health Needs-Based Criteria (e.g., complex physical health or behavioral health need), and have at least one of the three tenancy or nutritional social risk factors (i.e., at risk for nutritional deficiency or nutritional imbalance due to food insecurity, at risk of homelessness, or homelessness). MassHealth staff expressed that MassHealth and ACOs initially had some difficulty crafting messages and communicating about the FS Program because it wasn't universally available to all members.

> *"One of the bigger barriers is how do you message and communicate about a program - like our Flex program - that is not universally available for members? It's not an entitlement part of our program so members may or may not qualify... but it's something that sounds like all of our members would want, right?" – a MassHealth staff interview participant.*

Most interviewed MassHealth members were not familiar with the term "Flexible Services." The few who were familiar with the program name indicated they received FS and that the services helped address their social needs (see **H2.6**).

MassHealth allowed ACOs to have some flexibility in FS program design. ACOs were required to submit an FS section of their DSRIP participation plans detailing their FS programs for MassHealth review and approval.

> *"Beginning in [CY] 2019, we were starting to do some work for the [Flexible Services] Program, a lot of technical assistance, ACOs and social service organizations forming partnerships, ACOs designing their flex service strategies and programs, and is really intaking and processing those initial budgets." – a MassHealth staff interview participant.*

MassHealth encouraged ACOs to build partnerships with community-based SSOs for the delivery of these services, requesting that ACOs either partner with SSOs for the delivery of tenancy preservation and nutrition services, or demonstrate that they have engaged SSOs and determined that the SSO did not have the capability, capacity, or desire to provide the needed services.

> *"We've made a deliberate design choice to [give] preference [to] ACOs working with external social service organizations, because we believed that there was untapped community expertise…. That it would be more efficient in the long run if ACOs embraced that process and took the time to build relationships with those organizations and work with them, rather than building something brand new." – a MassHealth staff interview participant.*

[62] MassHealth. (2019, October). *MassHealth Accountable Care Organization Flexible Services.* Mass.gov. download (mass.gov)

To launch the program, MassHealth transferred $4.5 million to the Massachusetts Department of Public Health (DPH) to administer the SSO FS Preparation Fund. Massachusetts DPH distributed these funds to 19 SSOs to facilitate infrastructure and capacity building to support the FS Program. Additionally, MassHealth, Massachusetts DPH, and a technical assistance organization supported learning collaboratives to foster shared learning across ACOs and SSOs.

FS were not intended to replace, substitute, or duplicate existing state or federal entitlements, benefits, or discretionary services. MassHealth required ACOs to help members connect to other available social services. The ACOs could connect the members to these services (e.g., referral to a Supplemental Nutrition Assistance Program (SNAP) Outreach Provider) or the ACOs could refer the members to the SSOs to provide support (e.g., assistance enrolling in the Residential Assistance for Families in Transition program "RAFT"). MassHealth developed and sustained relationships with community-based organizations and other state agencies to educate ACOs about existing resources, terminology, and organizations; to help MassHealth staff evaluate proposed programs; and to avoid duplication of existing services in the community.

The start of COVID-19 pandemic increased or exacerbated members' HRSNs due to lockdowns and social distancing protocols, job losses, increased childcare demands with school closures, economic downturns, and increased clinical and mental healthcare needs, which led to increased financial strain on some individuals and families. This heightened the need for financial assistance, tenancy preservation supports, and nutrition services. To respond, MassHealth allowed ACOs to develop FS programs to address eligible members' needs specifically related to the COVID-19 pandemic. These programs were time-limited and were implemented from April – December of 2020. Member eligibility for COVID-19 pandemic FS programs was the same as standard FS programs (i.e., be enrolled in a MassHealth ACO, meet one of the Health Needs-Based Criteria, and have one or more of the social risk factors). MassHealth also offered flexibility for programmatic requirements, including allowing ACOs to use FS funds to cover certain FS-related ACO administrative costs. MassHealth staff noted that there was a cap placed on funding that could be allocated to COVID-19 pandemic-specific FS programs, which preserved funds to be used consistent with the original pre-COVID-19 pandemic design and goals of the FS Program. Finally, MassHealth worked with CMS to relax in-person screening and planning requirements. MassHealth noted that ACOs and CPs experienced COVID-19 pandemic-related workforce challenges, which further stressed the programs.

Overall, MassHealth staff expressed that the FS Program helped ACOs engage members with complex physical or BH needs longitudinally throughout the 2017–2022 Demonstration to address their HRSNs and build relationships to promote value-based care.

> *"FS is also a big part of the care coordination story. This is something we heard consistently in the first couple years of the program … engaging high-risk members and building a relationship with them, building trust with them, getting them to a place where they can meaningfully participate in care management, really requires addressing their social needs. And FS I think has really catalyzed ACO's ability to do that."*
> *– a MassHealth staff interview participant.*

"I just [connected] someone [with housing] in September; she just reached out to me to help her fill out fuel assistance… we do a monthly outreach, or more if needed... we stay open for 90 days... we want to set them up for success. " – an SSO interview participant

Long-term, MassHealth staff continue to look toward the future, hoping to refine their program based on evolving evidence within Massachusetts and from pilot programs in other states, with the goals of supporting the sustainability and growth of the FS Program and potentially providing a broader range of services to more members to improve health outcomes.

"The other thing we'd love to explore in the future, if the evidence supports it, and bandwidth permitting on our side and the ACO side, is are there other domains that make sense to include in [Flexible Services]? Right now, it's housing and nutrition … We know other states are experimenting with some other domains, like experience of violence, for example. There [may be] evidence-based supports in those spaces that might make sense to incorporate." – a MassHealth staff interview participant.

H1.2 and H1.3. Statewide Investment Overview

The DSRIP SWIs were designed to support infrastructure and increase healthcare workforce capacity across Massachusetts, including among ACOs and CPs.[63] MassHealth contracted with organizations with relevant expertise to administer and manage SWI programs. MassHealth rolled out eight SWIs from three core categories (see **Table 2.3-D1.1**). For information on the utilization and cost analyses of the SWIs, please refer to **Section 2.3.5.**

Table 2.3-D1.1 SWI Categories

Category	SWI #
Category 1: Building and Training the PC and BH Workforce	SWIs 1, 2, 3, & 4
Category 2: Capacity Building for ACOs, CPs, and Providers	SWIs 5 & 6
Category 3: Initiatives to Address Statewide Gaps in Care Delivery	SWIs 7 & 8

H1.2. Statewide investment initiatives aimed at increasing the supply, preparedness, and retention of the community-based workforce (SWI #1 through 4) will support delivery system transformation.

Category 1 of the SWIs, entitled *Building and Training the PC and BH Workforce*, provided support for the recruitment, retention, and training efforts of PCP, BH providers, and frontline healthcare workers, (e.g., nurses, doctors, pharmacists, Community Health Centers (CHCs), etc.) who provide direct care/support to members, in community-based settings; SWIs #1 through #4 fell into Category 1 (see **Table 2.3-D1.2**).

[63] MassHealth. (n.d.). *Massachusetts Delivery System Reform Incentive Payment Program.* Mass.gov. Massachusetts Delivery System Reform Incentive Payment Program | Mass.gov

Table 2.3-D1.2 SWIs #1-4

SWI #	Category 1: Building and Training the PC and BH Workforce
SWI #1	**Student Loan Repayment**
SWI #1a	Student Loan Repayment Program
SWI #1b	BH Workforce Development Program
SWI #1c	Community Partner Recruitment Incentive Program
SWI #2	**PC/BH Special Projects Program**
SWI #3	**Investment in Community-based Training and Recruitment**
SWI #3a	Family Medicine and NP Training
SWI #3b	Community Mental Health Center BH Recruitment Fund
SWI #4	**Workforce Development Grant Program**
SWI #4a	CHW Training Capacity Expansion Grants including advanced training on telemedicine, mental health, and SUD
SWI #4b	Peer Specialist Training Capacity Expansion Grant
SWI #4c	CHW Supervisors Training Program Grant
SWI #4d	Recovery Coach Supervisor Training Incentive Fund
SWI #4e	Competency-Based Training for ACOs and CPs
SWI #4f	Behavioral Health Partnership Expansion Grant

ACOs found the availability of the SWIs extremely beneficial. However, while reported as helpful, some ACOs cited the administrative burden (e.g., application processes) required to participate in and benefit from the SWIs as a barrier. ACOs reported the COVID-19 pandemic negatively impacted workforce capacity, which delayed SWI participation. Due to staffing constraints, several ACOs cited a lack of time and resources to take advantage of SWIs. Therefore, those ACOs that may have benefited most from workforce capacity-building SWIs may not necessarily have been able to meet the participation expectations.

> *"The biggest barrier I'd say for all of [SWIs] is that there was a huge administrative lift to use any of the statewide investments. And so at times it was, unfortunately, a balance between our own personnel capacity to make it*

happen and the advantages that the program offered."
– an ACO interview participant.

CPs also provided positive reviews of the availability and use of SWI funds and programs, although there were some barriers and challenges. CPs and ACOs provided positive reviews of the care plan learning collaborative that both ACOs and CPs participated in:

"It took a few months for us to really get going with our goals, but at the end of it, we developed the biweekly clinical case review meetings … which have been phenomenal. We have piloted a monthly care management, update note for their EMRs, to see if the providers would benefit from having monthly updates directly in their systems … and so in general it has really strengthened our collaboration and communication around the care plans."
– a CP interview participant

"We took advantage of the learning collaborative program [with CPs] that was offered by the state back at the beginning of this year…we learned an awful lot." – an ACO interview participant

CPs noted that the SWIs tended to focus on the BH workforce more than others, which was cited as not always useful to those CPs coordinating LTSS.

"It did seem like there were more opportunities on the behavioral health side or for practitioners, prescribers that would be more likely to be found in a behavioral health organization." – a CP interview participant

Similar to the ACOs, CPs noted that some of the Commonwealth's requirements for participation in SWIs and utilization of funds, such as the application processes, were time-consuming. These administrative hurdles were sometimes limiting, particularly in the early part of the 2017–2022 Demonstration. CPs reported that the application process for SWIs was more streamlined and easier to use over time. Similar to ACOs, CPs cited the COVID-19 pandemic as limiting participation in the SWIs, specifically due to ongoing workforce challenges and the high needs of members during this time.

Student Loan Repayment Program (SWI #1)

SWI #1 included several investments aimed at addressing the recruitment and retention of PCPs, BH providers, and front-line healthcare workers. The Massachusetts League of Community Health Centers (Mass League) was the vendor responsible for the administration of SWI #1.[64]

SWI #1a provided direct student loan repayment support to PC and BH providers in exchange for a four-year commitment to working in a community-based PC setting. There were four cycles

[64] Massachusetts League of Community Health Centers. (n.d.). *Student Loan Repayment Program.* massleague.org/Programs/DSRIPStatewideInvestments/StudentLRP.php.

of student loan repayment investments (SWI #1a). Those who were eligible and interested in participating completed an application through the Mass League.[65] Providers selected to receive student loan repayment awards included Medical Doctor (MD)/ Doctor of Philosophy (PhD) providers, psychologists and psychiatrists, NPs, physician's assistants (PAs), advanced practice registered nurses (APRNs), psychiatric clinical nurse specialists (PCNSs), and licensed BH providers, including licensed independent clinical social workers, licensed mental health counselors (LMHCs), licensed marriage and family therapists (LMFTs), and licensed alcohol and drug counselors I (LADC1s). SWI #1a also offered "Learning Days" for provider awardees to participate in on a quarterly basis. Learning Days were full-day trainings to support skill growth and to help address provider burnout.

SWI #1b provided direct student loan repayment support for master's level BH providers in exchange for four years of service at a community-based BH organization. There was only one cycle of this investment in the initial year of DSRIP, when awards were offered to BH providers for partial repayment of student loans over two years.

SWI #1c supported CPs in recruiting and retaining front-line healthcare workers, including care coordinators, Registered Nurses (RNs) and Licensed Practical Nurses (LPNs), by offering direct student loan repayment support. SWI #1c was offered in Year 1 of the DSRIP program when awards were made to care coordinators in exchange for 18-month commitments, and awards were made to RNs and LPNs in exchange for 4-year commitments.

MassHealth spoke to the importance of the investments made in SWI #1.

> *"We're hearing providers are really appreciative of this, and the opportunity to be able to work in a mission-driven environment and serve the Commonwealth's most vulnerable. I think another really great piece about our student loan repayment program is the learning day opportunities. I think that's a unique thing that helps providers feel connected, which can often help with burnout." – a MassHealth staff interview participant.*

MassHealth staff shared that although required retention commitment periods (4 years for SWI #1a and #1b, 18 months for SWI #1c) had not yet ended at the time of interviews, 90% retention rates were observed as of CY2021. They heard positive anecdotal feedback from participating providers and frontline workers. Many ACOs and CPs took advantage of the various student loan repayment opportunities through SWI #1 and shared positive feedback. Participating ACOs and CPs confirmed that the availability of student loan repayment incentives facilitated the recruitment and retention of providers and staff:

> *"I would say the staff that we approached about the loan repayment are staff that had been with us from the beginning, and they're some of our strongest staff … have been invested in growing … received promotions and responsibility, grown professionally … So, I think it's not only a good way to get buy-in from strong staff, it's also a good way to recognize people who just get*

[65] MassHealth and Massachusetts League of Community Health Centers. (n.d.). *DSRIP Statewide Investments Student Loan Repayment Program INFORMATION FOR APPLICANTS.* SLRPInfoforApplicants.pdf (massleague.org).

it, and invest in them so that they stay with the program long-term."
– a CP interview participant.

Having the initial application process in paper form was a challenge. Due to this feedback, the Mass League moved to an electronic application. MassHealth also reported that, despite the loan repayment offerings, recruitment for positions was difficult due to the high competition for similar roles across the Commonwealth, particularly for CP programs.

Primary Care/ Behavioral Health Special Projects Program (SWI #2)

SWI #2 aimed to engage and retain PC and BH providers working in community-based settings across the Commonwealth by offering participation in innovative projects (see **Table 2.3-D1.3**). The Mass League was the vendor contracted to administer SWI #2.[66] The goal of the special projects SWI was to support provider-led projects over the course of the 2017-2022 Demonstration with up to $40,000 of funding for each project. One-year special project grants were awarded to various entities, including CHCs and community mental health centers (CMHCs) participating in MassHealth payment reform, as well as community service agencies (CSAs), CPs and their Affiliated Partners and Consortium Entities, and other organizations contracted with MassHealth ACOs.

Table 2.3-D1.3 SWI #2 Sample of the 78 Funded Special Projects

Cycle	Project Title
1	Enhanced Training for Psychiatric NPs
1	Improving Access to BH Consultations in the Outreach Setting for High-Risk Homeless Populations
1	Centering Parenting Group Visits with Breast Feeding Support for New Moms
1	Shared Medical Visits for Substance Abuse Prevention and Treatment
2	PC Mental Health Care Partners: Advancing Social Work in an ACO Setting
2	Improving Body Mass Index (BMI) Screening and Provider Care for Weight Management
2	Psychiatry Curriculum for PC Practitioners
2	Behavioral Intervention for Smoking Cessation in Patients with Serious Mental Illness (SMI)
3	SUD Continuum of Care and Telehealth
3	Enhancing Self-Management Support Resources for Patients with Chronic Illness
3	Post-Partum Support, Treatment, and Consultation Specialty

[66] Massachusetts League of Community Health Centers. (n.d.). *Primary Care/Behavioral Health Special Projects Program.* massleague.org/Programs/DSRIPStatewideInvestments/PCBHSpecialPjts.php

Cycle	Project Title
3	Integrated BH Services in the Telemedicine Era
4	Mini-Fellowship to Improve Diabetes Care for Homeless Patients
4	Dementia: Training, Treatment and Care
4	Expanding Access to Psychiatry and Medication for Addiction Treatment (MAT) Throughout the Continuum
4	Closing the Gap: Social Determinants of Health and the Immigrant Population

Special projects offered providers the chance to explore various opportunities and interests while also offering support to improve PC and BH integration in community-based settings. Participation in special projects was thought to address provider burnout by allowing providers to dedicate time away from day-to-day clinical tasks. Special projects were also intended to improve providers' commitment to their community, which the Commonwealth proposed would ultimately lead to workforce retention. Providers who were qualified to lead special projects included physicians, psychologists, psychiatrists, APRNs, PCNSs, NPs, PAs, licensed, certified social workers, LICSWs, LMHCs, LMFTs, and LADC1s. MassHealth spoke of the importance of the special projects SWIs and the variety of applications received.

> *"There was one provider who was using these special project grant dollars to fund community engagement events with families who are being served by their community health center… and another special project might have been… to offer medication-assisted treatment in our practice... So, a pretty different flavor from the family engagement kind of efforts, but also something that is really important, especially when you think about PC and BH integration." – a MassHealth staff interview participant.*

ACOs and CPs participated in various PC and BH special projects and reported them to be beneficial. Several ACOs noted that the availability of funding for special projects in collaboration with affiliated CHCs and CMHCs was particularly useful.

> *"We've had tremendous appetite for statewide investments, and we've used and leveraged everything we've been able to. Mostly opportunities that involved training to our health centers … I would say most of the funding has been on opportunities for the health centers." – an ACO interview participant*

There were five SWI #2 award cycles over the course of the 2017-2022 Demonstration. Some entities applied for more than one cycle. Funds were paid directly to the entity to support expenses detailed in project budgets, and funds were made available at the project start. Awardees were required to meet monthly with the Mass League to monitor progress. Awardees were also required to submit both a mid-year and final report to outline milestones, barriers, and spending.

> *"I don't remember the exact number of how many projects we used … we actually used all of the funds... [it was] certainly something that we wanted to*

take full advantage of and were appreciative of the opportunity to do so."
– an ACO interview participant.

Investment in Community-based Training and Recruitment Program (SWI #3)

SWI #3 included two components focused on community-based training and recruitment in several areas to address provider shortages, and ongoing BH needs across Massachusetts.

SWI #3a focused on Family Medicine Residency Training and NP Residency Training. SWI #3a was offered in two award cycles and aimed to increase the supply of Family Medicine PCPs in CHCs. Similarly, the NP Residency Training program aimed to increase the supply of NP residents in CHCs in four award cycles. Funds for SWI #3a for both the Family Medicine and NP Training programs covered costs, including curriculum development, training, educator and administrator time, and residency compensation. The long-term goal of SWI #3a was to sustain these trainings after the 2017-2022 Demonstration ended and to retain the recruited residents at the practice sites.

SWI #3b offered the CMHC Behavioral Health Recruitment Fund. SWI #3b focused on building a recruitment and retention fund package for psychiatrists and prescribing BH nurse practitioners at CMHCs. Packages in SWI #3b included funds for student loan repayment and two years of funding for provider-led special projects related to accountable care. SWI #3b was developed for specific provider types due to their ability to prescribe medications and the difficulty in recruiting and retaining prescribing providers in community settings. The goal of having these providers on-site at CMHCs was to decrease barriers for members with BH needs who require a prescribing provider.

The Mass League was the contracting vendor for SWI #3.[67, 68] MassHealth spoke of the importance of the investments made in SWI #3.

"… the theory here is that if you can provide residency training opportunities for folks in the community setting … those folks will be more likely to actually choose to stay in the community upon completion of their training, and when they become full attendings … I think in general both of these programs … provide a valuable sort of intervention at that stage in the workforce pipeline ... ."
– a MassHealth staff interview participant.

MassHealth staff also described the importance of the CMHC recruitment packages.

"We packaged together loan repayment and special projects into recruitment packages for CMHCs to offer to providers to attract them to join their practice. And in particular, this was focused on psychiatrists and nurse practitioners with prescribing privileges because these two are very in high demand right now ... there were more slots than we had awarded that did not actually get used. So, I think it's a testament of just how challenging it is to find psychiatrists and

[67] Massachusetts League of Community Health Centers. (n.d.). *Family Medicine & Nurse Practitioner Residency Training Program.* massleague.org/Programs/DSRIPStatewideInvestments/FMNPRTP.php
[68] Massachusetts League of Community Health Centers. (n.d.). *CMHC Behavioral Health Recruitment Fund*. massleague.org/Programs/DSRIPStatewideInvestments/CMHCBHRF.php

nurse practitioners with prescribing privileges to do this work."
– a MassHealth staff interview participant.

Workforce Development Grant Program (SWI #4)

SWI #4 encompassed the Workforce Development Grant Program (see **Table 2.3-D1.4**).

Table 2.3-D1.4 Workforce Development Grant Programs and Goals

SWI #4	Program Name	Program Goal(s)
SWI #4a	CHW Training Capacity Expansion Grants	To make training slots available to CHWs working in entities engaged with ACOs, MCOs, and CPs
SWI #4b	Peer Specialist Training Capacity Expansion Grant	To increase access to peer specialist training for individuals with lived experience with mental health conditions
SWI #4c	CHW Supervisors Training Program Grant	To expand the capacity and training of supervisors of CHWs to advance the integration of CHWs in healthcare settings
SWI #4d	Recovery Coach Supervisor Training Incentive Fund	To increase the number of certified recovery coach supervisors in ACOs and CPs (Program canceled).
SWI #4e	Competency-Based Training for ACOs and CPs	To create a capacity-building training program for the frontline care workforce with less than an associate's degree that enabled workers to earn a Healthcare Management Fundamentals Certificate from Southern New Hampshire University.
SWI #4f	BH Partnership Expansion Grant	To train and increase the skills of community-based Mental health and BH workforce.

Early in the DSRIP program, MassHealth engaged key stakeholders to inform the state about the current gaps in workforce education and training, which ultimately guided decisions for SWI #4 investments. MassHealth invested in the various programs covered in SWI #4 to develop and train specific roles in the workforce, including CHWs, peer specialists, and other frontline workers. MassHealth contracted with Commonwealth Corporation to manage and implement SWI #4. MassHealth cited the importance of the investments made in SWI #4 and the popularity of these statewide investments.

"I think one of the greatest investments we've made is investing in CHWs and care specialists in their training, and advancing their skills, and furthering their advancement in the workforce.
– a MassHealth staff interview participant.

Commonwealth Corporation worked with the Center for Health Impact (CHI), the Transformation Center, and Southern New Hampshire University to develop specific training materials for various personnel investments covered in SWI #4. Training courses included CHW-related trainings, peer specialist trainings, and competency-based trainings. For some trainings, CHI

made the courses publicly available via download on their website. MassHealth cited the popularity of these training courses.

> *"Curriculum has been made available on Center for Health Impact's website, and we just recently got a download of how many folks … have requested to download the curricula, and it was amazing to see that it's over 215 organizations across four different countries [and] 36 states, including the District of Columbia … we were just amazed."*
> *– a MassHealth staff interview participant.*

Completing the CHW Training provided certification as a CHW in Massachusetts via a process overseen by the Massachusetts DPH. Participants in the Competency-Based Training for frontline care workers (SWI #4e) with less than an associate degree could earn a Healthcare Management Fundamentals Certificate. Of note, SWI #4d was canceled by MassHealth prior to implementation. Commonwealth Corporation also provided grants directly to workforce boards for the BH Partnership Expansion Grant program in SWI #4f, which targeted seven regional investment boards.[69] MassHealth spoke to the importance of the investments made in SWI #4.

> *"We know that there's workforce shortages; we know that there's a need in education, and certification. What are alternative provider types that are vital for the care team, for understanding the community, [that are] better in integrating with the community, especially around behavioral health and substance use disorder? So, we wanted to increase... the scales of the community health worker and peer specialist workforce."*
> *– a MassHealth staff interview participant.*

H1.3. SWI initiatives aimed at providing technical assistance to ACOs and CPs, supporting provider preparedness to enter alternative payment models, reducing emergency department boarding, and improving access for people with disabilities and for whom English is not the primary language (SWI #5 through #8) will support delivery system transformations.

SWI #5 through #8 fell into two distinct categories (see **Table 2.3-D1.1**). Category 2 (Capacity Building for ACOs, CPs, and Providers) was a series of investments to provide direct TA and shared learning opportunities for ACOs, CPs, and CSAs. Category 2 also supported providers who were not yet participating in alternative payment models (APM) to prepare for their adoption in the future. Category 3 (Initiatives to Address Statewide Gaps in Care Delivery) was a series of investments to improve the care provided to members with specific BH and accessibility needs through technology solutions and grants. The breakdown of initiatives contained in SWIs #5-#8 can be found in **Table 2.3-D1.5**.

Table 2.3-D1.5 Category 2 and Category 3 SWIs #5 - #8

Category 2: Capacity Building for ACOs, CPs, and Providers	
SWI #5	**Technical Assistance (TA) Program**
SWI #5a	Targeted TA for ACOs and CPs

[69] Susan Pfefferle et al, Jun 28, 2023, *Behavioral Health Partnership Expansion Grant Evaluation*, Stakeholder Briefing

Category 2: Capacity Building for ACOs, CPs, and Providers	
SWI #5b	Learning Collaboratives hosted by the MassHealth TA program
SWI #5b	Learning Collaboratives hosted by Massachusetts League of Community Health Centers
SWI #5b	CHC Readiness Program; TA for Community Health Centers on how best to leverage CHWs; Funds for Community Health Centers to stand up Psychiatric Mental Health Nurse Practitioner Fellowships; Emergency Relief Funds for Reimagining PC (All of these were run through the Massachusetts League of CHCs)
SWI #5c	SWI Pop-Ups
SWI #5c	Standardized Trainings for CPs and CSAs
SWI #6	**APM Preparation Fund**
Category 3: Initiatives to Address Statewide Gaps in Care Delivery	
SWI #7	**Enhanced Diversionary BH Activities (PreManage ED Project and CBHC Preparation Fund)**
SWI #8	**Improved Accessibility for People with Disabilities or for whom English is not a Primary Language**
SWI #8a	A Provider Directory
SWI #8b	Accessibility Grant Programs

Technical Assistance (SWI #5)

SWI #5, the Technical Assistance (TA) Program, is divided into the following categories:

1. Targeted TA for ACOs and CPs provided direct TA to ACOs and CPs in 10 separate domains of support described in detail below, carried out through Abt Associates.
2. Learning Collaboratives provided a shared learning opportunity for ACOs and CPs focused on improving care planning. This was carried out by the Mass League and facilitated by the Center for Health Care Strategies (CHCS) and various collaborators.
3. CHC Readiness Program provided opportunities for CHCs to work toward systems-level change required to participate meaningfully in value-based payment and accountable care. The Mass League carried this out. Mass League also implemented a series of other programs, including learning collaboratives specific to CHC's transition to value-based payment (e.g., a session on how CHCs can best leverage the efforts of their CHWs), funds for CHCs to stand up psychiatric mental health nurse practitioner fellowships, and emergency relief funds for Reimagining PC.
4. SWI Pop-ups were short sessions or webinars covering topics such as member engagement, oral health integration, and system integration. Materials relevant to CHWs, recovery coaches, and peer specialists were also supplied. The Mass League, MassHealth, and various collaborators carried out four sessions. Topics of the pop-up conferences included strategies for engaging hard-to-reach members, creating effective

care delivery systems, optimal approaches to employing and integrating CHWs, peer specialists, and recovery coaches, and medical-oral health integration.

5. Standardized Trainings for CPs and CSAs provided online training and webinars made available to CPs and CSAs to strengthen knowledge and understanding of healthcare reform topics and improve skills in care coordination. The Training and Workforce Development unit in ForHealth Consulting at UMass Chan Medical School implemented this initiative.[70]

The TA program ran from CY2018 to CY2022. From the program's launch, there were 365 ACO and CP TA projects. ACOs and CPs used the TA marketplace to identify TA vendors, apply for funding, submit reports, register for events, and locate resources.[71] There were 47 TA vendors in the TA marketplace in CY2018, with 17 vendors added in CY2020, for a total of 64 TA vendors for ACOs and CPs to choose from. To meet the ongoing needs of ACOs and CPs, 83 "off the shelf" TA packages were added to the marketplace in CY2020. TA projects fell into the following domains: Actuarial and Financial, Care Coordination/Integration, Community-Based Care and Social Determinants of Health, Consumer Engagement, FS Health Information Exchange/ Health Information Technology, Performance Improvement, Population Health Management, Workforce, and Telehealth (added in CY2020).

ACO projects tended to use the Care Coordination/Integration TA resources most frequently; CP projects tended to use the Population Health Management TA resources most frequently. MassHealth staff reported that CPs also utilized HIT TA projects.

> *"… some CPs have their own in-house data and analytics reporting platform. Many of them use a TA vendor to do this and are specifically using the majority of their TA money to fill and maintain the data and reporting platforms that they need to use… I think overall, [CPs] built a lot of expertise in this, and it's contributed to a very collaborative relationship with the ACOs as well."*
> *– a MassHealth staff interview participant.*

Both ACOs and CPs spoke of TA funds as providing opportunities to learn more about what internal practices led to increases in performance. One CP interview participant called the TA funds a "tremendous benefit" and went on to say that they had "learned more through [the TA] projects than [they] could have learned by going to CP school." ACOs and CPs stated that the TA funds supported them in gaining valuable insights to improve their operations. An ACO interview participant noted that TA funds provided them with the opportunity to focus their attention on optimizing their practices.

> *"We also utilize nearly all of our technical assistance funding available to date to the DSRIP program... to help us in various aspects of becoming a high-performing ACO… We intended to be a learning organization all along the way.*

[70] The Training and Workforce Development unit in ForHealth Consulting at UMass Chan Medical School is a different unit and team from Research & Evaluation.

[71] MassHealth. (n.d.). *TA Marketplace.* MA DSRIP TA Marketplace (ma-dsrip-ta.com).

And so, we're continuing to reevaluate, assess, optimize, etc. We're still doing that today." – an ACO interview participant.

The shared learning opportunities through the Learning Collaboratives and other TA offerings were another important part of this investment. These were the crux of the successes touted by ACOs and CPs alike. The Learning Collaborative program aimed to improve ACO and CP integration of the care planning process and provide ongoing training for healthcare workers. One MassHealth staff member explained that these Learning Collaboratives allowed ACOs and CPs to work through the integration process together and identify barriers within their own organizations that were leading to delayed care planning.

"I think that we were able to have some definite wins, leverage some further development based off of the learning collaborative, and be able to also create learning opportunities for things that were needed to showcase and to share resources that were available to the CPs from the ACO...." – an ACO interview participant.

Additionally, a series of "pop-up" conferences allowed attendees to explore accountable care in greater detail for continuing education credit.

The CHC Readiness Program, administered by Mass League, included multiple components related to supporting team-based care, participation in learning collaboratives, TA for workforce development, and telemedicine best practices (especially related to COVID-19), including coaching for telemedicine.[72] The final program within SWI #5 was the Standardized Trainings for CPs and CSAs. This initiative allowed CPs/CSAs to access online standardized training modules, enhancing their understanding of new ACOs and MCOs and clarifying their role within the program structure.

Alternative Payment Model Preparation Fund (SWI #6)

To accommodate ACOs interested in transitioning from older fee-for-service (FFS) models to APMs, MassHealth instituted an APM Preparation Fund (SWI #6). MassHealth received ten applications for this SWI and ultimately allocated a total of $2.2 million in grants, each amounting to $440,000, to five organizations in Central and Western Massachusetts.

Four of these five entities eventually joined three separate ACOs: two joined the PCACO ACO, Community Care Cooperative (C3); one joined the ACPP ACO, Boston Accountable Care Organization (BACO); and another joined the ACPP ACO, Tufts Children's Hospital Integrated Care Organization (CHICO). The allocated funds for SWI #6 were used to develop complex care management programs, recruit personnel, and implement improved population health strategies. Details of the specific ways organizations used these funds can be found in **Table 2.3-D1.6**.

[72] Massachusetts League of Community Health Centers. (n.d.). *Community Health Center Readiness Program.* massleague.org/Programs/DSRIPStatewideInvestments/CHCReadiness.php

Table 2.3-D1.6 Uses of the Alternative Payment Methods Preparation Fund (SWI #6) by Organization

Organization Name	Funding Use
Community Health Connections, Inc	Established a complex care management model and improved organizational data functionality and patient scheduling processes, which provided the necessary infrastructure to join an ACO
Harrington Health Care System Physician Organization	Created a comprehensive care navigation program, which provided the necessary infrastructure to join an ACO
	Hired several positions necessary for accountable care, including a nurse navigator, behavioral health specialists, and CHWs
Baystate Medical Practices	Leveraged the funds to better integrate their processes and developed best practices. Ultimately unable to join an ACO during the duration of the APM Preparation Fund grant
Pediatric Physicians' Organization at Children's	Established a medical home model and patient safety program in the four practices that wanted to join the ACO
	Enabled these practices to connect to the ACO's shared EHR platform
Springfield Health Services for the Homeless Health Center	Implemented a comprehensive population health strategy to align with the ACO's population health systems and goals, which specifically allowed them to develop documented processes, improve reporting capabilities, and improve their technical infrastructure

Enhanced Diversionary Behavioral Health Activities (SWI #7)

For SWI #7, MassHealth entered into a contractual agreement with the Massachusetts Health and Hospital Association (MHA) to ensure members with BH needs received care in the most appropriate, least restrictive settings and to address the frequency and duration of emergency department (ED) visits among members with BH conditions. MassHealth considered a broad spectrum of strategies for investment, such as technological solutions to facilitate providers' access to members' medical histories upon arrival to the ED and data collection and analysis platforms. One area of focus was a novel tool designed to facilitate information exchange across all EDs in the state to reduce ED boarding (i.e., members waiting in the ED because inpatient beds and services are unavailable). This initiative aimed to enhance communications across various hospital systems and to bridge gaps between disparate EHRs utilizing PreManage ED, a technology solution developed by Collective Medical Technologies.

MassHealth also established a preparation fund to support Community Behavioral Health Centers (CBHCs). CBHCs aim to significantly enhance access to routine, urgent, and crisis treatment for mental health conditions and substance use disorders. The designated CBHCs are set to offer same-day evaluations and referrals for treatment, extended evening and weekend hours, prompt follow-up appointments, and evidence-based behavioral health treatments. These services are available both in person at community-based locations and via telemedicine. Also, the CBHCs will establish a statewide network to provide 24/7 community-based mobile crisis intervention and stabilization services, offering an alternative to hospital EDs.[73]

[73] Massachusetts Behavioral Health Partnership. (December 22, 2022). *2022 Community Behavioral Health Center Programs.* Masspartnership.com. providers.masspartnership.com/provider/cbhcrfp.aspx

Improved Accessibility for People with Disabilities or for whom English is not their Primary Language (SWI #8)

SWI #8b, the Accessibility Grant Program, was used to offer grants to MassHealth FFS providers to improve healthcare access for people with disabilities or for whom English is not their primary language. The vendor for SWI #8 was Health Resources in Action (HRiA). MassHealth staff reported that the Accessibility Grant Program was used by providers to adapt their practices to accommodate physical and mobility disabilities, taking actions such as installing stair climbers. Additionally, investments were directed toward technology enhancements addressing language comprehension and verbal communication needs (i.e., translation devices software).

MassHealth staff reported that a member-facing Provider Directory, SWI #8a, that details the accessibility features and equipment of MassHealth providers was being developed at the time of interviews. The Provider Directory has been implemented and is now publicly available.[74] MassHealth worked towards developing a standalone member-facing directory that included provider accommodations but pivoted to integrate accommodation capabilities into several of its existing provider directories. Providers can now voluntarily add in their accommodation capabilities. MassHealth is continuing to think through how to encourage providers to add these capabilities. MassHealth staff were optimistic about its positive impact on members.

> *"In terms of success for the program … updates to the directory have been scoped out, but they haven't been fully implemented yet. We have received positive feedback from the advocate community based on our design plans, and we do believe that this will have a positive impact on access for our MassHealth members with disability and for our members for whom English is not a primary language." – a MassHealth staff interview participant.*

RQ2: To what extent did ACOs take organizational-level actions to transform care delivery under an accountable and integrated care model?[75]

RQ2 Summary

Throughout the 2017–2022 Demonstration, ACOs took action to transform care delivery and operate under an integrated care model. Effective ACO governance was instrumental to progress during the first few years of implementation. Very few changes to governance structures occurred in the final two years of the 2017–2022 Demonstration. ACOs used financial and non-financial incentives to encourage and support providers and staff in delivery system reform and QI activities.

Early in the 2017–2022 Demonstration, ACOs reported using DSRIP funds, including SWI funding, to improve existing HIT infrastructure and establish processes for sharing member data within and across organizations. Later in the 2017–2022 Demonstration, ACOs improved their HIT capacity to facilitate information exchange between entities, identify HRSNs, and establish data exchange processes to improve patient-centered care and track quality performance.

[74] MassHealth. (n.d.). *Mass.gov Directory.* Mass.gov. MassHealth | Mass.gov (state.ma.us).
[75] Summative Findings described in RQ 2 come from Key Informant Interview data unless otherwise noted.

Over the course of the 2017–2022 Demonstration, ACOs implemented strategies to reduce TCOC, such as instituting risk management assessments, increasing data analytic capacity, and developing algorithms to identify members with complex, costly needs across the ACO's network. ACOs reported that these strategies allowed them to focus on providing members with the care necessary to reduce members' need for unnecessary services. Data were used for various initiatives, such as tracking cost, performance, and health inequities. ACOs shared these data, through various mechanisms, with staff and providers to improve individual and practice-level performance. Many ACO staff reported that comprehensive data availability was foundational to meeting quality performance goals.

All ACOs established strategic partnerships with CPs and SSOs, leveraging their expertise and knowledge to provide services to members. All ACOs made advancements in identifying and addressing members' clinical needs and HRSNs, improving communication with internal and external partners, and coordinating and integrating care. While ACOs described misaligned expectations and processes of care coordination management earlier in the 2017–2022 Demonstration, they identified strategies to align through standardized workflows, data sharing, staff roles, and responsibilities. By the end of the 2017–2022 Demonstration in CY2022, the majority of ACO provider and CP staff survey respondents indicated that they agreed or strongly agreed that member care was well coordinated (internally and externally), care teams met frequently and communicated candidly, and good referral systems were established.

Over the 2017-2022 Demonstration, ACOs developed and filled new roles to facilitate care coordination, including ED navigators, inpatient care coordinators, and CHWs. ACOs reported that having a mix of co-located provider types facilitated improved clinical and social service integration. Social workers within care management teams were essential to addressing HRSNs. Care coordinators helped members with complex needs stay engaged in their care plans. Collaboration among CHC staff was noted as helpful, especially when identifying and understanding available member supports. However, workforce capacity limitations were described as an ongoing challenge that negatively affected access to care. ACOs engaged new staff (e.g., co-located care managers), followed new processes (e.g., centralized phone numbers), and improved communication among partners. These strategies, coupled with the FS Program's launch, helped mitigate wait times and service shortages for members with complex social needs.

ACOs adapted clinical operations to address member needs during the COVID-19 pandemic. Disenrollment preclusions during the federal Public Health Emergency (PHE) increased the number of MassHealth members the ACOs were serving. ACOs reported some access challenges because of the increase in membership and the diminished workforce capacity.

To improve capacity during the COVID-19 pandemic, ACOs used remote consultations and visits via telemedicine. With the relaxation of in-person treatment requirements, ACOs initiated some treatments, such as suboxone and buprenorphine for members with SUD, during remote visits. ACOs also delivered home-based care or delivered services in pop-up clinics to keep members out of the hospital and to prevent COVID-19 transmission. While telemedicine improved access for some members, some ACOs were concerned that increases in telemedicine could have detrimental effects on equitable care access.

"During COVID, some of the restrictions that have been lifted for prescribing medication for substance use disorder have made things a little bit easier…So being able to initiate suboxone, buprenorphine through telehealth has increased. But it has also, unfortunately, increased the digital divide, so that's something we need to continue working on, and making sure that we are really focusing on equity across our program." – an ACO interview participant.

Finally, many ACOs launched robust vaccination education and delivery efforts in their communities. Some ACOs partnered with local organizations to set up vaccination sites and to reach out to members. Others worked with partners on data analytics to identify areas of vaccine hesitancy or low vaccination rates to mobilize strategically to improve uptake.

"We were able to create a very clear story that allowed us to mobilize and target initiatives to actually improve our vaccination rates … when we started working with [one CP] on the data analytics, we had something like a 12% full vaccination rate among our ACO patients, and now among our adult populations we're at 52% … the data helped us define what the strategic priorities were and mobilize..."
– an ACO interview partner.

H2.1. ACOs will vary with respect to governance structure (e.g., lead provider, role of provider and member), service scope, and local conditions (e.g., experience participating in payment reforms, local context/market served).

Governance Structure

Governance structures varied across ACOs. From the outset of the 2017-2022 Demonstration, most ACPPs had a joint operating committee (JOC) that incorporated representatives from providers and health plan partners. Many ACPPs also had a Board of Directors that reported to the JOC. A handful of ACPPs and all PCACOs had a Board of Governors as their primary governing body, responsible for oversight and strategic direction of the ACO. ACO interviewees noted that each organization's basic governance structure did not substantially change throughout the 2017-2022 Demonstration. The governance structures and committees were primarily staffed by providers and other expert finance and operations staff, with many also including member representatives. Some ACO staff reported the expansion of governing boards and committees to include more staff, with others describing new leadership representatives in governance based on staff turnover.

"I would say the big change we made is we expanded the board of directors to be a bit more inclusive … we had had some groups [within our organization] who didn't have representation on the board... Our choices were either put in term limits for the people on the board so we would have a rotating group of people to make it fair, or expand the board. We chose to expand the board."
– an ACO interview participant.

ACOs regarded committees as a crucial part of the ACO governance structure, often responsible for oversight, assessment, evaluation, and improvement of components of ACO operations. While the targets and objectives of committees varied across ACOs, many had committees overseeing care quality, finance, diversity and equity, information technology, and performance management. All ACOs were required by MassHealth to have a PFAC as part of or

reporting to their governance bodies to represent members' voices in governance. Committees, including the PFACs, provided the necessary content expertise and guidance to inform ACO governance.

Many ACO staff reported that committees evolved, adapted, or disbanded throughout the 2017-2022 Demonstration to meet each ACO's developing or diminishing needs.

Service Scope and Local Conditions

While all ACOs were expected to deliver integrated, coordinated care, the ACOs began operating under the 2017-2022 Demonstration with different levels of experience with value-based contracts and organizational capacity to provide population-based care. The 17 MassHealth ACOs varied in characteristics such as payer mix, HIT infrastructure and medical record systems, geographic location, and member characteristics. Many ACO staff reported that these heterogeneous characteristics influenced their readiness to meet MassHealth requirements and deliver high-quality, integrated care for their members.

ACOs had varying HIT system capacity and staffing resources at the beginning of the 2017-2022 Demonstration, and each had to implement different initiatives to build capacity and meet program requirements. Several ACOs benefitted from prior experience with value-based contracts with other payers. Organizations new to value-based contracting often had to build HIT capabilities from the ground up.

Generally, ACO staff described some administrative tasks as burdensome. For example, some annual reporting requirements were described as burdensome due to misalignment with other payer reporting requirements, requiring duplicative work. Some ACO staff reported that the ACO initially underestimated the staff hours needed to launch the ACO program and to complete these ongoing administrative tasks.

The geographic location of organizations was also a contributing factor to the successes and challenges experienced by MassHealth ACOs. ACOs in more rural areas consistently reported difficulty delivering integrated, coordinated care for their members due to the limited availability of clinical and social services for member referral. However, one smaller ACO stated that operating in a close-knit community helped them to pilot projects and build synergistic relationships with community-based organizations to meet member needs.

> *"We used a small pilot to project us into another direction…it opened our door up to a relationship with the sheriff's office, and we've done other initiatives with them…they have the largest commercial kitchen in [the county], where they serve upwards to 450 or so inmates daily…we've converted the old inmate kitchen into our dynamic kitchen that we use for all of the prepping of our two [FS] programs..." – an ACO interview participant.*

Each ACO served members with distinct clinical and social needs supported by varied resources throughout the state. This variation led the ACOs to implement unique strategies for member outreach, engagement (described further in **RQ2 H2.9**), and care delivery. While some believed standardization across ACOs for communications, systems, and processes would have been preferable, others stated that MassHealth's ACO program offered flexibilities that

empowered ACOs to test different, innovative methods and strategies to deliver integrated, coordinated care to their unique members.

H2.2. ACOs will engage providers (PC and specialty) in delivery system change through financial (e.g., shared savings) and non-financial levers (e.g., data reports).

ACOs sought to engage providers through financial and non-financial means to promote delivery system change.

Financial Levers

In both CY2020 and CY2022, a little more than half of the surveyed ACO PC physicians reported receiving financial incentives based on their performance on quality measures. Among non-physician provider types working at ACO PC practices, social workers were least likely to receive financial incentives in 2020 and 2022, respectively, according to those surveyed (see **Table 2.3-D1.7**).

Table 2.3-D1.7 Percentage of surveyed ACO providers reporting they receive financial incentives (e.g., bonuses or adjustments to salary) based on quality performance

Provider Type	CY2020 n=1,050[a]	CY2022 n=1,355[a]
ACO Total	35%	33%
ACO Physicians	53%	52%
ACO NPs/PAs	31%	20%
ACO Nurses	11%	13%
ACO Social Workers	4%	2%

Note: Survey methods are described in Section 2.2. Responses from surveys are fully summarized in **Appendix D**.

[a] Overall number of responses to the survey; the number of responses to specific items varies

Interviewed ACO staff shared different beliefs about the effectiveness of financial incentives to encourage delivery system reform. Some ACO staff interviewed indicated that the threat of financial risk and the possibility of financial reward are the best performance incentives for providers. ACO administrators indicated that tying financial incentives to quality metrics encourages providers to improve quality of care. In the CY2021 Practice Site Administrator (PSA) survey, half (50%) of respondents indicated that individual financial incentives were used with physicians and PCPs participating in their ACO. At least one ACO based financial incentives on provider's panel size, member experience measures, TCOC performance, and productivity as measured by Relative Value Units, according to an ACO interviewee.

> *"The health center clinicians have a quality performance program within their structure, and so all of the clinicians are engaged in quality improvement. We work hard to ensure that they understand what the ACO is striving for and achieving. Their quality measures are aligned … I think having the significant financial risk takes care of that." – an ACO interview participant.*

Other ACO administrators stated that providers in their health centers are drawn to "mission-driven work" and are less likely to be influenced by financial rewards. Many ACO staff who were interviewed stated that some providers preferred to reinvest savings in the practice to deliver better care rather than receive individual financial remuneration. One ACO interviewee did not believe financial incentives would be appropriate in organizations where providers are salaried or paid by capitation. Throughout the 2017-2022 Demonstration, some ACO participants indicated that financial incentives do not translate well in team-based environments, as it is more challenging to award individual performance in these structures.

> *"PCPs come to work at health centers not to be the highest paid doctors in town; they come to health centers because they are interested in doing mission-driven work … that creates a little bit of uniqueness of the personalities and characteristics of the individuals... I think that we have not yet determined… whether different financial carrots and sticks create behavioral change, or whether the best ways to create behavioral change… are just to find the weak spots in clinical practice and work on practice transformation to create the best environment of care for PCPs."*
> *– an ACO interview participant.*

Non-Financial Levers

ACOs used non-financial levers such as education about the ACO model, data sharing, and inclusion in meetings and on committees to encourage delivery system reform and improvement. ACO staff indicated that their ACOs spent significant funds and time on provider education, particularly about using data to inform care and improve performance. However, one staff member indicated that these educational efforts often needed repeating because MassHealth's operational requirements were complex and time-consuming and because of staff turnover.

> *"… When we make efforts to fix things operationally, we often have to redo that education work with their vendors and troubleshoot it, probably every six to ten months, just because of [staff] turnover and the nature of the call centers and what they're building." – an ACO interview participant.*

Just over half of the surveyed providers in CY2020 and CY2022 agreed or strongly agreed that the ACO program improved the quality of care for their members. Despite education efforts, only about half of the providers surveyed at either point in time indicated that they agreed or strongly agreed that they clearly understood the MassHealth ACO program. While the majority of providers surveyed in CY2020 believed their practice site was performing well under the ACO program, slightly fewer agreed or strongly agreed in CY2022. It is important to note that these respondents were not necessarily the same individuals at both points in time, so the percentages cannot be interpreted in terms of change within individuals (see **Table 2.3-D1.8**).

Table 2.3-D1.8 Providers Agreeing or Strongly Agreeing with ACO Program Statements

	CY2020 n=1,050[a]	CY2022 n=1,355[a]
I believe the MassHealth ACO program helps improve quality of care for our patients	57%	59%
I have a clear understanding of the purpose and goals of the MassHealth ACO program	52%	50%
I believe this practice site is performing well under the MassHealth ACO program	71%	65%

Note: Surveyed ACO providers include PCPs, NPs/PAs, nurses, and social workers. Survey methods are described in **Section 2.2.** Responses from surveys are fully summarized in **Appendix D**.

[a] Overall number of responses to the survey; the number of responses to specific items varies

ACOs mentioned the importance of timely access to data for meeting cost and quality performance benchmarks, engaging providers, and promoting change. Receiving data from MassHealth allowed ACOs to compare their performance to other ACOs and understand how their delivery system performed. At the individual and organizational levels, data enabled ACOs to manage costs, track utilization rates, and determine the effectiveness of interventions. Internal data dashboards and quality metrics also allowed providers to compare their performance against others within the organization.

ACOs used internal and external data to identify disparities in members' health outcomes and care utilization. ACOs used these data to inform stakeholders such as care providers and organization partners, and to develop initiatives to impact clinical practice.

> *"Putting together the foundational data elements around identifying what disparities exist is a necessary first step before we can start introducing initiatives and changes in clinical practice. I think we need to have better data to be able to bring it to our providers, practices, and our hospitals around the specific disparities that exist in the population that they're caring for, and then really brainstorm around the initiatives that we think will help with that."*
> *– an ACO interview participant.*

ACOs also collected and disseminated information on quality metrics to identify areas of improvement. On the PSA survey, 89% of respondents in CY2019 and 87% in CY2021 indicated that quality measure performance was shared with physicians and PCPs practicing at their ACO. Additionally, 63% in CY2019 and 68% in CY2021 reported performance measures on cost were shared with physicians and PCPs. One ACO interviewee stated that once data were disseminated within the organization, they relied on peer pressure, loss aversion, and various behavioral motivators for providers to promote clinical and organizational change. Some ACOs noted it was challenging to employ utilization, quality, and financial data from MassHealth to engage providers due to significant delays in data availability. This was most relevant for PCACOs, which were relying on MassHealth utilization data, but ACPPs had their own real-time data that they were responsible for organizing and disseminating. Providers were described as less engaged when they did not think the data were relevant or actionable.

"And then we use all principles of behavioral economics … the social standing, the peer pressure, the intermediate goals, the loss aversion... that really help engage and motivate [providers]... we make sure that we're using all the different principles as we are building all of this."
– an ACO interview participant.

"And, again part of the issue is timing. If we're getting data from MassHealth a year and a half later about utilization, that's a little hard to bring out to pod meetings and say, 'Well, you know, here's what your utilization is, and here's things you need to do to fix it.' Having timelier data around both quality and financial performance is critically important to engaging providers."
– an ACO interview participant.

ACO administrative staff engaged providers individually, in meetings, and on committees to provide feedback and recommend clinical operation improvements. In the CY2021 PSA survey, 68% of respondents indicated that there was one-on-one review and feedback to help manage the performance of individual physicians and PCPs practicing at their ACO. In meetings, attendees discussed individual members' health care, quality metrics, administrative measures, and organizational progress toward goals and targets. ACOs stated that when providers were included in governance and understood organizational operations, they were more likely to be committed to the systems transformation initiative.

"Specifically, what we do in the Quality Committee is that we have an alternating report out, so every other month we look at the admin measures… we go through those for each health center and overall … we look not just at where the performance is, in terms of thresholds and goals, but we also look at trending... and then… we start to talk about implementation of action against those." – an ACO interview participant.

H2.3. ACOs will implement HIT/Health Information Exchange (HIE) infrastructure to support population health management (e.g., reporting, data analytics) and data exchange within and outside the ACO

Throughout the 2017-2022 Demonstration, ACOs used TA funds that were available through the HIT/HIE domain of the DSRIP TA Program. Early in the Demonstration, ACO staff used DSRIP funding to improve existing technology infrastructure or to establish new infrastructure and protocols for HIE. Later in the 2017-2022 Demonstration, ACOs improved their capacity for information exchange between participating entities (ACOs, CPs), identifying HRSNs, and tracking benchmarks. ACOs noted that they established more well-defined data exchange processes to improve patient-centered care.

Internal HIT System Use

Early in the 2017-2022 Demonstration, ACOs invested in acquiring and enhancing HIT systems. Responses to the ACO PSA Survey indicate that 98-100% of ACO practices were using EHRs throughout the 2017–2022 Demonstration. Approximately 50% of ACO PSAs indicated that ACO practices also used care management and population health management platforms (see **Table 2.3-D1.9**).

Table 2.3-D1.9 ACO PSA Survey Results Regarding Technologies Used at Their Practice

	CY2019 n=225	CY2021 n=150
Which of the following technologies are in use at your practice? Select all that apply.		
Electronic health record	100%	98%
Care management platform	49%	49%
Population health management platform	54%	59%
Other technologies	10%	10%

Note: Survey methods are described in **Section 2.2.** Responses from surveys are fully summarized in **Appendix C**.

With this foundation in place, some ACOs used DSRIP funds to develop data dashboards and generate reports on member characteristics, social needs, and clinical needs for population health management. Data were also used to track costs and understand health inequities. ACOs could structure data from these HIT systems, making it available in real-time for staff to take informed actions (e.g., implement workflows to improve quality performance). ACOs reported that having dedicated analytics staff was essential in achieving key data availability and reporting priorities to inform day-to-day operations and the provision of care.

> *"… we've been involved in an evolution in visualizing our quality information and being able to track certain metrics in real-time, particularly those that are PCP-based, office-based metrics." – an ACO interview participant.*

> *"… we do our best to provide data in the most actionable way... I think there is a ton of data... [redacted] and I have been spending a lot of time thinking – how do we present data in a way that's digestible and actionable" – an ACO interview participant.*

ACO investments in HIT systems and data analytics and visualization evolved over time. Multiple ACO respondents described efforts to continually improve HIT systems, enhance EHRs, and more efficiently share real-time member data in meetings across all levels of their organization. Data were also distributed through organization-wide dashboards. ACO respondents reported that improved HIT and internal data sharing also facilitated improvements in monitoring and care delivery.

> *"We've invested a lot in, developed, and improved availability of data at the primary-care physician level...data. We've also worked a lot on education with primary-care providers and specialists. The strategy was to provide easy access to actionable data tools within our EMR to support the actions they [PCPs] needed to take." – an ACO interview participant.*

ACOs reported that numerous data streams, including data from the MassHealth Data Warehouse and software programs, were integrated into reports and systems. Data were then shared with providers through electronic dashboards, EMRs, EHRs, comprehensive reports,

and other software, as well as in meetings. ACOs reported that improved data management and reporting helped providers access timely and accurate member data and made routine tasks, like referrals, easier to facilitate. Integrated data from multiple sources also gave providers better insight into quality metrics. Some ACOs expressed difficulty in caring for their member populations when data were not integrated.

> *"[Monthly claims data from payers] gets integrated together, cleaned up, and loaded into a comprehensive data warehouse that we maintain. And then sitting on top of that data warehouse, we do have a data visualization and reporting tool that we use [to develop] a series of dashboards for PC, as well as for our specialty practices and other parts of the organization … there's a lot of data around patient cost, patient experience, quality performance, and so forth. And the way that we've built these dashboards... everyone's able to drill down, from … an organizational view of performance, into specific products, specific practices, and even down to the individual provider level."*
> *– an ACO interview participant.*

ACOs reported several technology investments and innovative uses of data throughout the 2017-2022 Demonstration. These included building patient portals, texting members, providing members with iPads for service delivery, developing provider dashboards, and making HIT systems available and useful in mobile vans and mobile markets. However, ACO staff reported health equity challenges, particularly with certain communities experiencing more barriers to accessing and using these systems (e.g., patient portals). Data sharing with members is discussed further in **RQ2 H2.10**.

> *"Nationally, this is seen, that the use of patient portals is not equitable among all of our patients, based on their race, ethnicity, or language, or community that they live in." – an ACO interview participant.*

H2.4. ACOs will implement non-CP-related population health management (PHM) activities, including risk stratification, needs screenings and assessments, and programs to address identified needs.

ACOs used risk stratification algorithms to sort members into higher and lower-risk groups for targeted interventions. To stratify members into groups, ACO staff reported using predictive modeling, sometimes embedded in and drawing from EHRs, that accounted for a variety of factors such as past utilization, diagnoses including BH, and ED visit frequency. ACOs deployed targeted outreach for high-risk members, such as those who frequently used hospital and ED services, to offer more support. Many ACOs also focused on preventing lower-risk members from becoming higher-risk. Many ACOs shared the risk stratification data with clinic staff so staff could identify higher-risk members during clinic visits. ACOs also used risk stratification for internal resource allocation.

> *"We use that [risk stratification] predictive model also for our own internal resource allocation. If we have a site that has a more acute, perhaps older or sicker population, we can then pivot our resources to that particular site."*
> *– an ACO interview participant.*

Some ACOs created registries of member populations to classify members into strata, such as those with increased utilization, those with HRSNs, and those with complex diagnoses. Many

ACOs noted that hospital-based member outreach and engagement models, supported by TA funds, were used to meet higher-need members directly at the point of care. These outreach models engaged admitted members before discharge.

> *"I think that there's a lot of added value … with the hospital-based community health workers. That they are able to engage with some of the people that we can't catch in the community. Because they're hospital-based they actually are able to meet the patient when the patient comes into the ED … and maybe engage with them there to continue on that relationship post their hospital visit."*
> *– an ACO interview participant.*

ACOs made improvements to streamline the screening processes to identify member needs. ACOs reported screening members through assessments for clinical needs and HRSNs using member portals before office visits. Screening assessments were also made available on tablets or paper when members were in the office. Sometimes, ACOs repeated screening measures yearly to track individual member status changes. ACOs analyzed these data and planned follow-ups with higher-need members to promote member engagement.

> *"We have actually started doing proactive screening for children and adults prior to in-office visits. [for] any patient that has [made] an appointment through [the patient portal]…. If they haven't completed it, when they arrive, they're given a tablet. [to complete the screening]We report outcomes on [health-related social needs] screening each month to the leadership of our respective regions. If someone screens positive or suspected-positive, we have one of our health coordinators outreach [with] the individual to determine whether or not they need a social worker or nurse intervention."*
> *– an ACO interview participant.*

The screening processes were not without barriers. ACO staff reported systematically implementing standardized screening tools, yet the use of the tools varied across organizations. Staff workflows and resources for members differed across practice sites. ACO respondents highlighted the importance of staff training and the availability of resources for members to meet needs identified through the screenings (see **RQ2 H2.6**).

> *"… some systems maybe have more [services] versus others, some geographies have more versus others, but in both the social determinants of health space, the SUD space, SMI space, there's a huge lack of resources. And so to advocate in the next sort of Waiver, as they're thinking about sort of these screenings, for example, they ensure that they have the training, the resources, the programs, the services in place."*
> *– an ACO interview participant.*

After ACO staff identified member needs, the care team worked with individual members to set goals, begin interventions, and connect members to programs. ACOs implemented targeted programming to address the medical needs of members and developed partnerships with SSOs to connect members to social services, including tenancy and nutritional services delivered through the FS Program (see **RQ2 H2.6**).

H2.5. ACOs will implement structures and processes to coordinate care across the care continuum.

ACOs implemented structures and processes to coordinate care across the care continuum, including establishing and strengthening partnerships with CPs and SSOs, improving HIT systems, developing workforce expertise, volume, and diversity, and identifying available community resources to meet members' HRSNs.

To meet MassHealth quality measures and contractual requirements, ACOs created workflows in collaboration with their partners and processes to support care coordination activities such as member outreach and engagement, needs assessment screening, and care plan completion. According to ACO staff, improving communication, co-location of services, and clear definitions of roles and responsibilities helped mitigate misunderstandings and ameliorate inefficiencies.

> *"… we have this cross-collaboration … teams are also supported by an embedded pharmacist within the PC offices … they're able to cross-make referrals to each other for things like [medication] reconciliation, high-risk patients that need diabetes care, gap closure, all of that."*
> *– an ACO interview participant.*

The vast majority of ACO primary care providers (PCPs, NPs/PAs, nurses, and social workers working at PC practice sites) indicated, both in CY2020 and CY2022, that they agreed or strongly agreed that communication among providers and staff was candid and open, and that member care was well-coordinated internally (see **Table 2.3-D1.10**). At each point in time, a smaller majority of survey respondents agreed or somewhat agreed that care was well coordinated and information shared with providers external to the ACO as compared to providers within the ACO. In interviews, ACOs expressed some challenges in connecting members to clinical and social services in the community due to the substantial needs of members and the lack of adequate resources. About three-quarters of the providers indicated they received members' hospital discharge summaries routinely.

Table 2.3-D1.10 ACO Providers Agreeing or Strongly Agreeing with ACO Care Coordination Statements

	CY2020 n=1,050[b]	CY2022 n=1,355[b]
Candid and open communication exists between providers and other staff	88%	90%
Patient care is well-coordinated among providers, nurses, and clinic staff	88%	86%
Patient care is well-coordinated with external healthcare providers (e.g., specialists, hospitals)[a]	69%	63%
Providers and staff are well-informed about available community resources for patients	60%	51%

	CY2020 n=1,050[b]	CY2022 n=1,355[b]
Providers and staff meet frequently (e.g., team huddles) to plan for patient visits	63%	64%
We have established relationships with community agencies to facilitate our referrals to them	60%	59%
Patient care is well coordinated with community resources (e.g., support groups, food pantries, shelters)	55%	53%
We have good systems in place to track referrals to external providers	65%	58%
We routinely receive discharge summaries after our patients are hospitalized	75%	72%

Note: In CY2020, survey respondents were asked to respond about the time just before the COVID-19 pandemic to establish a pre-COVID-19 pandemic baseline. Surveyed ACO providers include PCPs, NPs/PAs, nurses, and social workers. Survey methods are described in Section 2.2. Responses from surveys are fully summarized in **Appendix D**.

[a] CY2020 wording: Patient/Member care was well coordinated with external healthcare providers (e.g., specialists, hospitals/PCPs)

[b] Overall number of responses to the survey; the number of responses to specific items varies

Workforce Expertise and Location

ACOs reported that having a mix of co-located provider types facilitated successful care coordination and care management. ACOs viewed interdisciplinary care teams, collaborating and tactfully combining their skills and expertise, as catalysts to optimal member engagement and care navigation, especially among members who were high utilizers of services. Interdisciplinary teams and specialty care management programs (such as those with nurse care managers) helped provide patient-centered care, with various experts working jointly to understand member needs and connect members with available resources. Data from the CY2021 PSA survey (see **Table 2.3-D1.11**) showed that 80% of administrators felt that care coordination and care management resources (CHWs, social workers, care coordinators, and patient navigators) helped their ACO "mostly" or "a great deal" in delivering high-quality care to their members, 22% more than in the CY2019 survey (see **Table 2.3-D1.11**). These data also highlight the effect that care coordinator location and management had on ACO information-sharing and care QI. Analyses of CY2019 PSA survey results show that co-locating and managing care coordinators at ACO practice sites was positively associated with care quality.[76] Co-located interdisciplinary staff within practice centers enabled warm hand-offs, reduced administrative burdens, kept members engaged, and ensured members understood their care plans.

> *"Being able to prove a concept of interdisciplinary teams that are made up of nurses, social workers, and community health workers and the value of having them all strategically work together to the top of their license... and respecting each other in the work they do and trying to understand and appreciate that.*

[76] Tsuei SH, Alcusky M, Florio C, Kerrissey MJ. Trade-offs in locational choices for care coordination resources in accountable care organizations. Health Care Manage Rev. 2023 Oct-Dec 01;48(4):301-310. doi: 10.1097/HMR.0000000000000378. Epub 2023 Jul 26. PMID: 37615940.

We've been really successful showing people how important that work is and why we need the three disciplines at the table."
– an ACO interview participant.

ACOs developed and hired staff in new roles to facilitate care coordination, including ED navigators, inpatient care coordinators, and CHWs. More than half (57%) of ACO administrators responding to the CY2021 PSA survey (see **Table 2.3-D1.11**) indicated they were deploying Patient Navigators/Referral Navigators at their ACO, an increase of 18% from the CY2019 survey respondents. CHWs were key in identifying and linking members with culturally and geographically appropriate social services to address HRSNs. ACOs stated that their staff participated in training and learning networks with CPs, such as in clinical reviews or the SWI-funded Care Plan Learning Collaborative. These opportunities facilitated communication and improved care (see **RQ1 H1.2 and H1.3**).

Table 2.3-D1.11 Practice Site Administrator Perspectives Regarding Care Coordination and Management Resources

	CY2019 n=225	CY2021 n=150
Which of the following care coordination and management resources has your practice used in the past 12 months for your MassHealth members? Select all that apply.		
CHWs	65%	63%
Patient Navigators/Referral Navigators	39%	57%
Nurse Manager/Care Coordinator	71%	75%
Any other (non-nurse) Care Coordinator/Manager	32%	40%
Social Worker, excluding SWs providing billable BH services	68%	57%
Other title	12%	8%
In the past 12 months, to what extent have these coordination and management resources helped your practice's efforts to deliver high-quality care to your MassHealth members?		
Not at all	2%	1%
A little/Somewhat	39%	19%
Mostly/A great deal	58%	80%
For your MassHealth members who receive care coordination and management services from more than one program or person, how often do these resources operate together efficiently?		
Never	1%	0%
Rarely/Sometimes	38%	30%

	CY2019 n=225	CY2021 n=150
Usually/Always	51%	60%
Don't Know/Not Applicable	10%	11%

Note: Survey methods are described in Section 2.2. and full results are summarized in **Appendix C**.

Resource Availability

ACOs described challenges in connecting members to clinical and social resources due to the scarcity of available services, hindering effective care coordination. This and workforce capacity limitations left members with few available services and long wait times, and, in some cases, led to subsequent disengagement from care. This problem was noted to be particularly true for members with SUD.

The COVID-19 pandemic exacerbated limitations in workforce and services. While telemedicine helped diminish the COVID-19 pandemic's impact on member outreach and engagement, many ACOs still expressed challenges with member engagement and care coordination, especially among members receiving BH services and LTSS. Some members appreciated the flexibility and privacy of telemedicine, while others felt it to be less personal, which made it harder for them to engage with providers (see **RQ2 H2.9**). CP and ACO-based care coordinators helped alleviate some pressures on healthcare providers to refer and connect members with needed clinical and social services. However, many ACOs expressed that care coordinators were limited in their abilities to connect members to needed services if services had long waitlists and limited availability.

ACOs reported that care coordination helped them meet members' needs. Not all MassHealth members interviewed knew that care coordination services were available or what these services entailed, yet not every member receiving BH or LTSS care/services may have needed care coordination. Member surveys conducted annually throughout the 2017-2022 Demonstration showed that fewer than one-third of adult members receiving BH or LTSS services confirmed having a care coordinator, and about one-fifth were unsure (full results are available in **Appendix C**).

> *"I [coordinate my care] all myself, and it's very, very hard. Just in general … I still am not in a space where … I can do everything myself; my fiancée helps me a lot. … It's hard trying to coordinate all of these appointments, and sometimes I mess up, and I book two or three appointments on the same day, and some days, I'm literally going from appointment to appointment to appointment. And like, fighting for Social Security … there's nobody to help you, other than a lawyer" – a MassHealth member.*

H2.6. ACOs will implement processes to identify and address HRSN, including management of FS.

ACO staff interviewees reported that they made advances in identifying and addressing members' HRSNs and improving communication with internal and external partners about these

needs. ACOs reported success in HRSN screening and referral processes by incorporating the screening process and data into EHRs (see **RQ2 H2.3** for more details on ACO use of HIT). ACOs reported that establishing channels of communication between members' care teams and SSOs helped streamline referrals. ACOs made investments to increase program availability and train ACO staff to identify and address HRSNs. The COVID-19 pandemic increased the prevalence of HRSNs. Despite ACO efforts, it was often challenging to meet the growing demand for social services during the COVID-19 pandemic.

Screening for and Addressing HRSNs

Following the launch of the DSRIP program, most ACOs expanded and standardized their HRSN screening processes. In CY2018, the median percent of ACO enrollees meeting the numerator criterion for MassHealth's HRSN screening quality measure (which required screening for four specified HRSNs and one HRSN of the ACO's choosing) was 12.4%, increasing to 24.8% in 2022. Screening rates varied widely. In CY2022, the ACOs with the lowest and highest performance on this HRSN screening measure fully screened 0% and 56% of members, respectively. Actual screening rates may have deviated from these values.

Approaches to collecting and storing screening data differed across ACOs. Some ACOs noted that when screenings were integrated into electronic systems, staff could better track member needs. Some ACO staff stated that action was still needed to automate screening, such as through patient portals, to reduce staff burden. Providers and ACO staff also noted hesitation around screening members for HRSNs without adequate referral options.

> *"As we continue to look at the next Waiver, the provider group is going to get a new version of [EMR], which has built-in the platform for referrals, and of course, the screen is built in. Everyone's looking at the next steps and how we can automate as much of this as possible" – an ACO interview participant.*

Members reported to ACO staff that the screening tools were too lengthy. Some ACOs responded to member feedback by shortening the screening questionnaires while retaining mandatory screening questions. ACOs expanded accessibility and expanded the number of staff involved to increase screening rates.

> *"We got feedback from our members that it [screening] was taking way too long… We have recently developed our short screener, which is just eight or nine questions. We have implemented it so that every person that touches Care Management is offered a [screening]. We're working with our call center to do the same." – an ACO interview participant.*

During the last two years of the 2017-2022 Demonstration, ACOs increased communication among care team members following positive HRSN screenings to streamline referrals. Referrals for social services were incorporated into information-sharing systems, including EMRs, EHRs, and other electronic data capture systems, creating more efficient workflows for providers. ACOs engaged new staff (e.g., co-located care managers) and followed new processes (e.g., specifying one phone number for contact at the ACO) for follow-ups after positive screenings.

> *"... there has been a real effort to communicate with providers and make the referral process for patients who they identify as having social needs...*

extremely easy. They can refer to their own care manager if they have embedded care managers. They can send the referrals by fax. There're multiple processes for providers to be able to first identify and then make sure that the patients get connected appropriately." – an ACO interview participant.

Some members recalled being asked about their HRSNs in the latter part of the 2017-2022 Demonstration. A few members stated they were explicitly asked about needs like transportation or food insecurity. Members shared those discussions regarding their HRSNs occurred with multiple healthcare workers in various settings, including clinicians, BH workers, counselors, therapists, care coordinators, case workers, member advocates, and member navigators. Members reported having HRSN discussions in the office, via telemedicine, and in the community (e.g., at coffee shops or other convenient locations). Members were most comfortable speaking about their HRSNs when they had good relationships with their providers and found them to be helpful in addressing their needs.

"I feel very comfortable talking with my doctor about my social needs. Very comfortable. But I don't ask for that stuff because normally I speak to with my therapist or my psychiatrist about those things."
– a MassHealth member.

Some members hesitated to discuss HRSNs with their clinicians and stated they would not feel comfortable because healthcare workers and clinicians may perceive them as trying to "freeload." Other members said they did not think their healthcare providers were the best resources for addressing their social needs. One member expressed that they had spoken to their provider about their needs and did not feel the provider took action.

"I probably wouldn't [feel comfortable talking to my doctor about my health-related social needs]. But then again, I don't know if I would talk to anybody, either. I've just started talking with my psychologist about things like that, and I find it very hard. I have a struggle for actually asking for help."
– a MassHealth member.

ACOs expressed that social workers within care management teams were essential to addressing HRSNs. Collaboration within and between care teams was noted as helpful, especially when making efforts to identify and understand available community resources. CHWs and case managers with a deep understanding of the cultures and communities they served, either through lived experience or training, were noted to be very effective at engaging and connecting members with community resources. ACO staff reported that investments were made to increase staff levels and training to help address HRSNs (see **RQ1 H1.2**).

"We also utilize our community health workers as part of the process to engage our clients in care management as well as really leverage their bi-cultural [knowledge] and their knowledge of community resources as we really focus on social determinants of health." – an ACO interview participant.

Members reported that HRSNs were met through various services and resources. Care coordinators and provider office support staff most often coordinated services to address HRSNs. Some members reported relying heavily on family, friends, and neighbors to address their HRSNs. Some members were able to set up these services independently, while others reported that they were referred to outside agencies to establish services on their behalf. ACOs

and members noted that CPs and other CBOs were essential to meeting MassHealth members' HRSNs. Local sheriff's offices were identified as resources for those recently involved in the justice system. Many members reported receiving transportation services through the Provider Request for Transportation (PT1), public transportation, the [Ride Share] RIDE Flex Pilot Program,[77] and their care coordinators to secure rides to appointments, grocery stores, food pantries, and other locations. Meal delivery, grocery gift cards, and food pantries were essential to meet members' nutritional deficiencies and food insufficiencies. Housing instability and homelessness were addressed with shelters, housing vouchers, help from others in finding apartments, acquiring rental assistance, and covering utility costs once housed. Finally, various community-based SSOs provided legal support, employment assistance, and clothing.

> *"I wouldn't have found a place, an apartment, without my care coordinator helping me with the housing paperwork because I have tried doing the housing paperwork myself, but it was not getting done the right way."*
> *– a MassHealth member.*

One ACO used texting campaigns to let members know about available services. The ACO found that these texting initiatives reached a wider range of populations and non-English speakers than mail or traditional modes of connecting to members.

> *"… Texting is two or three times more effective in non-white, non-English speaking populations, which is interesting. Because those folks, their mobile phone number is more steady in their course of life … So it's easier to reach people. The number of usable numbers was like 88% when we did an analysis..." – an ACO interview participant.*

ACOs also noted that they could expand the awareness of available resources by sharing this information in staff meetings and electronic newsletters.

> *"Making certain that they [staff] understand if someone's food insecure, we refer them for SNAP. We make sure that they understand COVID-19 pandemic EBT to make sure the health center staff have this portfolio of resources available. It's in a Rolodex that they have. We're sharing information through our monthly electronic newsletter about new resources and things."*
> *– an ACO interview participant.*

COVID-19 pandemic shutdowns and a depleted workforce were barriers to addressing member needs (see **RQ1 H1.2**). ACOs stated that the COVID-19 pandemic was a primary reason for the increased prevalence of HRSNs and the increased demand for services. Despite ACO investments in services to address HRSNs, there was still a need for additional health education programs and services to be available for members following positive HRSN screenings during the COVID-19 pandemic. Certain populations, including adults with BH conditions and justice-involved individuals, were identified as needing additional support during the COVID-19 pandemic.

> *"There's a lot more need for food insecurity resources, housing resources, utility issues – there's such an increase in demand for these services as a result of the COVID-19 pandemic over the last year and a half. That's a*

[77] Massachusetts Bay Transportation Authority. (n.d.). *The Ride Flex*. Mbat.com. Retrieved June 27, 2024, from The RIDE Flex | The RIDE | MBTA.

challenge for our health centers because they're identifying that everybody we talk to is screening positive for something, and most of these members are screening positive for many issues. So having the workflows, having the staff, and having the resources, in terms of who do we refer to, continues to be challenging." – an ACO interview participant.

Throughout the 2017-2022 Demonstration, multiple members noted other barriers to receiving services to address their HRSNs. Members with previous felony convictions believed their justice involvement played a role in their inability to connect to services to address their HRSNs adequately. Additionally, members reported that public transportation was unreliable as it was often unpredictable, did not run in evening hours, and required members to take multiple, time-consuming transportation modalities to reach their destination. Members reported that ride-sharing apps were a good alternative, but vouchers were not readily available, and these services did not always have wheelchair or child seat straps. Members often needed to schedule covered transportation services 24 to 48 hours in advance, limiting their ability to attend same-day or emergent outpatient appointments. Members reported that providers were not always willing to accommodate telemedicine appointments, which led many members to choose their healthcare providers based on location, not preference.

"You have to schedule it [transportation] three days out. So, with my provider, they might call me the same day and say, 'There's a cancelation, can we see you today?' And if I say yeah, there's no way I'm going to get [transportation program]." – a MassHealth member.

Members also reported barriers to accessing tenancy services. Members reported difficulty proving they were homeless to obtain shelter housing. For example, one member reported they needed a bank statement to show they didn't have any funds to afford housing but didn't have a bank account. Another stated they were in an adult shelter, but once they had a baby, they had difficulty obtaining housing in a family shelter. Members reported unsafe living conditions, high housing costs, and long waiting lists for housing, and that some regions of the state (the Cape and Western Massachusetts) had minimal housing options. Those with physical disabilities had even more difficulty finding housing because not all options were accessible to them. Members reported difficulty obtaining other services, such as food delivery, because they did not have stable housing.

Many members reported difficulty obtaining nutrition support. Transportation limitations restricted members' ability to go to food pantries or grocery stores, a specific concern highlighted by members in areas described as food deserts. Food pantries, some of which have only taken phone orders since the COVID-19 pandemic began, often ran out of food by a specific time of day. Some members stated they had to continually redial the food pantry for hours. Members also reported that food stamps did not allow for preferred food options, with one member noting that nutritious options were difficult to obtain due to the cost of produce.

"Sometimes it takes you over 100 calls, redialing to finally get through [to the food pantry]. And since COVID, they let you get food every two weeks. Not being able to take phone calls from other people because you're trying to call for food, it's not easy. You get a busy signal, and you get a 'Please try back later.'" Then, finally, it could be 150 tries because everybody in the city is trying

to call at the same time. If you don't get through by 11:30, all the orders are taken, you go without food." – a MassHealth member.

Flexible Services (FS)

The FS Program provided nutritional and tenancy supports to eligible MassHealth members (see **RQ1 H1.1**). ACOs developed strategic partnerships with SSOs, which were structured to leverage SSO knowledge, expertise, and service capacity to deliver FS. ACOs designed their FS programs based on their clinicians' and staff's deep understanding of their members. ACOs leveraged the SSO staff's content expertise to connect members with community resources and avoid duplication of FS offered. Some ACOs replicated successful SSO programs that existed prior to the FS Program by formalizing partnerships with SSOs and vendors who engage regularly with their members.

"We realize that, while we have care managers and social workers who do excellent work, there comes a point where you need to really rely on the expertise of the [community] folks, such as our partners at [redacted], who do this day in and day out, and really have a lot of additional resources that they have access to kind of help handle this population. We're partnering with them, and we're so happy that they are being so collaborative and running with it." – an ACO interview participant.

From the launch of the FS Program in in January 2020 through March of 2023, all 17 ACOs partnered with a total of 51 SSOs to deliver 93 different nutrition and tenancy sustaining programs (one program offered both nutrition and tenancy sustaining support), 12 of which were COVID-19-focused programs. A summary of launched programs is located in **Table 2.3-D1.12.**

Table 2.3-D1.12 Summary of FS Nutrition and Tenancy Sustaining Programs Offered During the Period from Program Launch in Q1 CY2020 through the end of the DSRIP Program in Q1 CY2023[a]

Nutrition Services[b]										
ACOs	# Programs	# SSOs	# COVID-19 Programs	Medically-Tailored Meals	Home-Delivered Meals	Food Boxes or Groceries	Vouchers or Gift Cards	Kitchen Supplies	Connection to Other Nutrition Services	Nutrition Education
17	54	39	12	14	4	6	10	7	14	16
Tenancy Services[b]										
ACOs	# Programs	# SSOs	# COVID-19 Programs	Pre-Tenancy			Tenancy Sustaining		Home Modification	Transitional Goods
13	40	36	0	12			13		10	11

[a] Summary of programs offered reflects data reported in Flexible Services Participation Plans from Q1 CY2020 through Q1 CY2023.

[b] Each ACO's Flexible Services programs are fully described in **Appendix D**. Flexible Services enrollment is covered in **Section 2.4**.

One example of an SSO offering nutrition programs to eligible members through their FS program served neighborhoods of the Greater Boston Area. Nutrition programs offered by this SSO included a community food garden, a food pantry, and the delivery of food boxes and vouchers. Operating with a grassroots team of volunteers-turned-employees and delivery drivers, the SSO was able to offer nutrition services to those in need. The drivers who delivered the food boxes were important liaisons, providing the SSO and ACO with on-the-ground information about members' health, housing status, and food preferences. MassHealth members who participated in the nutrition programs offered through this SSO were grateful for the availability of fresh foods and culturally appropriate options as well.

> *"A recent success that I think is really beautiful is that for Thanksgiving, and then also for Christmas, we're going to be able to provide a little bit more to the bags that we're delivering. So, along with the food, we're going to be able to put fresh frozen chickens as well, which I know is definitely appreciated by the folks receiving the food. And then also those are culturally appropriate foods that we're putting into the bags, too. So, it's something that resonates more with the folks that are receiving it, the familiar goods."*
> *– an SSO interview participant.*

Another SSO serving the MetroWest area (towns lying west of Boston and east of Worcester) partnered with multiple ACOs and offered pre-tenancy and tenancy sustaining supports to MassHealth members through their FS program. ACO staff reported that housing navigators at this SSO were critical in supporting members and connecting them to resources. Services provided by housing navigators included assisting MassHealth members in finding and completing applications for housing and shelters, collecting necessary documentation for housing applications, gathering and writing letters of recommendation to support housing applications, and reaching out to landlords. The SSO maintained valuable relationships in the community and with various resources to continue to offer MassHealth members solutions to their housing issues.

> *"We make sure that [the SSO's staff] have all the information they need about the different ACO programs… because we're an SSO provider for housing supports under FS, and have been for a little while, we've really understood the [FS] program well, from the inside out, and that's helped our staff, especially early on." – an SSO interview participant.*

ACOs noted that by meeting members' preferences and needs, they could engage members and address HRSNs more successfully with FS. ACO respondents reported that each FS needed to actively address members' goals and preferences by offering manageable, relevant, and easily navigable services. Programs that were too complex or too intense, such as those requiring a substantial and extended time commitment, were the least successful.

> *"And as we started to screen our patients, we started recognizing that the diabetes prevention program, although an excellent program with excellent data around how well it works in terms of reducing the progression of pre-diabetes to diabetes - it's a very intense, 26-session course. And our patients really just didn't have a way of fitting that into their lives."*
> *– an ACO interview participant.*

ACOs constantly monitored, reevaluated, and restructured FS to fit members' needs following the program's implementation. ACOs attested that, through FS, they also could provide feedback to SSO partners regarding SSO performance and improvements in service delivery. Innovative data practices, such as using risk stratification data, drove referrals and created efficiencies for programs with limited workforce capacity.

> *"And one of the really innovative things that we're doing... we've worked with [a social determinants of health] data vendor to develop a risk stratification that incorporates both the health and the clinical need. We're using data to drive referrals into the program." – an ACO interview participant.*

During the COVID-19 pandemic, telephonic enrollment processes increased the accessibility of FS for some members. ACOs suggested that shifting to a preventative model and restructuring FS qualification requirements would allow the ACOs to address the needs of more members. ACOs perceived the strict qualification requirements to limit their ability to intervene earlier and to prevent worsening social conditions that may be more difficult to remedy later.

> *"… there are hundreds if not thousands of our patients that could use access to food and housing that do not yet have behavioral health or complex medical conditions but are headed in that direction if we continue to ignore it. And it's almost like we are trying to solve the problem after a person has become incredibly ill, instead of keeping them from becoming incredibly ill by having them have access to those programs ." – an ACO interview participant.*

ACO staff found that the enrollee-based structure of FS was counterproductive, forcing staff to address pediatric or individual member needs in a siloed fashion without considering the needs of their families or households. ACO staff outlined the importance of stabilizing members so that, when FS support ended, members could sustain their progress in addressing their HRSNs. ACO staff were also frustrated that they couldn't always provide services to the number of referrals received due to workforce shortages and program capacity.

> *"… sometimes by the time we get this referral, the horse has already left the barn, and these folks are pretty severely impacted. We went live in May, and we had to put a pause in July because we already had 75 members enrolled… [Our staff] couldn't keep up with our amount of referrals." – an ACO interview participant.*

Most of the 58 ACO enrollees interviewed between August and October CY2022 were not familiar with the term "Flexible Services." The few that were indicated that the program helped address their HRSNs and that they were referred to FS through care coordinators at CP organizations. Although many members were not familiar with the program name, most members also expressed that nutrition and tenancy sustaining supports were helpful. Members who were aware that they were receiving FS endorsed the program. SSOs also reported that the FS Program helped to address the HRSNs of members with complex social needs.

> *"This client, she is a single mom of seven, she recently was divorced she was in an abusive relationship, I recently just helped her, she just found a townhouse that she, and she's working full-time, she's successfully housed and doing really well. The kids are doing great." – an SSO interview participant.*

H2.7. ACOs will implement strategies to reduce TCOC (e.g., utilization management, referral management, administrative cost reduction), excluding the population health management /care programs mentioned above.

Throughout the 2017-2022 Demonstration, ACOs implemented strategies to reduce TCOC by attempting to deliver integrated and high-quality care that addressed member needs in the community and reduced avoidable high-cost acute and emergency services utilization. Strategies included instituting risk management assessments, increasing data analytic capacity, and developing algorithms to identify members in the top few percentages of cost and utilization. ACOs reported that these strategies allowed them to focus on providing members with the care and education necessary to reduce the need for costly acute services (e.g., ED visits).

When asked in the later years of the 2017-2022 Demonstration, a majority of ACO providers surveyed indicated that they felt they had a prominent role in limiting unnecessary medical care (66%) and avoiding ED and hospital stays (71%). A high percentage also agreed that they take cost-effectiveness into consideration when making treatment decisions (81%).

Initially, the ACO staff interviewed had mixed views regarding how member care costs were impacted by the 2017-2022 Demonstration. In the final two years of the 2017-2022 Demonstration, many ACOs felt limited in their ability to reduce TCOC due to circumstances beyond their control. ACOs noted the shortage of BH providers, and the lack of streamlined information-sharing systems increased unnecessary utilization. ACOs caring for pediatric members stated that more time may be needed to see a return on care investments.

> *"What we always think about is the net present value of future success... the success of these kids to grow into healthy adults and healthy parents and have employment and success in their lives. And that yield is quite far down the path... sometimes you offer more service to improve a problem, and that increases the service cost. That's not necessarily a negative."*
> *– an ACO interview participant*

ACO Perspectives on Cost Drivers

ACOs mentioned multiple services that were seen as cost drivers, including home health, BH, and ED utilization. A few ACO staff stated that home health was a "tremendous expense," while BH and ED utilization drove up TCOC partially due to ongoing ED boarding. Some ACOs noted that they had to pause at least some of their initiatives aimed at managing cost and utilization in order to focus on their pandemic response.

> *"Then COVID hit... so, it's been really, really hard to be very effective...over the last year and a half...in terms of cost performance ... We want to be part of the solution, and we know we have a high percentage of membership that [are] part of the ED boarding pool of members...so we've done a lot of work, and we've continued to put pressure, develop workflows with the health centers around wrapping our arms around those individuals … those are efforts that have continued and didn't really have a lot of interruptions through the pandemic. Some of the other ones ... were greatly affected by COVID and we're just resuming our work." – an ACO interview participant.*

A few ACOs expressed that during the COVID-19 pandemic, home health utilization expenses were immense.

> *"It's something that the State had brought to our attention, even in the beginning of the ACO, that we had pockets within our health centers of tremendous expense around home health. We've continued to work on that." – an ACO interview participant.*

Stakeholder Collaboration and Data Sharing

In the last two years of the 2017-2022 Demonstration, ACOs provided examples of collaborative approaches to achieve organizational goals and implement specific efforts to reduce TCOC. One ACO described developing an internal workgroup to address the large amount of home health utilization within their ACO. The ACO met with their utilization management team to discuss members on a case-by-case basis. Over time, these discussions evolved into multidisciplinary case management meetings involving external partners (i.e., home health agencies, BH CPs, PCPs). This review facilitated clinically focused case discussions to address and manage the costs of members with complex conditions.

> *"… Initially, we went through every single patient who had home health and reviewed their case with the utilization management teams at [partners] to understand what's going on. We've also woven these [home health] agencies into multidisciplinary care management meetings. That's how we've been looking at a more clinically focused cost performance management process and home health especially." – an ACO interview participant.*

ACOs described ways they managed ED utilization rates to reduce TCOC. One ACO implemented a daily multidisciplinary utilization huddle to address the high costs associated with ED utilization and boarding. The providers participating in this huddle reviewed members who were boarding in the ED for BH services daily to see if they could find services and resources to help these members. This ACO also reported that they helped to develop a BH ED initiative that could provide treatment to people in the ED rather than members boarding while waiting for service availability. The goal of this BH ED initiative was to reduce admissions for SUD treatment, ED boarding rates, and ED readmissions while connecting members with needed care in the community.

One ACO described developing a clinical strategy committee comprised of medical directors, quality team members, and executives from external partners that regularly reviewed financial performance, discussed areas needing improvements, and suggested cost management initiatives. ACOs also formed workgroups to address acuity documentation, developed committees to understand and interpret changes in utilization held meetings to discuss how best to achieve quality measure benchmarks.

> *"… we developed a clinical strategy committee. It's comprised of several of the medical directors that are on this call, and quality [performance] people, and some of the executives between the two organizations. We meet regularly to review our financial performance, identify areas that we need to target for improvements, and [discuss] the strategies or initiatives to deal with managing costs." – an ACO interview participant.*

Many ACOs reported that MassHealth members with BH conditions had high utilization rates associated with high TCOC. One ACO interview participant reported that members with multiple BH conditions (e.g., substance use disorder and depression) were responsible for 70-80% of the ACO's TCOC. ACO staff reported that coordinating care, implementing and expanding substance use interventions, and making new investments in care for these members would help reduce the ACO's TCOC.

> *"Looking more globally, or at a higher level, one of the initiatives that [our ACO] is undertaking as part of their behavioral health strategic plan is to expand substance use services for all patients, including building more of those bridge clinics, scaling the model to other sites. We know it's a high driver of the total cost of care." – an ACO interview participant.*

Throughout the 2017-2022 Demonstration, ACOs increased their use of data analytics and developed algorithms to analyze utilization patterns, such as identifying members whose care needs were drivers of high costs. In the last few years of the 2017-2022 Demonstration, improved data-sharing practices facilitated efforts to reduce TCOC. ACOs received market comparisons from MassHealth that were beneficial in identifying targets for cost reduction. ACOs also used data management and reporting systems to identify the underlying contributors to cost shifts, determine how to manage medical expenses, and evaluate return on investments. One ACO explained that they analyzed the effects of their care coordination and management program on utilization rates; care coordination efforts increased member engagement while reducing the utilization of services that drive up TCOC.

> *"… we really use our data to figure out what are the set of targeted initiatives that we want to be digging into for medical expense management … and there are a few different places that we look. I think the first and foremost, like the [care management] program and care coordination is like a big tip of the sphere for us in terms of trying to manage. [We have] done evaluations of the program to try to get really specific on the ROI so we can think about how to sustain these investments in the first place." – an ACO interview participant.*

Model of Care Supporting TCOC Reductions

ACOs reported that care coordination and utilization management programs helped reduce TCOC. One ACO shared that they often distributed member lists across their ACO so that providers could identify and engage members during appointments, enroll them into additional services, or support them during care transitions. Continuous engagement with members recently discharged from the ED helped facilitate post-acute care coordination and cost reductions. ACO staff stated that focusing on care-related quality metrics led to better quality outcomes and cost reductions.

> *"The transition of care calls … helped to reduce costs. Because we're reaching out to patients who have been in the ED or the inpatient setting… to try to understand why they went, and hook them up to post-acute care. That's one of our efforts to help reduce costs. If the care management staff is right in the same office with the provider it makes it easier for them to engage in that. Care management contributes to managing cost performance."*
> *– an ACO interview participant.*

One ACO implemented a pharmacy team that worked on quality management and medication management. Another ACO noted that impacts on quality and TCOC are not typically seen until two years after program initiation; the ACO attributed the rapid impact they observed on cost and quality to how well-established the care management program was.

> *"So, you know, our biggest impact is actually through our care management programs… I think the immediacy of that impact is because it's a mature program. The maturation cycle for a program to get to a stable operating state and truly impact cost or quality is often two years. I think some of our analyses, and even impact of care management, shows that we need significant longitudinal involvement in that." – an ACO interview participant.*

H2.8. Accountable Care Partnership Plans[78] will transition more of the care management responsibilities to their ACO partners over the course of the 2017-2022 Demonstration.

At the beginning of the 2017-2022 Demonstration, ACPPs were in the early phase of transitioning care management responsibilities to ACO partners. Early in the Demonstration, plans tended to provide more oversight and administrative support while the ACO partners ramped up services and programs. Over time, MassHealth intended for the health plans to transition more responsibility to the ACO partners. Additionally, a few health plans were initially unaware of all the services their ACO partners could provide. Once they became aware, they began to work with these partners to manage member engagement to avoid multiple contacts with members.

In CY2019, 48% of the ACPP PSA survey respondents reported that most or all of the care coordination and management resources used by their practice were managed by people within the physical location where they worked. In addition, 50% responded that most or all of the resources were housed at their physical location and department (see **Table 2.3-D1.13**). These questions were not asked of Practice Site Administrators in the CY2021 survey.

Table 2.3-D1.13 ACPP care coordination resource location in CY2019[a]

	ACPP PSAs (n = 170)
For the care coordination and management resources used by your practice, how many of these resources are HOUSED at the following locations (by housed, we mean the place where these resources primarily provide patient services)?	
A Managed Care Organization (MCO) and/or an Accountable Care Organization (ACO)	
None	43%
Some	28%
Most	16%
All	13%
The physical location and department where you work	

[78] ACPPs comprise a partnership between a provider-led ACO and a single health plan; 13 of the 17 ACOs were ACPPs. Please refer to **Section 2.1.2** for a description of the different ACO models and partnerships.

	ACPP PSAs (n = 170)
None	24%
Some	26%
Most	31%
All	18%
A community-based organization	
None	49%
Some	33%
Most	14%
All	4%
A different practice site, department, or location in your organization	
None	40%
Some	32%
Most	18%
All	9%
Other organization, entity, or location	
None	54%
Some	30%
Most	10%
All	6%

Note: Survey methods are described in **Section 2.2**. Responses from surveys are fully summarized in **Appendix C**.

[a] These questions were not asked of Practice Site Administrators in the CY2021 survey.

In the last few years of the 2017-2022 Demonstration, some ACPPs had transitioned care coordination responsibilities to their ACO partners. In CY2021, 34% of PSA Survey respondents reported that a care coordinator/manager was available within practice sites to address BH treatment, including addiction services, and 50% reported that a care coordinator/manager was available to address HRSNs.

ACPP ACOs with centralized care coordination services described building a team of staff to coordinate member care while also knitting together external resources, such as community-based services, into their internal care management processes. These teams worked together on a collective set of goals, communicated often with clinical providers, and worked to identify the best resources for members. Analyses of PSA Survey data also reveal that locating care

coordinators at ACOs was associated with greater information-sharing across settings.[79] Some ACOs assigned certain staff specific responsibilities so they could focus on supporting members with similar needs, allowing them to streamline their processes and aggregate resources to coordinate member care efficiently.

> *"We've changed our program a little bit … we decided to have one person be the expert in … homeless members with comorbid addictions and those with high utilization, and really building relationships with the teams, the EDs, and the homeless outreach programs, and the CPs that are going to be working with that patient." – an ACPP interview participant.*

H2.9. ACOs will establish processes to facilitate member engagement.

Throughout the 2017-2022 Demonstration, ACO providers employed a variety of activities and strategies to engage and elicit ongoing participation of MassHealth members. Successful strategies included involving members in organizational governance, hiring and collocating community-oriented staff, leveraging technology to engage with members, and fostering strong relationships between members and providers.

Member Engagement in Care Transformation

ACOs recruited MassHealth members to participate in various governance structures within their organization to include the member voice in decision-making and to meet MassHealth requirements to do so. Some ACOs believed recruiting and retaining members in governance committees was challenging due to schedule conflicts, inconsistent attendance (particularly during the COVID-19 pandemic), insurance changes, and switching providers or ACOs. These issues led to high member turnover rates and inconsistent member input on governing bodies. A few ACO interviewees also noted that some members had difficulty understanding the issues discussed during governance meetings, such as risk adjustment, medical terms, and finances. Some staff stated that they met with the members before board meetings to review materials and help members prepare.

> *"We meet with [the members] before the board meeting, review the materials, so they have a little bit more grounding in the healthcare world. Sometimes you're talking about [things like] risk adjustment. Some of the topics get to be a little detailed, so they would be over most people's heads. In fact, they're over some of my doctors' heads who are on the board." – an ACO interview participant.*

ACO staff described more consistent involvement of members on PFACs, which often funnel information to governance boards so that members' perspectives are represented. Other ACOs pointed to member involvement in committees and workgroups.

> *"We have a patient-family advisory council, and we create presentations on what we're doing with the ACO for that council and ask for their input. We have a community member that's on the governing board and participates in that meeting. Then [the ACO] integrates members of the community in many of our*

[79] Tsuei SH, Alcusky M, Florio C, Kerrissey MJ. Trade-offs in locational choices for care coordination resources in accountable care organizations. Health Care Manage Rev. 2023 Oct-Dec 01;48(4):301-310. doi: 10.1097/HMR.0000000000000378. Epub 2023 Jul 26. PMID: 37615940.

committees and operations. For example, we've done a lot with telehealth, so we have a working group that implemented the whole telehealth process. And there are at least two community members on that working group, who are very active in providing us feedback on changes, and who are users of telehealth." – an ACO interview participant.

Member Engagement in their Healthcare

ACOs noted several facilitators of member engagement in their health care, including co-located interdisciplinary staff, community-oriented staff roles, and employing technology (e.g., patient portals, texting) for communication. The involvement of multidisciplinary care teams, especially those incorporating CHWs or care coordinators, prompted additional points of contact with members beyond their PCP. The co-location of these multidisciplinary teams within the same practice site enabled warm hand-offs, reduced administrative burdens, and ensured members understood their care plan. ACO interviewees highlighted the importance of incorporating CHWs whose backgrounds aligned with members into the care teams and leveraging their cultural backgrounds to expand outreach efforts and engage members. Throughout the 2017-2022 Demonstration, ACOs allocated resources to provide culturally sensitive care through staff diversification, incorporating new processes, and identifying culturally and geographically diverse social services. Some ACO interview participants noted this is still a work in progress.

"… we also utilize our community health workers as part of the process to engage our members, our clients in care management as well as really leverage their bi-cultural [knowledge] and their knowledge of community resources as we focus on social determinants of health." – an ACO interview participant.

"We've also changed a lot of the ways that we do outreach. Prior, we had only really done outreach primarily in English; we had not done a lot of other offerings in terms of other languages. We offered messages about the COVID vaccine in around seven or eight different languages, which was a first for us, but something that we plan to continue doing in the future." – an ACO interview participant.

ACOs and CPs were expected to engage members in the care planning process to ensure that care plans were member-driven. Not all members interviewed would have received a care plan, since they were only required for members with special healthcare needs and members enrolled in CPs; however, some adults interviewed receiving CP services did not know what a care plan was or what was included in the care plan. Most parents and caregivers of pediatric members endorsed knowing what a care plan was yet described the care plan as part of other school-required documents, such as an Individual Education Plan.

Many members highlighted the importance of their ACO providers soliciting their input during care planning and when setting healthcare goals because their goals often change depending on current circumstances.

"… The goals change, it depends on what's going on at the time. Like right now, before all of this pain stuff and all of these surgeries and all of that came about, I was working on my internal medicine. So my goals flipflop; it depends

on what's going on with my health at the time."
– a MassHealth member.

MassHealth required that care plans be updated if there was a change in a member's health status. ACOs reported that it would be beneficial if care plan documents were handled as "living documents" that could be edited by all stakeholders, including CPs and members, because medical and social conditions rapidly change for members.

"The care plan should be a living document, that should be edited and fluid and rapidly changing. But that's not what happens. By the time I get a care plan that's signed and completed by an outside organization, the patient's condition might be very different, the med list is no longer accurate."
– an ACO interview participant.

ACOs recognized the importance of care coordinators in member outreach, member engagement, care planning, and care coordination (see **RQ2 H2.5 and RQ3 H3.4**). When supported by a care coordinator, members stated that they felt less alone, less overwhelmed by their care, and more confident in their ability to follow their care plans.

"She [the member's care coordinator] will call me once a week, or if she doesn't hear from me for a couple of days. Let's say if I call them right now and I'm having this issue for a while or something, and I haven't resolved it, she'll keep calling me." – a MassHealth staff interview participant.

HIT

ACOs reported using HIT in their outreach efforts and at the point of care to improve member engagement. Specific tools included telemedicine platforms, patient portals, text messaging for communication and appointment scheduling, and member transition notification systems to track where and when members received care.

Many members appreciated the flexibility and convenience of telemedicine appointments, noting it was easier to attend telemedicine appointments as they did not have to arrange transportation or account for transit time. Members also appreciated the social distancing that telemedicine appointments afforded to alleviate COVID-19 pandemic concerns. It also allowed members in geographic locations with limited access to care to connect with providers they might not otherwise have been able to access. Members with BH conditions stated that they felt more comfortable discussing sensitive information with their BH specialists from the comfort of their own homes. Although telemedicine made providers more accessible, some members found that some things were easier to talk about in person.

"I could never talk about some of the things I do talk about in an actual session across the table from somebody. Because there are just some things that are so intimate and just thinking about it right now gives me the willies. There's just stuff you don't feel safe anywhere speaking about, but at least I'm in the comfort of my own home. I think I've gotten probably even further ahead with my own issues by having telehealth."
– a MassHealth member.

Members indicated that patient portals had a variety of uses, such as scheduling appointments, messaging doctors, checking test results, and seeing up-to-date information regarding recent

visits and future appointments. Many members expressed satisfaction with the messaging functionality built into their patient portals, allowing them to contact doctors and care team members easily and promptly. Other members reported that their portals only contained medical record information and information on future appointments. Some ACOs also reported that they communicated with members via text, especially during the COVID-19 pandemic. However, some members could not access patient portals due to barriers, including technology literacy and technology inaccessibility (i.e., no devices or internet).

> *"I just go onto the portal if I have any concerns [and] I can't do it over the phone, or do it through Zoom if I need to see someone face to face, I could book my own appointment. Or I could send a message to my PCP asking for her input before I book the appointment. She can say well, you can either come see me, or you can go see such and such person, and do it that way. But I can do this all myself." – a MassHealth member.*

> *"Depending on what is wrong with my son, I can email [my child's PCP] and she will answer fast. … When I need paperwork for her to be done for school, she does it fast too." – a MassHealth member.*

ED and hospital notification systems allowed ACOs to see if, when, and where their members received care from partner organizations or external providers.

Provider Relationships

Members reported positive care experiences when their providers were attentive, collaborative, empathetic, and compassionate. Members appreciated providers involving them in care planning and goal setting, considering their health needs and personal and social circumstances. Members shared that they trusted their providers when they allowed members to ask questions and communicated that the members' concerns were taken seriously. Across all five years of the member survey, more than two-thirds of member respondents with BH and/or LTSS conditions reported that their BH and LTSS providers always carefully listened to them. Approximately 75% of member respondents reported that their BH and LTSS providers always showed respect for what they had to say. Responses from surveys are fully summarized in **Appendix D**.

Some members shared they felt particularly comfortable with their providers and confident in their care when they had a long-standing relationship with their providers. Some members also expressed that this was true when the provider was of the same gender or a similar background.

Most PCPs reported that they provide patient-centered care (see **Table 2.3-D1.14**). Providers encouraged member engagement through appropriate communication, routine contact, participation in care planning, and consideration of care preferences. The number of ACO providers agreeing or strongly agreeing that they involved patients in setting goals while developing treatment plans increased from 76% to 92% between CY2020 and CY2022.

Table 2.3-D1.14 ACO Providers Agreeing or Strongly Agreeing with Statements About Member-Centered Care for Members

	CY2020 n=1,050[a]	CY2022 n=1,355[a]
We communicate with patients in a way that they understood (e.g., appropriate language and literacy)	94%	95%
We routinely contact patients with chronic conditions to help them manage their conditions	81%	82%
Providers and staff view patients as equal partners in their care	90%	92%
Care is designed to meet the preferences of member and their families	88%	90%
When developing a treatment plan, providers and staff routinely encourage members to actively participate in setting goals	76%	92%
We regularly use feedback from patients and families to improve services	70%	77%

Note: In CY2020, survey respondents were asked to respond about the time just before the COVID-19 pandemic to establish a pre-COVID-19 pandemic baseline; Surveyed ACO providers include PCPs, NPs/PAs, nurses, and social workers. Survey methods are described in **Section 2.2**. Responses from surveys are fully summarized in **Appendix D**.

[a] Overall number of responses to the survey; the number of responses to specific items varies.

Barriers to Member Engagement in Their Care

Members who were interviewed cited that they struggled with staying engaged in their healthcare when they experienced unresponsive or disengaged providers, long appointment waitlists, and provider turnover. As previously discussed, (see **Section H2.5**), ACO staff expressed challenges connecting members to adequate services due to scarcity and lack of capacity, contributing to longer wait times for appointments and program enrollment and subsequent disengagement in care plans. Interviewees shared that some members were overwhelmed by the apparent lack of communication or coordination that resulted in contacts from multiple organizations. As a result, ACOs indicated some members chose not to initiate care or re-engage after care transitions.

> *"I think that if you think of a patient journey, that patient is getting outreach by six different people when they leave a point of care. When people need help they don't come for help, because you have all these people calling you all the time, when you just want five minutes to breathe."*
> *– an ACO interview participant.*

On the Member Experience Survey, between CY2018 and CY2022, 46% to 49% of adult ACO enrollees receiving BH services reported their care coordinators always knew important information about their medical history, and 59% to 62% rated their coordinator's knowledge of their values and beliefs as very good or excellent (**Appendix G**). Between 54% to 57% of adult ACO enrollees receiving LTSS services between CY2018 and CY2022 reported their care coordinators always knew important information about their medical history; 64% to 68% rated their coordinator's knowledge of their values and beliefs as very good or excellent over the same five-year period.

While most members stated that they felt more confident in their ability to engage in their care knowing that their care team was "in their corner" or "on their team," some members stated they had difficulty understanding who the best point of contact was when problems arose.

> *"It's better if I get an explanation of what the social worker should be doing for me and what the coordinator should be doing for me. It's going to be easier for me to know who to go to whenever I'm stuck with any problem. Sometimes I'll call one, they will reply to me after a week, and I don't know if it was the right person that I was supposed to talk to. It's confusing." – a MassHealth member.*

Some members reported additional barriers to engaging in care, such as difficulty making appointments and getting prior authorization. Other members were not able to engage in care because they could not complete the registration process for the provider as they did not own or have access to a phone, or they did not have internet access. Furthermore, some members who already had established care with a provider described difficulty reaching their providers via phone, (e.g., leaving voice messages and not having calls returned). A few members reported that healthcare providers were dismissive of their health and social concerns, which led to decreased engagement with routine or preventative care and declines in overall health.

> *"I barely see him, and he's in and out... In the last couple of days things haven't been clear to me, as far as my health goes. I guess that's the reason why I'm back in the ER. Right now I feel frustrated because I feel like people are not giving me straight answers. I need to be listened to."*
> *– a MassHealth member.*

In CY2022, 89% of ACO Provider Survey respondents agreed or strongly agreed that they help patients develop self-management skills, 17% more than in CY2020; however, only 30-40% perceived that members with chronic conditions, BH needs, and LTSS needs take responsibility for managing their health (see **Table 2.3-D1.15**).

Table 2.3-D1.15 ACO Providers Agreeing or Strongly Agreeing with Statements about Member Engagement[a]

	CY2020 n=1,050	**CY2022 n=1,355**
Providers and staff routinely work with patients to develop self-management skills for managing their health	72%	89%
Most of our patients with **chronic conditions** take responsibility for managing their health	36%	40%
Most of our patients with **behavioral health needs** take responsibility for managing their health	26%	30%
Most of our patients with **long-term services and supports needs** take responsibility for managing their health	35%	40%

Note: Surveyed ACO providers include PCPs, NPs/PAs, nurses, and social workers. Survey methods are described in **Section 2.2**. Responses from surveys are fully summarized in **Appendix D**.

[a] Overall number of responses to the survey; the number of responses to specific items varies.

ACO staff and members reported that access issues, long wait times, and provider turnover were challenging issues for individuals with BH conditions. ACOs reported that their care management teams worked to identify the unique barriers these members may face. Some ACOs proactively analyzed their data and identified members with BH conditions so PCPs could initiate treatment rather than wait for external BH specialists. Members corroborated this strategy; some members stated their PCP prescribed psychiatric medications while the member waited to get an appointment with a psychiatrist. Other members reported that they were turned away from BH providers and told to seek care with their PCP.

> *"Both my psychiatrists and my therapist left the practice. And then the practice basically said your mental issues aren't bad enough, so you can either go see your PC or find somebody else. My PC doesn't feel too comfortable with mental health, because it's out of their scope of practice. But I do have a new therapist that I'm starting with, and then we're looking for another psychiatrist."*
> *– a MassHealth member.*

Members reported an inability to obtain appointments with psychologists, psychiatrists, or therapists because providers were not accepting new members, did not accept their insurance, or had long waitlists (sometimes more than six months). Members who received care from BH providers reported that provider turnover caused additional treatment delays or BH setbacks. The challenge of re-establishing care led to trust issues and disengagement.

> *"I had one [psychologist] prior to that, and she left very abruptly. And the second one assured me that she wasn't going to be leaving at least for three years or more, and then one day she's just like, 'Oh, you know, I have an opportunity and blah, blah, blah,' and I'm like 'oh, okay, well we're right in the middle of heavy stuff!' (laughs) That kind of left me hanging a little. That was a disappointment to me. You have to learn to trust someone all over again and you have to learn to feel a comfort level."*
> *– a MassHealth member.*

H2.10. ACOs will monitor quality performance and establish mechanisms to support quality improvement efforts.

In the first few years of the 2017 to 2022 Demonstration, some ACOs needed to develop new processes to collect and analyze data to monitor quality performance, while others used existing infrastructure. Some ACOs used DSRIP funding to establish new positions responsible for quality reporting (e.g., population health managers), while others added quality-related responsibilities to existing roles. ACOs tracked quality measures and shared data with staff and providers to improve individual and practice-level performance.

ACOs stated that widespread data availability was foundational to meeting quality performance goals. ACOs shared and reviewed data during meetings with ACO leadership, providers, and clinical staff. Data were used for various purposes, such as program evaluations and tracking cost, performance, and health disparities. Data were reviewed by practices to evaluate and improve clinical performance at the provider and member levels. ACOs used TA funds to enhance quality reporting, monitor quality metrics, and improve performance (see **RQ1 H1.2**

and H1.3). ACOs made data available through electronic dashboards, population health management tools, the EMR/EHR, and other reporting software.

> *"This is the … dashboard [demonstrating dashboard]. These are the quality metrics that we've built internally so far. We can quickly see the patients that are part of that metric, and then the rates for this measurement here. And then, we could go in and click on a particular metric and then, within this metric, I can track my own performance over time."*
> *– an ACO interview participant.*

Multiple staffing solutions, supported by SWIs, were also used to prepare and manage data, rollout data reporting, and train staff on collecting and using available data (see **RQ1 H1.2 and H1.3** for more information.) ACOs created committees (e.g., Quality Committee, Utilization Review, and Management Committee) that were comprised of a mix of organizational leaders, physicians, quality experts, clinical staff, and data analysts. The committees analyzed and reported on quality measure achievement, allowing the ACOs to implement necessary actions to meet quality performance measures.

> *"With respect to data, the Quality Committee is obviously highly tapped into the use of data and responding to that data. Specifically, what we do in the Quality Committee is that every other month we look at the admin measures. So, [our quality person] holds the admin measures and we go through those for each health center and overall. We look not just at where the performance is, in terms of thresholds and goals, but we also look at trending. So, he indicates to us if we're moving upwards or downwards on all of those. And then we start to talk about implementation of action." – an ACO interview participant.*

RQ3: How and to what extent did CPs target resources and take actions to operate under an accountable and integrated care model?[80]

RQ3 Summary

CPs took action and invested resources to operate effectively under an accountable and integrated care model. CPs developed robust relationships with stakeholders including ACOs, MCOs, community-based SSOs, and MassHealth, and played a vital role in driving delivery system change and meeting members' needs. Key CP activities included care planning, care navigation support, member engagement, and care coordination. CPs organized or participated in care teams and implemented systems to streamline processes and improve collaboration. CP staff prioritized member engagement, with efforts to tailor care plans to individual needs and adapt to the challenges posed by the COVID-19 pandemic.

Interviewed CP staff reported that effective communication, role clarification, and information-sharing were critical to CP success. Initially, CPs faced challenges in building relationships with ACOs and MCOs. However, regular communication and improved information-sharing strengthened collaborative efforts and partnerships over time. Clear role definitions were essential to effective collaboration, with ongoing communication and monthly meetings helping to clarify expectations and improve coordination. CPs invested in building and enhancing HIT

[80] Summative Findings described in RQ 3 come from KII data unless otherwise noted.

systems. Some CP staff reported that shared ACO EHR access facilitated verification of member information and enhanced care coordination.

CPs invested substantial time and resources in staff recruitment, retention, and workforce development. CPs navigated workforce challenges with continuous efforts, recognizing the importance of a skilled and diverse workforce in driving meaningful system change and quality member care.

H3.1. CPs will engage constituent entities in delivery system change.

CPs established collaborative relationships with other organizations; some were required (with ACOs and MCOs), and others developed organically (with external providers and community resources). Some CPs had consortium entity (i.e. constituent entity) partners, some CPs had affiliated partners, and some CPs had both. Relationships between constituent entities were developed and strengthened throughout the 2017-2022 Demonstration. CP staff responding to the CP Staff Survey in CY2020 and CY2022 characterized their enrollees as an average of 90% of MassHealth members, supporting the notion that many CPs were formed to participate in the DSRIP program, sometimes through the development of consortium entities.

> *"We are... formed by [multiple] partners in order to create access to our combined, very extensive continuum of care and to position the agencies to work with new entities, like ACOs. The first thing we did was create a navigation line that we operate, and we invited provider [partners] [One organization] holds the contract, [one organization] does centralized management of the program, and the... provider partners do all of the community partner supports and activities with enrollees that are assigned to them [by the managing organization]."*
> *– a Consortium CP interview participant.*

Collaborative relationships between constituent entities were facilitated through co-located staff, shared policies, and collective training. In some situations, staff were hired and worked for different organizations co-located at a lead organization, allowing staff to operate collaboratively within a shared facility or in close local proximity while representing different organizations. The co-location of these staff facilitated communication, built trust, and helped organizations function more efficiently.

> *"We have a consistent staffing pattern that is implemented at each of the provider partner agencies. We developed that together, you know, very inclusive, very much consensus-building."*
> *– a Consortium CP interview participant.*

Consortium entities instituted policies to build a CP-specific identity that was key to building relationships and helping staff feel as though they functioned as one team with shared goals. Some consortium CPs also conducted collective orientations and training to help staff stay on the same page and work toward common goals.

In many cases, CPs with well-established relationships with ACOs and MCOs and other community-based organizations were able to help members more effectively. In the final two years of the 2017-2022 Demonstration, interviewed CP staff reported that they were able to establish better relationships with partners, compared to the first few years of the 2017-2022

Demonstration, through improved communication and workflows, which enabled them to meet member needs better. CPs cited frequent and consistent meetings as helpful in maintaining communication channels.

> *"A couple of organizations within the CP created a great strategy, which requires a little bit of time but also has proven very effective. We meet as a team with nurses and clinical care managers at the beginning of the day to review all the care transitions and discharges [and] strategize who's going to call who and which institutions need to be reached out to make sure that we complete all those transitions of care and be able to connect with the patient, connect with the medical facility, and hopefully assess their need for resources after discharge. It has been very successful."*
> *– a Consortium CP interview participant.*

H3.2. CPs will recruit, train and/or retrain staff by leveraging SWIs and other supports.

Workforce Development

CPs continuously addressed workforce challenges throughout the 2017-2022 Demonstration. CPs focused on the recruitment, training, and retention of staff. CP interviewees cited various barriers and facilitators to workforce training and development. Many CPs spoke of recruitment and retention strategies used early in the 2017-2022 Demonstration and how those efforts shifted over time. In some cases, CPs leveraged the SWIs to support these efforts. Specific SWIs that supported workforce development are outlined in detail in **RQ1 H1.2.**

CPs adjusted staff roles and responsibilities to meet evolving workforce demands. Several CPs noted that initially, care coordinators conducted member outreach, engagement, and care management. However, over time, they found that this staffing model was compromised by the time needed for outreach and engagement. To address this, some CPs developed specialized staff positions for member engagement and outreach.

CPs also stated they developed additional solutions such as care transition teams, liaison-type roles, and social service specialists later in the 2017-2022 Demonstration. Several CPs noted that the nursing staff were an essential element of their structure and stated that nurses gave credibility to their programs. Some CPs also reported that their member care teams, which included care coordinators, nurses, and clinical staff, focused on facilitating ongoing care for members and were a central component of their staffing model. One CP discussed the evolution in staffing that occurred throughout the 2017-2022 Demonstration.

> *"We've created workflows, different teams of staff, different positions, as the roles and work evolved. A different organizational model was created over time. And, for instance [early in the 2017-2022 Demonstration], we had nurse care managers and also clinician care managers with different titles. t. Now it's one title. And in the program, we created a liaison position and a team of engagement specialists." – a CP interview participant.*

Workforce development initiatives were a major focus of CP efforts throughout the Demonstration, partly due to the increasing challenges exacerbated by the COVID-19 pandemic. Some CPs originally had staffing models that included clinicians (e.g., therapists

serving as supervisors to care coordinators). However, this model shifted over time due to the increased shortage of licensed BH clinicians. Some CPs eliminated non-required clinician roles from staffing models, and non-required clinicians were no longer recruited. Finally, the COVID-19 pandemic influenced staff retention and availability and increased competition among organizations for healthcare staff across the Commonwealth.

Recruitment

Most CPs noted that the availability and utilization of specific SWI funds were helpful in staff recruitment, particularly the student loan repayment initiatives and various recruitment packages (SWIs are outlined in detail in **H1.2 and H1.3**). In addition to using SWI funds, CPs employed various strategies and practices during the 2017-2022 Demonstration to recruit staff. CPs hired staff with experience working in or with state agencies such as the Massachusetts DMH or residential service agencies. CPs found this connection and experience beneficial for staff working in the community.

> *"We were able to integrate staff in all of our teams that had experience with other departments or other services. So, the Department of Mental Health or the Department of Developmental Services, or outpatient, or residential services - when I hire somebody [and] they come from a place where they have a connection that other [candidates] might not have. So, adding [staff] to the team that have experience with other sectors or other departments or funding sources has been a really great move for us."*
> *– a CP interview participant.*

CPs focused on hiring staff with medical expertise at the beginning of the 2017-2022 Demonstration. However, many CPs noted that recruiting staff who also had expertise in customer service approaches, and engagement and outreach skills was beneficial for the CP model. CPs developed and strengthened relationships with local community colleges and universities, for example, over the 2017-2022 Demonstration, and would regularly attend job fairs to identify new graduates and recruit staff. CPs stated they recruited staff who lived within the communities they were serving and knew the community resources, challenges, and barriers. CPs focused on recruiting staff who reflected the population they were serving. This strategy included recruiting staff with lived experience, for example, with mental health or SUDs, those who may have experienced housing or food insecurity, and those whose primary language was not English.

> *"We really do strive to recruit a team that's very reflective of the members that we serve. We try to recruit individuals that are bicultural, bilingual, and we've had some decent success in that, sometimes in certain areas of the state more so than others, but we definitely have had those sorts of successes."*
> *– a CP interview participant.*

CPs stated that this approach helped foster member engagement and strengthen relationships between members and staff. In some cases, CPs recruited new bilingual staff with recruitment bonuses and higher pay.

> *"… it's really necessary for the staff to be bilingual/bicultural, because of the populations served. So, finding clinicians prepared to do the work who also are bilingual and bicultural and want to manage care coordination, we call that,*

like, finding a unicorn. It's not something that was easy to staff."
– a CP interview participant.

Staff Training

Staff training was a large focus for all CPs throughout the 2017-2022 Demonstration. Initially, staff training focused on motivational interviewing, trauma-based care, and technical skills such as EHR documentation. Some CPs brought in language specialists for Spanish language training or offered medical interpreter training to their staff.

Staff training focused on diversity and equity in the latter part of the 2017-2022 Demonstration. In addition to the push for more formal required training around diversity and equity, CPs adopted several informal methods for discussing diversity, equity, and inclusion, including staff grand rounds and huddles. These meetings provided an opportunity to discuss social injustice events on the national and local levels, and how these events might affect member engagement. CPs prided themselves on being thorough with diversity and equity training and skill-building so staff could apply new knowledge in their work and everyday lives.

"We have eight-hour- long trainings, really putting us in real-world situations, thinking about things that I think about in my every [day] life."
– a CP interview participant.

"Every staff has to attend [at least] one equity training a year, and then supervisors two a year. Some examples are equity in hiring, implicit bias, microaggressions, privilege." – a CP interview participant.

Despite the limitations reported by CP interviewees related to the COVID-19 pandemic, the vast majority of CP survey respondents in CY2020 and CY2022 either agreed or strongly agreed that their organizations offered training opportunities to support them in their roles throughout the 2017-2022 Demonstration: 86% in CY2020 and 87% in CY2022. Traditional in-person team-building training sessions shifted to online platforms. CPs reported that remote training did not have the same impact as in-person training. Onboarding new staff for CPs involved multiple training components, many of which were moved online during the COVID-19 pandemic.

CPs described using mentorship models to train staff early in the 2017-2022 Demonstration. In this model, senior staff served as mentors or coaches for new care coordinators. CPs stated that care coordinators benefitted from mentors that guided them through essential care coordination processes, such as making phone calls post-referrals and completing required paperwork. The overarching goal was to improve the care coordinators' level of expertise and foster a comprehensive understanding of the healthcare system. Mentors also provided training in member engagement. According to one CP, developing these skills is essential to the care coordinator's role.

CPs reported that this model was effective and continued using it throughout the 2017-2022 Demonstration. However, the CP Program evolved rapidly, and training efforts eventually shifted to engaging staff members in open dialogue, learning about the problems staff were experiencing, and providing supportive resources. CPs also leveraged partnerships and opportunities through the SWIs to develop CHWs. These training programs are described in detail in **RQ1 H.2**.

Retention

CPs implemented multiple, evolving staff retention strategies throughout the 2017-2022 Demonstration. CPs focused on team-based environments at the beginning of the 2017-2022 Demonstration because CP staff reported heavy workloads and challenges, affecting staff morale and retention. CPs noted that staff morale improved by providing their staff the opportunity to debrief and process their work as a team. CPs made great efforts in many cases to implement team building and collaboration across all roles. This was facilitated informally, through team potlucks and get-togethers, or formally through peer-to-peer mentorship and professional development opportunities (e.g., teams-based training). In some cases, CPs employed training consultants who worked with the entire CP staff, which helped with staff retention.

> *"We have a training consultant who's a licensed mental health clinician, and professional development is one of her skillsets. It's helped retain some staff because they feel joy, and they feel satisfaction, in their learning skills, and their meetings. Being able to maintain our staff and be able to train them and work with them has made all the difference in the world."*
> *– a CP interview participant.*

CPs offered their staff CHW training and certifications, degree programs facilitated through SWIs and in collaboration with local colleges, medical interpreter training, and language training as retention incentives and supports, which were reported as helpful. In addition, CPs sometimes offered staff monetary incentives (e.g., gift cards and merchandise) to promote retention. CPs would also use incentives to encourage the improvement of target member engagement rates or to solicit member success stories. CPs indicated that many staff were pleased by such incentives and recognition.

> *"We have a form where [care coordinators] can submit success stories, and we really encourage them to kind of pat themselves on the back. Any time a care plan goal is accomplished, or a member graduates, that's a success story. On a monthly basis, every time a success story gets submitted, that care coordinator's name goes into a hat, and we'll randomly pick a name, and give them a gift card as a recognition of that good work."*
> *– a CP interview participant.*

One of the most popular and effective strategies for recruiting and retaining CP staff was the student loan repayment program SWI #1 (see **RQ1 H1.2**). CP staff recommended that the loan repayment amount should be increased or made available to more employees.

> *"I think probably what would have helped in terms of those positions is for the EOHHS-sponsored slots is for the student loan repayment to be higher. There might need to be more slots and a higher degree of student loan repayment."*
> *– a CP interview participant.*

Despite the many efforts CPs employed to retain staff, staff turnover was significant, especially during and after the COVID-19 pandemic. CPs reported increased competition for staff across agencies throughout the 2017-2022 Demonstration and stated that staff would often "shop around" for the highest-paying opportunities. In some cases, CPs had internal caps on the salaries they could offer staff, which was challenging. CPs reported that the COVID-19

pandemic exacerbated competition for the workforce as relief funds were distributed. CP agencies receiving relief funds could offer higher salaries to staff for similar work.

> *"We had a trickle of turnovers because they were like, 'Oh I can make $2 more over here', or 'I can, go over here and get these different benefits.' That was one period that we lost a whole bunch of people in probably a six--month period just cause funding got flooded into the city for all these different care coordination programs." – a CP interview participant*

Despite the retention challenges described by CPs, the CP staff survey indicated that most CP staff strongly agreed or agreed that their organizations prioritized employee retention: 57% in CY2020 and 58% in CY2022.

H3.3. CPs will develop HIT/HIE infrastructure and interoperability to support care coordination (e.g., reporting, data analytics) and data exchange (e.g., internally with ACOs and MCOs, and externally with BH, LTSS, specialty providers, and social service entities).

Throughout the 2017-2022 Demonstration, CPs' use of HIT evolved. CPs reported using DSRIP infrastructure and capacity building dollars and SWI funding to build and strengthen internal HIT systems to facilitate efficient, effective workflows and meet member needs. In the latter part of the 2017-2022 Demonstration, CPs cited that a shared EMR, specifically designed for the CP Program, was used by many CPs. CPs also took advantage of SWI TA dollars to build data dashboards and data visualization capacity. CPs had access to an Admission-Discharge-Transfer (ADT) feed, which enabled them to identify when and where members were being treated, such as in the ED or hospital. CPs cited that these systems enabled tracking of members' care and transitions, other activities (e.g., care plan progress), and improved workflows, and facilitated the sharing of member information and referrals. This helped to improve collaboration within and across CP organizations. CP staff indicated that shared HIT systems allowed them to work together "as one team." Finally, using specialized technology-based infrastructure allowed CPs to develop and make care plans available, as discussed in **Section H3.1**.

> *"I would say [shared EMR] has really changed our workflow, has made it more efficient. We're able to track and report things that we weren't prior. It's helpful to be on the same system as multiple other CPs. I think that for our workflows and our operational processes, [we're] doing much less manual work than [we] did prior to [shared EMR]." – a CP interview participant.*

CP staff noted that receiving support from EHR system representatives helped guide them in using the system. CPs came together and formed a group steering committee to discuss their use of the internal EHR system and share best practices across CPs.

Despite many advances in CP HIT infrastructure throughout the 2017-2022 Demonstration, there were ongoing limitations. The CP staff noted that a shared EHR did not provide certain detailed care plan information (e.g., the number of days a care plan had lapsed). CPs also noted that the system sometimes glitched, causing breakdowns in workflows. CP staff stated that the notification system was cumbersome; members with complex needs were often in and out of many healthcare settings, resulting in multiple notifications appearing in the system. Throughout

the 2017-2022 Demonstration, CPs reported that member information couldn't be shared at times due to restrictions and regulations (i.e., 42 CFR Part 2).

Along with internal HIT systems, CPs used DSRIP financial investments to build data analytic capabilities, including claims and internal data analyses, that helped track care coordination efforts and quality performance measures. CPs collaborated with MassHealth to obtain information on members, which CPs then integrated into their internal HIT systems. However, some CPs initially indicated that the member-level data received directly from MassHealth was often delayed and quickly became outdated. Beginning in Spring 2020, CPs could access the daily and monthly 834 files which provided a timely and accurate view of member enrollment changes. In Fall 2020, the new CP Program Enrollment Portal was launched providing more timely and accurate enrollment into MMIS. CPs also used MassHealth claims data to identify members with the highest needs. These data allowed CPs to identify gaps in care and reconfigure operations to improve care quality. CPs also used aggregate data, via a vendor, to monitor their own performance compared to the market and work to improve the organization's performance.

> *"It's a really wonderful tool for quality and performance initiatives; we're happy to have that [redacted] data. It's really helped to see how we're doing and where we stack up against the other CPs and we've made a lot of quality improvements, based on that [redacted] data, specifically the 122-day engagement." – a CP interview participant.*

CPs developed and enhanced their external technology-based collaborations with partners such as ACOs and MCOs. Many CPs cited that having read-only access to ACO/MCO EMRs was helpful in meeting member needs. This access allowed CPs to confirm demographic information, view upcoming appointments and diagnoses, and avoid duplication of services. Access to ACO/MCO EHRs helped CPs communicate directly with PCPs, which was helpful. However, some CPs didn't have this access and noted that the additional time needed to confirm member information was burdensome. CPs indicated that there was a CP Program Portal for obtaining member information that was only available to ACOs. Therefore, CPs needed to email ACOs to obtain the enrollment portal information.[81]

CPs leveraged HIT infrastructure to solidify care plan workflows and processes with external partners. Early in the 2017-2022 Demonstration, CPs shared care plans via file-sharing platforms, fax machines, and secure file transfers with single points of contact at ACOs. These methods were initially cumbersome for all parties; CPs then moved to more sophisticated electronic sharing systems, making the process easier. Despite the advances in the care plan information-sharing between ACOs and CPs, there was still variation, with some ACOs and individual practice sites requiring CPs to go through burdensome processes to transmit and share care plans.

[81] The CP Program Portal was intended for ACO/MCO use only. However, BH CPs were able to submit enrollments for ACCS and Post-ACCS members as referred by DMH. CPs were expected to use alternative reports, provided by MassHealth, e.g. daily and monthly 834, to confirm that referrals were processed. Many CPs did not have visibility into the CP Program Portal even though ACOs/MCOs had the tools to provide CPs excel-based reports with key information including enrollment processing status in to MMIS. MassHealth did a contractual amendment requiring ACOs/MCOs to share the status of enrollments and disenrollments with CPs.

"In terms of care plan transmission and those types of documents with the comprehensive assessments, it used to be primarily faxed. At this point we've established secured connections, secured email connections to be able to transfer that information. One of the other ACOs uses an SFTP [Secure File Transfer Protocol] for their care plans and comp[prehensive] assessments. It can be a little bit challenging, because not every ACO or MCO has the same process, and so you really need to know, this one does this, this one you contact that person if it's a complex case management member, if it's not you go to this other group of people. There's a lot to navigate, which can really delay the transmission of documents." – a CP interview participant.

H3.4. CPs will develop systems to engage members and coordinate services across the care continuum that complement services provided by other state agencies (e.g., DMH).

Member Engagement

CPs focused a great deal of effort and resources on member engagement and care coordination. Recognizing early weaknesses in their member engagement and outreach processes, many CPs created specialized staff roles to address these challenges.

"We went through a process, it was a very strict, intensive outreach. We saw 40% uptick in engagement in the program, but we were burning out our [care coordinators] They had said that they felt like they were neglecting their engaged clients, because they were doing this intensive outreach, so that wasn't sustainable. That brought about the idea of bringing on the second engagement specialist." – a CP interview participant.

CPs stated that engagement and outreach specialists were strategically hired based on their strong communication skills in addition to their clinical backgrounds. CPs noted that building trust and establishing strong relationships with members were identified as pivotal elements in sustaining engagement. One CP emphasized that building the relationship contributed to continued member involvement in the program.

CPs incorporated milestone-based incentives, such as gift cards, to incentivize members and recognize member achievements. Additionally, CPs were required to establish and maintain Consumer Advisory Boards. CPs made efforts to keep member participation in these boards active through various means, such as financial incentives.

CPs integrated motivational interviewing, a contract requirement for staff training, into their member engagement practices and trained staff in motivational interviewing skills. CPs noted that this approach ensured that staff could quickly establish care plan goals that the member wanted to achieve.

"The care coordinators are all trained on motivational interviewing … from the minute they do intake with them, they're trying to get information on what it is that they [the member] want to work on." – a CP interview participant.

CPs stated that they empowered members to take ownership of their care goals by helping them become more independent.

"We tried to make sure that members are involved in every step of the process to accessing services. We tried to make sure that they have the tools and experience so that they can have a future where they can independently navigate the system. And we try to foster that independence right from the get-go, right from that first phone call that the care coordinator makes with the member." – a CP interview participant.

Overcoming barriers to member engagement was a priority throughout the 2017-2022 Demonstration. Despite dedicated and well-trained staff, CPs encountered barriers in engaging members, especially those with SUD and those with complex needs. CPs also faced challenges connecting with members who had inconsistent contact information.

"I think the difficult piece is just a matter of our population. They don't always come to us with a phone number. Even if they do, their address and phone change a lot. Keeping up with just finding the people, it's just part of the program, but it remains a pretty big challenge." – a CP interview participant.

Care Coordination

CPs employed multiple strategies to assist members in navigating BH and LTSS services. Care coordinators reported extending support to members by connecting them with other clinical services, social support services and organizations, and state agencies. Members affirmed the effectiveness of this support in enhancing their overall care. Care coordinators contacted healthcare providers to schedule appointments for members, helped members access social services such as transportation for appointments, and helped members complete social service applications (e.g., Social Security Disability Insurance, SNAP). Many members, especially those who speak English as a second language and parents of pediatric members, found this support to be helpful. These initiatives also aimed to equip members with the skills to navigate the healthcare system more independently.

CPs developed relationships with other entities, including the Massachusetts Department of Mental Health (DMH), Adult Community Clinical Services (ACCS) providers, and SSOs such as food banks to help address member needs. Relationships with these entities helped CPs identify service availability within their community and connect members to those services. CPs also reported that these relationships helped CPs avoid duplication of services, coordinate member care, and support members.

"We work with a woman who receives DMH - ACCS services in the community; she lives in her own apartment. Her DMH team and her ACCS team wanted her to move back into a group home. It wasn't what she wanted. She came to us and said, 'I hear what they're saying; I want to prove them wrong. Can you help me get a new VNA [Visiting Nurses Association] provider that listens to me better so I can demonstrate stability in my own apartment? – a CP interview participant.

In responding to the ACO Provider and CP Staff Surveys**,** 42% of CP staff in CY2020 and about half (49%) in CY2022 agreed that they felt well-informed about members' medical history and ongoing treatments at initial engagement, while 39% and 35% disagreed in CY2020 and CY2022, respectively (see **Appendix D**). A substantial majority (~90%) of CP staff, in both CY2020 and CY2022, affirmed that care with providers within the practice site was well

coordinated. Notable gaps in care coordination were identified in CY2020 and CY2022, with only about 40% of surveyed CP staff reporting receiving discharge summaries following patient hospitalization.

The majority (79% in CY2020 and 86% in CY2022) of surveyed CP staff agreed that they have established relationships with community agencies to facilitate referrals. 79% of CP staff in CY2020 and 77% in CY2022 indicated that referrals to community-based organizations were effective in addressing members' HRSNs.

CP staff stated that CP enrollees varied in their independence when navigating the healthcare system. CP staff described instances when members observed and internalized effective strategies for navigating their healthcare journey while engaging with their care coordinators. CPs described themselves as providing guidance and support to members. CPs noted that care coordinators tailored their guidance to align with each member's distinct needs and capacities to deliver personalized and adaptive care coordination.

> *"I encourage the care coordinator staff to have the goal of having the member have as much agency…that they can have for themselves. That being said, we kind of assess each member's ability to navigate and then we help where we need to help." – a CP interview participant.*

RQ4: How and to what extent did ACOs, MCOs, and CPs align resources and take common actions to operate under an accountable and integrated care model?[82]

RQ4 Summary

ACOs and CPs used DSRIP funding to establish and align resources to operate under an accountable and integrated care model. Processes were developed and enhanced to coordinate member care. Entities collaborated to share information and resources with external partners, promoting improved administrative coordination, enhancing clinical integration, and supporting QI and performance management initiatives. In the last year of the 2017-2022 Demonstration, ACOs, MCOs, and CPs described the improvements (e.g., investments in care coordination, changes in care planning requirements) that occurred and suggested future enhancements (e.g., standardizing EMRs, expanding programs such as FS, changing partnership contracting) for the 2022-2027 Demonstration.

Over 80% of ACO providers surveyed during the 2017-2022 Demonstration generally agreed or strongly agreed that patient care was well-coordinated among providers, nurses, and clinical staff in both CY2020 and CY2022. In both CY2020 and CY2022, about 50% of ACO providers agreed or strongly agreed that member care was well-coordinated with community resources, and the majority agreed or strongly agreed that member care was well-coordinated with external providers (see **Table 2.3-D1.10**) Most PC PSAs reported that clinicians, staff, and/or administrators interacted with CPs sometimes, often, or almost always in CY2019 (67%) and CY2021 (80%). Half reported that CPs made it easier to deliver high-quality care to MassHealth members some or almost all of the time in CY2019; this increased to 75% in CY2021 (see **Appendix C**).

[82] Summative Findings described in RQ 4 come from Key Informant Interview data unless otherwise noted.

In CY2022, more than half of ACO providers agreed or strongly agreed that they had established relationships with CPs and believed that the CP Program helped their practices better support member needs; slightly fewer than half of the providers agreed that member care was well-coordinated with CPs (see **Table 2.3-D1.16)**.

Table 2.3-D1.16 ACO Provider Survey results regarding relationships with MassHealth Community Partners in CY2022

	CY2022 ACO Providers
	n=1,355[a]
We have established relationships with our MassHealth Community Partners	
Strongly Agree / Agree	54%
Neither Disagree nor Agree	31%
Disagree / Strongly Disagree	14%
Patient care is well coordinated with our MassHealth Community Partners	
Strongly Agree / Agree	46%
Neither Disagree nor Agree	36%
Disagree / Strongly Disagree	18%
I believe the MassHealth Community Partners program helps us better support our patients' needs	
Strongly Agree / Agree	53%
Neither Disagree nor Agree	34%
Disagree / Strongly Disagree	13%

Note: Surveyed ACO providers include PCPs, NPs/PAs, nurses, and social workers. Survey methods are described in **Section 2.2.** Responses from surveys are fully summarized in **Appendix D**.

[a] Overall number of responses to the survey; the number of responses to specific items varies

H4.1. ACOs, MCOs, & CPs will establish structures and processes to promote improved administrative coordination between organizations (e.g., enrollee assignment, engagement, and outreach).

The CP model was dependent on relationships with partners, including ACOs, MCOs, other community-based organizations, and MassHealth. Ongoing collaboration between ACOs, MCOs, and CPs was central to the model's success. As required by MassHealth, ACOs, MCOs, and CPs established "documented processes" early in the 2017-2022 Demonstration that specified how the organizations would work together clinically and administratively. The development of documented processes helped set clear expectations for administrative coordination for interorganizational relationships.

Building Interorganizational Relationships

Despite the documented processes, some CPs described a rocky start to their relationships with ACOs and MCOs, which was attributed to a lack of alignment in roles, expectations, processes,

and HIT systems among partners early in the 2017-2022 Demonstration. Several CP staff stated that they wished MassHealth had more clearly defined each agency's role in the partnership before the 2017-2022 Demonstration began. However, most CPs reported that more clearly defined roles, expectations, processes, and services were established as relationships with partners were cultivated and solidified. Standardization in care coordination, data-sharing systems, and processes strengthened partnerships. Progress was made in developing relationships during the early years of the 2017-2022 Demonstration when MassHealth transitioned CP member assignment responsibilities to ACOs. The CPs were receptive to this workflow change. Some noted this helped improve and further strengthen their ACO partnerships. Shared software systems and increased direct communication between entities created more efficient referral processes.

> *"I think throughout the years we've developed a stronger communication with all of our ACO and MCO partners. We know who the key players are and our contacts are, so we don't have to wait for meetings in order to communicate any enrolling questions. In fact, the ACOs and MCOs reach out to us about capacity checks, which is really helpful." – a CP interview participant.*

Although improvement over time was reported for most ACO and CP partnerships, the lack of standardization at the programmatic level (i.e., across all ACOs, MCOs, and CPs) often meant that parallel procedures were established specific to each partnership. The substantial variability in HIT interoperability and communication strategies caused confusion. CP informants pointed to the heterogeneity of their ACO partnerships concerning expectations, levels of collaboration, communication, and workflows. At the beginning of the 2017-2022 Demonstration, most ACOs and CPs did not have existing relationships, many of which were built over time. Managing multiple relationships (e.g., sharing information and member data) contributed to administrative burdens.

> *"We're working with 14 different ACOs, and then within those ACOs, there's practice groups. It's unwieldly, and it's unrealistic, and we want to do our job well." – a CP interview participant.*

Many ACOs took advantage of MassHealth's modification to the ACO-CP partnership requirements, allowing ACOs to establish a smaller set of preferred partnerships. This helped reduce the administrative burden for program management and allowed ACOs to focus on streamlining processes with a smaller subset of partners.

> *"In the beginning we had, altogether between LTSS and BH, 21 partners and that was really hard to manage. That's a lot of quarterly meetings for us to set up and for us all to attend. That, in and of itself, is a burden. As we've started to move to more preferred providers, naturally a couple have come to the top, and we work more closely with them." – an ACO interview participant.*

CPs also reported that relationships with MCOs (e.g., coordinating care, communicating) continued to face challenges. One MCO indicated their providers were not generally aware of the CP Program, and MCO providers who had members assigned to a CP didn't understand the intent of some processes, such as care plans. Another MCO noted that CP re-education was needed to try to maintain standardized processes. MCOs, with networks of providers who often had only a few of their members enrolled with CPs and centralized care management

resources, had greater difficulty forming strong relationships between their practices and CPs while integrating care managers who were not embedded at the practice.

> *"DSRIP and the ACO promoted transitions of care. [For example,] BH CPs, LTSS promoted integrated behavioral health. In the MCO space that wasn't promoted to the degree it could have been. Those missing pieces make it even harder for centralized care management to execute on that promise. Makes it even more frustrating for providers in that space. I don't even think the MCO providers are able to really leverage the CPs either. I don't think they understand them. I don't think they know how to find them. Unfortunately, I feel like that's the subset that really needs particularly the BH CPs. But we're not getting the best sort of bang for the buck out of that program with the MCO members." – an MCO interview participant*

MCOs explained that they could have leveraged the efforts and expertise of the ACO partners as part of ACPPs to improve care and quality performance.

Member Engagement

CPs indicated that members with complex needs were often confused about the various entities (e.g., ACOs, CPs, DMH) and roles of staff (e.g., CP care coordinators, ACO care managers) who were contacting them, which affected member engagement.

> *"[CP versus ACO reaching out] I think there's a lot of confusion, if we're being entirely transparent. I think sometimes it's really well-explained from both parties, and [members] understand that there's a collaborative effort, in that they work together, and so they share the information. I think sometimes, depending on the member or maybe how in tune they are or how it's explained to them, there can be a very large misunderstanding with how they work together and who to contact for what needs. That has been something that we've become more aware of over time."*
> *– a CP interview participant.*

Many ACOs and CPs developed warm hand-off processes to help transition care coordination processes from the ACO to the CP staff. ACOs would refer members with complex conditions to CPs but ask them to hold off on member engagement until staff from both organizations could collectively meet with the members to introduce the CP Program. This process helped to facilitate smoother care coordination transitions from the ACO to the CP while ensuring members continued to engage in their care. ACO and CP workforce development activities also promoted an aligned approach to enrollee assignments, engagement, and member outreach.

> *"We'll communicate with the CPs and ask them to hold off their involvement until the patient's ready, and we're ready to transition. We'll do a warm handoff when that time comes, and the CPs can. For patients like this, we'll introduce the CP program to the patient and then introduce the CP to the patient, so that there's that relationship there. It's a smoother transition."*
> *– an ACO interview participant.*

Addressing Member HRSNs

ACOs noted that training and education of their providers and staff about CPs and resources in their community improved the administrative coordination between organizations and helped ACO staff identify the available resources to address members' HRSNs.

> *"We realize that, while we have care managers and social workers who do excellent work, there comes a point where you need to rely on the expertise of our partners who do this day in and day out and really have a lot of additional resources that they have access to... we're partnering with them, and we're so happy that they are so collaborative." – an ACO interview participant.*

ACOs, MCOs, CPs, and SSOs made efforts to develop strong partnerships through the FS Program (see **RQ2 H2.6** for more information on the FS Program). SSOs offered training to CPs to educate their staff on the programs offered. One CP indicated they had workflow workgroups with ACOs and MCOs to help disseminate FS information. Some CPs also reported that they needed ACOs to communicate more regularly regarding FS programs and available resources to help CPs connect members. Some CPs suggested that a centralized repository of available FS programs would be helpful. One CP created its own repository in the form of an FS matrix to help its staff identify available services.

> *"One of the things we did earlier this year was put together a flex services matrix. Because it started to get really unmanageable with all the different ACOs having all their different programs with either nutrition or housing." – a CP interview participant.*

H4.2. ACOs, MCOs, & CPs establish structures and processes to promote improved clinical integration across their organizations (e.g., flow of member and patient information across settings and integrated care plans).

ACOs, MCOs, and CPs established structures and processes to promote improved clinical integration across organizations.

Comprehensive Assessments

Primary activities that promoted improved clinical integration across organizations were person-centered comprehensive assessment and care planning. For ACO and MCO members assigned to LTSS CPs, ACOs and MCOs were required to conduct comprehensive assessments, while for BH CPs, the CPs conducted the comprehensive assessments. Some LTSS CPs suggested that MassHealth required ACOs to use one standardized comprehensive assessment form.

> *"So [the ACO] provide us with the comprehensive assessment, which usually has medical diagnoses … they either have a social worker or a nurse, case manager, who is driving that assessment … it provides in most cases a good basis of information for us to combine with the information that we've found out from the member, as well as our own assessment. It's combined all together to generate one integrative care plan. Some ACOs have much more thorough comprehensive assessments than others, which I think it would be wonderful if there was one standardized form for comprehensive assessments." – an LTSS CP interview participant.*

"Completing the [comprehensive] assessment really gives us a perspective of the member and their cognitive issues that they may be facing, behavioral health needs, medical, all of that. Members do get reassessed yearly, and at that point we revisit the goals and identify what's been accomplished and set new [goals] at that point, as well as if things come up along the way." – a BH CP interview participant.

Care Plans

ACOs and CPs noted care planning process improved member engagement and care coordination. LTSS care plans were developed by LTSS CPs, which focused on MassHealth State Plan LTSS, other LTSS services, and social services. LTSS care plans were then incorporated into the care plan developed by the ACO/MCO. Person-centered treatment plans were developed by the BH CP for BH CP enrollees. CPs worked with members, ACO providers, and others designated by the member to participate on the care team to develop care plans that reflected members' preferences and needs. CPs and ACOs also developed strategies and workflows to improve performance on care plan-related quality measures by exchanging information in a more timely and organized manner.

Several tools and strategies helped streamline the care planning processes. HIT infrastructure and the capacity to share information electronically expedited the care planning and coordination processes. CPs provided examples of entering SMART goals, which were specific, measurable, achievable, relevant, and time-bound, to track member achievements.[83] This helped to break larger goals into more manageable components that were easier to track and achieve. CPs also adjusted workflows to make the care plan process easier for their staff. Some CPs developed centralized care planning teams and key document trainings. Additionally, one CP developed a care plan guide for staff, and another created a cover page/task list to make the care plan easier for the PCP to review.

"In 2020, what was apparent to us is that we were still really struggling with ACOs [and MCOs] to get care plans back to us within the timeframe. We made a conscious decision to pull care plan escalation into the central team and designate that as a scope of work so that we could try to work more closely with the ACOs. And that there could be maybe just two or three people outreaching. Once we took that in centrally and got workflows in place, and the ACOs were more aware that that we're doing this, they definitely appreciated it." – a CP interview participant.

CP staff stated that the care plan process involved multiple administrative burdens and challenges. CPs noted differences among their ACO partners regarding care plan document sharing and communication preferences. In general, these transfer methods and communication strategies improved over time. However, CPs stated that they managed multiple systems and preferences for sharing care plans across ACO partners. Although this process improved over time, CPs reported continued challenges, such as difficulty obtaining necessary signatures and sharing care plans with partners.

"It's different with each ACO. They determine how they want the care plan submitted. Once it's been signed off on by the client and approved by a

[83] Doran, G. T. (1981). "There's a S.M.A.R.T. way to write management's goals and objectives" (PDF). Management Review. 70 (11): 35–36.

supervisor, that's when I'll come in, whatever I need to do, upload it to someone's [SFTP] or some folks like it faxed, or need it to be faxed directly to a provider's office. Most are pretty good about getting signatures, if at all possible, within two weeks, others not."
– a CP interview participant.

CPs stated that ACOs didn't always understand what person-centered care plans contained and how CPs developed them. Although CPs described such misalignment between ACOs and CPs early on, most CPs reported that they were able to clearly define roles, expectations, and services as relationships with ACOs became more established. CP staff noted that continuous communication regarding roles and responsibilities was key to maintaining alignment; this was particularly true given staff turnover and shifts in programmatic expectations. Several CP interviewees mentioned having regular monthly meetings with most of their ACO partners to discuss roles and responsibilities. CPs found that obtaining signatures for care plans was easier and everyone understood the care plans better when communication between the CPs and ACOs was consistent. Although CPs reported that communication and collaborative processes between ACOs and CPs pertaining to the care plan improved over time, such improvements were less common with MCOs.

CPs reported that the SWI #5 Care Plan Learning Collaborative (see **RQ1 H1.3**) deepened relationships and increased communication between CPs and their ACO partners. CPs reported that the Care Plan Learning Collaborative facilitated clinical reviews in bi-weekly or monthly meetings, improving communication between the CPs and ACOs. More frequent meetings strengthened relationships and care integration and coordination efforts, allowing the CPs and ACOs to address members' needs in real-time. CPs found it helpful to engage the CP staff working directly with members in meetings with ACOs so they could speak to specific member experiences. CPs collectively shared that these regular meetings with ACOs supported inter-organizational alignment.

"We now have monthly case conferences with a majority of our ACO partners where we'll review complex cases and/or we'll just review small things like trying to get a member's comp assessment in a timely manner. Or figuring out what the status is of the care plan that we sent."
– a CP interview participant

"… What it evolved into was how do we get better communication at the PC offices? And then that started healthcare center based clinical reviews. Or opportunities, monthly opportunities, every other week opportunities, in some cases, with healthcare centers, where we share a couple hundred members. So, that did not happen before the care plan learning collaborative. The care plan learning collaborative really expanded a lot of deeper, deeper relationships." – a CP interview participant.

The members' engagement in identifying their medical and social needs and specifying goals was key to developing the person-centered care plan. Assessment tools used to develop the care plan included robust questions regarding daily needs, medical history, HRSNs, and BH. CP staff learned that some members were willing and able to address their care plan goals independently, whereas others needed greater support from staff. By understanding members' needs and abilities, CP staff could support them while encouraging their awareness of and

access to resources. In addition, the COVID-19 pandemic changed how CP staff helped meet member needs. The change in processes during the COVID-19 pandemic allowed CPs to complete care plans via telemedicine with verbal consent from members.

> *"… the member's involved from day one, from the initial phone call to where they want to meet for the assessment, to what they want in their plan of care. It's their care plan, and they're involved at every step. Every month our care coordinator meets with them, and reviews their plan of care; they're always working on those goals in the care plan.... If they have a significant change, or want to take the goal out, then we update the care plan…."*
> *– a CP interview participant.*

Addressing HRSNs

ACOs also described some strategies that facilitated member referrals to social services. ACO staff referred members who screened positive for HRSNs to embedded care managers by calling and faxing a central referral center. ACOs stated that having a central point of contact at the ACO helped to ensure members connected with needed services. Over the course of the 2017-2022 Demonstration, ACOs reported that the ACO, CP, and FS programs work together through increased communication and improved workflows to meet member HRSNs.

> *"One thing that I've observed in my role in what's been happening through the ACO is really how the ACO, CP, and the Flex programs have really worked to integrate together, and really have been able to add nice programming for the members... there's been increased communication, workflows, and such that have allowed members to meet their needs and ease through those programs as needed, due to that communication."*
> *– an ACO interview participant.*

HIT and Data Sharing

In the first few years of the 2017-2022 Demonstration, organizations identified a lack of standardization across partners' technology platforms, including EMRs and EHRs, and the types of data that organizations collected. ACOs worked to establish interoperable health information systems and some shared access to EMRs and EHRs with CPs, which helped with provider communication, member tracking, outreach, and care coordination, and reduced administrative burdens. Only a few ACOs initially granted CPs read-only access to their EMRs, and most ACOs could not access CP health information systems. This led to difficulties tracking members and meeting member needs. ACO staff said that having longitudinal data was critical to identifying member needs and coordinating care. Later in the 2017-2022 Demonstration, some ACOs reported that integrated data-sharing systems and procedures were developed or access to systems was granted, ultimately creating more efficient referral processes. The investments in technology solutions and infrastructure (e.g., shared EHRs, secure file-sharing systems) reportedly improved partnerships and performance (e.g., better outcomes via communications).

> *"There's been a lot of work done to also try to enhance our relationship with our community partners. We've been working on a project to be able to electronically ingest care plans that come from our community partners and not have to go through the process of having to get those faxed to us, signing them with a wet signature, scanning them in the record, faxing them back out*

to the CP. There's a more automated process to that and it's more integrated in provider workflow." – an ACO interview participant.

MCOs also reported that their ability to share information with CPs helped them to coordinate and integrate member care. MCO staff reported that CPs and MCOs developed standardized processes to manage the care of members needing LTSS. One MCO stated that they enhanced their care management platform to document communication with the partnering CPs. This MCO also developed a community resource repository that is easily updated and available for care managers. The MCO noted that this resource improved their partnerships and member care.

Workforce Changes

As described above, ACOs created new roles or functions to facilitate clinical integration across partnering organizations. ACOs also reported that the care management team co-located with the CP staff within the CP Program helped facilitate real-time communication, improved coordination and integration, improved member engagement, and reduced administrative burdens for ACOs and CPs.

"[In] a couple of our offices, the care management team is co-located with a community partners program, which makes it much easier for them to collaborate with their providers. [In a BH CP], down in the [city] area, our [care] team sits in the same office with the Community Partners. That co-location really facilitates shared resources and shared care planning as well." – an ACO interview participant.

H4.3. ACOs, MCOs, & CPs establish structures and processes for joint management of performance, quality, and conflict resolution.

ACOs, MCOs, and CPs collaboratively established and maintained structures for the management of performance, quality, and conflict resolution throughout the 2017-2022 Demonstration. While conflict was rare early in the 2017-2022 Demonstration, the documented processes helped de-escalate conflicts quickly and improve workflow and care delivery. In the first few years of the 2017-2022 Demonstration, many organizations reported that jointly managing processes for performance and quality was challenging. The accountability slates of measures for ACOs and CPs were not the same, contributing to differences in priority setting. ACOs were held financially accountable for quality performance as early as Year two of the DSRIP program, while CPs remained in pay-for-reporting (PFR) until pay-for-performance (PFP) began in Year three, possibly contributing to differences in priority setting between ACOs and CPs. MassHealth designed a more gradual transition from PFR to PFP for CPs because CPs generally had less experience with accountability for quality performance.

ACOs and CPs reported in the later years of the 2017-2022 Demonstration that increased data-sharing mechanisms (e.g., dashboards, EHRs, reporting software, collaborative data, and quality meetings) supported member care coordination and the achievement of quality benchmarks (e.g., tracking of cost performance and understanding health inequities). Data produced by ACOs or MassHealth, such as cost, utilization, and clinical measure performance, were used to achieve quality benchmarks (see **RQ2 H2.10**).

At the beginning of the 2017-2022 Demonstration, some ACOs reached out to CPs to hold introductory meetings and establish recurring QI meetings to deepen relationships and keep open lines of communication between organizations. These meetings continued throughout the 2017-2022 Demonstration, serving as a forum for administrative problem-solving and allowing joint operations to run smoothly regardless of staff turnover. ACOs and CPs held additional meetings, such as case conferences, which provided the opportunity for ACOs and CPs to jointly address member care needs.

> *"We have to establish these great relationships with open lines of communication, so [we] made sure that we had recurring meetings between the community partner programs on the books at each one of the health centers. And we went out and started those meetings as an introductory meeting and developed agendas just to open lines of communication and to get them thinking about how they can drive together. I think that that's our secret sauce, so to say, in working with the community partner programs and why we have such good relationships." – an ACO interview participant.*

Multiple CPs noted that requests to ACOs were much easier following these meetings, as the ACOs now understood the reasons for their requests.

ACOs and CPs participated in various joint committees meeting biweekly, monthly, and quarterly. Examples included joint operations committees, quality committees, justice and equity committees, executive committees, and human resources committees. The focus of these committees is to standardize workflows, policies, and procedures across partners.

> *"We have a quality committee where we try to pull in typically director level and up of our senior management from the different partners from the quality departments. We have our executive committee which is primarily made up of the CEOs of each of the partners. We also have our medical director who is included in that as well. Those are all committees that meet monthly. We then also have an HR committee. They meet quarterly [with] HR management representation from all of the partners."*
> *– a CP interview participant.*

2.3.2. Domain 2: Changes in care processes

RQ5: To what extent did the identification of member needs, including physical, BH, LTSS, and health-related social needs, improve?

H5.1. The identification of individual members' unmet needs (including health-related social needs, BH, and LTSS needs) will improve.

RQ5 Summary

Both direct measures of member need and indicators of the need identification process were used to evaluate **RQ5**. This section presents the results of five rounds (2018-2022) of member experience surveys for six populations: 1) pediatric primary care (PC), 2) adult PC, 3) pediatric behavioral health (BH), 4) adult BH, 5) pediatric long-term services and supports (LTSS), and 6) adult LTSS. Adults were 18 years of age or older, and children were under 18 years of age;

proxy respondents answered the pediatric surveys on behalf of children. **RQ5** also includes results for several administrative measures, Practice Site Administrator Surveys, and two-hybrid quality measures. The results for all **RQ5** administrative measures are summarized by comparing Accountable Care Organization (ACO) enrollees to Managed Care Organization (MCO)/ Primary Care Clinician (PCC) enrollees in **Tables 2.3-D2.12-D2.14**.

Findings in **RQ5** are consistent with the hypothesis that the identification of individual members' unmet needs would improve during the 2017-2022 Demonstration. The percentage of ACO enrollees who were 20 years of age and younger receiving an oral health evaluation was stable during the first two years of the Demonstration. This measure declined in 2020, yet rebounded by 2022. Developmental screening rates were higher during the Demonstration for ACO enrollees except in 2021 when rates were higher among MCO/PCCP enrollees. The differences in lead screening rates increased during the Demonstration, where more ACO-enrolled children 2 years of age were screened compared to the MCO/PCCP enrollees.

At least half of practice site administrator respondents reported that members were systematically screened for BH and health-related social needs (HRSN), and the majority agreed or strongly agreed that providers follow a clearly established process for screening for needs at home that are important for a patient's health. Screening for HRSNs, as measured based on the ACO quality measure that requires screening for five HRSNs, improved by 15.3% from 10.8% in 2018 to 26.1% in 2022. Depression screening and follow-up, another ACO quality measure, improved by 10.3% from 34.2% in 2018 to 44.5% in 2022.

Most members and parents of members who responded to the adult and pediatric PC, BH, and LTSS surveys reported high and relatively stable or increased scores for Child Development, Self-Management Support, BH (screening in the PC setting), Self-Management Support, BH Needs Met, Core LTSS Needs Met, and Non-Core LTSS Needs Met composites.

PC Needs

Practice Site Administrator Survey

In Wave 2 (2021), 68% of all responding PC practice site administrators agreed or strongly agreed that providers followed a clear, established process for screening for service needs at home that are important for a patient's health (an increase of 20% from Wave 1 in 2019; $p<0.01$). Note that Wave 1 of the survey was conducted prior to the COVID-19 pandemic and Wave 2 during the COVID-19 pandemic.

Needs of the Pediatric Population

Administrative Measures

Four measures were examined as indicators of the quality of care with regard to needs identification for pediatric members: oral health evaluation, developmental screening, lead screening, and adolescent well care (see **Table 2.3-D2.12**). Among ACO enrollees (or would-be ACO enrollees if the ACO program had been operating at baseline) 20 years of age and younger, the percentage receiving an oral health evaluation in 2017 (the last baseline year) was 63%, and this remained stable for the first two Demonstration years (2018-2019). Oral health

evaluation rates declined to 46% in 2020 and partially rebounded to 54% by 2022, coinciding with the first few years of the COVID-19 pandemic. In propensity-weighted comparisons, would-be ACO enrollees were more likely to receive oral health evaluations at baseline, and ACO enrollees were less likely than MCO/PCCP enrollees to receive oral health evaluations during 2019-2020. In difference in difference (DiD) comparisons, the ACO versus MCO/PCCP adjusted odds ratio (aOR) for each year during 2019-2022 was 0.84 to 0.92 times the aOR at baseline.

More than half (56.2 to 57.1%) of would-be ACO-enrolled adolescents had well-care visits at baseline (2015-2017), but this percentage gradually declined over the Demonstration to a low 35.3% in 2022. However, this analysis does not account for allowances for telemedicine visits, a change in the measure specification that occurred in 2020 and that will be examined in further analyses.[84] In propensity-weighted comparisons, well-care visit rates were lower among ACO-enrolled (and would-be enrolled) adolescents than MCO/PCC-enrolled (and would-be enrolled) adolescents throughout the baseline and Demonstration.

Developmental screening rates were high (>75%) throughout the baseline (2015-2017) and Demonstration (2018-2022). In propensity-weighted comparisons, developmental screening rates were similar at baseline for would-be ACO and would-be MCO/PCCP enrollees, then were higher during the Demonstration for ACO enrollees with the exception of 2021, when rates were higher among MCO/PCCP enrollees. The percentage of ACO enrolled (or would-be ACO enrolled) children 2 years of age who were screened for lead was 68.0%, 82.3%, 83.4%, 83.7%, 82.1%, 76.9%, and 76.5% in each year of 2016-2022, respectively. In propensity-weighted comparisons, would-be ACO enrollees had higher rates of lead screening than would-be MCO/PCCP enrollees at baseline. The difference in screening rates between the two groups widened during the 2017–2022 Demonstration.

PC Member Experience Survey

In 2018, the score for the Child Development composite measure from the Pediatric PC Member Experience Survey (for which proxies respond for the child), which combines results from five separate survey items (see **Appendix G** for results by item), was 71.2. The specific items included in composite measures are included in the footnotes of tables containing member experience survey results. Composite scores range from a minimum of 0 to a maximum of 100. This score remained relatively stable throughout the 2017-2022 Demonstration, with a score of 71.6 in 2022 (see **Table 2.3-D2.1**). The score for the Self-Management Support composite measure from the Pediatric Member Experience Survey, which combines results from two items, was 51.8 in 2018 and 56.2 in 2022 (see **Table 2.3-D2.2**).

Table 2.3-D2.1 Results for the Child Development Composite Measure[a] from the Pediatric PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	71.2	Reference	Reference
2019	72.4	1.2[b]	1.1, 1.3

[84] A consistent measure specification was used for primary analyses to avoid introducing variation into results associated with specification changes.

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	69.6	-1.7[b]	-1.8, -1.5
2021	71.1	-0.1	-0.3, 0.0
2022	71.6	0.4[b]	0.2, 0.5

Abbreviation: CI (confidence interval)

[a] The Child Development composite measure includes the following five items: 1) In the last 12 months, did you and anyone in this provider's office talk about your child's learning ability? 2) In the last 12 months, did you and anyone in this provider's office talk about the kinds of behaviors that are normal for your child at this age? 3) In the last 12 months, did you and anyone in this provider's office talk about how your child's body is growing? 4) In the last 12 months, did you and anyone in this provider's office talk about your child's moods and emotions? 5) In the last 12 months, did you and anyone in this provider's office talk about how your child gets along with others?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.2 Results for the Self-Management Support Composite[a] Measure from the Pediatric PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	51.8	Reference	Reference
2019	54.8	3.0[b]	2.9, 3.1
2020	53.0	1.2[b]	1.1, 1.4
2021	54.2	2.4[b]	2.3, 2.6
2022	56.2	4.4[b]	4.2, 4.6

Abbreviation: CI (confidence interval)

[a] The Self-Management Support composite measure includes the following two items: 1) In the last 12 months, did you and anyone in this provider's office talk about specific goals for your child's health? 2) In the last 12 months, did anyone in this provider's office ask you if there are things that make it hard for you to take care of your child's health?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Needs of the Adult PC Population

PC Member Experience Survey

In 2018, the score for the BH composite measure (which measures BH screening services provided to members in the PC setting) from the Adult PC Member Experience Survey was 60.6 (composite scores have a possible range of 0-100). The specific items included in composite measures are included in the footnotes of tables containing member experience survey results. There was modest fluctuation in scores from year to year, from 63.2 in 2019 to 59.3 in 2020 (the first year of the COVID-19 pandemic) and 62.9 in 2022 (see **Table 2.3-D2.3**). The score for the Self-Management Support composite measure fluctuated in the range of 55.9 to 60.0 during the 2017-2022 Demonstration, with the 2022 score (58.8) one point below the 2018 score (59.8) (see **Table 2.3-D2.4**).

Table 2.3-D2.3 Results for the BH Composite Measure[a] from the Adult PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	60.6	Reference	Reference
2019	63.2	2.6[b]	2.5, 2.6
2020	59.3	1.3[b]	-1.4, -1.2

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2021	61.0	0.4[b]	0.3, 0.4
2022	62.9	2.3[b]	2.2, 2.3

Abbreviation: CI (confidence interval)

[a] The BH composite measure includes the following two items: 1) In the last 12 months, did anyone in this provider's office ask you if there was a period of time when you felt sad, empty, or depressed? 2) In the last 12 months, did you and anyone in this provider's office talk about things in your life that worry you or cause you stress?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.4 Results for the Self-Management Support Composite[a] Measure from the Adult PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	59.8	Reference	Reference
2019	60.0	0.2[b]	0.2, 0.2
2020	55.9	-3.9[b]	-4.0, -3.9
2021	58.0	-1.9[b]	-1.9, -1.8
2022	58.8	-1.0[b]	-1.0, -1.0

Abbreviation: CI (confidence interval)

[a] The Self-Management Support composite measure includes the following two items: 1) In the last 12 months, did you and anyone in this provider's office talk about specific goals for your health? 2) In the last 12 months, did anyone in this provider's office ask you if there are things that make it hard for you to take care of your health?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Needs of the BH Population

Administrative Measures

The percentage of adolescent and adult ACO enrollees with a new episode of alcohol, opioid, or other drug abuse or dependence who initiated treatment ranged from a low of 48.6% in 2018 to a high of 54.1 in 2022 (see **Table 2.3-D2.13**). In propensity-weighted comparative analyses, the odds of initiation were modestly lower among ACO enrollees compared with MCO/PCCP enrollees during the Demonstration (aORs in the range 0.85 to 0.95). The percentage of ACO enrollees (or would-be ACO enrollees) who engaged with treatment (i.e., initiated treatment and who had two or more additional treatment services within 34 days of the initiation visit) increased from a low of 9.5% in 2015 (the start of the baseline period) to 16.4% in 2022 (the last year of the Demonstration). In propensity-weighted comparative analyses, the odds of engagement were not significantly different between ACO enrollees and MCO/PCCP enrollees except for 2021, when the odds were lower among ACO enrollees (aOR: 0.86; 95% CI: 0.78, 0.95).

The BH Community Partner (CP) engagement and LTSS CP engagement quality measures reflect engagement in care because meeting the numerator criteria for these measures require completion of a comprehensive assessment and a care plan, with signatured by both the member and the Primary Care Provider (PCP) (or their designees). Engagement rates fluctuated within a narrow range (9.5-13.4%) among BH CP and LTSS CP enrollees during the period 2019-2022. Detailed results for these measures are included along with all CP quality

measure results in **Domain 6,** specifically **Table 2.3-D6.4** (for BH CP enrollees) and **Table 2.3-D6.6** (for LTSS CP enrollees).

Practice Site Administrator Survey

At least half of all responding practice site administrators reported that members were systematically screened for BH and HRSNs in both Waves 1 and 2 (2019 and 2021, respectively). In Wave 2, of practice site administrators who reported they systematically screened for BH and HRSN, 97% screened for substance use (5% increase from Wave 1; p<0.05), 100% for depression (3% increase from Wave 1; p<0.05), 70% for food insecurity (8% increase from Wave 1; p<0.05), 91% for housing instability (18% increase from Wave 1; p<0.05), 69% for utility needs (22% increase from Wave 1; p<0.05), 78% for transportation needs (18% increase from Wave 1; p<0.05), and 55% for need for financial assistance with medical bills (10% increase from Wave 1; p<0.05). Note that Wave 1 of the survey was conducted prior to the COVID-19 pandemic and Wave 2 during the COVID-19 pandemic.

BH Member Experience Survey

During the Demonstration, the score for the BH Needs Met Composite (which captures member experience related to BH services members receive outside of a PC visit) for the Pediatric BH Member Experience Survey ranged from 77.3 to 86.5 (within a possible range for composite measures of 0-100). The specific items included in composite measures are included in the footnotes of tables containing member experience survey results. After an increase of 9.3 points from 2018-2019, scores stabilized in the range of 78.0 to 81.0 for 2020-2022 (see **Table 2.3-D2.5**).

Among adults responding to the BH Member Experience Survey, the scores for the BH Needs Met Composite (which captures member experience related to BH services members receive outside of a PC visit) ranged from 80.6 to 84.9 over the 2017–2022 Demonstration. After increasing by 4.3 points to 84.9 from 2018-2019, scores declined gradually to 81.2 in 2022 (see **Table 2.3-D2.6**).

Table 2.3-D2.5 Results for the BH Needs Met Composite[a] Measure from the Child BH Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	77.3	N/A	N/A
2019	86.5	9.3[b]	9.0, 9.6
2020	81.0	3.7[b]	3.3, 4.1
2021	78.0	0.8[b]	0.4, 1.2
2022	80.4	3.1[b]	2.7, 3.5

Abbreviation: CI (confidence interval)

[a] The Child BH Needs Met composite measure includes the following three items: 1) How well were your child's needs for mental health services met? 2) How well were your child's needs for substance use treatment services for problems with alcohol or drugs met? 3) How well were your child's needs for behavioral health prescription medications met?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.6 Results for the BH Needs Met Composite[a] Measure from the Adult BH Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	80.6	N/A	N/A
2019	84.9	4.3[b]	3.7, 4.9
2020	83.9	3.3[b]	2.7, 3.9
2021	82.8	2.2[b]	1.6, 2.8
2022	81.2	1.6[b]	0.9, 2.2

Abbreviation: CI (confidence interval)

[a] The Adult BH Needs Met composite measure includes the following three items: 1) How well were your needs for mental health services met? 2) How well were your needs for substance use treatment services for problems with alcohol or drugs met? 3) How well were your needs for behavioral health prescription medications met?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Needs of the LTSS Population

Practice Site Administrator Survey

In Wave 2 of the Practice Site Administrator Survey, 68% of respondents agreed or strongly agreed that providers follow a clearly established process for screening for needs at home that are important for a patient's health, a 21% increase from Wave 1 ($p<0.05$). The percentage of respondents reporting that no such screening process was in place declined from 9% in Wave 1 to 2% in Wave 2. Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the COVID-19 pandemic.

Long-term Services and Support Member Experience Survey

The score for the Core LTSS Needs Met Composite on the pediatric LTSS survey was 84.4 in 2018; between 2018 and 2022, it ranged from a high of 86.6 (2019) to a low of 82.5 (2020) (see **Table 2.3-D2.7**). For the Non-Core LTSS Needs Met Composite, the score increased by 6.1 points from 2018 (83.8) to 2019 (90.0), then declined to 86.2 in 2020 (see **Table 2.3-D2.8**). Physical, occupational, speech, skilled nursing, and personal care services were considered part of the Core LTSS Needs Met Composite by the survey developers, while other services including medical equipment, assistive technology, specialty care, mental health care, transportation, and prescriptions were grouped under the Non-Core LTSS Needs Met Composite. The specific items included in composite measures are included in the footnotes of tables containing member experience survey results. The possible scoring range for composite measures is 0-100.

The score for the Core LTSS Needs Met Composite on the adult LTSS increased 4.8 points from 81.6 in 2018 to 86.4 in 2019 and remained stable through 2022 (see **Table 2.3-D2.9**). The score for the adult Non-Core LTSS Needs Met Composite increased 5.1 points from 81.5 in 2018 to 86.6 in 2019 and remained stable through 2022 (see **Table 2.3-D2.10**).

Table 2.3-D2.7 Results for the Core LTSS Needs Met Composite[a] Measure from the Child LTSS Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	84.4	N/A	N/A
2019	86.6	2.2[b]	1.6, 2.9
2020	82.5	-1.8[b]	-2.2, -1.4
2021	85.9	1.5[b]	1.2, 1.8
2022	86.0	1.7[b]	1.4, 1.9

Abbreviation: CI (confidence interval)

[a] The Child Core LTSS Needs Met composite measure includes the following three items: 1) How well were your child's needs for physical, occupational or speech therapy services met? 2) How well were your child's needs for skilled nursing met? 3) How well were your child's needs for personal care or everyday tasks met?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.8 Results for the Non-Core LTSS Needs Met Composite[a] Measure from the Child LTSS Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	83.8	N/A	N/A
2019	90.0	6.1[b]	5.6, 6.7
2020	86.2	2.4[b]	1.0, 2.8
2021	85.2	1.3[b]	0.9, 1.8
2022	85.9	2.0[b]	1.8, 2.3

Abbreviation: CI (confidence interval)

[a] The Child Non-Core LTSS Needs Met composite measure includes the following six items: 1) How well were your child's needs for medical equipment or medical supplies met? 2) How well were your child's needs for assistive technology met? 3) How well were your child's needs for specialty care services met? 4) How well were your child's needs for mental health services met? 5) How well were your child's needs for transportation services to get to medical appointments met? 6) How well were your child's needs for prescription medications met?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.9 Results for the Core LTSS Needs Met Composite[a] Measure from the Adult LTSS Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	81.6	N/A	N/A
2019	86.4	4.8[b]	4.4, 5.2
2020	85.6	4.0[b]	3.8, 4.1
2021	84.6	3.0[b]	2.7, 3.2
2022	84.6	3.0[b]	2.9, 3.1

Abbreviation: CI (confidence interval)

[a] The Adult Core LTSS Needs Met composite measure includes the following four items: 1) How well were your needs for physical, occupational or speech therapy services met? 2) How well were your needs for skilled nursing met? 3) How well were your needs for personal care or everyday tasks met? 4) How well were your needs for day programs met?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.10 Results for the Non-Core LTSS Needs Met Composite[a] Measure from the Adult LTSS Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	81.5	N/A	N/A
2019	86.6	5.1[b]	5.0, 5.3
2020	86.7	5.2[b]	5.1, 5.4
2021	85.3	3.9[b]	3.7, 4.0
2022	85.3	3.8[b]	3.7, 3.9

Abbreviation: CI (confidence interval)

[a] The Adult Non-Core LTSS Needs Met composite measure includes the following 10 items: 1) How well were your needs for medical equipment or medical supplies met? 2) How well were your needs for special assistance or accommodations met? 3) How well were your needs for an interpreter met? 4) How well were your needs for assistive technology met? 5) How well were your needs for specialty care services met? 6) How well were your needs for mental health services met? 7) How well were your needs for substance use treatment services for problems with alcohol or drugs met? 8) How well were your needs for transportation services to get to medical appointments met? 9) How well were your needs for transportation services to get to places in the community met? 10) How well were your needs for prescription medications met?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Health-Related Social Needs and Depression Screening

Hybrid Measures

The HRSN screening measure captures the percentage of a sample of ACO enrollees, from infants to 64 years of age, who completed screenings for five HRSNs during the measurement year. The measure requires screening for at least four core HRSNs (i.e., food, housing, transportation, and utility) and one supplemental HRSN chosen by the ACO (e.g., employment, training or education, experience of violence, or social support). On average, 10.8% of members were screened for the four core HRSNs plus one supplemental HRSN in 2018 and 10.4% in 2019, 13.4% in 2020, 23.6% in 2021, and 26.1% in 2022 (p<0.05) (see **Table 2.3-D2.11**). These significant increases occurred during the first years of the COVID-19 pandemic. In addition to the percentage of sampled enrollees who met the numerator criteria for the HRSN screening measure, the percentage of those who completed a screening who screened positive for specific HRSNs was also summarized (see **Table 2.3-D2.11**). These results should not be interpreted as the percentage of all MassHealth ACO enrollees who have a given HRSN because of selection forces that affect who is screened (e.g., those suspected of having a need may be more likely to be screened) and reporting (i.e., certain practice sites and ACOs were more or less likely to screen and report results to MassHealth). In other words, these screening results reflect the results for those who were screened and reported, and are unlikely to represent the prevalence of needs in the broader population of ACO enrollees.

The depression screening and follow-up measure captures the percentage of ACO-attributed members from 12 to 64 years of age screened for clinical depression using a standardized tool, and if screened positive, those who have a documented follow-up plan. There was a 9.9% increase in depression screening and follow-up for those enrolled in the ACO program from 2018-2022. On average, 34.2% of ACO members received depression screening and follow-up in 2018, 44.1% in 2019, 32.8% in 2020, 41.7% in 2021, and 44.5% in 2022 (p<0.05) (see **Table 2.3-D2.12**).

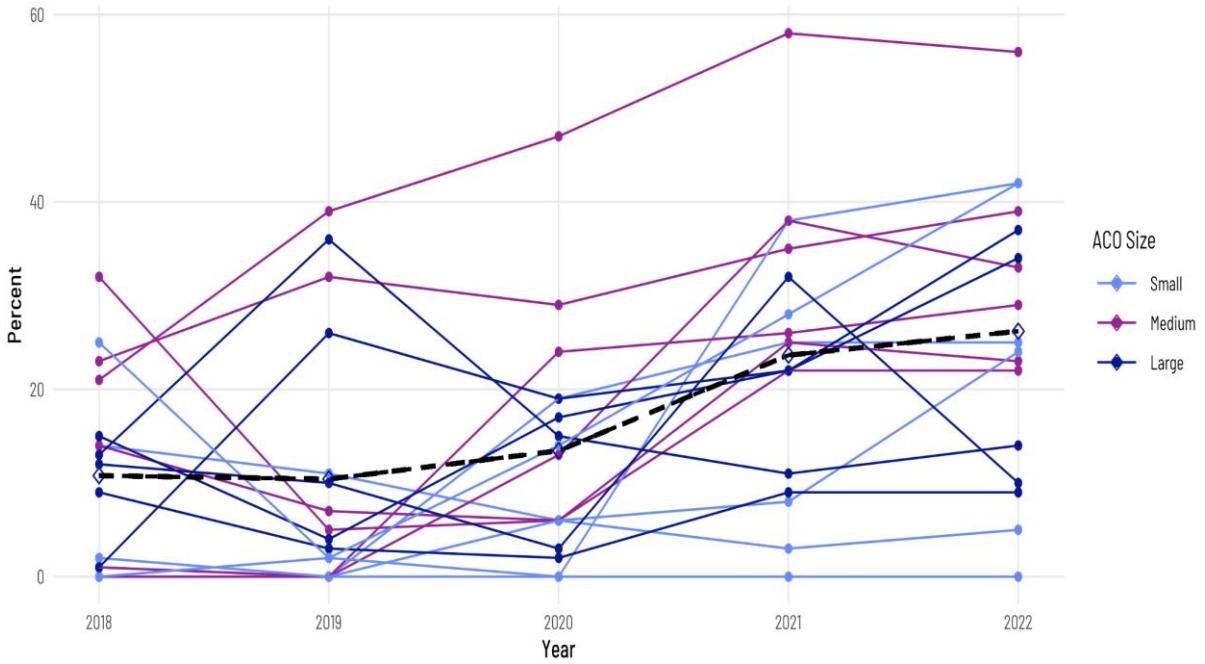
Table 2.3-D2.11 Percentage of ACO Members Who Received an HRSN and Depression Screening, and HRSN Screening Results, 2018-2022

	2018 % (n)	2019 % (n)	2020 % (n)	2021 % (n)	2022 % (n)	P-value
HRSN Screening[a]	10.8% (7,701)	10.4% (6,987)	13.4% (6,987)	23.6% (6,965)	26.1% (6,987)	<0.05
% of those screened for HRSN with needs identified						
Food	16.8 (791)	14.2 (326)	12.9 (574)	8.5 (671)	10.3 (1,854)	N/A
Housing	11.4 (896)	7.2 (359)	6.4 (575)	5.0 (683)	7.7 (1,876)	N/A
Social support	3.0 (778)	6.7 (253)	11.1 (199)	2.1 (528)	9.8 (1.404)	N/A
Transportation	13.5 (844)	6.3 (316)	5.2 (632)	4.8 (632)	5.8 (1,740)	N/A
Employment	12.4 (935)	22.9 (288)	10.1 (552)	9.9 (487)	11.0 (1,400)	N/A
Utilities	11.4 (762)	10.0 (320)	5.7 (562)	8.5 (663)	9.4 (1,740)	N/A
Violence	4.8 (835)	Sup.	Sup.	20.2 (287)	1.3 (1,005)	N/A
Depression Screening and Follow-up	34.2% (6,801)	44.1% (6,289)	32.8% (5,906)	41.7% (6,028)	44.5% (6,031)	<0.05

Abbreviations: HRSN (health-related social needs); n (number of people); N/A (not applicable) Sup (suppressed due to small cell size per MassHealth policy)

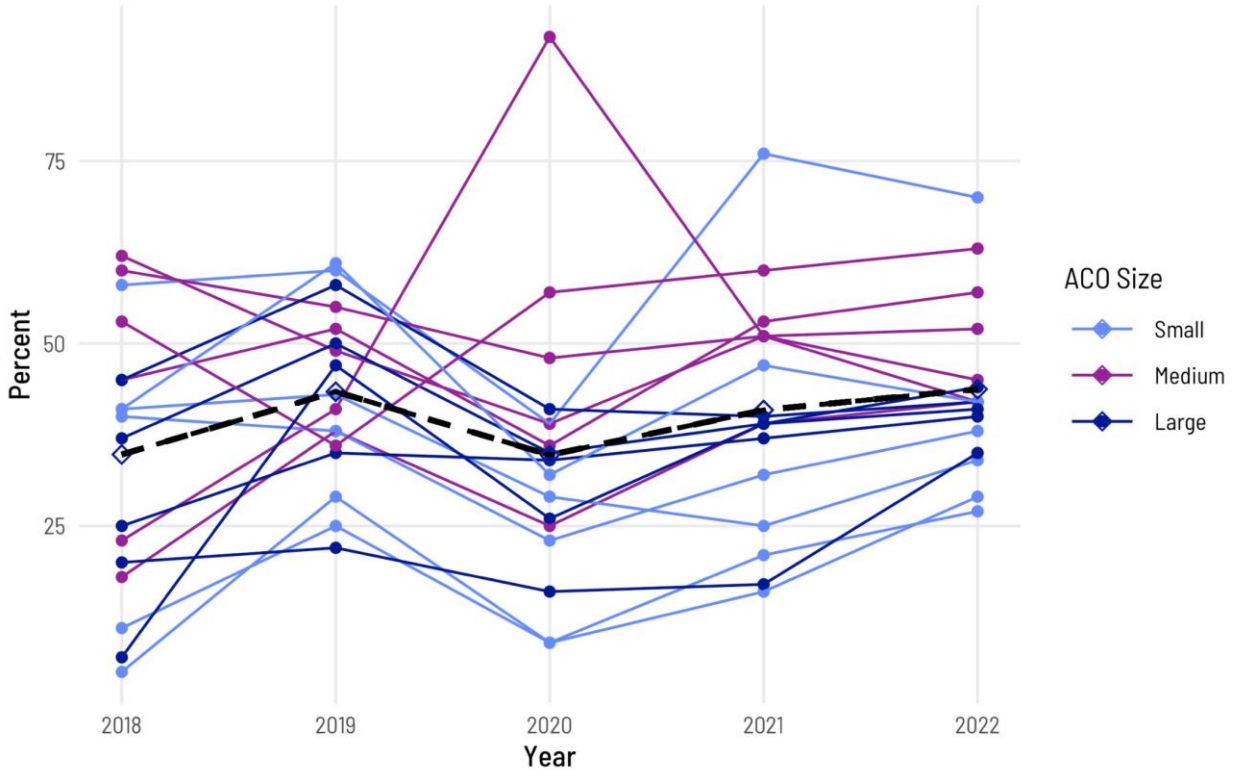
[a] To meet the numerator criteria, a member must be screened for four core HRSNs and one supplemental HRSN.

Figure 2.3-D2.1 HRSN Screening Measure Performance by Demonstration Year (2018-2022) and ACO Size



Notes: The dashed black line is the overall ACO program average. Each colored line is one ACO.

Figure 2.3-D2.2 Depression Screening and Follow-up Measure Performance by Demonstration Year (2018-2022) and ACO Size



Notes: The dashed black line is the overall ACO program average. Each colored line is one ACO.

Table 2.3-D2.12 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Pediatric Measures of Needs Identification Among ACO and MCO/PCCP Enrollees

Measure	2015 (Baseline)	2016 (Baseline)	2017 (Baseline)	2018	2019	2020	2021	2022
Oral Health Evaluation, n	263,409	208,395	312,922	346,961	354,574	463,100	535,567	568,308
ACO[a] Observed, %	61.9	58.0	63.1	62.6	62.4	45.7	52.9	53.9
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.12 (1.09, 1.15)	1.13 (1.10, 1.17)	1.08 (1.05, 1.11)	1.08 (1.05, 1.11)	0.93 (0.87, 1.00)	0.93 (0.88, 0.98)	1.02 0.98, 1.06)	0.98 (0.95, 1.00)
Difference in differences (DiD) estimate, ratio scale	Reference	Reference	Reference	0.97	0.84	0.84	0.92	0.88
Developmental screening, n	N/A	49,727	68,275	69,973	69,107	82,640	87,281	92,239
ACO[a] Observed, %	N/A	79.9	81.7	81.9	81.9	81.0	76.2	75.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	0.99 (0.93, 1.04)	1.04 (0.99, 1.09)	1.28 (1.22, 1.34)	1.53 (1.46, 1.61)	1.29 (1.22, 1.35)	0.75 (0.69, 0.81)	1.35 (1.29, 1.41)
DiD estimate, ratio scale	N/A	Reference	Reference	1.26	1.51	1.27	0.74	1.33
Adolescent well care, n	176,524	137,126	180,477	182,708	167,457	234,956	275,501	292,624
ACO[a] Observed, %	57.1	56.7	56.2	48.3	45.1	35.4	38.0	35.3
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.89 (0.87, 0.91)	0.89 (0.87, 0.92)	0.95 (0.93, 0.98)	0.89 (0.87, 0.91)	0.63 (0.61, 0.64)	0.64 (0.63, 0.66)	0.73 (0.70, 0.75)	0.64 (0.62, 0.65)
DiD estimate, ratio scale	Reference	Reference	Reference	0.98	0.69	0.70	0.80	0.70
Lead Screening, n	N/A	12,274	16,757	18,179	20,791	27,154	29,483	30,884
ACO[a] Observed, %	N/A	68.1	82.4	83.4	83.7	82.1	76.9	76.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	1.11 (1.01, 1.22)	1.15 (1.05, 1.27)	1.27 (1.16, 1.38)	1.39 (1.26, 1.56)	1.33 (1.22, 1.46)	1.25 (1.10, 1.42)	1.28 (1.18, 1.38)

Measure	2015 (Baseline)	2016 (Baseline)	2017 (Baseline)	2018	2019	2020	2021	2022
DiD estimate, ratio scale	N/A	Reference	Reference	1.12	1.22	1.18	1.10	1.13

Abbreviations:) ACO (accountable care organization), MCO (managed care organization), PCC (primary care clinician plan), aOR (adjusted odds ratio); CI (confidence interval); n (number of records in the analysis)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models.

Table 2.3-D2.13 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Measures of BH Needs Identification among ACO and MCO/PCCP Enrollees

Measure	2015 (Baseline)	2016 (Baseline)	2017 (Baseline)	2018	2019	2020	2021	2022
Initiation of Alcohol or Other Drug Use (AOD) Treatment, n	31,254	26,557	36,664	34,117	37,134	39,145	52,616	42,129
ACO[a] Observed, %	52.7	50.0	51.3	48.6	50.5	52.1	53.8	54.1
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.99 (0.94, 1.04)	0.98 (0.92, 1.03)	1.01 (0.97, 1.07)	0.91 (0.87, 0.95)	0.93 (0.88, 0.97)	0.85 (0.81, 0.90)	0.86 (0.80, 0.93)	0.95 (0.90, 1.00)
DiD estimate, ratio scale	Reference	Reference	Reference	0.91	0.93	0.86	0.87	0.96
Engagement with AOD Treatment, n	31,254	26,557	36,664	34,117	37,134	39,145	52,616	42,129
ACO[a] Observed, %	9.5	10.7	12.6	13.0	14.2	13.7	15.4	16.4
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.95 (0.87, 1.03)	0.97 (0.88, 1.06)	1.02 (0.95, 1.10)	0.99 (0.93, 1.07)	0.93 (0.87, 1.00)	0.94 (0.87, 1.01)	0.86 (0.78, 0.95)	0.97 (0.91, 1.03)
DiD estimate, ratio scale	Reference	Reference	Reference	1.02	0.95	0.96	0.88	0.99

Abbreviations: AOD (alcohol or other drug), aOR (adjusted odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models.

RQ6: To what extent did access to physical care, BH care, and LTSS improve?

H6.1. Access to physical care services will improve or remain consistent for members

H6.2. Access to BH services for will improve or remain consistent for members

H6.3. Access to LTSS will improve or remain consistent for members

RQ6 Summary

Access has been defined by the Institute of Medicine as "the timely use of personal health services to achieve the best health outcomes."[85] To examine changes in indicators of access over time, we use several data sources. This section presents the results of five rounds (2018-2022) of member experience surveys for six populations: 1) pediatric PC, 2) adult PC, 3) pediatric BH, 4) adult BH, 5) pediatric LTSS, and 6) adult LTSS; adults were age ≥18 years, and children were <18 years of age; proxy respondents answered the pediatric surveys on behalf of children. **RQ6** also includes results for several administrative measures and results of two waves of surveys of practice site administrators (2019 and 2021), ACO PCPs (2020 and 2022), and CP staff (2020 and 2022).

Findings in **RQ6** generally supported the hypothesis that access to care would improve or remain stable during the 2017-2022 Demonstration. The percentage of adult ACO enrollees receiving annual PC visits, a gateway into care and supports, increased from baseline. The percentage of ACO adult enrollees with any ambulatory or preventative care visit, a measure of access, increased relative to MCO/PCCP enrollees during the Demonstration.

There was a 13% absolute increase in the number of practice site administrators who reported that scheduling at their practice enables same-day appointments (from 86% in Wave 1 to 99% in Wave 2) and a 3% absolute increase in the percentage of practice site administrators who report that appointments are available on weekdays before 8 am or after 5 pm (from 50% in Wave 1 to 53% in Wave 2). There was an improvement in tailoring care delivery, with 42% of practice site administrators reporting improvements in their ability to tailor care delivery in Wave 2 compared to 33% from Wave 1, and a reduction in the percentage of practice site administrators reporting that tailoring care became more difficult, with 12% reporting it became more difficult in Wave 2 compared to 15% in Wave 1. Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the COVID-19 pandemic.

Most ACO practice site administrators reported that members with BH conditions were referred to services when needed, members were always or often referred to prescribing clinicians when required, and members were always or often referred to counseling therapists or clinical social workers when needed. A majority of practice site administrators reported that providers and staff follow an established process for scheduling members for appropriate BH services and that a process is followed to confirm that those services were received.

[85] As defined by the Institute of Medicine (1993). *Access to Health Care in America*. https://www.ncbi.nlm.nih.gov/books/NBK235882/

Most members and proxies (for pediatric surveys) who responded to the PC, BH, and LTSS surveys reported high scores for Pediatric Organizational Access, Pediatric BH Service Scheduling, Pediatric LTSS Scheduling, Adults Organizational Access, Adult BH Service Scheduling, and Adult LTSS Scheduling. However, there was a marginal decline in the measures' scores from the first year of the Demonstration (2018).

ACO providers and CP staff reported significant increases in the use of telemedicine over the course of the Demonstration (from surveys conducted in 2020 and 2022), coinciding with the early years of the COVID-19 pandemic. The percentage of ACO providers reporting they deliver care at community sites and in-home visits stayed level. ACO providers reported that during the COVID-19 pandemic, providing equitable access to care became more difficult for patients with chronic conditions (30%), with BH conditions (61%), those needing LTSS (44%), and for those with HRSNs (45%).

More than half of CP staff reported that providing care coordination services equitably[86] became more difficult for patients with chronic conditions, those needing LTSS, and those with HRSNs during the COVID-19 pandemic. Most CP staff reported no change in the ease of providing care coordination for non-white racial and ethnic sub-populations.

Access to Physical Care Services

Administrative Measures

Among adults, the percentage of ACO enrollees (or MassHealth members who would have been ACO enrollees had the ACO program been operating during 2015-2017, "would-be ACO enrollees") who had an annual primary well care visit increased over time from 39.6% in 2015 to a high of 51.8% in 2018, followed by a decline to 40.8% in 2020 and a rebound to 43-46% during 2021-2022. In propensity-weighted comparisons, would-be ACO enrollees had higher odds of having an annual PC visit than would-be MCO/PCCP enrollees at baseline (2015–2017 aORs were in the range of 1.04 to 1.12). The magnitude of this difference increased in favor of ACO enrollees and was larger during the Demonstration (2018-2022 aORs were in the range of 1.37 to 1.52) (see **Table 2.3-D.23**). The percentage ACO enrolled (or would-be ACO enrolled) adults who had any preventative or ambulatory care visit was stable in the range 82.6% to 84.8% during the baseline (2015-2017) and early Demonstration (2018-2019). The percentage declined modesty during the COVID-19 pandemic to a low of 78.0% in 2022.[87] The odds of having a preventative or ambulatory care visit were consistently higher among ACO (and would-be ACO enrollees) than among MCO/PCCP enrollees throughout 2015-2022. The difference between the groups increased from baseline to the 2017–2022 Demonstration indicating ACO performance on this measure increased from baseline relative to the MCO/PCCP group.

Among ACO enrolled (or would-be ACO enrolled) older children (7-19 years of age), the percentage with at least one PC visit was high and in the range 92.0% to 95.0% during the period 2016-2020. There was a decline to 75.5% in 2021 and a rebound to 87.5% in 2022. In propensity-weighted comparisons, ACO enrolled older children were more likely to receive an

[86] Corresponding Provider Survey item: "Over the last 12 months, has it become easier or harder for you to provide equitable access to care for the following types of patients (e.g., patients with chronic conditions, patients needing long term services and supports, patients with unmet health related social needs))?"

[87] These percentages do not account for telehealth utilization.

annual well-care visit during the two pre-pandemic years of the Demonstration (2018-2019) and in the first year of the COVID-19 pandemic, but were less likely in 2021 and 2022. Among younger ACO enrolled (or would-be ACO enrolled) children (1-6 years of age), the percentage of ACO with at least 1 PC visit was at least 94.1% in all years between 2016 and 2022 except for 2021 (84.2%). In propensity-weighted comparisons, the odds of having a PC visit were lower among would-be ACO enrollees versus would-be MCO/PCCP enrollees at baseline and lower among ACO enrollees during the COVID-19 pandemic (2020-2022), but odds were higher among ACO enrollees during 2018-2019.

Quality measure results for LTSS CP enrollees are presented in **Domain 6**. Among LTSS CP enrollees, the percentage with an annual PC visit increased from 61.6% in 2019 to 70.8% in 2022 (aOR 2022 vs. 2019: 1.59; 95% CI: 1.49, 1.69) (see **Table 2.3-D6.7**).

Access to BH services

Administrative Measures

The percentage CP enrollees with an annual PC visit ranged from 51.5 in 2019 to a low of 47.4 in 2020 (the first year of the COVID-19 pandemic) and a high of 53.4 in 2021. On an adjusted basis, the odds of having at least one PC visit were higher in 2021 versus 2019 (aOR: 1.20; 95% CI: 1.13, 1.26) among BH CP enrollees.

The rate of ED boarding (i.e., spending at least 24 hours waiting for BH services in an ED) among ACO enrollees (and would-be ACO enrollees) with a BH condition was 45.9, 55.0, 33.2, 30.3, 71.8, 63.7, and 61.7 days per 100 enrollees in each year of 2016 through 2022, respectively. Annual point estimates from propensity-weighted comparisons of ACO and MCO/PCCP enrollees consistently favored ACOs (i.e., less ED boarding) during the Demonstration (2018-2022), though results were only statistically significant in 2018 and 2022. Since ED boarding was slightly more common among would-be ACO enrollees than would-be MCO/PCCP enrollees at baseline (2016-2017), difference-in-difference estimates that accounted for these baseline differences were slightly more favorable for ACOs (i.e., a larger decline over time occurred for ACO enrollees than MCO/PCCP enrollees).

Timely Access to Care

Member experience surveys collected data on the ability of pediatric and adult ACO members to get needed services, including LTSS and BH, in a timely manner. **Tables 2.3-D2.14** to **2.3-D2.21** present results for the composite measures over the five-year Demonstration (2018-2022).

PC Member Experience Survey

The Organizational Access Composite Measure from the Pediatric PC Member Experience Survey combines results from three survey questions (answered by proxies for pediatric members) that pertain to timely access to PCPs for urgent and routine pediatric care. In 2018, the composite score was 85.1, and the score gradually declined over the Demonstration to a score of 80.7 in 2022.

Table 2.3-D2.14 Results for the Pediatric Organizational Access Composite Measure[a] from the Pediatric PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	85.1	Reference	Reference
2019	84.8	-0.3[b]	-0.4, -0.3
2020	83.5	-1.6[b]	-1.6, -1.5
2021	81.7	-3.5[b]	-3.5, -3.4
2022	80.7	-4.4[b]	-4.5, -4.3

Abbreviation: CI (confidence interval)

[a] The Pediatric Organizational Access composite measure combines the following three items: 1) In the last 12 months when you called this provider's office for an appointment for care your child needed right away, how often did you get an appointment as soon as your child needed it? 2) In the last 12 months, when you made an appointment for a check-up or routine care for your child with this provider, how often did you get an appointment as soon as your child needed? 3) In the last 12 months, when you called this provider's office during regular office hours, how often did you get an answer to your medical question that same day?

[b] P<0.0; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The Organizational Access composite measure from the Adult PC Member Experience Survey combines results from three survey questions which pertain to timely access to PCPs for urgent and routine care. In 2018, the composite score was 77.0, and it gradually declined over the 2017-2022 Demonstration to a score of 72.2 in 2022.

Table 2.3-D2.15 Results for the Adult Organizational Access Composite Measure[a] from the Adult PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	77.0	Reference	Reference
2019	76.3	-0.6[b]	-0.6, -0.6
2020	74.4	-2.6[b]	-2.6, -2.5
2021	74.0	-3.0[b]	-3.1, -2.9
2022	72.2	-4.8[b]	-4.8, -4.7

Abbreviation: CI (confidence interval)

[a] The Adult Organizational Access composite measure combines the following three items: 1) In the last 12 months, when you called this provider's office to get an appointment for care you needed right away, how often did you get an appointment as soon as you needed? 2) In the last 12 months, when you made an appointment for a check-up or routine care with this provider, how often did you get an appointment as soon as you needed? 3) In the last 12 months, when you called this provider's office during regular office hours, how often did you get an answer to your medical question that same day?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Practice Site Administrator Survey

Practice site administrators were surveyed in two Waves: Wave 1 in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the COVID-19 pandemic. Reported use of best practices for increasing access to care varied, with 86% of administrators reporting that scheduling enables same-day appointments in Wave 1 (99% in Wave 2), 50% reporting that appointments are available on weekdays before 8 am or after 5 pm in Wave 1 (53% in Wave 2), 33% reporting appointments are available on weekends in Wave 1 (39% in Wave 2), 20% reporting that pharmacy services are available on-site after discharge in Wave 1 (19% in Wave

2), and 28% reporting that members can receive home visits by providers or staff in Wave 1 (21% in Wave 2).

In Wave 1 in 2019, one year into DSRIP implementation, 52% of practice site administrators reported no change in their ability to tailor care delivery to meet the needs of vulnerable populations. In contrast, 33% reported improvements, and 15% reported that tailoring care delivery became more difficult. In the 2021 Wave 2 survey, 40% of practice site administrators reported no change in their ability to tailor care delivery to meet the needs of vulnerable populations, 42% reported improvements, and 12% reported that tailoring care delivery became more difficult.

Timely Access to BH Services

BH Member Experience Survey

The Service Scheduling composite measure from the pediatric BH Member Experience Survey combines results from two survey questions pertaining to the availability of pediatric BH services. In 2018, this composite score was 71.9, and over the period 2018-2022, it varied from a low of 67.4 to a high of 75.5.

Table 2.3-D2.16 Results for the Pediatric BH Service Scheduling Composite Measure[a] from the Pediatric BH Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	71.9	Reference	Reference
2019	75.5	3.6[b]	3.3, 3.8
2020	73.6	1.7[b]	1.5, 1.9
2021	67.4	-4.5[b]	-4.7, -4.3
2022	68.9	-3.0[b]	-3.2, -2.7

Abbreviation: CI (confidence interval)

[a] The Pediatric BH Service Scheduling composite measure combines the following two items: 1) Behavioral health services were available at times that were convenient for me and my child. 2) Behavioral health providers were able to see my child as often as I felt was necessary.

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The Service Scheduling composite measure from the adult BH Member Experience Survey combines results from two survey questions regarding the availability of BH services. In 2018, this composite score was 73.9, and over the period 2018-2022, it remained relatively consistent, ranging from 72.5 to 74.1.

Table 2.3-D2.17 Results for the Adult BH Service Scheduling Composite Measure[a] from the Adult BH Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	73.9	Reference	Reference
2019	73.6	-0.3[b]	-0.7, 0.2

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	74.1	0.2[b]	-0.3, 0.7
2021	72.5	-1.3[b]	-1.9, -0.8
2022	72.5	-1.4[b]	-1.9, -0.8

Abbreviation: CI (confidence interval)

[a] The Adult BH Service Scheduling composite measure combines the following two items: 1) Behavioral health services were available at times that were convenient for me. 2) Behavioral health providers were able to see me as often as I felt was necessary

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Practice Site Administrator Survey

Most ACO practice site administrators surveyed in 2019 (Wave 1) reported that members with BH conditions were referred to services when needed. Fifty-eight percent of respondents reported that members were always or often referred to prescribing clinicians when required (55% in Wave 2), and 69% responded that members were always or often referred to counseling therapists or clinical social workers when needed (69% in Wave 2). A majority (61%) of practice site administrators reported in Wave 1 that providers and staff follow an established process for scheduling members for appropriate BH services (79% in Wave 2). In comparison, 49% reported that a process is followed to confirm those services were received (58% in Wave 2). Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the pandemic.

Timely Access to LTSS Services

Long-term Services and Support Member Experience Survey

The LTSS Scheduling composite measure from the Pediatric Member Experience Survey combines results from three survey questions pertaining to the availability of pediatric LTSS. In 2018, this composite score was 81.2, and over the period 2018-2022, it remained relatively consistent, with values ranging from 78.7 to 81.9.

Table 2.3-D2.18 Results for the Pediatric LTSS Scheduling Composite Measure[a] from the Pediatric LTSS Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	81.2	Reference	Reference
2019	78.7	-2.5[b]	-3.1, -1.9
2020	81.9	0.7[b]	0.2, 1.2
2021	80.0	-1.1[b]	-1.7, -0.6
2022	80.2	-1.0[b]	-1.3, -0.6

Abbreviation: CI (confidence interval)

[a] The Pediatric Long-term Services and Support Service Scheduling composite measure combines the following three items: 1) Long-term services and supports were scheduled at times that were convenient for me and my child. 2) Long-term services and support provider(s) saw my child as scheduled and on time. 3) Long-term services and support provider(s) were able to see my child as often as I felt was necessary.

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The LTSS Scheduling composite measure from the Adult LTSS Member Experience Survey combines results from three survey questions pertaining to the availability of adult LTSS. In 2018, this composite score was 77.1, and over the period 2018-2022, it remained consistent, with values ranging from 75.8 to 77.3.

Table 2.3-D2.19 Results for the Adult LTSS Scheduling Composite Measure[a] from the Adult LTSS Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	77.1	Reference	Reference
2019	77.3	0.2[b]	0.1, 0.3
2020	76.6	-0.5[b]	-0.7, -0.3
2021	75.8	-1.3[b]	-1.5, -1.2
2022	77.0	-0.1	-0.3, 0.1

Abbreviation: CI (confidence interval)

[a] The Adult Long-term Services and Support Service Scheduling composite measure combines the following three items: 1) Long-term services and supports were scheduled at times that were convenient for me. 2) Long-term services and support provider(s) saw me as scheduled and on time. 3) Long-term services and support provider(s) were able to see me as often as I felt was necessary.

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Transportation to Medical Appointments Among LTSS Populations

LTSS Member Experience Survey

Access to transportation services to medical appointments for both pediatric and adult members remained fairly consistent over the five-year Demonstration based on the pediatric and Adult LTSS Member Experience Surveys.

Sixty-nine percent of respondents to the pediatric survey reported that their child's need for transportation services to medical appointments was met in 2018. Over the period 2018-2022, this result varied between a low of 66% in 2019 and a high of 74% in 2022.

Seventy percent of adult respondents reported that their needs for transportation services to medical appointments were met in 2018. Over the period 2018-2022, this result varied in the range of 70% to 74% with no clear trend.

Non-traditional Encounters

ACO Provider and CP Staff Surveys

The ACO provider and CP staff surveys included questions regarding the type and frequency of non-traditional encounters that may facilitate member access to care. Non-traditional encounters include telemedicine, email, and home visits.

Between the Wave 1 (2020) and Wave 2 (2022) surveys, there were large increases in the use of telemedicine by ACO providers, coinciding with the early years of the COVID-19 pandemic.

Wave 1 of the survey (conducted in 2020) asked about provider experiences before the COVID-19 pandemic. Live audio-visual interactive visits at a frequency greater than or equal to once per week increased from 2% to 65% of responding ACO providers from Wave 1 to Wave 2. Live audio-only visits at a frequency greater than or equal to once per week increased from 8% to 59%. At the same time, ACO-provider care at community sites and in home visits stayed level between Waves 1 and 2.

Smaller increases in the use of telemedicine were also found for CP staff between Waves 1 and 2. Live audio-visual interactive visits at a frequency greater than or equal to once per week increased from 4% to 29%. Live audio-only visits at a frequency greater than or equal to once per week increased from 56% to 79%. At the same time, there was a 16% absolute decrease in CP staff delivering care coordination at community sites and in-home visits.

Table 2.3-D2.20 How Often Did You Use the Following Types of Telehealth and Community-based Care Coordination for Your Patients From this Practice Site?[a]

Type	ACO Wave 1	ACO Wave 2	ACO	CP Wave 1	CP Wave 2	CP
Survey Item	**>= once per week[b]**	**>= once per week[b]**	**% difference (Wave 2 – Wave 1)**	**>= once per week[b]**	**>= once per week[b]**	**% difference (Wave 2 – Wave 1)**
Live audio-visual interactive telemedicine visits	2%	65%	63%	4%	29%	25%
Live telephone (audio-only) telemedicine visits	8%	59%	51%	56%	79%	23%
Remote monitoring of a patient (e.g., blood pressure or oxygen monitoring)	11%	25%	14%	N/A	N/A	N/A
Communication with a patient through email, patient portal, or text messaging	73%	84%	11%	76%	84%	8%
Care at a community site (e.g., senior center, cultural center)	10%	9%	-1%	60%	44%	-16%
Home visits	8%	8%	0%	78%	62%	-16%
Home testing or lab services	15%	21%	6%	N/A	N/A	N/A

[a] Wave 1 survey conducted in 2020 asked respondents to provide information about their experience before the COVID-19 pandemic.

[b] The response option not shown is “Never” (i.e., only results for at least once per week are presented in the table; the complimentary percentage for “Never” can be calculated by subtracting the result for at least once per week from 100%)

Provider Perceptions of Changes in Access to Care During the COVID-19 pandemic

ACO Provider and CP Staff Surveys

More than half of ACO providers surveyed in the fall of 2020 reported that compared to before the COVID-19 pandemic, providing equitable access to care became more difficult for patients with chronic conditions (53%), with BH conditions (55%), those needing LTSS (59%), and for those with HRSNs (66%) during the COVID-19 pandemic. Less than one-third of providers reported that providing equitable access to care became easier for these subgroups: chronic conditions (21%), BH conditions (28%), those needing LTSS (13%), and those with HRSNs (7%) (see **Table 2.3-D2.22**).

ACO providers surveyed in Wave 2 (conducted in 2022) reported that providing equitable access to care over the preceding 12 months became more difficult for patients with chronic conditions (30%), with BH conditions (61%), those needing LTSS (44%), and for those with HRSNs (45%) during the COVID-19 pandemic. At the same time, less than one-fifth of providers reported that providing equitable access to care became easier for these subgroups: chronic conditions (19%), BH conditions (19%), those needing LTSS (14%), and those with HRSNs (16%).

Table 2.3-D2.21 (Part 1) Over the Last 12 Months, Has it Become Easier or Harder for You to Provide Equitable Access to Care for the Following Types of Patients?[a] Change from Wave 1 to Wave 2 among ACO Providers

Patient type	Wave 1 ACO, Total (n=1,050)[b]	Wave 2 ACO, Total (n=1,355)[b]	% Difference (Wave 2 – Wave 1)
Patients with chronic conditions			
Much / Somewhat easier	21%	19%	-2%
No change	25%	51%	26%
Somewhat / Much harder	53%	30%	-23%
Patients without chronic conditions			
Much / Somewhat easier	26%	18%	-8%
No change	40%	64%	24%
Somewhat / Much harder	34%	18%	-16%
Patients with behavioral health needs			
Much / Somewhat easier	28%	19%	-9%
No change	17%	19%	2%
Somewhat / Much harder	55%	61%	6%
Patients needing long-term services and supports			
Much / Somewhat easier	13%	14%	1%

Patient type	Wave 1 ACO, Total (n=1,050)[b]	Wave 2 ACO, Total (n=1,355)[b]	% Difference (Wave 2 – Wave 1)
No change	28%	42%	14%
Somewhat / Much harder	59%	44%	-15%
Patients with unmet HRSNs (e.g., housing problems)			
Much / Somewhat easier	7%	16%	9%
No change	26%	39%	13%
Somewhat / Much harder	66%	45%	-21%
Children and adolescents			
Much / Somewhat easier	12%	17%	5%
No change	41%	61%	20%
Somewhat / Much harder	47%	23%	-24%
Black patients			
Much / Somewhat easier	9%	12%	3%
No change	68%	77%	9%
Somewhat / Much harder	23%	11%	-12%
Hispanic or Latinx patients			
Much / Somewhat easier	9%	12%	3%
No change	66%	77%	11%
Somewhat / Much harder	25%	11%	-14%
Asian and Pacific Islander patients			
Much / Somewhat easier	8%	10%	2%
No change	72%	81%	9%
Somewhat / Much harder	19%	9%	-10%
American Indian or Alaska Native Patients			
Much / Somewhat easier	8%	10%	2%
No change	73%	83%	10%
Somewhat / Much harder	20%	7%	-13%
Patients whose preferred language is other than English			
Much / Somewhat easier	7%	18%	11%
No change	51%	67%	16%

Patient type	Wave 1 ACO, Total (n=1,050)[b]	Wave 2 ACO, Total (n=1,355)[b]	% Difference (Wave 2 – Wave 1)
Somewhat / Much harder	42%	15%	-27%

[a] Wave 1 survey conducted in 2020 asked respondents to provide information about their experience since the start of the COVID-19 pandemic.
[b] Overall number of responses to the survey; the number of responses to specific items varies.

Table 2.3-D2.21 (Part 2) Over the Last 12 months, Has it Become Easier or Harder for You to Provide Equitable Access to Care for the Following Types of Patients?[a] Wave 2 among ACO Providers, by Provider Type

Patient type	Wave 2 ACO, Physicians (n=643)[b]	Wave 2 ACO, NPs/PAs (n=288)[b]	Wave 2 ACO, Nurses (n=330)[b]	Wave 2 ACO, Social Workers (n=94)[b]
Patients with chronic conditions				
Much / Somewhat easier	15%	16%	26%	26%
No change	53%	56%	47%	40%
Somewhat / Much harder	32%	27%	27%	34%
Patients without chronic conditions				
Much / Somewhat easier	14%	15%	25%	29%
No change	66%	71%	57%	54%
Somewhat / Much harder	20%	14%	18%	17%
Patients with BH needs				
Much / Somewhat easier	17%	17%	25%	25%
No change	18%	18%	22%	15%
Somewhat / Much harder	65%	65%	54%	60%
Patients needing LTSS				
Much / Somewhat easier	12%	14%	17%	16%
No change	42%	44%	41%	30%
Somewhat / Much harder	46%	42%	42%	54%
Patients with unmet HRSNs (e.g., housing problems)				
Much / Somewhat easier	13%	13%	22%	24%
No change	40%	43%	38%	19%
Somewhat / Much harder	47%	44%	41%	56%
Children and adolescents				

Patient type	Wave 2 ACO, Physicians (n=643)[b]	Wave 2 ACO, NPs/PAs (n=288)[b]	Wave 2 ACO, Nurses (n=330)[b]	Wave 2 ACO, Social Workers (n=94)[b]
Much / Somewhat easier	13%	9%	28%	14%
No change	62%	70%	59%	34%
Somewhat / Much harder	25%	21%	13%	52%
Black patients				
Much / Somewhat easier	9%	6%	21%	20%
No change	80%	83%	71%	50%
Somewhat / Much harder	12%	10%	8%	30%
Hispanic or Latinx patients				
Much / Somewhat easier	9%	8%	20%	20%
No change	79%	82%	73%	50%
Somewhat / Much harder	12%	10%	7%	31%
Asian and Pacific Islander patients				
Much / Somewhat easier	8%	6%	18%	17%
No change	83%	87%	76%	58%
Somewhat / Much harder	9%	7%	7%	26%
American Indian or Alaska Native Patients				
Much / Somewhat easier	5%	6%	18%	17%
No change	87%	88%	75%	64%
Somewhat / Much harder	7%	6%	6%	19%
Patients whose preferred language is other than English				
Much / Somewhat easier	14%	14%	29%	14%
No change	71%	72%	60%	41%
Somewhat / Much harder	15%	14%	11%	45%

[a] Wave 1 survey conducted in 2020 asked respondents to provide information about their experience since the start of the COVID-19 pandemic.

[b] Overall number of responses to the survey; the number of responses to specific items varies.

More than half of CP staff surveyed in the fall of 2020 reported that providing equitable care coordination became more difficult for patients with chronic conditions (56%), those needing LTSS (55%), and those with HRSNs (72%) during the COVID-19 pandemic. Most CP staff reported no change in providing equitable care coordination for non-white racial and ethnic sub-

populations (see **Appendix D**). In Wave 2, CP staff reported that providing equitable care coordination became more difficult for patients with chronic conditions (31%), those needing LTSS (34%), and those with HRSNs (49%). Most CP staff reported no change in providing equitable care coordination for non-white racial and ethnic sub-populations.

Table 2.3-D2.22 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Measures of Access Among ACO and MCO/PCCP Enrollees

Measure	2015 (Baseline)	2016 (Baseline)	2017 (Baseline)	2018	2019	2020	2021	2022
Annual PC visit, n	495,175	404,734	460,696	453,233	445,688	578,792	712,480	820,281
ACO[a] Observed, %	39.6	43.5	45.1	51.8	50.3	40.8	45.6	43.3
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.04 (1.03, 1.05)	1.11 (1.09, 1.13)	1.12 (1.10, 1.13)	1.52 (1.50, 1.54)	1.52 (1.50, 1.54)	1.42 (1.40, 1.44)	1.48 (1.45, 1.52)	1.37 (1.35, 1.38)
DiD estimate, ratio scale	Reference	Reference	Reference	1.40	1.40	1.30	1.36	1.25
Annual PC visit (older children), n	N/A	195,147	259,115	266,099	263,608	320,951	347,391	326,582
ACO[a] Observed, %	N/A	95.0	95.0	94.7	94.2	92.3	75.5	87.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	0.97 (0.92, 1.02)	0.92 (0.88, 0.96)	1.36 (1.31, 1.41)	1.39 (1.33, 1.44)	1.11 (1.07, 1.15),	0.83 (0.80, 0.86)	0.76 (0.74, 0.79)
DiD estimate, ratio scale	N/A	Reference	Reference	1.44	1.47	1.18	0.88	0.81
Annual PC visit (younger children), n	N/A	83,387	123,572	134,493	133,073	154,986	136,128	169,635
ACO[a] Observed, %	N/A	97.7	97.2	97.2	96.8	94.1	84.2	94.1
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	0.84 (0.74, 0.95)	0.63 (0.56, 0.69)	1.36 (1.26, 1.46)	1.02 (0.94, 1.12)	0.73 (0.68, 0.79)	0.70 (0.64, 0.75)	0.78 (0.73, 0.84)
DiD estimate, ratio scale	N/A	Reference	Reference	1.85	1.40	1.00	0.95	1.07
ED Boarding, n	N/A	153,938	192,167	185,164	192,511	226,550	247,973	261,971
ACO[a] Observed, days per 100 enrollees	N/A	45.9	55.0	33.2	30.3	71.8	63.7	61.7

ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	N/A	1.03 (0.95, 1.11)	1.03 (0.96, 1.09)	0.87 (0.81, 0.94)	0.96 (0.87, 1.06)	0.98 (0.92, 1.06)	0.91 (0.81, 1.02)	0.92 (0.85, 0.99)
DiD estimate, ratio scale	N/A	Reference	Reference	0.85	0.94	0.96	0.88	0.89
Adult access to preventative/ambulatory health services, n	478,330	392,934	447,380	425,271	434,618	550,570	690,049	794,566
ACO[a] Observed, %	84.4	82.0	82.4	82.8	82.6	79.5	79.9	76.1
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.12 (1.10, 1.14)	1.07 (1.05, 1.09)	1.06 (1.04, 1.08)	1.37 (1.35, 1.39)	1.33 (1.31, 1.36)	1.18 (1.16, 1.20)	1.28 (1.25, 1.32)	1.19 (1.17, 1.20)
DiD estimate, ratio scale	Reference	Reference	Reference	1.27	1.23	1.09	1.19	1.10

Abbreviations: PC (primary care), ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio); CI (confidence interval); n (number of records in the analysis); ED (emergency department); N/A (not available)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models.

RQ7: To what extent did member engagement with physical care, BH care, and LTSS improve?

H7.1. Engagement with physical care services will improve or remain consistent for members

H7.2. Engagement with BH services will improve or remain consistent for members

H7.3. Engagement with LTSS will improve or remain consistent for members

RQ7 Summary

Member engagement is defined broadly as "actions an individual must take to obtain the greatest benefit from the healthcare services available to them."[88] To address the question of whether member engagement improved, we used several data sources. This section presents the results of five rounds (2018-2022) of surveys for four populations: 1) pediatric BH, 2) adult BH, 3) pediatric LTSS, and 4) adult LTSS; proxy respondents answered the pediatric surveys on behalf of children. Consistent with the definition of member engagement described above, we report results from the BH and LTSS Member Experience Surveys for the Care Planning composite measure. This composite measure summarizes the results of several measures of needs identification and discussion, outreach to providers and success in obtaining help, and participation in treatment planning, which are indications of members taking such actions to obtain the greatest benefit from healthcare services. **RQ7** also includes results for several administrative measures and results of two waves of surveys of ACO providers and CP staff.

Measures of care continuity among children with complex medical conditions and adults with human immunodeficiency virus (HIV) remained largely consistent over time, supporting Hypothesis 7.1. Relative performance for ACO versus MCO/PCCP enrollees appeared to favor ACO enrollees for the continuity of HIV care measure, but not for the continuity of care for children with complex medical conditions measure.

High levels of engagement with care planning for BH and LTSS reported on member experience surveys were consistent with Hypotheses 7.2 and 7.3. Most members who responded to the BH and LTSS surveys reported high scores for the BH Care Plan and LTSS Care Plan Composites, which fluctuated over the 2017–2022 Demonstration but exceeded or were near baseline in 2022. ACO Provider and CP Staff Survey responses indicated that respondents' perceptions of member engagement in managing their health remained stable or declined modestly from 2020-2022. Fewer than half of ACO providers agreed or strongly agreed that most of their patients with chronic conditions, BH, and LTSS needs took responsibility for their health. Nearly half of CP staff agreed or strongly agreed that most of their members took responsibility for managing their health.

[88] Gruman, J., Rovner, M. H., French, M. E., Jeffress, D., Sofaer, S., Shaller, D., & Prager, D. J. (2010). From patient education to patient engagement: implications for the field of patient education. *Patient education and counseling*, *78*(3), 350–356. https://doi.org/10.1016/j.pec.2010.02.002

Member Engagement with Care and Care Management

Administrative Measures

The gaps in care for HIV-related medical visits and antidepressant medication management measures were examined as proxies for members being better informed and engaged with the healthcare services recommended for managing their clinical conditions. Few (<8%) would-be ACO enrollees (had the ACO program been implemented at baseline) had gaps in HIV visits at baseline (2015-2017). This percentage remained flat for the first two years of the Demonstration and then increased modestly during the COVID-19 pandemic (2020-2022) to a high of 10.5% in 2022. In propensity-weighted comparisons, ACO enrollees (and would-be ACO enrollees at baseline) had lower odds of having a gap in HIV visits throughout 2016-2022, though estimates were not statistically significant.

About half (50.7% to 52.1%) of ACO enrollees (or would-be ACO enrollees if the ACO program had been operating during 2015-2017) continued antidepressant treatment for at least 12 weeks during the acute phase of treatment from 2015-2019, and this increased to a high of 62.3% in 2021. In propensity-weighted comparisons of ACO versus MCO/PCCP enrollees, there were no statistically significant differences in performance during each year of the baseline and Demonstration periods. Approximately 31% of would-be ACO enrollees continued treatment for 6 months during 2016-2017, and this percentage increased over the Demonstration to a high of 40.0% in 2022. However, increases occurred among both ACO and MCO/PCCP enrollees such that there were no statistically significant differences between groups except for 2020, when performance was higher among MCO/PCCP enrollees. Performance on the antidepressant medication management measure among BH CP enrollees is reported in Domain 6 (see **Table 2.3-D6.4**). The percentage of BH CP enrollees continuing antidepressant treatment through the acute and chronic phases of treatment increased from 2019-2020.

Among ACO enrolled (or would-be ACO enrolled at baseline) children with complex medical conditions, the percentage who met the measure specified[89] minimum threshold for continuity of care with their PCP was 44.6%, 53.0%, 50.9%, 42.2%, 50.2%, 50.3%, 50.7%, and 49.3% in each year 2015-2022, respectively. In propensity-weighted comparisons, would-be ACO enrollees had similar rates of care continuity as would-be MCO/PCCP enrollees at baseline (2015-2017) except for 2017 (aOR: 0.82; 95% CI: 0.75, 0.90). During the Demonstration, performance on this measure was lower for ACO enrollees versus MCO/PCCP enrollees in 2018, 2020, and 2021.

Member Engagement with BH Services

BH Member Experience Survey

Over the 2017–2022 Demonstration, the children's score for the BH Care Plan composite measure fluctuated between 73.3 to 78.5. The score increased 4.2 points from 74.4 in 2018 to 78.5 in 2019. The score declined in subsequent years, returning near baseline by 2022.

[89] https://www.kpwashingtonresearch.org/application/files/5415/6685/1421/continuity-of-primary-care-measure-specifications.pdf

Table 2.3-D2.23 Children: BH Care Plan[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	74.4	N/A	N/A
2019	78.5	4.2[b]	3.4, 4.5
2020	76.1	-1.7[b]	1.2, 2.2
2021	73.3	-1.1[b]	-1.6, -0.6
2022	74.5	0.1	-0.5, 0.7

Abbreviation: CI (confidence interval)

[a] The BH Care Plan composite measure includes the following four items: 1) To what extent do you feel that your child's behavioral health needs were identified and discussed during the assessment? 2) Did you and/or your child have a choice of services and providers during the care planning process? 3) Did anyone in your child's care team explain to you and/or your child who was responsible for the different parts of your child's care plan? 4) Do your child feel that your child's care plan includes all of the services that your child needs?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Adult scores for the BH Care Plan composite measure score remained within the range of 71.1 to 73.4 during the 2017-2022 Demonstration. The score increased 2.3 points from 71.1 in 2018 to 73.4 in 2019 and ended the 2017–2022 Demonstration at 72.5 in 2022 (see **Table 2.3-D2.24**). Among CP enrollees, the BH Care Plan composite measure score was 68.9 in 2018, rose to 71.3 in 2020, and returned near baseline (68.0) in 2022 (see **Table 2.3-D2.25**).

Table 2.3-D2.24 Adult: BH Care Plan[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	71.1	N/A	N/A
2019	73.4	2.3[b]	2.0, 2.5
2020	73.4	2.3[b]	2.1, 2.5
2021	72.0	0.8[b]	0.5, 1.2
2022	72.5	1.4[b]	1.1, 1.6

Abbreviation: CI (confidence interval)

[a] The BH Care Plan composite measure includes the following four items: 1) To what extent do you feel that your behavioral health needs were identified and discussed during the assessment? 2) Did you have a choice of services and providers during the care planning process? 3) Did anyone in your care team explain to you who was responsible for the different parts of your care plan? 4) Do you feel that your care plan includes all of the services that you need?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.25 Adult: BH Care Plan for Members Enrolled in CP vs. Not Enrolled in CP[a]

Year	CP Enrolled			Not CP Enrolled		
	Composite Score (0-100)	Difference vs. 2018	95% CI	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	68.9	Reference	Reference	72.5	Reference	Reference
2019	71.1	2.2[b]	2.0, 2.5	75.8	3.3[b]	3.0, 3.6
2020	71.3	2.4[b]	2.3, 2.6	74.7	2.2[b]	1.9, 2.6
2021	69.3	0.4[b]	0.2, 0.7	73.5	0.9[b]	0.5, 1.3
2022	68.0	-0.9[b]	-1.0, -0.7	75.0	2.5[b]	2.1, 2.8

Abbreviation: CI (confidence interval)

[a] The BH Care Plan composite measure includes the following four items: 1) To what extent do you feel that your behavioral health needs were identified and discussed during the assessment? 2) Did you have a choice of services and providers during the care planning process? 3) Did anyone in your care team explain to you who was responsible for the different parts of your care plan? 4) Do you feel that your care plan includes all of the services that you need?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

LTSS Care Planning

LTSS Member Experience Survey

The pediatric LTSS Care Plan composite measure score remained stable within the range of 78.0 to 81.3 over the 2017-2022 2017–2022 Demonstration. Among pediatric CP enrollees, the Care Plan composite measure score was 79.3 in 2018 and after modest fluctuations ended the 2017-2022 Demonstration at 78.0 in 2022 (see **Table 2.3-D2.26**). Results stratified by CP enrollment are presented in **Table 2.3-D2.27**.

Table 2.3-D2.26 Child: LTSS Care Plan[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	79.3	N/A	N/A
2019	78.9	-0.5	-1.4, 0.4
2020	79.3	-0.1	-0.7, 0.6
2021	81.3	2.0[b]	1.4, 2.5
2022	78.0	-1.4[b]	-1.7, -1.0

Abbreviation: CI (confidence interval)

[a] The LTSS Care Plan composite measure includes the following four items: 1) To what extent do you feel that your child's LTSS needs were identified and discussed during the assessment? 2) Did you and/or your child have a choice of services and providers during the care planning process? 3) Did anyone in your child's care team explain to you and/or your child who was responsible for the different parts of your child's care plan? 4) Do your child feel that your child's care plan includes all of the services that your child needs?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.27 Child: LTSS Care Plan for Members Enrolled in CP vs. Not CP Enrolled[a]

Year	CP Enrolled			Not CP Enrolled		
	Composite Score (0-100)	Difference vs. 2018	95% CI	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	76.4	Reference	Reference	80.2	Reference	Reference
2019	74.2	-2.2[b]	-3.1, -1.2	79.7	-0.6	-1.6, 0.4
2020	78.3	1.9[b]	1.4, 2.6	79.3[b]	-1.0	-1.8, -0.2
2021	78.8	2.4[b]	2.2, 2.7	81.6	1.4[b]	0.7, 2.0
2022	73.4	-3.0[b]	-4.2, -3.4	78.5	-1.8[b]	-2.1, -1.4

Abbreviation: CI (confidence interval)

[a] The LTSS Care Plan composite measure includes the following four items: 1) To what extent do you feel that your child's LTSS needs were identified and discussed during the assessment? 2) Did you and/or your child have a choice of services and providers during the care planning process? 3) Did anyone in your child's care team explain to you and/or your child who was responsible for the different parts of your child's care plan? 4) Do your child feel that your child's care plan includes all of the services that your child needs?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The mean score for the adult LTSS Care Plan composite measure remained within a 1.5-point range (72.6-74.1) over the 2017-2022 2017–2022 Demonstration (see **Table 2.3-D2.28**). Among adult CP enrollees, the LTSS Care Plan composite measure score was 74.3 in 2018, and it remained within the range of 72.6 to 74.2 over the remainder of the 2017-2022 2017–2022 Demonstration (**Table 2.3-D2.29**).

Table 2.3-D2.28 Adult: LTSS Care Plan[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	72.6	Reference	Reference
2019	74.0	1.4[b]	0.9, 1.8
2020	74.1	1.5[b]	1.2, 1.7
2021	72.9	0.3	0.0, 0.5
2022	73.0	0.3[b]	0.2, 0.4

Abbreviation: CI (confidence interval)

[a] The LTSS Care Plan composite measure includes the following four items: 1) To what extent do you feel that your long-term services and supports needs were identified and discussed during the assessment? 2) Did you have a choice of services and providers during the care planning process? 3) Did anyone in your care team explain to you who was responsible for the different parts of your care plan? 4) Do you feel that your care plan includes all of the services that you need?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.29 Adult: LTSS Care Plan for Members Enrolled in CP vs. Not CP Enrolled[a]

Year	CP Enrolled			Not CP Enrolled		
	Composite Score (0-100)	Difference vs. 2018	95% CI	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	74.3	Reference	Reference	71.4	Reference	Reference
2019	74.2	-0.1	-0.4, 0.2	73.9	2.5	1.9, 3.0
2020	72.9	-1.4	-1.8, -1.1	74.7	3.3	2.0, 3.6
2021	72.6	-1.7	-1.9, -1.5	73.0	1.6	1.3, 1.9
2022	73.4	-0.9	-1.4, -0.6	72.8	1.4	1.2, 1.6

Abbreviation: CI (confidence interval)

[a] The LTSS Care Plan composite measure includes the following four items: 1) To what extent do you feel that your long-term services and supports needs were identified and discussed during the assessment? 2) Did you have a choice of services and providers during the care planning process? 3) Did anyone in your care team explain to you who was responsible for the different parts of your care plan? 4) Do you feel that your care plan includes all of the services that you need?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Perceptions of Member Engagement

ACO Provider and CP Staff Surveys

The perceived effectiveness of member engagement strategies was measured in two waves of ACO provider and CP staff surveys; Wave 1 was conducted in 2020, and Wave 2 was conducted in 2022 (see **Table 2.3-D2.30** and see **Table 2.3-D2.31**). In both waves of the survey, less than half of ACO providers agreed or strongly agreed that most of their patients with chronic conditions (Wave 1: 44%; Wave 2: 40%; p≥0.05), BH (Wave 1: 32%; Wave 2: 30%; p≥0.05), and LTSS (Wave 1: 44%; Wave 2: 40%; p≥0.05) needs took responsibility for their health. In Wave 2, the provider type with the largest percentage of respondents agreeing or strongly agreeing that most of their patients took responsibility for their health was physicians for patients with chronic conditions (42%) and LTSS needs (42%), and social workers for those with BH needs (41%). Note that Wave 1 of the survey was conducted in 2020, early in the COVID-19 pandemic, and Wave 2 in 2022, later in the pandemic.

Table 2.3-D2.30 ACO Provider Perceptions of Member Engagement - Percentage of ACO Providers that Agreed or Strongly Agreed with the Following Statements

Survey Item	Wave 1 Total (n=1,050)[a]	Wave 2 Total (n=1,355)[a]	% Change (Wave 2 – Wave 1)	Wave 2 Physicians (n=643)[a]	Wave 2 NPs/ PAs (n=288)[a]	Wave 2 Nurses (n=330)[a]	Wave 2 Social Workers (n=94)[a]
Most of our patients with **chronic conditions** take responsibility for managing their health	44%	40%	-4%	42%	38%	38%	35%

Survey Item	Wave 1 Total (n=1,050)[a]	Wave 2 Total (n=1,355)[a]	% Change (Wave 2 – Wave 1)	Wave 2 Physicians (n=643)[a]	Wave 2 NPs/ PAs (n=288)[a]	Wave 2 Nurses (n=330)[a]	Wave 2 Social Workers (n=94)[a]
Most of our patients **with BH needs** take responsibility for managing their health	32%	30%	-2%	28%	33%	29%	41%
Most of our patients with **LTSS needs** take responsibility for managing their health	44%	40%	-4%	42%	40%	38%	35%

[a] Overall number of responses to the survey; the number of responses to specific items varies.

CP staff were asked whether their members took responsibility for their health without distinguishing between patients with specific types of needs because CPs focus on members with either BH or LTSS needs. About half (49%) of CP staff agreed or strongly agreed that most of their members took responsibility for managing their health in Wave 1 of the survey, which declined to 43% ($p<0.05$) in Wave 2. In Wave 2, 41% of BH CP staff, 50% of LTSS CP staff, and 50% of combined BH/LTSS CP staff agreed or strongly agreed that most of their members took responsibility for managing their health.

Table 2.3-D2.31 CP Staff Perceptions of Member Engagement - Percentage of CP Staff that Agreed or Strongly Agreed with the Following Statement

Survey Item	Wave 1 Total (n=482)[a]	Wave 2 Total (n=591)[a]	% Change (Wave 2 – Wave 1)	Wave 2 BH only (n=454)[a]	Wave 2 LTSS only (n=70)[a]	Wave 2 BH/LTSS (n=67)[a]
Most of our members take responsibility for managing their health	49%	43%	-6%	41%	50%	50%

[a] Overall number of responses to the survey; the number of responses to specific items varies.

Table 2.3-D2.32 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Pediatric Measures of Engagement Among ACO and MCO/PCCP Enrollees

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Continuity of care for children with complex conditions, n	7,896	7,558	10,212	10,046	9,975	9,676	11,114	11,381
ACO[a] Observed, %	44.6	53.0	50.9	42.2	50.2	50.3	50.7	49.3
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.94 (0.85, 1.04)	0.95 (0.85, 1.05)	0.82 (0.70, 0.90)	0.69 (0.63, 0.76)	0.92 (0.84, 1.01)	0.87 (0.78, 0.97)	0.70 (0.60, 0.81)	1.06 (0.96, 1.17)
Difference in difference estimate	Reference	Reference	Reference	0.77	1.02	0.96	0.77	1.18

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models.

Table 2.3-D2.33 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Adult Measures of Engagement Among ACO and MCO/PCCP Enrollees

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Antidepressant medication management **acute**, n	N/A	19,788	23,855	22,523	24,444	29,464	31,104	31,019
ACO[a] Observed, %	N/A	50.7	52.1	49.7	53.4	54.1	62.3	65.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	1.03 (0.96, 1.1)	1.03 (0.96, 1.09)	1.02 (0.96, 1.09)	0.98 (0.92, 1.05)	0.95 (0.89, 1.01)	0.92 (0.83, 1.01)	0.98 (0.92, 1.04)
Difference in difference estimate	N/A	Reference	Reference	0.99	0.95	0.92	0.89	0.95

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Antidepressant medication management **chronic**, n	N/A	19,788	23,855	22,523	24,444	29,464	31,104	31,019
ACO[a] Observed, %	N/A	31.0	30.9	29.5	31.4	32.6	35.4	40.0
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	1.01 (0.94, 1.09)	1.03 (0.96, 1.10)	1.05 (0.98, 1.13)	0.98 (0.91, 1.05)	0.92 (0.86, 0.98)	0.98 (0.88, 1.08)	1.02 (0.96, 1.09)
Difference in difference estimate	N/A	Reference	Reference	1.03	0.96	0.90	0.96	1.00
Gap in HIV visits, n	4,231	3,695	4,428	4,415	4,602	3,428	4,841	5,219
ACO[a] Observed, %	6.7	6.8	7.5	7.8	7.2	8.7	10.2	10.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.09 (0.78, 1.52)	0.74 (0.50, 1.08)	0.88 (0.65, 1.20)	0.87 (0.65, 1.17)	0.87 (0.63, 1.19)	0.92 (0.61, 1.39)	0.89 (0.59, 1.35)	0.92 (0.69, 1.22)
Difference in difference estimate	Reference	Reference	Reference	0.96	0.96	1.02	0.98	1.01

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), CI (confidence interval), N/A (not available)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models.

RQ8: To what extent did care processes improve for physical, BH, and LTSS?

H8.1. Physical health care processes (e.g., wellness and prevention, chronic disease management) will improve for members

H8.2. BH care processes will improve for members

H8.3. LTSS processes will improve for members

H8.4. The management of HRSNs will improve through the use of Flexible Services and/or other social service interventions for members

H8.5. Provider staff will report an improved experience delivering healthcare services to members

RQ8 Summary

For the purposes of the evaluation, we have conceptualized care processes as the delivery of evidence-based services in a member-centered manner. We use several data sources to examine changes in care processes over time. This section presents the results of five rounds (2018-2022) of surveys for six populations: 1) pediatric PC, 2) adult PC, 3) pediatric BH, 4) adult BH, 5) pediatric LTSS, and 6) adult LTSS; adults were 18 years of age or older, and children were under 18 years of age; proxy respondents answered the pediatric surveys on behalf of children. **RQ8** also includes results for several administrative measures, three hybrid quality measures, the Practice Site Administrator Survey, and results from the ACO Providers and CP Staff Surveys.

Quality measure results indicated that care processes directed at physical health generally improved for members over the 2017–2022 Demonstration, consistent with **H8.1**. During the 2017–2022 Demonstration, there were significant increases in the rates of childhood and adolescent immunization and in the timeliness of prenatal care. Further support for this hypothesis was observed in the Practice Site Administrator Survey, where most practice site administrators reported that care processes had become more standardized in the prior year. However, we found no change in the measure of multiple antipsychotic use in children (<3.5% children using antipsychotics were using multiple at baseline) and a lower likelihood of having follow-up care among children prescribed ADHD medication during 2021-2022.

Results of the pediatric and adult PC, BH, and LTSS surveys supported **H8.1-H8.3**, specifically that physical health, BH, and LTSS care processes would improve. Member survey respondents reported high and relatively stable or increased scores in Pediatric Communication, Pediatric BH Communication, Pediatric LTSS Communication, Pediatric Knowledge of Patient, Adult Communication, Adult BH Communication, Adult LTSS Communication, and Adult Knowledge of Patient Composites.

Most ACO providers and CP staff agreed or strongly agreed their organization provided patient-centered care. They responded that they communicated with members in a way patients could understand, saw patients as equal partners in their care, and encouraged them to actively participate in setting goals and managing their health conditions by developing self-

management skills. Most of the ACO providers and CP staff respondents agreed or strongly agreed that care was designed to meet patients and their families' preferences and routinely used patient feedback to improve services. In addition, most of these respondents agreed or strongly agreed that they regularly contacted patients to remind them of regular prevention or follow-up visits, how to manage their health condition, or to inform them of abnormal laboratory results. However, most ACO providers and CP staff did not report that it had become easier to deliver high-quality care to MassHealth members in the 12 months prior to being surveyed in 2022 (**H8.5**). Changes in this measure from Wave 1 to Wave 2 were generally small for ACO providers and CP staff. Note that Wave 1 of the survey asked about experience prior to the COVID-19 pandemic and it was conducted in 2020, early in the COVID-19 pandemic, and Wave 2 was conducted in 2022, later in the pandemic.

Care Processes

Administrative Measures

Three measures of pediatric care processes were examined: multiple antipsychotic use in children, metabolic monitoring for children and adolescents on antipsychotics, and follow-up care for children prescribed ADHD medication. Among ACO enrolled (or would-be ACO enrolled had the program been operating at baseline) children using antipsychotics, few used multiple antipsychotics concurrently (<3.5%) throughout 2015-2022. Comparative estimates between ACO enrollees and MCO/PCCP enrollees were imprecise with wide CIs. The percentage of children treated with antipsychotics who received metabolic monitoring (glucose and cholesterol) increased from 26.2% in 2015 to a high of 39.6% in 2021. In propensity-weighted comparisons of ACO versus MCO/PCCP enrollees, monitoring rates were higher for would-be ACO enrollees (had the ACO Program been operating at the time) in 2017 and for ACO enrollees in 2019 and 2021. Difference-in-difference estimates fluctuated year to year, with a low of in 2018 of 0.81 and a high of 1.49 in 2021 (favored ACOs). Follow-up care occurred for 56.1-59.9% of ACO enrolled (or would-be ACO enrolled) children prescribed ADHD mediations during 2016-2019. This percentage was lower during the first 3 years of the COVID-19 pandemic 52.6%, 42.9%, and 45.9% (2020-2022), though these percentages do not account for follow-up conducted via telemedicine. In propensity-weighted comparisons, the odds of receiving follow-up care were significantly lower for ACO enrollees versus MCO/PCCP enrollees in 2021 and 2022, but not in other years.

Care plan completion at least annually is an important care process for CP enrollees. Performance on the annual treatment plan measure for BH CP enrollees and the annual care plan measure for LTSS CP enrollees is reported in Domain 6 (**Tables 2.3-D6.4** and **2.3-D6.7**). Annual treatment plan completion for BH CP enrollees was stable in the range 56.9% to 57.3% during 2019-2022. Annual care plan completion for LTSS CP enrollees increased from 57.2% in 2019 to 68.8% in 2022 (aOR 2022 vs. 2019: 1.70; 95% CI: 1.53, 1.88).

Practice Site Administrator Survey

In Wave 1 of the Practice Site Administrator Survey (conducted in 2019), 21% of respondents reported that care processes had become a lot more standardized in the prior year (compared to 13% in Wave 2), 40% reported a little more standardization (49% in Wave 2), 29% reported no change in standardization (24% in Wave 2), 0% reported a little less standardization (3% in Wave 2), 0% reported a lot less standardization (1% in Wave 2), and 9% reported not knowing

whether there was more or less standardization (11% in Wave 2) ($p<0.01$). Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the pandemic.

FS Program Utilization

The number of members whose FS Program enrollment start date by performance year (PY) is presented in **Table 2.3-D2.34**. Enrollment in both tenancy preservation and nutrition programs increased in each year between PY3 (CY2020, the first year of the FS Program) and PY5 (CY2022 through Q1 CY2023). Quarterly numbers of members actively enrolled in tenancy preservation and nutrition programs are presented in **Figure 2.3-D2.3.** There was a drop in enrollment from Q4 CY2020 to Q1 CY2021 after time-limited COVID-19 FS programs ended. During the Demonstration, 23,772 members received nutrition supports and 9,417 members received tenancy preservation supports. A total of 4,081 members received both tenancy preservation and nutrition supports, while 19,691 received only nutrition supports and 5,336 received only tenancy preservation supports.

Table 2.3-D2.34 Number of Members Enrolled in the FS Program by Performance Year of Start Date and Domain Category

PY[a]	Nutrition Domain[b,c,d] n (%)	Housing Domain[b,c,d] n (%)	Pre-tenancy individual[e] n (%)	Pre-tenancy transitional[e] n (%)	Tenancy sustaining[e] n (%)	Home modification[e] n (%)
PY3	5,562 (23.4)	1,539 (16.3)	671 (13.4)	209 (14.9)	791 (20.8)	313 (18.6)
PY4	6,376 (26.8)	3,270 (34.7)	2,029 (40.4)	617 (44.1)	1,171 (30.8)	502 (29.9)
PY5	11,834 (49.8)	4,608 (48.9)	2,322 (46.2)	574 (41.0)	1,834 (48.3)	865 (51.5)
Total	23,772	9,417	5,022	1,400	3,796	1,680

Abbreviations: n (number of members)

[a] PY3 = CY2020, PY4 = CY2021, PY5 = CY2022 – Q1 CY2023

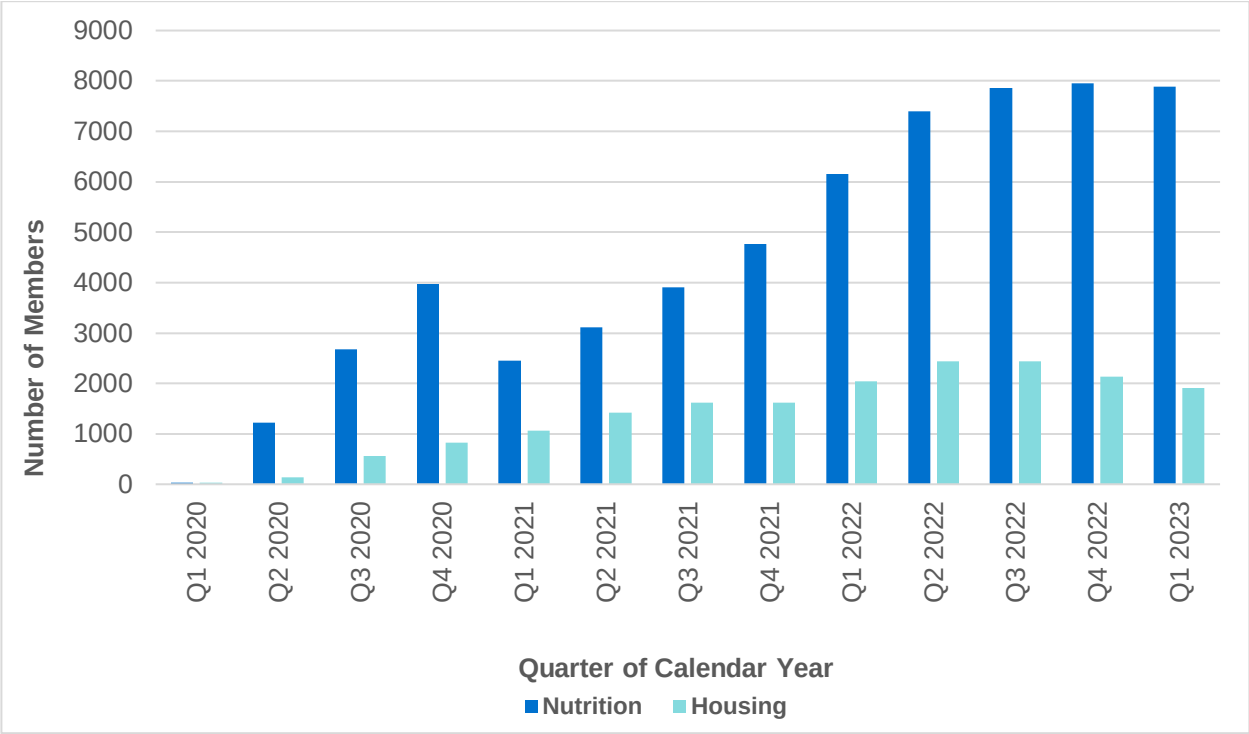
[b] Totals reflect the number of unique members who received nutrition or tenancy preservation support by PY of their start date. Totals do not reflect the number of people receiving supports in each PY because many members received support across two or more years.

[c] 4,081 members received both nutrition and tenancy preservation supports (43% of housing enrollees also received nutrition supports, whereas 17% of nutrition enrollees also received tenancy preservation supports). A total of 19,691 members received only nutrition supports and 5,336 members received only tenancy preservation supports.

[d] The total unique members enrolled in either FS nutrition or tenancy preservation supports was 29,108.

[e] Pre-tenancy individual, Pre-tenancy transitional, Tenancy sustaining, and Home modifications are all sub-categories of the Housing Domain. Totals across the four subcategories of tenancy preservation programs do not sum to the total in Housing Domain because members could receive more than one type of tenancy preservation support.

Figure 2.3-D2.3 FS Program Enrollment by Quarter of Calendar Year and Domain



Note: The total of 29,108 members enrolled in either FS nutrition or tenancy preservation supports. 4,081 members received both nutrition and tenancy preservation supports (43% of tenancy preservation enrollees also received nutrition supports, whereas 17% of nutrition enrollees also received tenancy preservation supports), 19,691 members received only nutrition supports, and 5,336 members received only tenancy preservation supports. There were 21,340 unique enrollment quarters across all tenancy preservation SSOs, and 60,410 unique enrollment quarters across all nutrition SSOs.

Member Experience

PC Member Experience Survey

The Communication composite measure from the Pediatric PC Member Experience Survey combines results from four survey questions which pertain to communication with PCPs. In 2018, the composite score was 91, and the score remained essentially the same throughout the five-year study period, varying within a 1.5-point range between 89.5 and 91.0 (see **Table 2.3-D2.35**).

Table 2.3-D2.35 Results for the Pediatric Communication Composite Measure[a] from the Pediatric PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	91.0	Reference	Reference
2019	91.1	0.1[b]	0.1, 0.1
2020	89.9	-1.1[b]	-1.1, -1.0
2021	89.7	-1.3[b]	-1.3, -1.2
2022	89.5	-1.5[b]	-1.6, -1.5

Abbreviation: CI (confidence interval)

[a] The Pediatric Communication composite measure combines the following four items: 1) In the last 12 months, how often did this provider explain things about your child's health in a way that was easy to understand? 2) In the last 12 months, how often did this provider listen

carefully to you? 3) In the last 12 months, how often did this provider show respect for what you had to say? 4) In the last 12 months, how often did this provider spend enough time with your child?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The Knowledge of Patient composite measure from the Pediatric PC Member Experience Survey combines results from two survey questions that pertain to a PCP's knowledge of the respondent's child as a person. In 2018, the composite score was 86.7, and this score remained within a 1.5-point range throughout the five-year study period, varying between 85.2 and 86.7 (see **Table 2.3-D2.36**).

Table 2.3-D2.36 Results for the Pediatric Knowledge of Patient Composite Measure[a] from the Pediatric PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	86.7	Reference	Reference
2019	86.7	-0.1[b]	-0.1, -0.1
2020	85.9	-0.8[b]	-0.8, -0.8
2021	85.4	-1.3[b]	-1.3, -1.2
2022	85.2	-1.5[b]	-1.6, -1.5

Abbreviation: CI (confidence interval)

[a] The Pediatric Knowledge of Patient composite measure combines the following two items: 1) In the last 12 months, how often did this provider seem to know the important information about your child's medical history? 2) How would you rate this provider's knowledge about your child as a person – special abilities, concerns, fears?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The Communication composite measure from the Adult PC Member Experience Survey combines results from four survey questions that pertain to communication with PCPs. In 2018, the composite score was 85.3, and it remained within a 2.1-point range throughout the five-year study period, varying between 83.3 and 85.3 (see **Table 2.3-D2.37**).

Table 2.3-D2.37 Results for the Adult Communication Composite Measure[a] from the Adult PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	85.3	Reference	Reference
2019	84.8	-0.5[b]	-0.5, -0.5
2020	83.3	-2.1[b]	-2.1, -2.0
2021	83.7	-1.7[b]	-1.7, -1.6
2022	83.3	-2.1[b]	-2.1, -2.0

Abbreviation: CI (confidence interval)

[a] The Adult Communication composite measure combines the following four items: 1) In the last 12 months, how often did this provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did this provider listen carefully to you? 3) In the last 12 months, how often did this provider show respect for what you had to say? 4) In the last 12 months, how often did this provider spend enough time with you?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The Knowledge of Patient composite measure from the Adult PC Member Experience Survey combines results from two survey questions that pertain to the PCP's knowledge of the

respondent as a person. In 2018, the composite score was 80.2 and remained within a 2.2-point range throughout the five-year study period, varying between 78.0 and 80.2 (see **Table 2.3-D2.38**).

Table 2.3-D2.38 Results for the Adult Knowledge of Patient Composite Measure[a] from the Adult PC Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	80.2	Reference	Reference
2019	79.6	-0.5[b]	-0.6, -0.5
2020	78.0	-2.2[b]	-2.2, -2.1
2021	78.5	-1.7[b]	-1.8, -1.6
2022	78.1	-2.1[b]	-2.1, -2.0

Abbreviation: CI (confidence interval)

[a] The Adult Knowledge of Patient composite measure combines the following two items: 1) In the last 12 months, how often did this provider seem to know the important information about your medical history? 2) How would you rate this provider's knowledge of you as a person, including values and beliefs that are important to you?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

BH Member Experience Survey

The BH Communication composite measure from the pediatric BH Member Experience Survey combines results from six survey questions pertaining to communication with the BH provider of the respondent's child. In 2018, the composite score was 86.2. The composite score declined to a low of 81.3 in 2021 and ended the Demonstration at a score of 83.7 in 2022 (see **Table 2.3-D2.39**).

Table 2.3-D2.39 Results for the Pediatric BH Communication Composite Measure[a] from the Pediatric BH Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	86.2	Reference	Reference
2019	87.3	1.1[b]	1.0, 1.2
2020	85.3	-0.9[b]	-1.0, -0.8
2021	81.3	-4.9[b]	-5.1, -4.8
2022	83.7	-2.6[b]	-2.7, -2.4

Abbreviation: CI (confidence interval)

[a] The Pediatric BH Communication composite measure combines the following six items: 1) In the last 12 months, how often did your child's behavioral health provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your child's behavioral health provider listen carefully to you and/or your child? 3) In the last 12 months, how often did your child's behavioral health provider show respect for what you and/or your child had to say? 4) In the last 12 months, how often did your child's behavioral health provider spend enough time with you and/or your child? 5) In the last 12 months, how often did your child's behavioral health provider show respect for your child's cultural/ethnic background? 6) In the last 12 months, how often did your child's behavioral health provider show respect for your child's sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The BH Communication composite measure from the adult BH Member Experience Survey combines results from six survey questions pertaining to communication with the respondent's BH provider. In 2018, the composite score was 85.1 and remained within a 1.1-point range

throughout the remainder of the five-year study period, varying between 82.9 to 84.0 (see **Table 2.3-D2.40**).

Table 2.3-D2.40 Results for the Adult BH Communication Composite Measure[a] from the Adult BH Member Experience Survey, 2018-2022

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	85.1	Reference	Reference
2019	83.7	-1.4[b]	-1.8, -1.1
2020	84.0	-1.1[b]	-1.4, -0.8
2021	83.3	-1.8[b]	-2.1, -1.5
2022	82.9	-2.2[b]	-2.5, -1.9

Abbreviation: CI (confidence interval)

[a] The Adult BH Communication composite measure combines the following six items: 1) In the last 12 months, how often did your behavioral health provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your behavioral health provider listen carefully to you? 3) In the last 12 months, how often did your behavioral health provider show respect for what you had to say? 4) In the last 12 months, how often did your behavioral health provider spend enough time with you? 5) In the last 12 months, how often did your behavioral health provider show respect for your cultural/ethnic background? 6) In the last 12 months, how often did your behavioral health provider show respect for your sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

LTSS Member Experience Survey

In 2018, the score for the LTSS Communication composite measure from the Child PC Member Experience Survey was 86.2. During the remainder of the 2017-2022 Demonstration, there was a modest fluctuation in scores from year to year, from 88.2 in 2020 to 85.0 in 2021 and 86.2 in 2022 (see **Table 2.3-D2.41**).

Table 2.3-D2.41 Child: LTSS Communication Composite[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	86.2	Reference	Reference
2019	86.5	0.2	-0.4, 0.9
2020	88.2	2.0[b]	1.2, 2.8
2021	85.0	-1.3[b]	-2.0, -0.5
2022	86.2	0.0	-0.5, 0.5

Abbreviation: CI (confidence interval)

[a] The Child LTSS Communication composite measure combines the following six items: 1) In the last 12 months, how often did your child's LTSS provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your child's LTSS provider listen carefully to you and/or your child? 3) In the last 12 months, how often did your child's LTSS provider show respect for what you and/or your child had to say? 4) In the last 12 months, how often did your child's LTSS provider spend enough time with your child? 5) In the last 12 months, how often did your child's LTSS provider show respect for your child's cultural/ethnic background? 6) In the last 12 months, how often did your child's LTSS provider show respect for your child's sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The adult score for the LTSS Communication composite measure was stable throughout the Demonstration. Differences from the score of 82.8 in 2018 were small and ranged from a difference of -0.7 in 2021 to a difference of 1.2 in 2022 (see **Table 2.3-D2.42**).

Table 2.3-D2.42 Adult: LTSS Communication Composite[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	82.8	Reference	Reference
2019	82.4	-0.3[b]	-0.5, -0.2
2020	83.8	1.0[b]	0.9, 1.2
2021	82.1	-0.7[b]	-0.9, -0.5
2022	84.0	1.2[b]	1.0, 1.5

Abbreviation: CI (confidence interval)

[a] The Adult LTSS Communication composite measure combines the following six items: 1) In the last 12 months, how often did your LTSS provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your LTSS provider listen carefully to you? 3) In the last 12 months, how often did your LTSS provider show respect for what you had to say? 4) In the last 12 months, how often did your LTSS provider spend enough time with you? 5) In the last 12 months, how often did your LTSS provider spend enough time with you? 6) In the last 12 months, how often did your LTSS provider show respect for your sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Perceptions of Patient-Centered Care

ACO Provider and CP Staff Surveys

ACO providers and CP staff were asked to what extent they agreed or disagreed with statements related to providing patient-centered care for patients with chronic conditions and members with BH and LTSS needs (see **Table 2.3-D2.43**).

Most ACO providers and CP staff agreed or strongly agreed their organization provided patient-centered care. They responded that they communicated with members in a way patients could understand, saw patients as equal partners in their care, and encouraged them to actively participate in setting goals and managing their health conditions by developing self-management skills. Most of the respondents agreed or strongly agreed that care was designed to meet patients and their families' preferences, and that they routinely used patient feedback to improve services. In addition, most respondents agreed or strongly agreed they regularly contacted patients to remind them of regular prevention or follow-up visits, how to manage their health condition(s), or to inform them of abnormal laboratory results (see **Table 2.3-D2.43**). Changes from Wave 1 (2020) to Wave 2 (2022) were generally small for both ACO providers and CP staff. The largest increase from Wave 1 to Wave 2 was among ACO providers, 77% of whom agreed or strongly agreed that they regularly use feedback from patients and families to improve services in Wave 2, a 7% increase from Wave 1 ($p<0.05$). In Wave 2, most ACO providers and CP staff reported that it had either become harder or there had been no change in the ease of delivering high-quality care to MassHealth members in the 12 months prior to being surveyed in 2022 (ACO: 18% harder, 54% no change; CP: 33% harder, 31% no change) (see **Appendix D**). Note that Wave 1 of the survey asked about respondents' experience prior to the COVID-19 pandemic and was conducted in 2020, early in the COVID-19 pandemic, and Wave 2 in 2022, later in the pandemic.

Table 2.3-D2.43 Wave 1, Wave 2, and Changes in Percentage of ACO providers and CP Staff that Agreed or Strongly Agreed with Statements Regarding Patient-centered Care at their Organization

Survey Item	Wave 1 ACO Providers (n=1,050)[a]	Wave 2 ACO Providers (n=1,355)[a]	ACO % Change (Wave 2 – Wave 1)	Wave 1 CP Staff (n=482)[a]	Wave 2 CP Staff (n=591)[a]	CP % Change (Wave 2 – Wave 1)
We communicate with patients in a way that they understood (e.g., appropriate language and literacy)	94%	95%	1%	97%	97%	0%
Providers and staff view patients as equal partners in their care	90%	92%	2%	94%	95%	1%
Care is designed to meet the preferences of patients and their families	88%	90%	2%	93%	92%	-1%
When developing a treatment plan, providers and staff routinely encourage patients to actively participate in setting goals	89%	92%	3%	97%	98%	1%
Providers and staff routinely work with patients to develop self-management skills for managing their health conditions	85%	89%	4%[b]	93%	94%	1%
We regularly use feedback from patients and families to improve services	70%	77%	7%[b]	85%	84%	-1%
We routinely contact patients to remind them of regular preventive or follow-up visits (e.g., flu vaccine or routine lab tests)	83%	85%	2%	88%	90%	2%
We routinely contact patients to inform them of abnormal laboratory results	97%	96%	-1%	N/A	N/A	N/A
We routinely contact patients with chronic	81%	82%	1%	90%	90%	0%

Survey Item	Wave 1 ACO Providers (n=1,050)[a]	Wave 2 ACO Providers (n=1,355)[a]	ACO % Change (Wave 2 – Wave 1)	Wave 1 CP Staff (n=482)[a]	Wave 2 CP Staff (n=591)[a]	CP % Change (Wave 2 – Wave 1)
conditions to help them manage their conditions						

[a] Overall number of responses to the survey, the number of responses to specific items varies.

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Care Processes

Hybrid Measures

Care processes for maternal and pediatric populations were measured using three hybrid Healthcare Effectiveness Data and Information Set measures: (1) Childhood Immunization Status (CIS), (2) Immunizations for Adolescents (IMA), and (3) Timeliness of prenatal care, a sub-measure of Prenatal and Postpartum Care (PPC).

CIS measures the percentage of children two years of age who had four Diphtheria, tetanus, and acellular pertussis (DTaP) vaccines; three polio (IPV) vaccines; one measles, mumps, and rubella (MMR) vaccine; three H influenza type B (HiB) vaccines; three hepatitis B (HepB) vaccines; one chickenpox vaccine (VZV); four pneumococcal conjugates vaccines (PCV); one hepatitis A (HepA) vaccine; two or three rotaviruses (RV) vaccines; and two influenzas (flu) vaccines by their second birthday. There was a 13.4% increase in childhood immunization from 2018-2019 (42.6% in 2018 to 56.0% in 2019). Rates then declined to 53.6% in 2020, 50.9% in 2021, and 47.2% in 2022, coinciding with the first few years of the COVID pandemic (see **Table 2.3-D2.44**). Variation in performance on the CIS measure by ACO is depicted in **Figure 2.3-D2.4**.

IMA measures the percentage of adolescents 13 years of age who had one dose of meningococcal conjugate vaccine; one tetanus, diphtheria toxoids, and acellular pertussis (Tdap) vaccine; and have completed the human papillomavirus vaccine series by their 13th birthday. There was a 4.5% increase in IMA from 2018-2019 (39.2% in 2018 to 43.6% in 2019). The IMA rate remained relatively stable for 2020-2022 in the range of 41.8% to 44.4%. Variation in performance on the IMA measure by ACO is depicted in **Figure 2.3-D2.5**.

Timeliness of prenatal care measures the percentage of deliveries preceded by a prenatal care visit within the first trimester, on the attribution start date, or within 42 days of ACO attribution. Over the 2017-2022 Demonstration, there was a 6.1% increase in PPC from 77.6% in 2018 to 83.7% in 2022. Variation in performance on the PPC measure by ACO is depicted in **Figure 2.3-D2.6.**

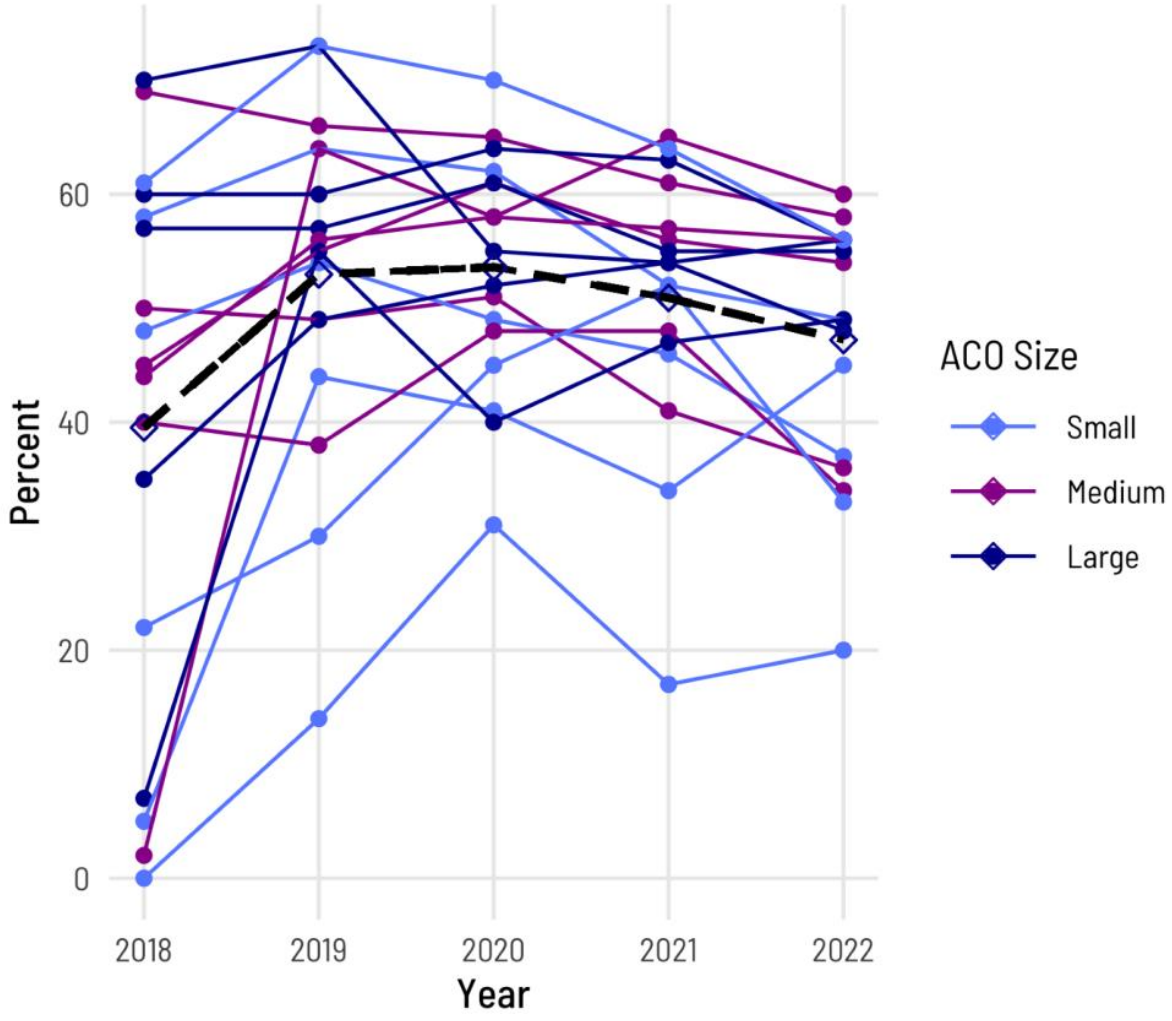
Table 2.3-D2.44 Distribution of ACO Results: Childhood Immunization Status, Immunization for Adolescents, and Timeliness of Prenatal Care (2018-2022)

Measure	2018 % (n)	2019 % (n)	2020 % (n)	2021 % (n)	2022 % (n)	P-value[a]
Childhood Immunization Status	42.6% (5,683)	56.0% (5,685)	53.6% (5,763)	50.9% (5,911)	47.2% (6,085)	<0.05
Immunizations for Adolescents	39.2% (6,190)	43.6% (5,888)	41.8% (6,002)	42.3% (6,150)	44.4% (6,138)	<0.05
Timeliness of Prenatal Care	77.6% (6,574)	80.9% (6,302)	81.7% (5,922)	81.2% (5,965)	83.7% (3,785)	<0.05

Abbreviations: ACO (accountable care organization); n (number of people)

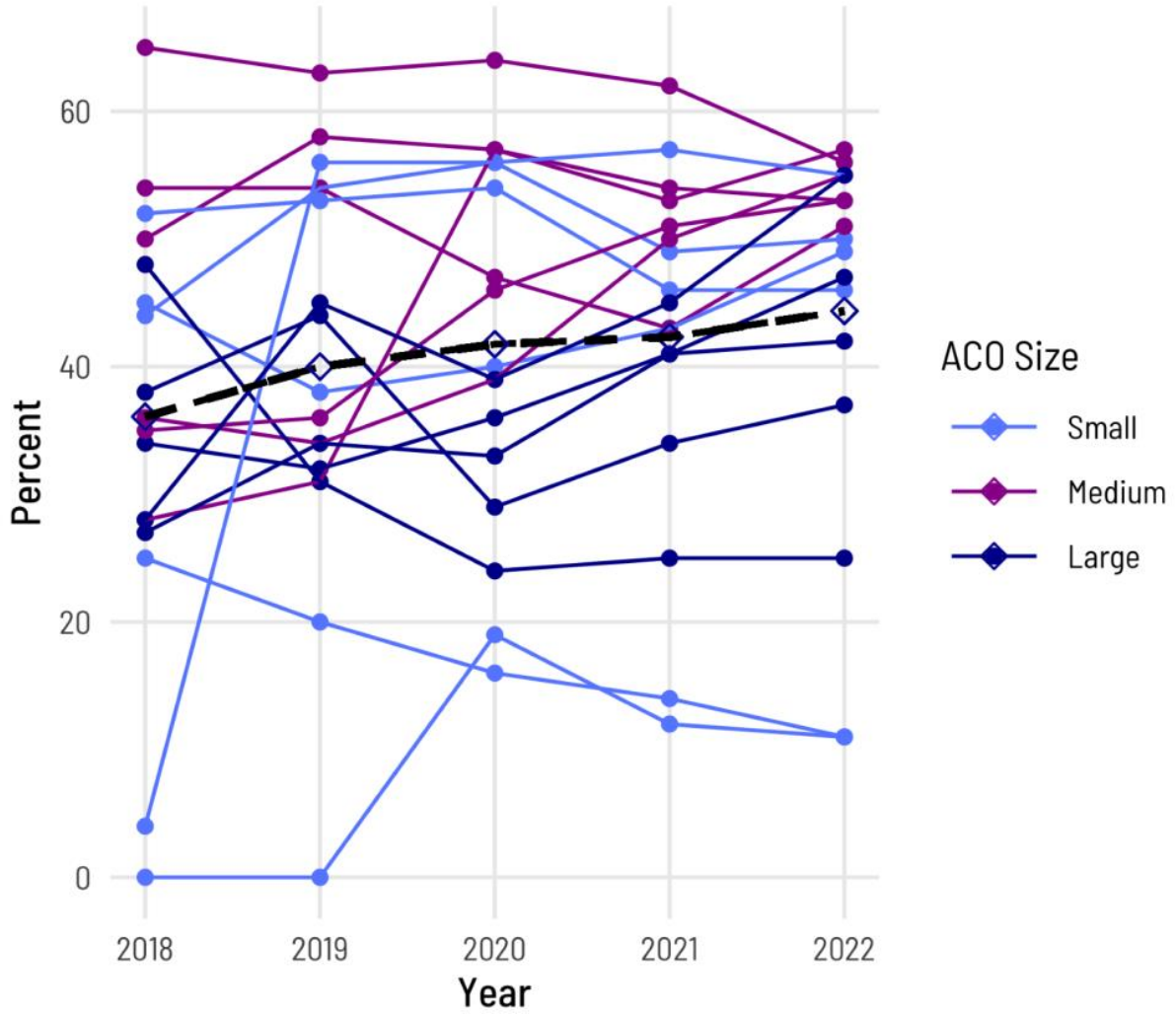
[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Figure 2.3-D2.4 Childhood Immunization Status



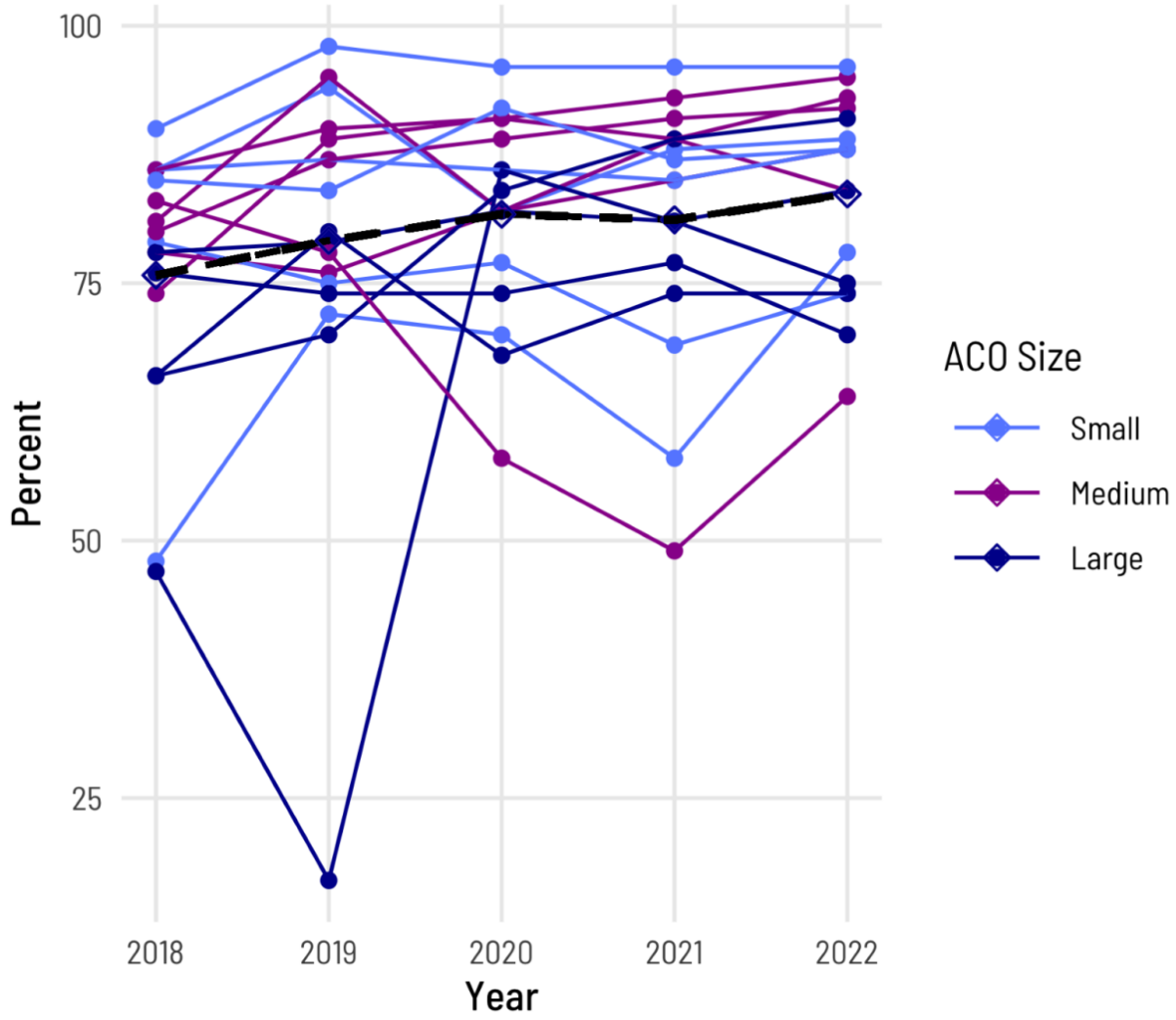
Notes: The dashed black line is the overall ACO program average. Each colored line is one ACO.

Figure 2.3-D2.5 Adolescent Immunization Status



Notes: The dashed black line is the overall ACO program average. Each colored line is one ACO.

Figure 2.3-D2.6 Timeliness of Prenatal Care



Notes: The dashed black line is the overall ACO program average. Each colored line is one ACO.

Table 2.3-D2.45 Baseline (2015-2017) and Demonstration (2018-2022) Observed and Comparative Performance for Pediatric Measures of Care Processes Among ACO and MCO/PCCP Enrollees

Measure	2015 Baseline	2016 Baseline	2017 Baseline	2018	2019	2020	2021	2022
Metabolic Monitoring for Children and Adolescents on Antipsychotics, n	3,575	3,280	5,365	6,459	7,883	5,174	5,141	5,243
ACO[a] Observed, %	26.2	27.1	28.0	25.0	29.8	34.3	39.6	37.7
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.16 (0.98, 1.37)	1.10 (0.92, 1.32)	1.32 (1.15, 1.52)	0.97 (0.85, 1.10)	1.21 (1.07, 1.37)	1.16 (0.98, 1.37)	1.78 (1.31, 2.39)	0.97 (0.83, 1.14)
DiD estimate, ratio scale	Reference	Reference	Reference	0.81	1.02	0.97	1.49	0.82
Multiple antipsychotic use in children, n	3,964	2,931	3,730	3,764	3,584	4,446	4,435	4,458
ACO[a] Observed, %	2.5	2.6	2.8	2.6	2.2	3.0	3.4	3.4
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.93 (0.62, 1.40)	0.80 (0.51, 1.27)	0.97 (0.63, 1.49)	1.15 (0.73, 1.80)	0.78 (0.48, 1.26)	1.42 (0.84, 2.41)	1.26 (0.51, 3.09)	1.18 (0.75, 1.86)
DiD estimate, ratio scale	Reference	Reference	Reference	1.27	0.87	1.58	1.40	1.31
Follow-up care for children prescribed ADHD medications, n	N/A	3,747	4,863	4,821	4,930	5,360	5,337	5,778
ACO[a] Observed, %	N/A	59.4	59.9	59.3	56.1	52.6	42.9	45.9
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	0.87 (0.75, 1.02)	1.01 (0.89, 1.19)	1.00 (0.88, 1.14)	0.86 (0.75, 1.00)	0.97 (0.84, 1.13)	0.79 (0.63, 1.03)	0.78 (0.67, 0.91)
DiD estimate, ratio scale	N/A	Reference	Reference	1.06	0.92	1.03	0.84	0.83

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models.

RQ9: To what extent did integration between physical, behavioral, and long-term services increase?

H9.1. Integration across the care continuum (e.g., physical health, BH, LTSS, acute care, social services) will increase

H9.2. Provider staff will report increased care integration (within and between ACOs and CPs)

RQ9 Summary

This section presents the results of five rounds (2018-2022) of member experience surveys for six populations: 1) pediatric PC, 2) adult PC, 3) pediatric BH, 4) adult BH, 5) pediatric LTSS, and 6) adult LTSS; adults were 18 years of age or older, and children were under 18 years of age; proxy respondents answered the pediatric surveys on behalf of children. **RQ9** also includes results for several administrative measures and results from two waves each for the ACO practice site administrator, ACO provider, and CP staff surveys.

There was a significant improvement in the percentage of practice site administrators reporting they almost always communicated with patients within 72 hours of discharge, they often or almost always conducted a home visit after discharge, hospitals routinely sent discharge summaries to PCPs within 72 hours for complex, high-need patients, and discharge summaries were often or always sent. There was a significant increase in the percentage of practice site administrators who reported prescribing clinicians, such as psychiatrists and psycho-pharmacologists, were co-located within their practice site often or always, and a positive increase (6%) in the percentage of administrators who reported that counseling therapists were almost always within their practice site (**H9.1** and **H9.2**).

There was a significant increase in the percentage of practice site administrators who agreed or strongly agreed that there is a clearly established process for receiving care notes from BH clinicians and care coordinators. However, there was a small decrease in the percentage of practice site administrators who agreed or strongly agreed that there is a clear process for establishing when there is shared responsibility for co-managing a member's care. In addition, there was a significant improvement in the percentage of responding practice site administrators who agreed or strongly agreed that providers followed a clear process for establishing relationships with LTSS providers or getting updates about a patient's condition from LTSS providers (**H9.1** and **H9.2**).

Most members or parents/guardians of members who responded to the pediatric and adult PC, BH, and LTSS surveys reported high scores for Pediatric Integration of Care, Pediatric BH Communication, Pediatric BH Care Coordination, Pediatric LTSS Communication, Pediatric LTSS Care Coordination, Adult Integration of Care, Adult BH Communication, Adult BH Care Coordination, Adult LTSS Communication, and Adult LTSS Care Coordination composites. Those composite scores remained relatively stable or slightly declined over time, except for Pediatric Care Coordination and Adult LTSS Communication Composites, which improved over time (**H9.1**).

Most ACO providers agreed or strongly agreed that candid and open communication existed between providers and staff on their team, that care is well coordinated with external healthcare

providers, and that they have good systems in place to track referrals to external providers. Most ACO providers also agreed or strongly agreed that providers are well-informed about available community resources for patients and that referrals to community resources were effective in addressing patients' HRSNs (**H9.2**).

The majority of CP staff agreed or strongly agreed that member care is well coordinated among staff, that member care is well coordinated with external healthcare providers and external care management programs, that providers and staff were well informed about community resources for members, and that referrals to community resources were effective in addressing patient's HRSNs (**H9.2**).

Care Integration

Administrative Measures

Measures of diabetes and cholesterol screening among members using antipsychotics were examined as indicators of integration between physical and BH providers. The denominator for the cholesterol testing measure was small, and the observed percentage of ACO enrollees (or would-be ACO enrollees) who were tested varied widely during the baseline period 77.8% in 2015 to 68.3% in 2017) and the 2017-2022 Demonstration (70.2% in 2018 to 59.3% in 2020 and 74.6% in 2022). Propensity-weighted comparative estimates for cholesterol testing among ACO enrollees versus MCO/PCCP enrollees were imprecise due to the small denominators (**Table 2.3-D2.46**). The percentage of ACO enrollees with bipolar disorder or schizophrenia who received diabetes testing was 80.7% in 2017 (at baseline) and ranged from a low of 72.7% in 2020 to a high of 82.3% in 2019 during the 2017-2022 Demonstration. Screening rates were higher among ACO enrollees versus MCO/PCCP enrollees at baseline and remained higher during the Demonstration, though differences were not statistically significant during 2020-2021.

Several measures examined the percentage of members who received follow-up care after a hospital discharge as a reflection of integration between the inpatient and outpatient care settings. Outpatient follow-up for ACO enrollees (or would-be ACO enrollees) occurred within 30 days after most hospital discharges during the period 2015-2022, with a low of 66.2% in 2022 and a high of 71.4% in 2018. The odds of follow-up within 30 days after discharge were consistently higher for ACO enrollees versus MCO/PCCP enrollees during the Demonstration (2018-2022). Among ACO enrollees (or would-be enrollees) hospitalized for mental health, the percentage receiving follow-up within 7 days declined from a high of 54.4% in 2015 to 49.7% in 2019, with further declines during the COVID-19 pandemic (2020-2022) to 40.5% in 2022. These percentages do not account for use of telephone follow-up. Timely follow-up rates after mental health hospitalizations were not significantly different for ACO enrollees and MCO/PCCP enrollees during the Demonstration. Follow-up rates after ED visits for mental health were higher and varied less, ranging from a low of 73.9% among ACO enrollees in 2022 to 79.2% among would-be ACO enrollees in 2015. In propensity-weighted comparisons, follow-up rates after mental health ED visits were not significantly different for ACO enrollees versus MCO/PCCP enrollees within each year, although DiD results indicated there was a relative increase in follow-up from baseline-2022 for ACO enrollees versus the MCO/PCCP comparison group.

Follow-up after hospital stays, post-acute care stays, and ED visits was evaluated among CP enrollees. Among BH CP enrollees, the percentage who had timely follow-up after an ED visit increased from 16.9% in 2019 (the first full year of the CP program) to 45.4% in 2022 (aOR 2022 vs. 2019: 2.78; 95% CI: 2.6, -2.90). The percentage of BH CP enrollees receiving timely follow-up after a hospitalization also increased from 10.4% in 2019 to 23.2% in 2022 (aOR 2022 vs. 2019: 2.30; 95% CI: 2.13, 2.48). Among LTSS CP enrollees, the percentage who received timely follow-up after a hospitalization or post-acute stay increased from 11.5% in 2019 to 34.4% in 2022 (aOR 2022 vs. 2019: 2.85; 95% CI: 2.33, 3.47).

Table 2.3-D2.46 Baseline (2015-2017) and Demonstration (2018-2022) Observed and Comparative Performance for Measures of Care Integration Among ACO and MCO/PCCP Enrollees

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Cholesterol testing for adult members using antipsychotics, n	156	117	153	150	171	186	171	177
ACO[a] Observed, %	77.8	71.0	68.3	70.2	74.5	59.3	66.9	74.6
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.24 (0.53, 2.90)	0.87 (0.31, 2.45)	0.67 (0.25, 1.80)	0.44 (0.14, 1.36)	2.18 (0.90, 5.27)	1.13 (0.43, 2.99)	0.57 (0.11, 2.96)	1.82 (0.65, 5.11)
DiD estimate, ratio scale	Reference	Reference	Reference	0.48	2.43	1.26	0.64	2.03
Follow-up after hospitalization within 30 days, n	62,968	44,347	62,276	59,765	60,807	70,555	75,848	78,390
ACO[a] Observed, %	68.0	70.6	70.0	71.4	71.0	68.8	69.7	66.2
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.00 (0.96, 1.04)	1.00 (0.95, 1.06)	1.01 (0.96, 1.05)	1.14 (1.10, 1.19)	1.07 (1.02, 1.12)	1.11 (1.06, 1.16)	1.18 (1.10, 1.26)	1.18 (1.13, 1.23)
DiD estimate, ratio scale	Reference	Reference	Reference	1.14	1.07	1.10	1.17	1.17
Follow-up after ED visit for mental health within 7 days	10,570	7,698	10,674	10,126	9,347	9,127	10,567	8,688
ACO[a] Observed, %	79.2	77.3	77.4	77.2	76.7	75.4	77.1	73.9
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.98 (0.88, 1.11)	0.82 (0.71, 0.94)	0.97 (0.86, 1.08)	0.95 (0.85, 1.06)	0.96 (0.84, 1.09	0.93 (0.80, 1.08)	0.92 (0.73, 1.15)	1.09 (0.94, 1.27)
DiD estimate, ratio scale	Reference	Reference	Reference	1.03	1.04	1.01	0.99	1.18
Follow-up after hospitalization for mental health within 7 days	15,004	11,995	15,924	16,388	17,400	18,902	18,721	18,761

Measure	2015	2016	2017	2018	2019	2020	2021	2022
ACO[a] Observed, %	54.4	50.9	51.8	49.7	47.6	47.4	46.6	40.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.07 (0.98, 1.16)	1.06 (0.95, 1.18)	1.06 (0.97, 1.15)	1.07 (0.99, 1.16)	1.05 (0.96, 1.14)	1.09 (0.98, 1.20)	1.10 (0.94, 1.30)	1.02 (0.93, 1.12)
DiD estimate, ratio scale	Reference	Reference	Reference	1.01	0.99	1.02	1.04	0.96
Diabetes screening for people with bipolar disorder or schizophrenia who are using antipsychotics	N/A	N/A	12,121	11,732	12,947	10,604	14,344	14,168
ACO[a] Observed, %	N/A	N/A	81.7	81.6	82.3	72.7	78.5	78.2
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	N/A	1.16 (1.05, 1.28)	1.29 (1.18, 1.42)	1.16 (1.05, 1.28)	1.08 (0.98, 1.20)	1.11 (0.95, 1.29)	1.19 (1.09, 1.31)
DiD estimate, ratio scale	N/A	N/A	Reference	1.11	1.00	0.93	0.95	1.03

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), CI (confidence interval), N/A (not available)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models

Practice Site Administrator Survey

There was a significant improvement in the percentage of practice site administrators who reported that they almost always communicated with patients within 72 hours of discharge, from 42% during Wave 1 (2019) to 58% in Wave 2 (2021) (P<0.05). An increase was also observed in the percentage of practice site administrators reporting they often or almost always conduct a home visit after discharge, from 15% in Wave 1 to 21% in Wave 2 (P<0.05). This pattern was consistent with hospitals routinely sending discharge summaries to PC clinicians within 72 hours for complex, high-need patients, where 75% of practice site administrators reported that discharge summaries were often or always sent in Wave 2 compared to 71% during Wave 1 (P<0.05). Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the pandemic.

Outpatient Care Integration

PC Member Experience Survey

In 2018, the Integration of Care composite measure score from the Child PC Member Experience Survey was 79.5. There was a small decline in the composite scores from 2019 (79.9) to 2022 (77.7) (see **Table 2.3-D2.47**).

Table 2.3-D2.47 Results for the Integration of Care Composite Measure from the Child PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	79.5	Reference	Reference
2019	79.9	0.4[b]	0.3, 0.5
2020	79.1	-0.4[b]	-0.5, -0.3
2021	78.3	-1.2[b]	-1.3, -1.1
2022	77.7	-1.8[b]	-1.9, -1.7

Abbreviation: CI (confidence interval)

[a] The Child PC Integration of Care composite measure includes the following four items: 1) In the last 12 months, how often did the provider named in Question 1 seem informed and up-to-date about the care your child got from specialists? 2) In the last 12 months, how often did you and someone from this provider's office talk about all the prescription medicines your child was taking? 3) In the last 12 months, did you get the help you needed from this provider's office to manage your child's care among these different providers and services? 4) In the last 12 months, when this provider ordered a blood test, x-ray, or other test for your child, how often did someone from this provider's office follow up to give you these results?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the score for the Integration of Care composite measure from the Adult PC Member Experience Survey was 77.2. It modestly declined to 74.8 in 2020, and scores remained stable through 2021-2022 (see **Table 2.3-D2.48**).

Table 2.3-D2.48 Results for the Integration of Care Composite Measure from the Adult PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	77.2	Reference	Reference
2019	76.7	-0.6[b]	-0.6, -0.5

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	74.8	-2.5[b]	-2.5, -2.4
2021	75.3	-1.9[b]	-2.0, -1.8
2022	74.9	-2.4[b]	-2.5, -2.3

Abbreviation: CI (confidence interval)

[a] The Adult PC Integration of Care composite measure includes the following four items: 1) In the last 12 months, how often did the provider named in Question 1 seem informed and up-to-date about the care you got from specialists? 2) In the last 12 months, when this provider ordered a blood test, x-ray, or other test for you, how often did someone from this provider's office follow up to give you these results? 3) In the last 12 months, how often did you and someone from this provider's office talk about all the prescription medicines you were taking? 4) In the last 12 months, did you get the help you needed from this provider's office to manage your care among these different providers and services?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Outpatient BH Care Integration

Practice Site Administrator Survey

There was a statistically significant increase in the percentage of practice site administrators who reported prescribing clinicians, such as psychiatrists and psycho-pharmacologists, were co-located within their practice site often or always (from 16% in Wave 1 to 20% in Wave 2, P<0.05). In addition, there was an increase in the percentage of administrators who reported that counseling therapists were almost always within their practice site (from 17% in Wave 1 to 22% in Wave 2, P<0.05).

There was a statistically significant increase in the percentage of practice site administrators who agreed or strongly agreed that there is a clearly established process for receiving care notes from BH clinicians and care coordinators (from 44% during Wave 1 to 50% during Wave 2, P<0.05). There was a 3-percentage point decrease in the percentage of practice site administrators who agreed or strongly agreed that there is a clear process for establishing when there is shared responsibility for co-managing a member's care, from 53% during Wave 1 to 50% during Wave 2, P<0.05. Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the pandemic.

BH Member Experience Survey

In 2018, the Communication composite measure score from the child BH Member Experience Survey was 86.2. The score peaked at 87.3 in 2019 and then declined during the first two years of the COVID-19 pandemic (2020-2021) to 81.3 in 2021. The score increased by 2.4 percentage points in 2022 (83.7) (see **Table 2.3-D2.49**).

Table 2.3-D2.49 Results for the Communication Composite Measure from the Child BH Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	86.2	Reference	Reference
2019	87.3	1.1[b]	1.0, 1.3
2020	85.3	-0.9[b]	-1.1, -0.8
2021	81.3	-4.9[b]	-5.1, -4.8
2022	83.7	-2.6[b]	-2.7, -2.4

Abbreviation: CI (confidence interval)

[a] The Child BH Communication composite measure includes the following six items: 1) In the last 12 months, how often did your child's behavioral health provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your child's behavioral health provider listen carefully to you and/or your child? 3) In the last 12 months, how often did your child's behavioral health provider show respect for what you and/or your child had to say? 4) In the last 12 months, how often did your child's behavioral health provider spend enough time with you and/or your child? 5) In the last 12 months, how often did your child's behavioral health provider show respect for your child's cultural/ethnic background? 6) In the last 12 months, how often did your child's behavioral health provider show respect for your child's sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Care Coordination composite measure score from the child BH Member Experience Survey was 73.5. There was a significant improvement to 79.7 in 2019, followed by a decline in the composite scores in 2020 and 2021. In 2022, the score returned to approximately the level of the peak in 2019 (see **Table 2.3-D2.50**).

Table 2.3-D2.50 Results for the Care Coordination Composite Measure from the Child BH Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	73.5	Reference	Reference
2019	79.7	6.2[b]	6.0, 6.4
2020	74.4	0.9	-0.0, 1.9
2021	73.7	0.2	-0.3, 0.6
2022	79.3	5.8[b]	5.2, 6.3

Abbreviation: CI (confidence interval)

[a] The Child BH Care Coordination composite measure includes the following four items: 1) How often did your child's care coordinator help your child obtain these services in the community? 2) How often did your child's care coordinator assist your child with any referrals to a specialist? 3) In the last 12 months, how often did your child's care coordinator seem to know the important information about your child's medical history? 4) How would you rate your child's care coordinator's knowledge about your child as a person, including special abilities, concerns, and fears?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Communication composite measure score from the adult BH Member Experience Survey was 85.1. The composite scores declined slightly over time; the 2022 score was 2.2 points below 2018 (see **Table 2.3-D2.51**).

Table 2.3-D2.51 Results for the Communication Composite Measure from the Adults BH Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	85.1	Reference	Reference
2019	83.7	-1.4[b]	-1.8, -1.2
2020	84.0	-1.1[b]	-1.4, -0.9
2021	83.3	-1.8[b]	-2.2, -1.5
2022	82.9	-2.2[b]	-2.5, -2.0

Abbreviation: CI (confidence interval)

[a] The Adult BH Communication composite measure includes the following seven items: 1) In the last 12 months, did you see a behavioral health provider? 2) In the last 12 months, how often did your behavioral health provider explain things in a way that was easy to understand? 3) In the last 12 months, how often did your behavioral health provider listen carefully to you? 4) In the last 12 months, how often did your behavioral health provider show respect for what you had to say? 5) In the last 12 months, how often did your behavioral health provider spend enough time with you? 6) In the last 12 months, how often did your behavioral health provider show respect for your cultural/ethnic background? 7) In the last 12 months, how often did your behavioral health provider show respect for your sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Care Coordination composite measure score from the adult BH Member Experience Survey was 69.3. There was a small decline in the composite scores over time, with an average score of 67.9 in 2022, 1.4 points below the reported score for 2018 (see **Table 2.3-D2.52**).

Table 2.3-D2.52 Results for the Care Coordination Composite Measure from the Adult BH Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	69.3	Reference	Reference
2019	68.7	-0.6[b]	-1.3, -0.1
2020	69.0	-0.2	-0.7, 0.3
2021	68.8	-0.5	-1.1, 0.1
2022	67.9	-1.4[b]	-1.8, -1.0

Abbreviation: CI (confidence interval)

[a] The Adult BH Care Coordination composite measure includes the following eight items: 1) Do you feel that you need a care coordinator? 2) Do you have a care coordinator? In the last 12 months, did you have contact with your care coordinator? 3) In the last 12 months, did you need services in the community, such as support groups, day programs, or clubhouse? 4) How often did your care coordinator help you obtain these services in the community? 5) Specialists are providers like psychiatrists, surgeons, heart doctors, allergy doctors, and other doctors who specialize in one area of healthcare. In the last 12 months, did you need any referrals to a specialist? 6) How often did your care coordinator assist you with any referrals to a specialist? 7) In the last 12 months, how often did your care coordinator seem to know the important information about your medical history? 8) How would you rate your care coordinator's knowledge of you as a person, including values and beliefs that are important to you?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

LTSS Care Integration

Practice Site Administrator Survey

There was a significant improvement in the percentage of responding practice site administrators who agreed or strongly agreed that providers followed a clear process for establishing relationships with LTSS providers (from 41% during Wave 1 to 51% during Wave 2, P<0.05) or that providers followed a clear process for getting updates about a patient's condition from LTSS providers (from 37% during Wave 1 to 50% during Wave 2, P<0.05). Note that Wave 1 of the survey was conducted in 2019, prior to the COVID-19 pandemic, and Wave 2 in 2021, during the pandemic.

LTSS Member Experience Survey

In 2018, the Communication composite measure score for the Child LTSS Member Experience Survey was 86.3. Scores fluctuated between 85.0 to 88.2 over the remainder of the 2017-2022 Demonstration. The 2022 score was 0.1 points below the reported score for 2018 (see **Table 2.3-D2.53**).

Table 2.3-D2.53 Results for the Communication Composite Measure from the Child LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	86.3	Reference	Reference

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2019	86.5	0.2	-0.4, 0.9
2020	88.2	2.1[b]	1.2, 2.8
2021	85.0	-1.3[b]	-2.0, -0.5
2022	86.2	-0.1	-0.5, 0.5

Abbreviation: CI (confidence interval)

[a] The Child LTSS Communication composite measure includes the following six items: 1) In the last 12 months, how often did your child's LTSS provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your child's LTSS provider listen carefully to you and/or your child? 3) In the last 12 months, how often did your child's LTSS provider show respect for what you and/or your child had to say? 4) In the last 12 months, how often did your child's LTSS provider spend enough time with you and/or your child? 5) In the last 12 months, how often did your child's LTSS provider show respect for your child's cultural/ethnic background? 6) In the last 12 months, how often did your child's LTSS provider show respect for your child's sexual orientation, gender expression, and gender identity?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the score for the Care Coordination composite measure from the Child LTSS Member Experience Survey was 76.8. There was a significant decline in the composite score in 2019 (12.6 points less than the score in 2018). The composite score returned near the 2018 score in 2021 (77.0). The score for 2022 was 69.2, 7.6 points below the 2018 score of 76.8 (see **Table 2.3-D2.54**). These fluctuations occurred against the backdrop of the COVID-19 pandemic during 2020-2022.

Table 2.3-D2.54 Results for the Care Coordination Composite Measure from the Child LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	76.8	Reference	Reference
2019	64.2	-12.6[b]	-13.6, -11.5
2020	73.7	-3.1[b]	-4.1, -2.1
2021	77.0	0.2	-0.3, 0.7
2022	69.2	-7.6[b]	-8.8, -6.3

Abbreviation: CI (confidence interval)

[a] The Child Care Coordination composite measure includes the following four items: 1) How often did your child's care coordinator help your child obtain these services in the community? 2) How often did your child's care coordinator assist your child with any referrals to a specialist? 3) In the last 12 months, how often did your child's care coordinator seem to know the important information about your child's medical history? 4) How would you rate your child's care coordinator's knowledge about your child as a person, including special abilities, concerns, and fears?

[b] Denotes P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Communication composite measure score for the Adult LTSS Member Experience Survey was 82.8. The score fluctuated within a narrow range across the years (82.8-84.0). The 2022 score was 1.2 points above the reported score for 2018 (see **Table 2.3-D2.55**).

Table 2.3-D2.55 Results for the Communication Composite Measure from the Adult LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	82.8	Reference	Reference
2019	82.4	-0.3[b]	-0.5, -0.2

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	83.8	1.0[b]	0.9, 1.2
2021	82.1	-0.7[b]	-0.9, -0.5
2022	84.0	1.2[b]	1.0, 1.5

Abbreviation: CI (confidence interval)

[a] The Adult LTSS Communication composite measure includes the following six items: 1) In the last 12 months, how often did your LTSS provider explain things in a way that was easy to understand? 2) In the last 12 months, how often did your LTSS provider listen carefully to you? 3) In the last 12 months, how often did your LTSS provider show respect for what you had to say? 5) In the last 12 months, how often did your LTSS provider spend enough time with you? 4) In the last 12 months, how often did your LTSS provider show respect for your cultural/ethnic background? 6) In the last 12 months, how often did your LTSS provider show respect for your sexual orientation, gender expression, and gender identity?

[b] denotes P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the score for the Care Coordination composite measure from the Adult LTSS Member Experience Survey was 74.0. There was a decline in the composite scores in 2019 and 2020, but the score increased to return closer to the 2018 score in 2021 and 2022. The average score for the year 2022 was 72.9, 1.1 points below the reported score for 2018 (see **Table 2.3-D2.56**).

Table 2.3-D2.56 Results for Care Coordination Composite Measure from the Adult LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	74.0	Reference	Reference
2019	71.1	-2.9[b]	-3.5, -2.4
2020	70.5	-3.5[b]	-3.8, -3.3
2021	72.0	-2.0[b]	-2.2, -1.8
2022	72.9	-1.1[b]	-1.6, -0.6

Abbreviation: CI (confidence interval)

[a] The Adult Care Coordination composite measure includes the following four items: 1) How often did your care coordinator help you obtain services in the community? 2) How often did your care coordinator assist you with any referrals to a specialist? 3) In the last 12 months, how often did your care coordinator seem to know the important information about your medical history? 4) How would you rate your care coordinator's knowledge of you as a person, including values and beliefs that are important to you?

[b] Denotes P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

ACOs Provider and CP Staff Surveys

The ACO provider and CP staff surveys were conducted in two waves (2020 and 2022). The surveys asked about care coordination within teams, care coordination with other providers, and care coordination with other resources for patients with chronic conditions. Most ACO providers agreed or strongly agreed that candid and open communication existed between providers and staff on their team in Wave 1 (88%) and Wave 2 (90%). Most ACO providers agreed or strongly agreed that care is well coordinated with external healthcare providers (Wave 1: 69%; Wave 2: 63%) and that they have good systems in place to track referrals to external providers (Wave 1: 65%; Wave 2: 58%), although fewer agreed with these statements in Wave 2 than Wave 1. A majority of ACO providers agreed or strongly agreed in Wave 1 that providers are well-informed about available community resources for patients (60%) and that referrals to community resources were effective in addressing patient's HRSNs (56%); the percentage of providers agreeing or strongly agreeing with these statements in Wave 2 was 51% and 50%, respectively (i.e., 9% and 6% fewer than Wave 1) (see **Table 2.3-D2.57**).

About nine in ten CP survey respondents (Wave 1: 90%; Wave 2: 87%) agreed or strongly agreed that member care is well coordinated among staff. A majority of CP staff agreed or strongly agreed that member care is well coordinated with external health care providers (73%) and external care management programs (69%) in Wave 1; a smaller majority endorsed these statements in Wave 2 (67% and 63%, respectively). In both waves, about four in five CP survey respondents agreed or strongly agreed that providers and staff were well informed about community resources for members and that referrals to community resources were effective in addressing patient's HRSNs (see **Table 2.3-D2.58**). Note that Wave 1 of the survey asked about respondents' experience prior to the COVID-19 pandemic and was conducted in 2020, early in the COVID-19 pandemic, and Wave 2 in 2022, later in the pandemic.

Table 2.3-D2.57 Percentage of ACO PCPs that Agreed or Strongly Agreed with the Level of Care Coordination Within their Practice Site, with External Providers, and with Community Resources

Survey Item	Wave 1 Total (n=1,050)[a]	Wave 2 Total (n=1,355)[a]	% Change (Wave 2 – Wave 1)	Wave 2 Physicians (n=643)[a]	Wave 2 NPs/PAs (n=288)[a]	Wave 2 Nurses (n=330)[a]	Wave 2 Social Workers (n=94)[a]
Providers and staff meet frequently (e.g., team huddles) to plan for patient visits	63%	64%	1%	62%	53%	73%	65%
Candid and open communication exists between providers and other staff	88%	90%	2%	93%	92%	84%	87%
Providers and staff are well informed at the time of each patient visit about patients' medical history and current treatments	81%	82%	1%	83%	81%	83%	75%
Patients see the same care team or provider for routine clinic visits	80%	75%	-5%	75%	74%	76%	84%
Patient care is well coordinated with external health care providers (e.g., specialists, hospitals)	69%	63%	-6%[b]	62%	61%	69%	55%
We have good systems in place to track referrals to external providers	65%	58%	-7%[b]	62%	61%	69%	55%
We routinely receive discharge summaries after our patients were hospitalized	75%	72%	-3%	77%	69%	70%	49%
We routinely receive event notification system alerts about our patients' healthcare encounters (e.g., inpatient and emergency department admissions)	77%	76%	-1%	79%	77%	73%	59%

Survey Item	Wave 1 Total (n=1,050)[a]	Wave 2 Total (n=1,355)[a]	% Change (Wave 2 – Wave 1)	Wave 2 Physicians (n=643)[a]	Wave 2 NPs/PAs (n=288)[a]	Wave 2 Nurses (n=330)[a]	Wave 2 Social Workers (n=94)[a]
Providers and staff are well informed about available community resources for patients	60%	51%	-9%[b]	41%	44%	71%	62%
Our referrals to community resources are effective in addressing the patient's health-related social needs (e.g., tenancy preservation, nutrition)	56%	50%	-6%	40%	44%	68%	60%

[a] Overall number of responses to the survey, the number of responses to specific items varies.

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Table 2.3-D2.58 Percentage of BH and LTSS CP Staff that Agreed or Strongly Agreed with the Level of Care Coordination within Their Practice Site, with External Providers, and with Community Resources

Survey Item	Wave 1 Total (n=482)[a]	Wave 2 Total (n=591)[a]	% Change (Wave 1 - Wave 2)	Wave 2 BH only (n=454)[a]	Wave 2 LTSS only (n=70)[a]	Wave 2 BH/LTSS (n=67)[a]
Member care is well coordinated among staff	90%	87%	-3%	88%	80%	85%
Providers and staff meet frequently (e.g., team huddles) to plan for member encounters	88%	84%	-4%[b]	83%	86%	84%
Candid and open communication exists among staff	90%	88%	-2%	81%	88%	88%
Staff are well informed at the time of the initial member encounter about members' medical history and current treatments	42%	49%	7%[b]	50%	43%	46%
Staff are well informed at the time of each subsequent member encounter about members' medical history and current treatments	62%	61%	-1%	63%	48%	61%
Members see the same care team or case manager after intake	85%	73%	-12%[b]	74%	70%	72%
Member care is well coordinated with external health care providers (e.g., primary care providers, specialists, hospitals)	73%	67%	-6%[b]	69%	56%	63%
Member care is well coordinated with external care management programs (e.g., Independent Living Centers, Department of Mental Health)	69%	63%	-6%	63%	58%	67%
We have good systems in place to track referrals to external providers	56%	53%	-3%	54%	44%	58%
We routinely receive discharge summaries after our members were hospitalized	40%	41%	1%	40%	39%	51%
We routinely receive event notification system alerts about our members' healthcare encounters (e.g.,	88%	87%	-1%	88%	85%	86%

Survey Item	Wave 1 Total (n=482)[a]	Wave 2 Total (n=591)[a]	% Change (Wave 1 - Wave 2)	Wave 2 BH only (n=454)[a]	Wave 2 LTSS only (n=70)[a]	Wave 2 BH/LTSS (n=67)[a]
inpatient and emergency department admissions)						
Providers and staff are well informed about available community resources for members	82%	83%	1%	83%	87%	76%
Our referrals to community resources are effective in addressing the patient's health-related social needs (e.g., tenancy preservation, nutrition)	79%	77%	-2%	77%	76%	81%

[a] Overall number of responses to the survey, the number of responses to specific items varies.

[b] P<0.05. a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

RQ10: How did the volume and mix of services utilized by members change during the course of the Demonstration?

H10.1. The volume and mix of services utilized will shift, when clinically appropriate, in the direction of lower-cost sites and types of care

H10.2. The utilization of low-value care will decrease

RQ10 Summary

RQ10 includes results for several administrative measures of healthcare utilization by setting (i.e., PC, post-acute care) and low-value care measures. We observed slightly lower PC use at baseline and higher PC use in 2018-2019 among ACO enrollees versus the comparison group. Post-acute care use declined during the COVID-19 pandemic, both among ACO enrollees and the comparison group. ACOs were more likely to discharge enrollees to any post-acute care and to home post-acute care in 2018 and 2020, and less likely to discharge to institutional post-acute care in 2021. Increases in PC utilization and reductions in high-cost institutional post-acute care utilization also represent potential opportunities to maintain or increase quality while reducing care costs. Although we assume reduction in post-acute care may represent a desirable reduction of low-value services, post-acute care is warranted for many patients discharged from the hospital, and further research is needed to determine whether reductions in utilization are associated with worsening post-discharge outcomes. Low-value care represents an evidence-based opportunity to reduce potentially unnecessary utilization and associated costs to an ACO or MCO, which should be attractive to organizations bearing the TCOC accountability. Two measures of appropriate antibiotic use and four measures of appropriate imaging use were studied under **H10.2**. There was significant reduction in the use of antibiotics for acute bronchitis, a significant increase in appropriate testing with antibiotics for pharyngitis, but no significant changes in pre-operative chest radiography, head imaging for syncope, imaging for lower back pain, and abdomen CT combined studies.

Administrative Measures

Healthcare Utilization

On average, adult ACO enrollees (or would-be ACO enrollees had the ACO program been operating at baseline) visited their PC provider approximately 453 to 465 times per 100 members per year at baseline (2015-2017) and in the first two years of the Demonstration (see **Table 2.3-D2.59**). Primary care visit rates declined in the first year of the COVID-19 pandemic (391 visits per 100 members per year in 2020) and remained in the range of approximately 388 to 415 visits per 100 members per year in 2021 and 2022. In propensity-weighted comparisons, would-be ACO enrollees had slightly lower visit rates than would-be MCO/PCCP enrollees in 2016 (adjusted incidence rate ratio (aIRR): 0.99; 95% CI: 0.98, 0.99) and 2017 (aIRR: 0.98; 95% CI: 0.97, 0.98), higher rates in 2018 (aIRR: 1.03; 95% CI: 1.0, 1.03) and 2019 (aIRR: 1.02; 95% CI: 1.02, 1.03), and rates were not statistically different during 2020-2022. DiD estimates reflected a slightly larger increase in PCP visit rates for ACO enrollees versus MCO/PCCP enrollees in 2018-2019 (ratios of 2018 and 2019 aIRR to baseline aIRR of 1.04 and 1.03, respectively) and were suggestive of a net increase in PCP visit rates for ACO enrollees in 2021-2022 (**H10.1**).

At baseline (2015-2017), 16.9-18.1% of would-be ACO enrollees (had the ACO program been operating at that time) were discharged from the inpatient setting to any post-acute care site. This percentage remained relatively stable among ACO enrollees in 2018-2019, and then declined modestly during the COVID-19 pandemic (2020-2022) to a low of 14.5% in 2022. Institutional post-acute care declined from 6.0% in 2019 to 3.8% in 2022, while home post-acute care declined from 12.0% to 10.7% over the same period. In propensity-weighted comparisons, the odds of any post-acute care, institutional post-acute care, and home post-acute care were not significantly different between would-be ACO enrollees and would-be MCO/PCCP enrollees at baseline. During the Demonstration, ACO enrollees were more likely to discharge enrollees to any post-acute care and to home post-acute care in 2018 and 2020, and less likely to discharge to institutional post-acute care in 2021.

Branded medication use for hyperlipidemia, a chronic condition with many generic options available, was examined during 2017-2022.[90] Very few MassHealth members used branded medications for hyperlipidemia, though the prevalence of use increased over time (from 0.1% among ACO enrollees in 2018 to 0.3% in 2022) as new branded medications entered the market. Although propensity-weighted comparative estimates were imprecise (wide CIs) because the outcome was rare, difference-in-difference estimates indicated a relative decline in branded medication use for hyperlipidemia among ACO enrollees versus MCO/PCCP enrollees.

The percentage of unplanned acute hospital admissions to community hospitals was in the range of 16.8% to 19.4% among would-be PCACO enrollees at baseline (2015-2017), and it was in the range of 22.0% to 25.8% among ACO enrollees during 2018-2022. In propensity-weighted comparisons, would-be PCACO enrollees were less likely than would-be PCCP enrollees to be admitted to community hospitals at baseline, but PCACO enrollees were more

[90] Branded medications were restricted to those that did not have generic competitors. There was no utilization of such branded medications in 2015 and 2016

likely than PCCP enrollees to be admitted to community hospitals during 2018-2022. The difference in difference estimates indicated a more than doubling in the aOR for community hospital admission for ACO versus PCCP enrollees from baseline, reflecting a relative increase in community hospital utilization for ACO enrollees.

Additional utilization rate metrics based on select MassHealth defined categories of service are presented in **Appendix J**.

Low-Value Care

ACO performance on measures of low-value care generally remained stable or improved prior to the COVID-19 pandemic (see **Table 2.3-D2.60)**, with variation in performance by measure during the 2020-2022 period (**H10.2**). Two measures of appropriate antibiotic use and five measures of appropriate imaging use were studied. During the baseline and early DSRIP period (2015-2019), nearly all ACO-enrolled children (or would-be ACO-enrolled children) (91.1% to 93.2%) receiving antibiotics for pharyngitis received a strep test, as is recommended (i.e., few had low-value care – antibiotics without a strep test). This percentage declined but remained high throughout 2020-2022 (79.6% to 87.6%). In propensity-weighted comparisons, ACO and would-be ACO enrollees were more likely than MCO/PCCP and would-be MCO/PCCP enrollees to have a strep test (as is appropriate) in each year of the baseline (2015-2017) and Demonstration (2018-2022). DiD estimates indicated that ACO performance on the measure improved from baseline relative to the MCO/PCCP s with the exception of 2020. Performance also improved among ACO enrollees in crude and adjusted analyses for another measure of appropriate antibiotic use, which examined inappropriate antibiotic use for members with bronchitis (higher rates are worse for this measure).

Approximately one in six would-be ACO enrollees with low back pain received imaging (less imaging is better for this measure) during the baseline period, and this fraction remained relatively stable among ACO enrollees throughout the 2017-2022 Demonstration. In propensity-weighted comparisons, would-be ACO enrollees had less potentially inappropriate imaging use for low back pain than would-be MCO/PCCP enrollees at baseline, but these differences were not significant, and ACO and MCO/PCCP performance converged over the 2017-2022 Demonstration; rates of inappropriate imaging seemed to trend towards an increase over time in the ACO population. Rates of combined computed tomography (CT) scans of the abdomen were low (<6%) throughout the baseline and Demonstration periods; comparative estimates for ACO versus MCO/PCCP enrollees were imprecise (i.e., wide confidence intervals). Rates of head imaging for syncope without an appropriate indication were not significantly different for ACO enrollees and MCO/PCCP enrollees (and would-be ACO and would-be MCO/PCCP enrollees) throughout the evaluation period (2015-2022).

Table 2.3-D2.59 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Measures of Utilization Among ACO and MCO/PCCP Enrollees

Measure	2015 Baseline	2016 Baseline	2017 Baseline	2018	2019	2020	2021	2022
PC Visit Rate, n	869,403	686,258	858,650	858,349	839,433	1,033,537	1,213,134	1,348,741
ACO[a] Observed, visits / 100 members	453.7	451.3	464.5	458.4	452.5	391.0	415.0	387.6
ACO[a] vs. MCO/PCCP, aIRR[b] (95% CI)[a]	1.00 (0.99, 1.00)	0.99 (0.98, 0.99)	0.98 (0.97, 0.98)	1.03 (1.02, 1.03)	1.02 (1.02, 1.03)	0.99 (0.98, 1.00)	1.00 (0.99, 1.01)	1.01 (1.00, 1.01)
DiD estimate, ratio scale	Reference	Reference	Reference	1.04	1.03	1.00	1.02	1.02
Post-acute care utilization (any), n	96,501	73,631	96,456	87,914	89,574	102,378	109,176	108,701
ACO[a] Observed, visits, % of discharges	16.9	18.1	18.1	17.7	17.9	16.3	15.2	14.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.00 (0.95, 1.05)	0.96 (0.91, 1.02)	1.00 (0.95, 1.06)	1.11 (1.05, 1.17)	1.01 (0.95, 1.07)	1.12 (1.06, 1.20)	1.00 (0.90, 1.11)	1.02 (0.96, 1.08)
DiD estimate, ratio scale	Reference	Reference	Reference	1.12	1.02	1.13	1.01	1.03
Institutional post-acute care utilization, n	96,501	73,631	96,456	87,914	89,574	102,378	109,176	108,701
ACO[a] Observed, visits, % of discharges	5.5	6.7	6.6	5.2	6.0	4.7	3.8	3.8
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	1.02 (0.95 ,1.10)	0.99 (0.91, 1.07)	0.99 (0.92, 1.06)	1.01 (0.93, 1.09)	0.93 (0.86, 1.00)	1.05 (0.95, 1.14)	0.86 (0.75, 0.99)	0.93 (0.84, 1.02)

Measure	2015 Baseline	2016 Baseline	2017 Baseline	2018	2019	2020	2021	2022
DiD estimate, ratio scale	Reference	Reference	Reference	1.01	0.93	1.05	0.86	0.93
Home health post-acute care utilization, n	96,501	73,631	96,456	87,914	89,574	102,378	109,176	108,701
ACO[a] Observed, visits, % of discharges	11.4	11.7	11.5	12.5	12.0	11.7	11.3	10.7
ACO[a] vs. MCO/PCCP, aORR (95% CI)[b]	0.99 (0.93, 1.05)	0.96 (0.89, 1.03)	1.02 (0.95, 1.08)	1.15 (1.08, 1.23)	1.06 (0.99, 1.13)	1.15 (1.07, 1.23)	1.06 (0.95, 1.19)	1.05 (0.98, 1.13)
DiD estimate, ratio scale	Reference	Reference	Reference	1.17	1.07	1.16	1.07	1.07
Branded Medication Utilization for Hyperlipidemia,[c] n	N/A	63,405	67,438	65,938	70,762	73,151	90,033	98,701
ACO[a] Observed, %	N/A	N/A	0.1	0.1	0.1	0.2	0.2	0.3
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	N/A	1.45 (0.60, 3.51)	1.10 (0.57, 2.15)	0.77 (0.47, 1.24)	0.65 (0.43, 0.97)	0.93 (0.47, 1.81)	0.71 (0.47, 1.81)
DiD estimate, ratio scale	N/A	N/A	Reference	0.76	0.53	0.45	0.64	0.49
Community hospital admissions, n	42,703	35,132	45,604	42,340	43,679	51,977	58,342	61,799
ACO[a] Observed, %	19.4	16.8	18.4	23.7	25.8	23.2	22.7	22.0
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.52 (0.48, 0.57)	0.40 (0.35, 0.44)	0.57 (0.53, 0.63)	1.17 (1.09, 1.25)	1.22 (1.15, 1.31)	1.06 (0.99, 1.13)	1.07 (1.01, 1.13)	1.04 (0.98, 1.10)

Measure	2015 Baseline	2016 Baseline	2017 Baseline	2018	2019	2020	2021	2022
DiD estimate, ratio scale	Reference	Reference	Reference	2.35	2.46	2.12	2.15	2.09

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

[c] Branded medications were restricted to those that did not have generic competitors. There was no utilization of such branded medications in 2015 and 2016.

[d] The analysis of community hospital admissions was conducted among claims-based delivery systems (PCACOs and PCCP) because of incomplete mapping of encounter records to hospital classifications.

Table 2.3-D2.60 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Adult Measures of Low-Value Care Among ACO and MCO/PCCP Enrollees

Measure	2015 Baseline	2016 Baseline	2017 Baseline	2018	2019	2020	2021	2022
Imaging for low back pain, n	13,649	10,929	5,696	8,618	5,037	10,551	17,923	8,848
ACO[a] Observed, %	15.6	16.7	15.8	16.8	17.9	17.6	18.4	17.0
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.79 (0.73, 0.87)	0.88 (0.79, 0.97)	0.84 (0.72, 0.97)	0.80 (0.71, 0.90)	0.93 (0.79, 1.09)	0.93 (0.82, 1.05)	0.91 (0.78, 1.06)	0.95 (0.83, 1.08)
DiD estimate, ratio scale	Reference	Reference	Reference	0.96	1.11	1.11	1.09	1.14
Abdomen CT combined studies, n	348	266	353	303	265	233	331	384
ACO[a] Observed, %	5.8	4.0	3.4	2.0	4.0	3.6	4.7	2.5
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.61 (0.24, 1.62)	0.69 (0.09, 5.06)	0.59 (0.14, 2.57)	0.57 (0.11, 2.86)	1.76 (0.23,13.63)	1.35 (0.17, 10.89)	1.09 (0.14, 8.37)	N/E
DiD estimate, ratio scale	Reference	Reference	Reference	0.90	2.78	2.14	1.72	N/E
Antibiotics for acute bronchitis, n	N/A	12,489	14,835	10,154	9,385	5,634	5,713	8,177
ACO[a] Observed, %	N/A	52.1	52.5	43.4	42.5	38.6	38.9	38.3
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	0.96 (0.88, 1.04)	0.94 (0.88, 1.02)	0.80 (0.73, 0.88)	0.89 (0.80, 0.98)	0.68 (0.59, 0.78)	0.77 (0.62, 0.97)	0.85 (0.76, 0.95)
DiD estimate, ratio scale	N/A	Reference	Reference	0.83	0.92	0.70	0.80	0.88

Measure	2015 Baseline	2016 Baseline	2017 Baseline	2018	2019	2020	2021	2022
Appropriate testing with antibiotics for pharyngitis, n	N/A	15,945	21,534	17,341	18,113	37,350	18,399	29,133
ACO[a] Observed, %	N/A	91.1	93.4	93.2	92.5	87.6	79.6	84.1
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	1.33 (1.18, 1.51)	1.19 (1.05, 1.36)	1.39 (1.22, 1.59)	1.53 (1.33, 1.76)	1.10 (1.01, 1.19)	1.30 (1.12, 1.50)	1.30 (1.20, 1.41)
DiD estimate, ratio scale	N/A	Reference	Reference	1.19	1.31	0.94	1.11	1.11
Pre-operative chest radiography, n	N/A	N/A	4,935	4,620	5,083	3,673	4,477	4,490
ACO[a] Observed, %	N/A	N/A	4.2	5.0	4.2	3.6	4.4	3.2
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	N/A	N/A	0.72 (0.50, 1.04)	0.95 (0.63, 1.42)	0.86 (0.59, 1.25)	0.68 (0.42, 1.09)	0.83 (0.38, 1.80)	0.76 (0.49, 1.18)
DiD estimate, ratio scale	N/A	N/A	Reference	1.31	1.18	0.94	1.15	1.05
Head imaging for syncope, n	5,864	5,936	7,079	7,295	7,081	5,918	7,268	8,374
ACO[a] Observed, %	21.1	22.1	22.1	23.0	23.2	24.5	23.3	23.4
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.96 (0.84, 1.11)	1.13 (0.97, 1.31)	0.90 (0.79, 1.02)	1.00 (0.89, 1.14)	1.05 (0.91, 1.21)	1.06 (0.90, 1.26)	1.04 (0.89, 1.21)	1.02 (0.89, 1.18)
DiD estimate, ratio scale	Reference	Reference	Reference	1.01	1.05	1.07	1.05	1.03

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), CI (confidence interval), N/A (not available), N/E (not estimable; i.e., statistical model does not converge due to small cell sizes)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aORs from propensity-weighted logistic regression models

2.3.3. Domain 3: Changes in member outcomes

RQ11: To what extent did member outcomes improve?

H11.1. Inpatient and ED utilization rates will decrease overall

H11.2. Inpatient and ED utilization rates will decrease for adults and children with specific conditions, including ambulatory care-sensitive conditions

H11.3. Inpatient and ED utilization rates will decrease among adults with mental illness, substance addiction, co-occurring conditions, or LTSS needs

H11.4. Community tenure will increase

H11.5. Members will report improved ratings of health

RQ11 Summary

This section presents the results of five rounds (2018-2022) of member experience surveys for six populations: 1) pediatric PC, 2) adult PC, 3) pediatric BH, 4) adult BH, 5) pediatric LTSS, and 6) adult LTSS; adults were 18 years of age and older, and children under 18 years of age; proxy respondents answered the pediatric surveys on behalf of children. **RQ11** also includes results for several administrative measures and three hybrid quality measures.

Consistent with **H11.1,** annual all-cause inpatient admissions rates declined for ACO enrollees and were below the rates observed among the comparison group of MCO/PCCP enrollees. All-cause ED visit rates declined among ACO enrollees during the COVID-19 pandemic (2020-2022) compared with the pre-pandemic period, but similar declines were observed among MCO/PCCP enrollees (**H11.1**).

The COVID-19 pandemic disrupted the care of chronic conditions (**H11.2**), which was reflected in ambulatory care sensitive condition (ACSC) hospitalization rates, which spiked in 2020, and patterns of blood pressure and glucose control, which improved from 2018-2019, deteriorated in 2020, and then improved from 2020-2022.

Consistent with **H11.4**, community tenure increased (i.e., less tenure loss – time spent in institutions) during 2018-2019 for ACO enrollees with bipolar disorder, schizophrenia, or psychosis relative to MCO/PCCP enrollees, but community tenure decreased during the COVID-19 pandemic (2020-2022) for this population. Contrary to **H11.4**, community tenure was lower among ACO enrollees versus MCO/PCCP enrollees with chronic LTSS use during 2018, 2020, 2021, and 2022, though differences were only statistically significant during 2021.

Most individuals who responded to the pediatric PC surveys rated their child's overall health and mental and emotional health as excellent or very good, but less than half of the members who responded to the adult PC surveys rated their overall health and mental and emotional health as excellent or very good. Ratings were stable over time (**H11.5**).

Fewer than half of the individuals who responded to the pediatric BH surveys rated their child's overall health and mental and emotional health as excellent or very good; ratings were higher after the first year of the Demonstration. About one-fifth of the members who responded to the adult BH surveys rated their overall health and mental and emotional health as excellent or very good. This remained stable over the Demonstration (**H11.5**).

More than half of the individuals who responded to the pediatric LTSS surveys rated their child's overall health and mental and emotional health as excellent or very good. A minority of the members who responded to the adult LTSS surveys rated their overall health and mental and emotional health as excellent or very good. Among adults and children, ratings were higher after the first year of the 2017-2022 Demonstration (**H11.5**).

Physical Health Outcomes

Administrative Measures

The mean ages in the would-be ACO and would-be MCO/PCCP populations (had the ACO program been operating at baseline) were 24.3 and 24.8, respectively, in 2015, and the average ages increased to 27.2 and 28.6 in 2022. About 53-55% of ACO enrollees were women over the 2017-2022 Demonstration, while the percentage of MCO/PCCP enrollees (and would-be MCO/PCCP enrollees at baseline) who were women decreased from a range of 53-55% during 2015-2019 to 40-44% during 2020-2022. The medical morbidity burden as measured by the DxCG score was similar for ACO and MCO/PCCP enrollees with the exception of 2021 when the mean score was 1.01 among ACO enrollees and 1.17 among MCO/PCCP enrollees. The prevalence of individual social risk factors was generally similar over the 2017–2022 Demonstration for ACO and MCO/PCCP enrollees, but area-level socioeconomic stress as measured by the Neighborhood Stress Score was consistently higher among ACO enrollees.

Several measures of acute and emergency healthcare utilization were compared over time between ACO and MCO/PCCP enrollees (see **Table 2.3-D3.8**). The crude rate of all-cause ED visits among ACO enrollees (or would-be ACO enrollees at baseline) fluctuated in the range of 62.4 to 69.2 visits per 100 enrollees per year during the baseline (2015-2017) and early in the Demonstration (2018-2019) before declining precipitously to 49.6 per 100 enrollees in the first year of the COVID-19 pandemic (2020) and remaining lower in 2021-2022. In propensity-weighted annual comparisons, all-cause ED visit rates were similar for ACO (and would-be ACO) and MCO/PCCP (and would-be MCO/PCC) enrollees throughout the baseline and first few years of the 2017-2022 Demonstration. The all-cause ED visit rate was slightly higher among ACO enrollees than MCO/PCCP enrollees in 2021 (aIRR: 1.02; 95% CI: 1.00, 1.05) and 2022 (aIRR: 1.03; 95% CI: 1.02, 1.04); difference-in-difference estimates were similar.

For the all-cause inpatient admissions measure, crude rates declined gradually among ACO enrollees, from 10.1 per 100 enrollees in 2017 to 7.9 per 100 enrollees in 2022. Baseline rates were similar for would-be ACO and would-be MCO/PCCP enrollees, while annual estimates during the 2017-2022 Demonstration indicated lower rates of admissions for ACO enrollees in each year, with the strongest association in 2021 (IRR: 0.92; 95% CI: 0.88, 0.96). DiD estimates were consistent with these findings, indicating a net decline from baseline in admission rates for ACO versus MCO/PCCP rates. Hospital admission rates for acute ACSCs were low at baseline and during the Demonstration, with rates less than 1.2 per 1,000 ACO (or would-be ACO)

enrollees per year, with the exception of 1.8 admissions per 1,000 enrollees per year in 2020. Comparative estimates of ACO versus MCO/PCCP enrollees were imprecise but favored MCO/PCCP enrollees during 2020 and 2021. Hospital admission rates for chronic ACSCs were in the range of 2.0 to 2.9 admissions per 1,000 would-be ACO enrollees per year at baseline, 1.7 to 2.3 per 1,000 ACO enrollees early in the Demonstration (2018-2019), and increased to 4.6 per 1,000 ACO enrollees in 2020 before declining to 0.8 admissions per 1,000 enrollees per year in 2022. Comparative estimates were imprecise but favored MCO/PCCP enrollees during 2018, 2020, and 2021.

The rate of community tenure loss (i.e., number of days per year spent in a healthcare facility) declined from baseline to 2018-2019 for ACO enrollees (or would-be enrollees) with bipolar disorder, schizophrenia, or psychosis relative to MCO/PCCP enrollees (or would-be enrollees), but there was a relative increase for ACO enrollees versus MCO/PCCP enrollees in 2020-2022. The rate of community tenure loss among ACO enrollees with chronic LTSS use was higher than among MCO/PCCP enrollees with chronic LTSS use during 2018, 2020, 2021, and 2022, though differences were only statistically significant during 2021. Long-term nursing home admission rates increased from baseline among ACO enrollees relative to MCO/PCCP enrollees.

The percentage of hospital discharges of adults resulting in unplanned readmissions within 30 days among would-be ACO enrollees ranged from 16.5-18.8% at baseline. During the Demonstration, the percentage of discharges resulting in readmissions was 19.2%, 19.9%, 20.1%, 18.5%, and 18.0% among ACO enrollees in 2018-2022, respectively. In propensity-weighted comparisons, readmission rates were not statistically different for ACO versus MCO/PCCP enrollees during each year of the Demonstration. Among children, 30-day unplanned hospital readmission rates were in the range 6.9-10.5%. Readmission rates were higher among would-be ACO pediatric enrollees versus would-be MCO/PCCP pediatric enrollees at baseline, and lower among ACO enrollees versus MCO/PCCP enrollees during the Demonstration (indicating a net decline in readmission rates for pediatric ACO enrollees versus MCO/PCCP enrollees), although these results were not significant.

Among children, hospital admission rates for asthma declined from 1.5 admissions per 100 would-be ACO enrollees at baseline to between 0.4 and 1.2 admissions per 100 ACO enrollees during the Demonstration. Comparative estimates between ACO and MCO/PCCP enrollees were imprecise, but DiD analyses suggested a larger decline in pediatric asthma admissions for ACO enrollees during the Demonstration, except for 2020 (the first year of the COVID-19 pandemic), when admission rates were higher among ACO enrollees. For both the all-cause ED visit and unplanned hospital admission rate measures, rates among ACO enrolled (and would-be ACO enrolled) children declined from the baseline to 2018 and 2019, then declined further during the first two years of the COVID-19 pandemic (2020-2021), and then returned close to the rates seen in 2018-2019 in 2022. All-cause ED visit and unplanned hospital admission rates were not significantly different in propensity-weighted comparisons of ACO and MCO/PCCP enrolled children. Among ACO-enrolled newborns, the percentage admitted to the NICU was 6.4%, 5.7%, 5.8%, 5.9%, 6.3%, and 6.2% in each of the years 2017-2022, respectively. In comparison with newborns enrolled in MCO/PCCPs, NICU utilization rates were lower throughout the study period 2017-2022, and the difference was larger during the ACO Program period (2018-2022) than at baseline (2017). Further analyses are needed to examine whether

ACO or MCO/PCCP enrollment of the newborn was correlated with the enrollment of the mother (in situations where the mother was MassHealth enrolled).

Supplemental ACO analyses results are provided in **Appendix J, Table J-1.** Specifically, this table includes a subgroup analysis of members who were continuously MassHealth enrolled and managed care eligible from 2017-2022. The stable population of continuous MassHealth enrollees during this period is a minority (~20%) of members who may have disabilities or other criteria for eligibility for MassHealth that are likely to be permanent or semi-permanent, and results in this subgroup should not be interpreted as representative of the full MassHealth population. To complement our primary analysis that allowed members to move between ACO and MCO/PCC group assignments in each year, this analysis used an intention-to-treat design that assigned members to the group (ACO or MCO/PCCP) that they were enrolled with during 2018 so that time invariant characteristics within individuals were addressed. As such, the estimates reflect the impact of at least one year of enrollment in an ACO versus at least one year of enrollment in an MCO/PCCP. In practice, about one in six MCO/PCCP enrollees during 2018 had shifted to ACOs as of 2019, and about one-third of 2018 MCO/PCCP enrollees had shifted to ACOs as of 2020; in contrast, <5% of 2018 ACO enrollees shifted to MCO/PCCP enrollment after 2018. This switching pattern may have biased these subgroup findings against the ACO group. For the three measures examined (TCOC, ED visits, and inpatient admissions) among continuous enrollees, there was a relative reduction from baseline (2017) to 2018 for ACO enrollees versus MCO/PCCP enrollees. Difference in difference estimates between the groups were smaller in 2019 but still favored the ACO enrollees. During 2021 and 2022, difference in difference estimates were close to the null or directionally favored the MCO/PCCP group.

Self-Reported Overall Rating of General and Mental/Emotional Health

PC Member Experience Survey

Throughout the Demonstration (2018-2022), 82-83% of respondents rated their child's overall health as excellent or very good. Most respondents rated their child's mental or emotional health as excellent or very good, ranging from a high of 78% in 2018 to a low of 74% in 2021 (see **Appendix G**). Between 2018-2022, 38-40% of adults rated their overall health, and 44-46% rated their mental or emotional health as excellent or very good (see **Appendix G**).

BH Member Experience Survey

In 2018, 45% of respondents rated their child's overall health as excellent or very good; this increased to 50% ($p<0.05$) in 2019 and then remained in the range of 44 to 47% during 2020-2022. In 2018, 21% of respondents rated their child's mental and emotional health as excellent or very good, which increased to 26% in 2019 ($p<0.05$) and then remained in the range of 21-24% during 2020-2022 (see **Appendix G**).

Among adult respondents, about one-fifth (21%) rated their general health as excellent or very good in 2018, and this percentage remained flat throughout the 2017-2022 Demonstration ($p>0.05$) (see **Appendix G**). Among subgroups of adult respondents enrolled with CPs, approximately 17% rated their health as excellent or very good in 2018; this percentage was approximately 20% in 2019 and 17% in 2022 (see **Table 2.3-D3.1**). CPs deliver care coordination supports for MassHealth members with complex health and social needs, and

differences in self-rated health between CP enrolled and not CP enrolled members likely reflect the selection processes of who enrolls with CPs.

Table 2.3-D3.1 Ratings of Overall and Mental/Emotional Health Among CP Enrolled Adults Responding to the BH Survey, 2018-2022

Questions and Response Options	2018	2019	2020	2021	2022
Adult BH – CP Enrolled					
In general, how would you rate your overall health now?					
Excellent	4%	6%	4%	6%	5%
Very good	13%	14%	15%	12%	12%
Good	32%	32%	29%	30%	30%
Fair	38%	37%	40%	40%	41%
Poor	14%	12%	12%	12%	12%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p>0.05
In general, how would you rate your overall mental or emotional health now?					
Excellent	5%	7%	5%	6%	6%
Very good	12%	12%	11%	12%	12%
Good	28%	29%	28%	28%	27%
Fair	39%	38%	41%	38%	40%
Poor	16%	15%	15%	17%	15%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p>0.05

[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

The percentage of adult respondents who rated their mental and emotional health as excellent or very good was 17% in 2018 and 19% from 2019 through 2022 (p>0.05 in pairwise comparisons of the distributions by year) (see **Appendix G**). Among subgroups of adult respondents enrolled with CPs, 17% rated their overall mental and emotional health as excellent or very good in 2018, and ranged between 16% in 2020 and 19% in 2019; 18% of adult respondents who were not enrolled in CP rated their overall mental and emotional health as excellent or very good in 2018, with the highest percentage (23%) of adult respondents not enrolled in a CP reporting such in 2022 (see **Table 2.3-D3.2**).

Table 2.3-D3.2 Ratings of Overall and Mental/Emotional Health Among Non-CP Enrolled Adults Responding to the BH Survey, 2018-2022

Questions and Response Options	2018	2019	2020	2021	2022
Adult BH – Not CP Enrolled					
In general, how would you rate your overall health now?					
Excellent	6%	7%	5%	6%	7%
Very good	16%	17%	19%	18%	17%
Good	34%	35%	38%	35%	36%

Questions and Response Options	2018	2019	2020	2021	2022
Fair	34%	32%	29%	34%	34%
Poor	10%	9%	8%	7%	7%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p>0.05
In general, how would you rate your overall mental or emotional health now?					
Excellent	5%	6%	6%	7%	7%
Very good	12%	15%	17%	15%	16%
Good	33%	33%	33%	32%	31%
Fair	37%	34%	34%	34%	34%
Poor	12%	12%	10%	12%	12%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p>0.05

[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

LTSS Member Experience Survey

There was a 9% increase in the percentage of respondents who rated their child's general health as excellent or very good in 2019 (58%) compared to 2018 (49%) (p<0.05); this percentage was 52% in 2022 (p>0.05 vs. 2018). In addition, respondents' ratings of their child's general health suggested improvement occurred for CP enrolled members (approximately 33% in 2018 and 43% in 2022). For those who were not enrolled with CPs, more than 50% of respondents each year reported their child's general health to be excellent or very good (see **Table 2.3-D3.3**).

Table 2.3-D3.3 Ratings of Overall Health by CP Enrollment Among Respondents to the Child LTSS Survey, 2018-2022

Questions and Response Options	2018	2019	2020	2021	2022
Child LTSS – CP Enrolled					
In general, how would you rate your overall health now?					
Excellent	13%	12%	13%	10%	11%
Very good	19%	27%	30%	35%	31%
Good	41%	45%	36%	30%	32%
Fair	20%	14%	20%	22%	19%
Poor	6%	2%	2%	2%	6%
P-value[a]	Reference	p<0.05	p<0.05	p<0.05	p<0.05
Child LTSS – Not CP Enrolled					
In general, how would you rate your overall health now?					
Excellent	24%	25%	24%	23%	24%
Very good	27%	36%	33%	34%	26%
Good	35%	29%	30%	30%	38%
Fair	12%	9%	10%	13%	11%

Questions and Response Options	2018	2019	2020	2021	2022
Poor	2%	1%	2%	1%	1%
P-value[a]	Reference	p<0.05	p<0.05	p<0.05	p<0.05

[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

There was an 8% increase in the respondents who rated their child's mental and emotional health as excellent or very good in 2019 (49%) compared to 2018 (41%) (p<0.05); this percentage was 43-44% during 2020-2022 (see **Appendix G**). Respondent's ratings of their child's mental or emotional health ranged between approximately 30% (2018) and 36% (2021), reporting excellent or very good across all years, while children who were not enrolled with CPs had ratings of excellent or very good for between approximately 41% (2018) and 50% (2019) of members, (see **Table 2.3-D3.4**).

Table 2.3-D3.4 Ratings of Mental and Emotional Health by CP Enrollment Among Respondents to the Child LTSS Survey, 2018-2022

Questions and Response Options	2018	2019	2020	2021	2022
Child LTSS – CP Enrolled					
In general, how would you rate your overall mental or emotional health now?					
Excellent	13%	8%	12%	10%	17%
Very good	15%	20%	18%	26%	16%
Good	36%	32%	36%	33%	33%
Fair	27%	30%	27%	30%	25%
Poor	10%	9%	6%	1%	9%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p>0.05
Child LTSS – Not CP Enrolled					
In general, how would you rate your overall mental or emotional health now?					
Excellent	22%	26%	24%	21%	19%
Very good	19%	23%	23%	26%	23%
Good	37%	29%	27%	26%	38%
Fair	18%	18%	20%	22%	18%
Poor	3%	3%	6%	5%	2%
P-value[a]	Reference	p<0.05	p<0.05	p<0.05	p>0.05

[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

There was an 8% increase in the adult respondents who rated their general health as excellent or very good in 2019 (22%) compared to 2018 (14%) (p<0.05); this percentage remained stable (22%) during 2020-2022 (see **Appendix G**). Improvement in self-ratings of very good or excellent general health was observed both among adult respondents enrolled with CPs (approximately 14% in 2018 and 21% in 2022) and among those not enrolled with CPs (approximately 16% in 2018 and 23% in 2022) (see **Table 2.3-D3.5**).

Table 2.3-D3.5 Ratings of Overall Health by CP Enrollment Among Adults Responding to the LTSS Survey, 2018-2022

Questions and Response Options	2018	2019	2020	2021	2022
Adult LTSS – CP Enrolled					
In general, how would you rate your overall health now?					
Excellent	4%	4%	6%	6%	8%
Very good	10%	8%	9%	9%	13%
Good	25%	28%	25%	25%	30%
Fair	42%	41%	41%	41%	40%
Poor	20%	19%	20%	20%	10%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p<0.05
Adult LTSS – Not CP Enrolled					
In general, how would you rate your overall health now?					
Excellent	5%	7%	7%	6%	7%
Very good	12%	15%	17%	17%	15%
Good	26%	33%	34%	31%	32%
Fair	37%	34%	33%	34%	36%
Poor	21%	11%	10%	11%	10%
P-value[a]	Reference	p<0.05	p<0.05	p<0.05	p<0.05

[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

There was a 7% increase in the adult respondents who rated their mental and emotional health as excellent or very good in 2019 (28%) from 2018 (21%). This percentage remained in the range of 27% to 29% during 2020-2022 (p<0.05 for 2022 vs. 2018) (see **Appendix G**). Among subgroups of adult respondents enrolled with CPs, approximately 19% rated their overall mental and emotional health as excellent or very good in 2018, and this figure ranged to as high as 21% in 2020. Among adult respondents who were not enrolled in a CP, 23% rated their overall mental and emotional health as excellent or very good in 2018, and this figure ranged to as high as 31% in 2019 (see **Table 2.3-D3.6**). As with other member survey-based measures, different samples were drawn in each year, and information on clinical conditions and severity was not available to adjust for differences in respondent and sample characteristics between years.

Table 2.3-D3.6 Ratings of Mental and Emotional Health by CP Enrollment Among Adults Responding to the LTSS Survey, 2018-2022

Questions and Response Options	2018	2019	2020	2021	2022
Adult LTSS – CP Enrolled					
In general, how would you rate your overall mental or emotional health now?					
Excellent	8%	8%	7%	8%	7%
Very good	12%	10%	14%	13%	13%
Good	31%	30%	25%	30%	26%

Questions and Response Options	2018	2019	2020	2021	2022
Fair	36%	37%	40%	40%	40%
Poor	14%	14%	14%	10%	13%
P-value[a]	Reference	p>0.05	p>0.05	p>0.05	p>0.05
Adult LTSS – Not CP Enrolled					
In general, how would you rate your overall mental or emotional health now?					
Excellent	10%	13%	13%	12%	12%
Very good	13%	18%	18%	19%	18%
Good	28%	31%	35%	31%	33%
Fair	36%	30%	28%	30%	29%
Poor	13%	8%	6%	8%	7%
P-value[a]	Reference	p<0.05	p<0.05	p<0.05	p<0.05

[a] A p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, approximately 75% of respondents agreed or strongly agreed that LTSS had improved their child's quality of life, which decreased to approximately 53% in 2019. The fraction neither agreeing nor disagreeing increased by approximately 22% from 2018 to 2019. This survey item was not asked during the years 2020-2022. The 2019 survey fielding period overlapped with the onset of the COVID-19 pandemic in Q1 and Q2 of CY2020 which may have contributed to the observed change from the 2018-2019 surveys.

Clinical Outcomes Among ACO Members

Hybrid Measures

Over the course of the 2017-2022 Demonstration, changes in the percentage of ACO enrollees with poor A1C control and good blood pressure control did not follow consistent trends. We observed an improvement based on a approximately 4% absolute reduction in the proportion of patients with poor control of their diabetes from approximately 33% in 2018 to 30% in 2019. There was an 11% absolute increase in the proportion of patients with poor A1C control from approximately 30% in 2019 to 41% in 2020, followed by a decline to 36% in 2021 and 34% in 2022 (p-value for trend<0.05) (see **Table 2.3-D3.7**). The percentage of ACO enrollees with control of their hypertension increased from approximately 67% in 2018 to 72% in 2019. An approximate 9% absolute decrease from the Demonstration high of approximately 72% in 2019 to 62% occurred in 2020. A low of approximately 60% occurred in 2021, followed by an increase to 68% in 2022 (p-value for trend =.09) (see **Table 2.3-D3.7**).

The percentage of ACO enrollees who had evidence of depression remission or response (i.e., the percentage of members 12 to 64 years of age with a diagnosis of depression and elevated PHQ-9 score, who received follow-up evaluation with PHQ-9 and experienced response or remission in 4 to 8 months following the elevated score), was in the range of 5-10% throughout the Demonstration (p-value for trend = 0.06) (**Table 2.3-D3.7**).

Table 2.3-D3.7 Percentage of ACO Members with Poor Control of their Diabetes, High Blood Pressure, and Those Newly Diagnosed with Depression

Measure	2018 % (n)	2019 % (n)	2020 % (n)	2021 % (n)	2022 % (n)	P-value
A1c Poor[a] Control	33.4% (7,127)	29.9% (5,688)	40.8% (5,620)	35.7% (5,671)	33.6% (6,043)	<0.05
Controlling High BP[b]	67.2% (7,277)	71.8% (5,735)	62.4% (6,567)	60.1% (6,569)	67.9% (5,872)	>0.05
Depression Remission or Response[b]	7.5% (1,165)	6.1% (1,490)	10.5% (3,245)	7.4% (3,002)	7.2% (2,731)	>0.05

Abbreviations: ACO (accountable care organization); n (number of people)

[a] Lower percentage is better performance

[b] Higher percentage is better performance

Table 2.3-D3.8 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Pediatric Measures of Physical Health Outcomes Among ACO and MCO/PCCP Enrollees

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Pediatric ED visits, n	403,861	301,176	412,662	405,116	393,745	455,908	500,654	528,460
ACO[a] Observed, admissions per 100 enrollees	48.5	45.8	49.3	49.3	44.8	25.9	31.8	39.3
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.07 (1.05, 1.08)	1.03 (1.01, 1.05)	1.01 (1.00, 1.03)	1.02 (1.00, 1.04)	1.02 (1.00, 1.04)	0.97 (0.95, 0.99)	1.04 (1.00, 1.07)	1.03 (1.01, 1.05)
DiD estimate, ratio scale	Reference	Reference	Reference	0.98	0.98	0.94	1.00	0.99
Pediatric unplanned admissions, n	315,060	242,448	337,037	331,168	378,422	375,757	469,518	491,971
ACO[a] Observed, admissions per 100 enrollees	2.7	2.2	2.3	2.1	2.1	1.7	1.8	2.1
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.02 (0.95, 1.09)	1.05 (0.96, 1.14)	1.04 (0.96, 1.12)	1.07 (0.99, 1.16)	1.09 (1.00, 1.17)	1.02 (0.91, 1.13)	1.11 (0.96, 1.27)	1.03 (0.95, 1.11)
DiD estimate, ratio scale	Reference	Reference	Reference	1.03	1.05	0.98	1.07	0.99
Pediatric asthma admissions, n	358,002	273,068	373,612	384,421	377,502	445,912	473,952	500,060
ACO[a] Observed, admissions per 100 enrollees	1.5	1.5	1.5	1.0	0.8	0.4	0.9	1.2
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.28 (1.00, 1.62)	1.26 (0.93, 1.72)	1.03 (0.79, 1.32)	0.97 (0.75, 1.26)	1.08 (0.79, 1.46)	1.51 (0.89, 2.57)	1.08 (0.68, 1.70)	0.93 (0.71, 1.22)

Measure	2015	2016	2017	2018	2019	2020	2021	2022
DiD estimate, ratio scale	Reference	Reference	Reference	0.82	0.91	1.28	0.91	0.78
Pediatric unplanned hospital readmissions, n	3,832	2,507	4,120	4,264	4,512	4,436	4,635	5,820
ACO[a] Observed, admissions per 100 enrollees[b]	6.9	6.9	8.0	7.9	9.3	10.5	7.4	8.3
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.75 (0.54, 1.06)	1.11 (0.68, 1.82)	1.29 (0.88, 1.88)	0.85 (0.61, 1.19)	0.88 (0.62, 1.26)	0.89 (0.64, 1.26)	0.83 (0.40, 1.71)	0.87 (0.57, 1.33)
DiD estimate, ratio scale	Reference	Reference	Reference	0.81	0.84	0.85	0.79	0.83
NICU utilization, n	N/A	N/A	25,709	26,345	20,710	24,658	26,990	28,415
ACO[a] Observed, % of births	N/A	N/A	6.4	5.7	5.8	5.9	6.3	6.2
ACO[a] vs. MCO/PCCP, OR (95% CI)[b]	N/A	N/A	0.91 (0.82, 1.01)	0.81 (0.72, 0.92)	0.69 (0.60, 0.79)	0.62 (0.55, 0.70)	0.72 (0.65, 0.80)	0.61 (0.56, 0.68)
DiD estimate, ratio scale	N/A	N/A	Reference	0.89	0.76	0.68	0.79	0.67

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

Table 2.3-D3.9 Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for Measures of Physical Health Outcomes Among ACO and MCO/PCCP Enrollees

Measure	2015	2016	2017	2018	2019	2020	2021	2022
All-cause inpatient admissions (adults and kids), n	810,062	647,072	797,582	784,275	823,278	953,639	1,181,771	1,311,653
ACO[a] Observed, visits per 100 members	10.7	9.5	10.1	9.7	9.7	9.1	8.3	7.9
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.02 (1.00, 1.05)	0.99 (0.96, 1.03)	0.97 (0.94, 0.99)	0.93 (0.90, 0.96)	0.93 (0.91, 0.96)	0.92 (0.90, 0.95)	0.92 (0.88, 0.96)	0.95 (0.93, 0.98)
DiD estimate, ratio scale	Reference	Reference	Reference	0.94	0.94	0.93	0.92	0.96
PC sensitive ED visits (adults and kids), n	875,398	690,684	862,470	859,672	850,678	1,044,660	1,226,543	1,364,462
ACO[a] Observed, visits per 100 members	27.4	28.5	32.1	30.3	29.5	19.3	18.7	20.0
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.01 (0.99, 1.02)	1.01 (1.00, 1.03)	1.05 (1.04, 1.07)	0.93 (0.92, 0.95)	0.93 (0.93, 0.96)	0.94 (0.93, 0.96)	1.02 (1.00, 1.05)	1.00 (0.98, 1.01)
DiD estimate, ratio scale	Reference	Reference	Reference	0.90	0.91	0.92	1.00	0.97
All-cause ED visits (adults and kids), n	869,403	686,258	858,650	858,349	839,433	1,033,537	1,213,134	1,348,741
ACO[a] Observed, visits per 100 members	66.2	62.4	69.9	69.2	67.0	49.6	52.2	52.6
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.01 (1.00, 1.03)	0.97 (0.96, 0.99)	1.00 (0.98, 1.01)	0.98 (0.97, 1.00)	0.99 (0.98, 1.01)	0.98 (0.97, 1.00)	1.02 (1.00, 1.05)	1.03 (1.02, 1.04)
DiD estimate, ratio scale	Reference	Reference	Reference	0.99	1.00	0.99	1.03	1.04
Acute unplanned admissions adult (for acute ACSCs), n	495,175	404,734	460,696	453,233	445,688	578,792	712,480	820,281

Measure	2015	2016	2017	2018	2019	2020	2021	2022
ACO[a] Observed, admissions / 1000 members	1.2	1.0	0.9	1.1	0.8	1.8	1.2	0.3
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.70 (0.48, 1.04)	0.81 (0.49, 1.34)	1.13 (0.68, 1.86)	2.07 (0.68, 1.86)	1.53 (0.81, 2.89)	2.84 (1.43, 5.63)	2.94 (1.03, 8.41)	0.84 (0.45, 1.58)
DiD estimate, ratio scale	Reference	Reference	Reference	2.40	1.77	3.29	3.40	0.98
Acute unplanned admissions adult (for chronic ACSCs), n	495,175	404,734	460,696	453,233	445,688	578,792	712,480	820,281
ACO[a] Observed, admissions / 1000 members	2.9	2.4	2.0	2.3	1.7	4.6	2.9	0.8
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.79 (0.45, 1.41)	1.14 (0.57, 2.30)	0.94 (0.46, 1.93)	2.69 (1.19, 6.06)	1.18 (0.76, 4.28)	7.29 (2.80, 19.05)	5.31 (1.28, 21.93)	0.91 (0.36, 2.28)
DiD estimate, ratio scale	Reference	Reference	Reference	2.83	1.89	7.68	5.59	0.95
Unplanned readmissions among adults, n	21,109	17,623	22,704	21,785	21,253	23,572	25,104	25,133
ACO[a] Observed, admissions / 1000 members	16.5	17.0	18.8	19.2	19.9	20.1	18.5	18.0
ACO[a] vs. MCO/PCCP, aOR (95% CI)[b]	0.98 (0.90, 1.07)	0.97 (0.88, 1.07)	1.07 (0.98, 1.16)	1.01 (0.93, 1.09)	0.98 (0.90, 1.07)	0.94 (0.86, 1.03)	0.99 (0.86, 1.14)	1.05 (0.96, 1.14)
DiD estimate, ratio scale	Reference	Reference	Reference	1.00	0.98	0.94	0.99	1.04
Community tenure loss among adults with BSP, n	N/A	40,219	49,211	49,144	50,618	55,817	62,394	65,611
ACO[a] Observed, days per member	N/A	11.7	12.5	13.9	14.3	15.1	14.0	13.8
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	N/A	1.07 (1.01, 1.14)	1.06 (1.00, 1.12)	1.01 (0.96, 1.07)	1.01 (0.95, 1.08)	1.13 (1.06, 1.21)	1.16 (1.04, 1.29)	1.11 (1.04, 1.19)

Measure	2015	2016	2017	2018	2019	2020	2021	2022
DiD estimate, ratio scale	N/A	Reference	Reference	0.95	0.95	1.06	1.09	1.04
Community tenure loss among adults with LTSS utilization (not BSP), n	201,989	148,272	171,189	140,540	139,695	164,275	198,963	186,616
ACO[a] Observed, days per member	1.2	0.8	0.9	1.2	1.2	0.9	0.7	0.7
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.09 (1.00, 1.18)	1.01 (0.88, 1.16)	0.96 (0.85, 1.08)	1.08 (0.95, 1.23)	0.96 (0.83, 1.12)	1.04 (0.88, 1.22)	1.30 (1.03, 1.64)	1.16 (0.98, 1.36)
DiD estimate, ratio scale	Reference	Reference	Reference	1.06	0.95	1.02	1.28	1.14
Long-term nursing home stays, n	495,175	404,734	460,696	453,233	445,688	577,629	712,480	820,281
ACO[a] Observed, # of long stays per 10,000 persons	5.3	5.8	5.9	5.6	5.7	4.0	3.4	2.9
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.41 (0.32, 0.52)	0.40 (0.31, 0.52)	0.66 (0.50, 0.87)	0.72 (0.53, 0.96)	0.69 (0.51, 0.93)	0.51 (0.38, 0.69)	0.73 (0.44, 1.19)	0.52 (0.38, 0.69)
DiD estimate, ratio scale	Reference	Reference	Reference	1.46	1.41	1.04	1.48	1.05

Abbreviations: BSP (bipolar disorder, schizophrenia, or psychosis), ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

RQ12: To what extent did member experience improve during the Demonstration?

H12.1. Members will report improved overall ratings of their healthcare provider

RQ12 Summary

This section presents the results of five rounds (2018 through 2022) of surveys for six populations: 1) pediatric PC, 2) adult PC, 3) pediatric BH, 4) adult BH, 5) pediatric LTSS, and 6) adult LTSS; adults were 18 years of age or older, and children were under 18 years of age; proxy respondents answered the pediatric surveys on behalf of children.

Most respondents to the pediatric and adult PC, BH, and LTSS surveys reported high scores for Pediatric Office Staff, Pediatric Overall Provider Rating, Pediatric Willingness to Recommend, Adult Office Staff, Adult Overall Provider Rating, Adult Willingness to Recommend, Pediatric Overall BH Provider Rating, Pediatric BH Willingness to Recommend, Adult Overall BH Provider Rating, Adult BH Willingness to Recommend, Pediatric LTSS Care Plan, Pediatric Healthy Living in the Community, Pediatric Overall LTSS Provider Rating, Pediatric LTSS Willingness to Recommend, Adult LTSS Care Plan, Adult Healthy Living in the Community, Adult Overall LTSS Provider Rating, and Adult LTSS Willingness to Recommend composites. Those composite scores remained relatively stable or slightly declined over time, except for Adult LTSS Care Plan and Adult Healthy Living in the Community composite measures, which slightly increased over time (**H12.1**).

Overall Rating of Provider and Willingness to Recommend

PC Member Experience Survey

In 2018, the Office Staff composite measure score from the child PC Member Experience Survey was 85.5. There was a small improvement in 2019, followed by a small decline in the composite scores from 2018 (the reference year). The 2022 score was 84.0, 1.5 points below the reported score for 2018 (see **Table 2.3-D3.10**).

Table 2.3-D3.10 Results for Office Staff Composite Measure from the Child PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	85.5	Reference	Reference
2019	85.8	0.2[b]	0.2, 0.2
2020	84.8	-0.7[b]	-0.7, -0.7
2021	84.6	-0.9[b]	-1.0, -0.9
2022	84.0	-1.6[b]	-1.6, -1.5

Abbreviation: CI (confidence interval)

[a] The child PC Office Staff composite measure includes the following two items: 1) In the last 12 months, how often were the front office staff at this provider's office as helpful as you thought they should be? 2) In the last 12 months, how often did the front office staff at this provider's office treat you with courtesy and respect?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Overall Provider Rating composite measure score from the Child PC Member Experience Survey was 90.3. There was a significant but small improvement in 2019, followed by a small decline in the composite scores from 2018 (the reference year). The 2022 score remains high at 89.2 but 1.1 points lower than the reported score for 2018 (see **Table 2.3-D3.11**).

Table 2.3-D3.11 Results for the Overall Provider Rating Composite Measure from the Child PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	90.3	Reference	Reference
2019	90.7	0.4[b]	0.4, 0.4
2020	90.1	-0.2[b]	-0.3, -0.2
2021	89.9	-0.5[b]	-0.5, -0.4
2022	89.2	-1.1[b]	-1.1, -1.1

Abbreviation: CI (confidence interval)

[a] The child PC Overall Provider Rating composite measure includes the following item: Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Willingness to Recommend composite measure score for the Child PC Member Experience Survey was 90.9. There was a significant but small improvement in 2019, followed by a small decline in the composite scores from 2018 (the base year). The 2022 score remains high at 88.7 but 2.2 points lower than the reported score for 2018 (see **Table 2.3-D3.12**).

Table 2.3-D3.12 Results for the Willingness to Recommend Composite Measure from the Child PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	90.9	Reference	Reference
2019	90.7	0.1[b]	0.1, 0.1
2020	90.1	-0.5[b]	-0.5, -0.5
2021	89.6	-1.0[b]	-1.0, -0.9
2022	88.7	-1.9[b]	-1.9, -1.8

Abbreviation: CI (confidence interval)

[a] The child's PC Willingness to Recommend composite measure includes the following item: Would you recommend this provider to your family and friends?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Office Staff composite measure score from the Adult PC Member Experience Survey was 82.2. In subsequent years, there was a small decline in the composite scores from 2018 (the reference year). The 2022 score remains relatively high at 79.9, 2.3 points below the reported score for 2018 (see **Table 2.3-D3.13**).

Table 2.3-D3.13 Results for Office Staff Composite Measure from the Adult PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	82.2	Reference	Reference
2019	82.0	-0.2[b]	-0.3, -0.2
2020	80.0	-2.2[b]	-2.2, -2.1
2021	80.2	-2.0[b]	-2.0, -1.9
2022	79.9	-2.3[b]	-2.4, -2.3

Abbreviation: CI (confidence interval)

[a] The adult PC Office Staff composite measure includes the following two items: 1) In the last 12 months, how often were the front office staff at this provider's office as helpful as you thought they should be? 2) In the last 12 months, how often did the front office staff at this provider's office treat you with courtesy and respect?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Overall Provider Rating composite measure score from the Adult PC Member Experience Survey was 85.5. In subsequent years, there was a small decline in the composite scores from 2018 (the reference year). The 2022 score remains relatively high at 83.7, 1.8 points below the reported score for 2018 (see **Table 2.3-D3.14**).

Table 2.3-D3.14 Results for the Overall Provider Rating Composite Measure from the Adult PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	85.5	Reference	Reference
2019	85.2	-0.3[b]	-0.4, -0.3
2020	83.9	-1.6[b]	-1.7, -1.6
2021	84.3	-1.2[b]	-1.3, -1.2
2022	83.7	-1.8[b]	-1.8, -1.7

Abbreviation: CI (confidence interval)

[a] The adult PC Overall Provider Rating composite measure includes the following item: Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?

[b] P<0.051; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Willingness to Recommend composite measure score from the Adult PC Member Experience Survey was 83.6. In subsequent years, there was a small decline in the composite scores from 2018 (the base year). The 2022 score remains relatively high at 81.2, 2.5 points below the reported score for 2018 (see **Table 2.3-D3.15**).

Table 2.3-D3.15 Results for the Willingness to Recommend Composite Measure from the Adult PC Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	83.6	Reference	Reference
2019	83.3	-0.3[b]	-0.4, -0.3

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	81.9	-1.7[b]	-1.8, -1.7
2021	81.8	-1.8[b]	-1.8, -1.8
2022	81.2	-2.5[b]	-2.5, -2.4

Abbreviation: CI (confidence interval)

[a] The adult PC Willingness to Recommend composite measure includes the following item: Would you recommend this provider to your family and friends?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

General Satisfaction and Overall Rating of Treatment

BH Member Experience Survey

In 2018, the Overall Provider Rating composite measure score from the Child BH Member Experience Survey was 74.7. There was a significant but small improvement in 2019, followed by a small decline in the composite scores in 2020 and 2021, which showed small improvement in 2022. The 2022 score was 72.9, 1.8 points lower than the reported score for 2018 (see **Table 2.3-D3.16**).

Table 2.3-D3.16 Results for the Overall Provider Rating Composite Measure from the BH Care Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	74.7	Reference	Reference
2019	76.7	1.97[b]	1.8, 2.1
2020	73.7	-1.07[b]	-1.2, -0.9
2021	71.1	-3.7[b]	-3.9, -3.5
2022	72.9	-1.8[b]	-2.0, -1.6

Abbreviation: CI (confidence interval)

[a] The child BH Overall Provider Rating composite measure includes the following item: Using any number from 0 to 10, where 0 is the worst behavioral health services possible and 10 is the best behavioral health services possible, what number would you use to rate your child's behavioral health services in the last 12 months?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Willingness to Recommend composite measure score from the child BH Member Experience Survey was 78.2. There was a significant but small improvement in 2019, followed by a steady decline in the composite scores in 2020 and 2021, which started to improve in 2022. The 2022 score was 77.2, 1.0 points lower than the reported score for 2018 (see **Table 2.3-D3.17**).

Table 2.3-D3.17 Results for the Willingness to Recommend Composite Measure from the BH Care Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	78.2	Reference	Reference
2019	80.4	2.2[b]	2.0, 2.5

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	78.2	-0.1	-0.3, 0.2
2021	74.9	-3.3[b]	-3.6, -3.1
2022	77.2	-1.0[b]	-1.3, -0.7

Abbreviation: CI (confidence interval)

[a] The child's BH Willingness to Recommend composite measure includes the following item: Would you recommend your child's behavioral health provider(s) to your family and friends if they needed similar behavioral health services?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Overall Provider Rating composite measure score from the Adult BH Member Experience Survey was 76.6. In subsequent years, there was a small decline in the composite scores from 2018 (the reference year). The 2022 score remains relatively high at 74.8, 1.8 points below the reported score for 2018 (see **Table 2.3-D3.18**).

Table 2.3-D3.18 Results for the Overall Provider Rating Composite Measure from the Adult BH Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	76.6	Reference	Reference
2019	75.4	-1.2[b]	-1.7, -0.7
2020	76.4	-0.23	-0.7, 0.3
2021	74.7	-1.9[b]	-2.4, -1.4
2022	74.8	-1.8[b]	-2.3, -1.3

Abbreviation: CI (confidence interval)

[a] The adult BH Overall Provider Rating composite measure includes the following item: Using any number from 0 to 10, where 0 is the worst behavioral health services possible and 10 is the best behavioral health services possible, what number would you use to rate your behavioral health services in the last 12 months?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Willingness to Recommend composite measure score from the Adult BH Member Experience Survey was 78.7. There were minor fluctuations in adults' willingness to recommend their BH providers. The 2022 score remains relatively high at 77.1, 1.6 points below the reported score for 2018 (see **Table 2.3-D3.19**).

Table 2.3-D3.19 Results for the Willingness to Recommend Composite Measure from the Adult BH Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	78.7	Reference	Reference
2019	77.6	-1.0[b]	-1.6, -0.5
2020	78.7	0.0	-0.5, 0.5
2021	77.8	-0.9[b]	-1.3, -0.5
2022	77.1	-1.6[b]	-2.1, -1.2

Abbreviation: CI (confidence interval)

[a] The adult BH Willingness to Recommend composite measure includes the following item: Would you recommend your behavioral health provider(s) to your family and friends if they needed similar behavioral health services?

[b] P<0.05; a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

Long-term Services and Support Member Experience Survey

In 2020, the Healthy Living in the Community composite measure score from the Child LTSS Member Experience Survey was 70.1. This composite was introduced in 2020, so there are no 2018 or 2019 data. There were minor fluctuations across the study years. The 2022 score was 69.7, 0.4 points below the reported score for 2020 (see **Table 2.3-D3.20**).

Table 2.3-D3.20 Results for the Healthy Living in the Community Composite Measure from the Child LTSS Member Experience Survey, 2020-2022[a]

Year	Composite Score (0-100)	Difference vs. 2020	95% CI
2020	70.1	Reference	Reference
2021	67.8	-2.3[b]	2.1, 2.5
2022	69.7	-0.4[b]	-0.7, -0.1

Abbreviation: CI (confidence interval)

[a] The child LTSS Healthy Living in the Community composite measure includes the following four items item: 1) My child's care team works with me and my child so we can better manage my child's physical health. 2) My child's care team works with me and my child so we can better manage my child's mental health. 3) My child's care team works with me and my child so that my child is better able to participate in activities my child enjoys with friends or family. 4) My child's care team works with me and my child, so I am better able to take care of my child where we live.

[b] P<0.05, a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Overall Provider Rating composite measure score from the Child LTSS Member Experience Survey was 78.7. There was a significant but small decline in the composite scores starting in 2020, which showed signs of improvement in 2022. The 2022 score was 78.2, 0.5 points lower than the reported score for 2018 (see **Table 2.3-D3.21**).

Table 2.3-D3.21 Results for the Overall Provider Rating Composite Measure from the Child LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	78.7	Reference	Reference
2019	74.6	-4.0[b]	-4.7, -3.4
2020	77.6	-1.1[b]	-1.6, -0.5
2021	77.8	-0.9[b]	-1.3, -0.5
2022	78.2	-0.5	-1.0, 0.0

Abbreviation: CI (confidence interval)

[a] The child LTSS Overall Provider Rating composite measure includes the following item: Using any number from 0 to 10, where 0 is the worst long-term services and supports possible and 10 is the best long-term services and supports possible, what number would you use to rate your child's long-term services and supports in the last 12 months?

[b] P<0.05, a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Willingness to Recommend composite measure score from the Child LTSS Member Experience Survey was 86.3. There were minor fluctuations across the study years. The 2018 score was 84.5, 1.8 points below the reported score for 2018 (see **Table 2.3-D3.22**).

Table 2.3-D3.22 Results for the Willingness to Recommend Composite Measure from the Child LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	86.3	Reference	Reference
2019	82.5	-3.8[b]	-4.5, -3.1
2020	87.2	0.8[b]	0.1, 1.6
2021	86.5	0.1	-0.6, 0.8
2022	84.5	-1.8[b]	-2.3, -1.3

Abbreviation: CI (confidence interval)

[a] The child's LTSS Willingness to Recommend composite measure includes the following item: Would you recommend your child's LTSS provider(s) to your family and friends if they needed similar long-term services and supports?

[b] P<0.05, a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2020, the Healthy Living in the Community composite measure score from the Adult LTSS Member Experience Survey was 64.5. This composite was introduced in 2020, so there are no 2018 or 2019 data. The score was relatively stable, with the 2022 score showing 0.7 points improvement from the reported 2020 score (see **Table 2.3-D3.23**).

Table 2.3-D3.23 Results for the Healthy Living in the Community Composite Measure from the Adult LTSS Member Experience Survey, 2020-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2020	64.5	Reference	Reference
2021	64.3	-0.2[b]	-0.3, -0.1
2022	65.3	0.7[b]	-0.7, -0.7

Abbreviation: CI (confidence interval)

[a] The adult LTSS Healthy Living in the Community composite measure includes the following four items: 1) My care team works with me so I am better able to manage my physical health. 2) My care team works with me, so I am better able to manage my mental health. 3) My care team works with me, so I am better able to participate in activities I enjoy with friends or family. 4) My care team works with me, so I am better able to take care of myself where I live.

[b] P<0.05, a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Overall Provider Rating composite measure score from the Adult LTSS Member Experience Survey was 75.9. The score fluctuated slightly across the survey years. The 2022 score remains relatively high at 75.4, 0.5 points below the reported score for 2018 (see **Table 2.3-D3.24**).

Table 2.3-D3.24 Results for the Overall Provider Rating Composite Measure from the Adult LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	75.9	Reference	Reference

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2019	73.4	-2.5[b]	-2.8, -2.3
2020	76.8	0.9[b]	0.6, 1.2
2021	74.4	-1.6[b]	-1.9, -1.2
2022	75.4	-0.6[b]	-0.8, -0.4

Abbreviation: CI (confidence interval)

[a] The adult LTSS Overall Provider Rating composite measure includes the following item: Using any number from 0 to 10, where 0 is the worst long-term services and supports possible and 10 is the best long-term services and supports possible, what number would you use to rate your long-term services and supports in the last 12 months?

[b] P<0.05, a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

In 2018, the Willingness to Recommend composite measure score from the Adult LTSS Member Experience Survey was 84.2. There was a minor fluctuation in the score across the survey years. The 2022 score remains relatively high at 84.4, 0.2 points above the reported score for 2018 (see **Table 2.3-D3.25**).

Table 2.3-D3.25 Results for the Willingness to Recommend Composite Measure from the Adult LTSS Member Experience Survey, 2018-2022[a]

Year	Composite Score (0-100)	Difference vs. 2018	95% CI
2018	84.2	Reference	Reference
2019	83.7	-0.5[b]	-0.9, -0.2
2020	83.5	-0.8[b]	-1.0, -0.5
2021	83.0	-1.3[b]	-1.6, -1.0
2022	84.4	0.2	-0.2, 0.6

Abbreviation: CI (confidence interval)

[a] The adult LTSS Willingness to Recommend composite measure includes the following item: Would you recommend your LTSS provider(s) to your family and friends if they needed similar long-term services and supports?

[b] P<0.05, a p-value of <0.05 is considered statistically significant but may not reflect clinical or policy significance.

2.3.4. Domain 4: Change in Healthcare Cost Trends

RQ13 To what extent were Medicaid total cost of care trends moderated for the ACO population?

H13.1 The rate of increase in the total cost of care for the ACO population will decrease.

Summary of RQ13

To evaluate **H13.1** and estimate the difference in the per-member Total Cost of Care (TCOC) with and without the 2017-2022 Demonstration, propensity-weighted difference-in-difference comparisons were made between Accountable Care Organization (ACO) enrollees and Managed Care Organization (MCO)/Primary Care Clinician (PCC) enrollees. The results of these analyses, which adjusted for differences in sociodemographic and clinical characteristics between ACO and MCO/PCCP enrollees, indicated that the mean per-member per-year TCOC

was higher among individuals who would have been enrolled in ACOs versus those who would have been in MCOs/ PCCP had the ACO program been implemented during the baseline (2015-2017) period, and the TCOC was lower among ACO enrollees during the 2017–2022 Demonstration. The differences between the cost of an ACO enrollee and the cost of an MCO/PCCP enrollee were -$202, -$299, -$436, -$613, and -$252 in Calendar Year (CY) 2018, CY2019, CY2020, CY2021, and CY2022, respectively. Separate from these analyses that sought to estimate what might have happened absent the 2017-2022 Demonstration (i.e., a scientific counterfactual); financial analyses were performed to quantify how ACOs performed against cost benchmarks set by MassHealth (i.e., policy benchmarks), which included calculating the amounts of ACO shared savings and losses.

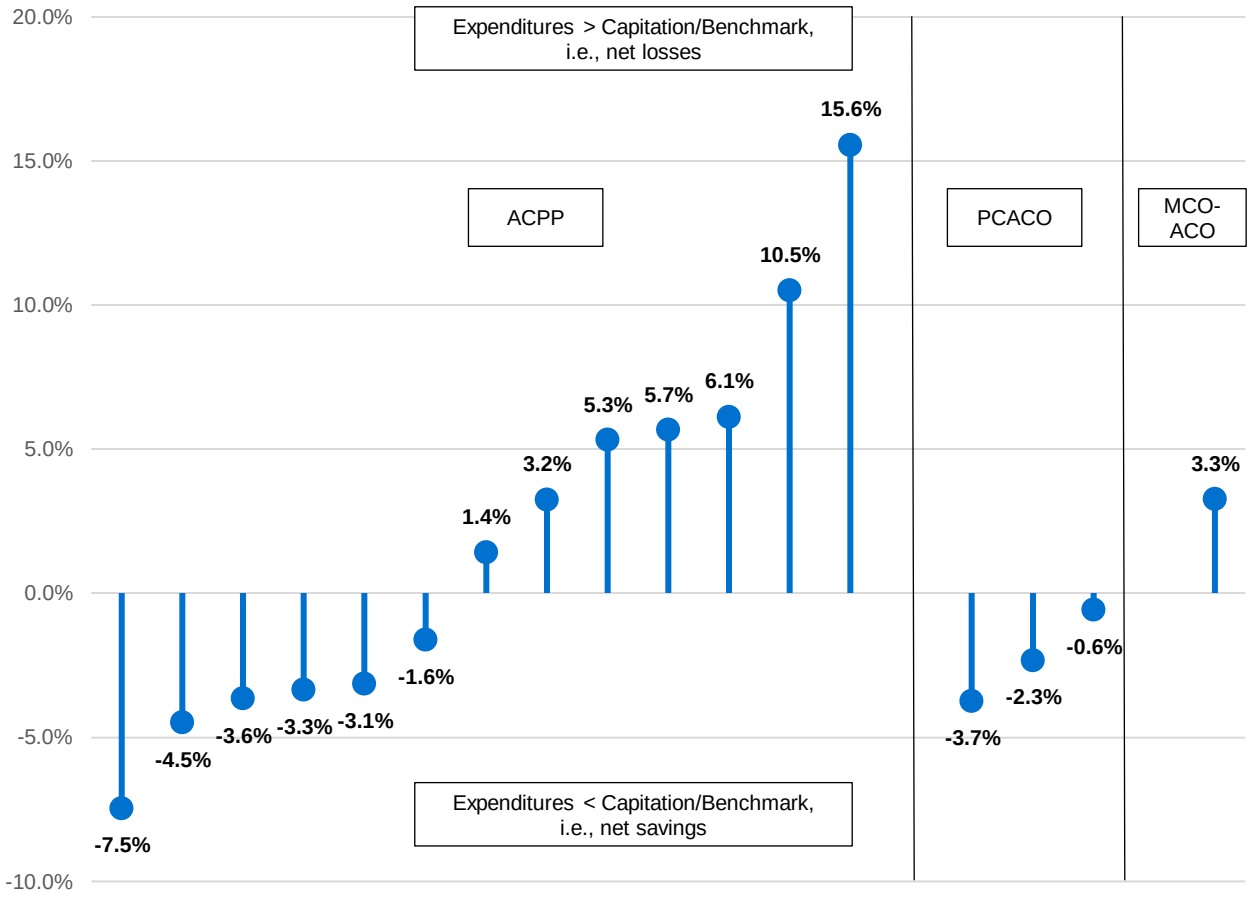
Financial Results

MassHealth and ACO Shared Savings and Losses

Gross spending (i.e., prior to risk sharing) versus capitation payments and benchmarks: Prior to risk sharing, when compared to policy benchmarks set by MassHealth, the ACO program saw gross losses during the first two years of the program but gross savings in CY2020.

During the first year of the program (covering the period of March 1 through December 31, 2018), ACOs, in aggregate, saw higher expenditures than their capitation payments (ACPPs) and TCOC benchmarks (Primary Care Accountable Care Organization “PCACOs” and MCO-ACO). The total value of capitation payments and TCOC benchmarks was $4.039 billion for 849,566 enrollees, and gross expenditures for services covered by risk-sharing arrangements were 0.68% larger ($4.067 billion). Nine of seventeen MassHealth ACOs had gross savings (i.e., expenditures that were lower than their capitated payments or their TCOC benchmarks), while eight ACOs had gross losses (see **Figure 2.3-D4.1**). The mean expenditures (among the 17 ACO data points) was 101.23% of total capitated payments/benchmarks. For each ACO, the value of capitation payments and TCOC benchmarks overall and by risk-sharing category are presented in **Section 2.2**, while expenditures overall and by risk-sharing category are presented below in **Tables 2.3-D4.1, 2.3-D4.4,** and **2.3-D4.7.**

Figure 2.3-D4.1 Percentage Differences Between ACO Expenditures Covered by Shared Risk Arrangements and Capitated Payments[a] for ACPPs and TCOC Benchmarks[b] for PCACOs and MCO-ACOs, March 1 through December 31, 2018



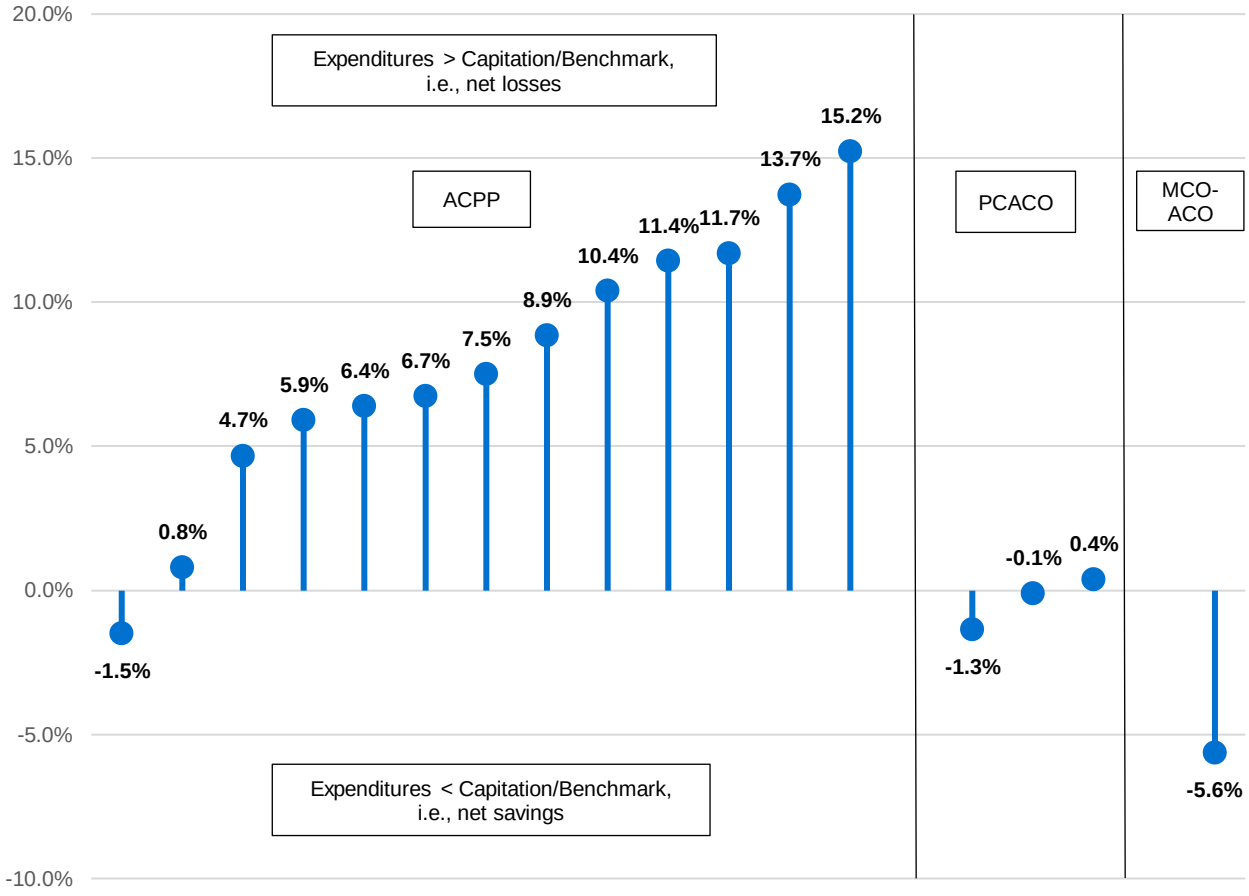
Note: results below zero indicate savings to the ACO and MassHealth; results above zero indicate losses

[a] Includes core medical, Hepatitis C Virus (HCV) high-cost drugs, non-HCV high-cost drugs, Community Behavioral Health Center (CBHI), Applied Behavior Analysis (ABA), and Substance Use Disorder (SUD)

[b] Includes core medical and HCV high-cost drugs

During the second year of the program (CY2019), the ACO program saw gross losses with the total value of capitation payments, and TCOC benchmarks at $5.072 billion for 889,335 enrollees and gross expenditures for services 4.79% larger ($5.315 billion). Four of the seventeen MassHealth ACOs had gross savings (i.e., expenditures that were lower than their capitated payments or their TCOC benchmarks), while thirteen ACOs had gross losses (see **Figure 2.3-D4.2**). The mean expenditures (among the 17 ACOs) was 104.79% of total capitated payments/benchmarks. Expenditures overall and by risk-sharing category are presented in **Tables 2.3-D4.2, 2.3-D4.5, and 2.3-D4.8.**

Figure 2.3-D4.2 Percentage Differences Between ACO Expenditures Covered by Shared Risk Arrangements and Capitated Payments[a] for ACCPs and TCOC Benchmarks[b] for PCACOs and MCO-ACOs, CY2019



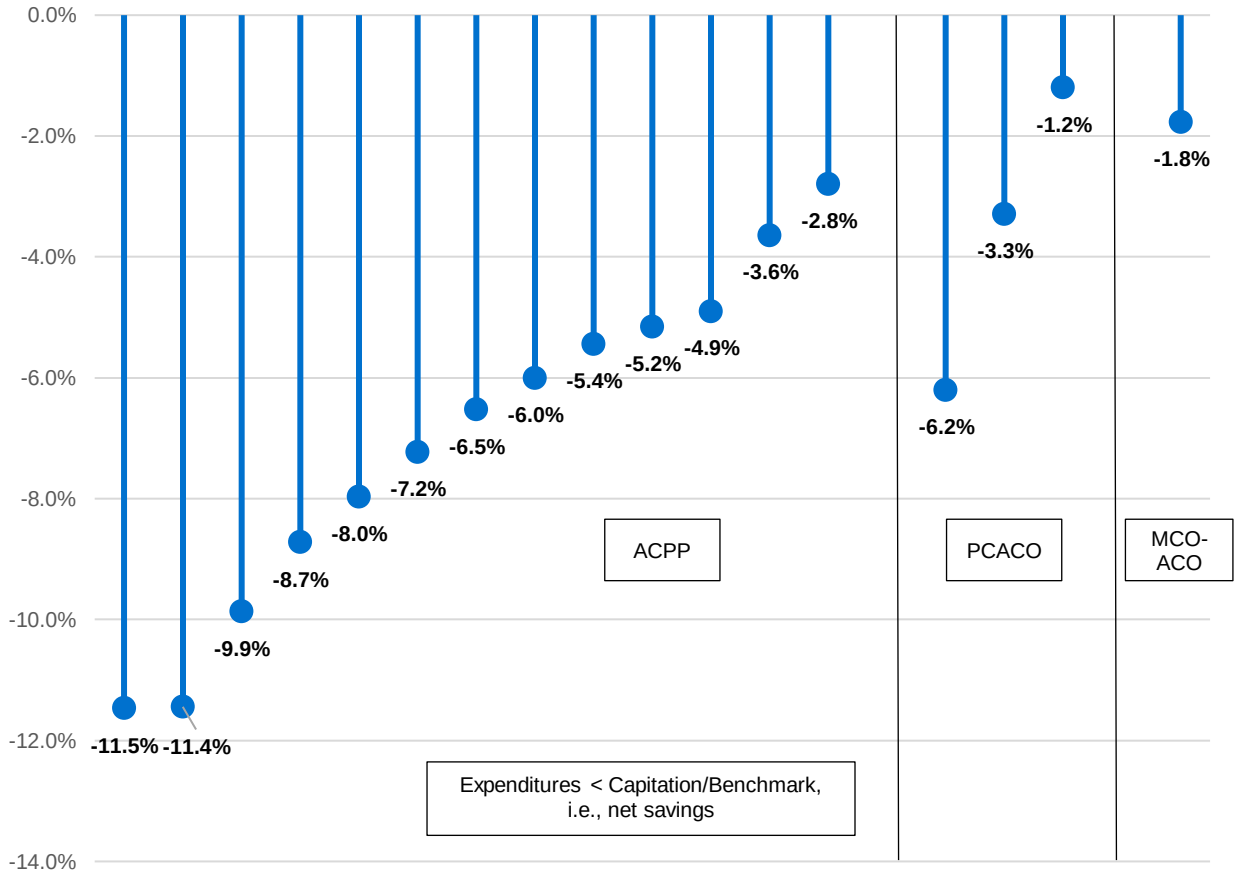
Note: Results below zero indicate savings to the ACO and MassHealth, results above zero indicate losses

[a] Includes core medical, HCV high-cost drugs, non-HCV high-cost drugs, CBHI, ABA, and SUD

[b] Includes core medical, Starting RY2019, MassHealth did not share in-risk on HCV.

During the third year of the program (CY2020), the ACO program saw gross savings with the total value of capitation payments and TCOC benchmarks at $5.877 billion for 975,784 enrollees, and gross spending for services covered 5.54% smaller ($5.552 billion). All 17 MassHealth ACOs had gross savings (i.e., expenditures that were lower than their capitated payments or their TCOC benchmarks) (see **Figure 2.3-D4.3**). The mean expenditures (among the 17 ACOs) were 94.46% of total capitated payments/benchmarks. Expenditures overall and by risk-sharing category are presented in **Tables 2.3-D4.3, 2.3-D4.6,** and **2.3-D4.9**.

Figure 2.3-D4.3 Percentage Differences Between ACO Expenditures Covered by Shared Risk Arrangements and Capitated Payments[a] for ACPP ACOs and TCOC Benchmarks[b] for PCACOs and MCO-ACOs, 2020



Note: Results below zero indicate savings to the ACO and MassHealth, results above zero indicate losses

[a] Includes core medical, HCV high-cost drugs, non-HCV high-cost drugs, CBHI, ABA, and SUD

[b] Includes core medical. Starting RY2019, MassHealth did not share in-risk on HCV.

Risk-sharing: Adjustments, including for shared risk arrangements and quality scores, are made to an ACO's gross savings or losses, impacting final shared savings or losses. During the first year of the program (covering the period of March 1 through December 31, 2018), after accounting for shared risk arrangements and adjustments for quality scores, seven ACOs achieved shared savings of a total value of $41.68 million, which represents 1.03% of the $4.039 billion in capitation payments and TCOC benchmarks (see **Table 2.3-D4.7**). The total value of shared losses accruing to the other 10 ACOs was $41.83 million (1.04% of capitation and TCOC benchmarks); therefore, a net value of $0.15 million (0.00%) in shared losses was attributed to ACOs. MassHealth achieved shared savings of $30.46 million (0.75%) based on risk-sharing arrangements with five of the ACPPs and three PCACOs. Losses totaling $63.23 million (1.57%) were accrued to MassHealth (from eight ACPPs) and the two MCO partners of the MCO-ACO, representing a net of $32.77 million (0.81%) in shared losses.

During the second year of the program (CY2019), after accounting for shared risk arrangements and adjustments for quality scores, four ACOs achieved shared savings of a total value of $9.32 million, which represents 0.18% of the $5.072 billion in capitation payments and TCOC benchmarks for services covered by risk-sharing arrangements across the seventeen ACOs (see **Table 2.3-D4.8**). The total value of shared losses accruing to the other 12 ACOs was $87.87 million (1.73% of capitation and TCOC benchmarks); therefore, a net value of $78.55 million (1.55%) in shared losses was attributed to ACOs. MassHealth achieved shared savings of $14.83 million (0.29%) based on risk-sharing arrangements with four of the ACPPs and PCACOs. Losses totaling $170.46 million (3.36%) were accrued to MassHealth (from 12 ACPPs), representing a net of $155.64 million (3.07%) in shared losses.

During the third year of the program (CY2020), after accounting for shared risk arrangements and adjustments for quality scores, 14 ACOs achieved shared savings of a total value of $85.36 million. These savings represent 1.45% of the $5.877 billion in capitation payments and TCOC benchmarks for services covered by risk-sharing arrangements across the 17 ACOs (see **Table 2.3-D4.9**). The total value of shared losses accruing to the other two ACOs was $1.69 million (0.03% of capitation and TCOC benchmarks). Therefore, a net value of $83.67 million (1.42%) in shared savings was attributed to ACOs. One PCACO was not in shared savings or shared losses with a ratio of expenditures to TCOC benchmark of 99%. MassHealth achieved shared savings of $232.90 million (3.96%) based on risk-sharing arrangements with the 17 ACOs. MassHealth had no shared losses in CY2020.

Quality Score Adjustments: In the first year of the program, covering the period of March 1 through December 31, 2018, ACOs were in pay-for-reporting. All 17 ACOs reported hybrid quality measure data, fulfilled their pay-for-reporting requirements, and achieved a perfect quality score of 1.0 in 2018. Thus, the quality score did not modify the value of shared savings that accrued to the four ACOs achieving shared savings. For the 10 ACOs with shared losses, the quality score of 1 was applied to the 20% of losses subject to quality adjustment and resulted in a 20% reduction in shared losses borne by the ACOs; these losses were instead borne by MassHealth or the MCOs (for the MCO-ACO) (see **Table 2.3-D4.10**).

Beginning in Performance Year (PY)2 (i.e., CY2019), the quality measures became pay-for-performance (P4P) (i.e., the scores were based on the ACO's performance). In CY2019, the average quality score was 0.79, the minimum was 0.64, and the maximum was 1, achieved by only one ACO. The average total ACO share post risk-sharing and quality adjustment was a loss of 1.55% of the total capitation or benchmark amount. The average total state share post risk-sharing and quality adjustment was a loss of 3.07% of the total capitation or benchmark amount. The differences in the ACO share before and after quality adjustment was a gain of 0.27%, while the differences in the state share before and after quality adjustment was a loss of 0.27% (see **Table 2.3-D4.11**).

In CY2020, the average quality score was 0.96, the minimum was 0.86, and the maximum was 1, which was achieved by two ACOs. The average total ACO share post risk sharing and quality adjustment was savings of 1.42%. The average total state share post risk-sharing and quality adjustment was savings of 3.96%. The differences in the ACO share before and after quality

adjustment was a reduction in savings by 0.06%, while the differences in the state share before and after quality adjustment was a gain of 0.06% (see **Table 2.3-D4.12**).

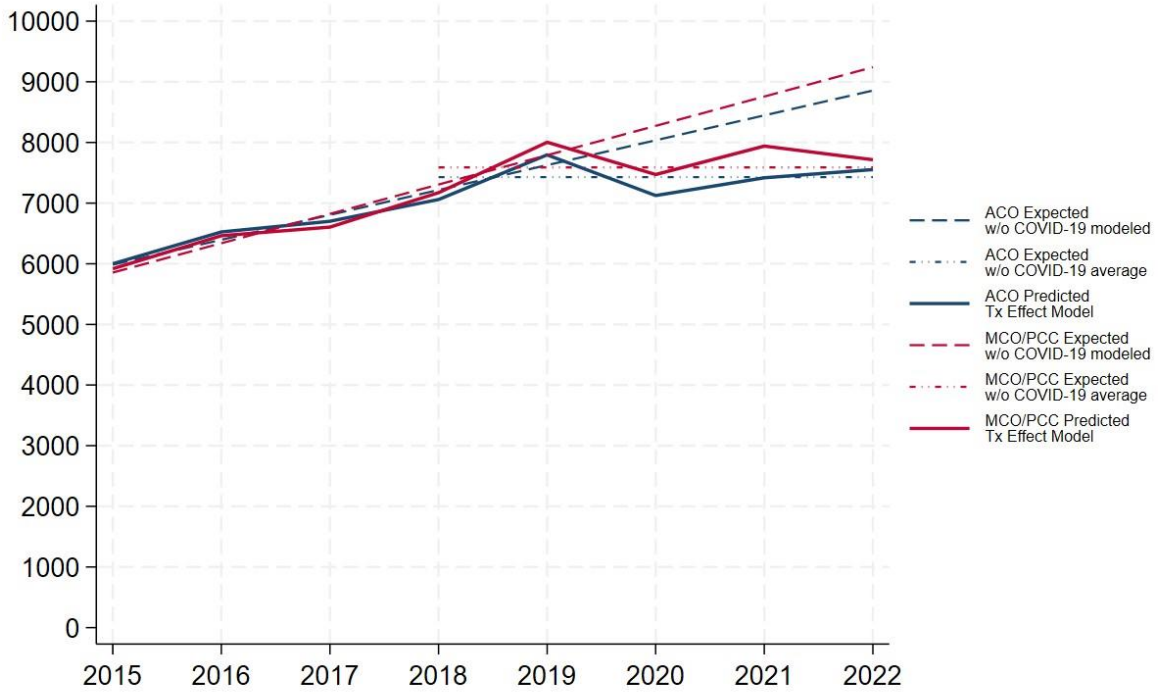
Cost of Care Results

The mean observed TCOC among managed care eligible MassHealth members (i.e., in ACOs, MCOs, or the PCCP increased over the course of the baseline (CY2015-CY2017) and early Demonstration periods from a mean of $5,857 in 2015 to $7,572 in 2019, before declining to $7,031 in the first year of the COVID-19 pandemic (CY2020) and remaining relatively flat in the final two years of the Demonstration (CY2021-CY2022). This pattern was consistent when costs for services that are not included in the core medical risk corridor for ACOs were excluded and when only examining claims-based expenditures paid via fee-for-service (FFS) (i.e., excluding alternative payment models "APMs") (see **Table 2.3-D4.13**).

Observed costs were lower among ACO enrollees versus MCO/PCCP enrollees at baseline and throughout the Demonstration, with the largest difference observed in CY2020 when mean per-member-per-year (PMPY) costs were $6,670 among ACO enrollees and $8,505 among MCO/PCCP enrollees. The adjusted differences in TCOC between the ACO and MCO/PCCP groups are presented in **Table 2.3-D4.14.** After adjusting for differences in sociodemographic and clinical characteristics between ACO and MCO/PCCP enrollees, the mean PMPY costs were higher among ACO versus MCO/PCCP enrollees during the baseline period and lower during the 2017-2022 Demonstration. Difference-in-difference (DiD) PMPY impact estimates (i.e., the difference between the cost of an ACO enrollee and the cost of a member absent the Demonstration) were -$193, -$290, -$428, -$604, and -$243 in CY2018, CY2019, CY2020, CY2021, and CY2022, respectively. Results were similar for TCOC when excluding services outside of the core medical risk corridor. Results were plotted under alternative assumptions in **Figure 2.3-D4.4**. If pre-existing TCOC trends and relationships between member characteristics and TCOC continued, the TCOC was projected to continue to increase for MCO/PCCP enrollees in CY2021-CY2022, while in reality it declined after CY2020 in the presence of the COVID-19 pandemic (as illustrated by the separation between the expected values without the COVID-19 pandemic and the observed values). For ACO enrollees, TCOC was projected to have more or less plateaued during CY2020-CY2022 in the absence of the COVID-19 pandemic, while TCOC declined from CY2019 to CY2020 and remained below the CY2019 value in the presence of the COVID-19 pandemic.

In addition to TCOC, costs by select MassHealth defined categories of service are presented in **Appendix J**.

Figure 2.3-D4.4 TCOC for ACO versus MCO/PCCP Enrollees, CY2015-CY2022



Notes: The "Predicted" results reflect results produced from a propensity score overlap weighted model and are graphed separately for the ACO and MCO/PCCP groups. The "Expected Without (w/o) COVID-19 modeled" results were produced from a propensity score overlap weighted model with a linear calendar time term to enable predictions of the ACO and MCO/PCCP values for 2020-2022 by extrapolating the trend for 2015-2019. The "Expected Without COVID-19 average" average line depicts an illustrative line that reflects the average of the 2018 and 2019 results projected forward as a constant for 2020-2022.

ACO Administrative Rates

MassHealth establishes medical and non-medical rates for paying ACOs; non-medical rates paid to ACOs include administrative expenses. For ACPPs, administrative rates are informed by ACPP contractual requirements, including, for example, claims payment, utilization management, underwriting, and financial reporting expectations of ACPPs. Payments to PCACOs similarly reflect MassHealth's contractual requirements for PCACOs, including that they perform centralized provider operations for primary care practice sites, and data management and analysis. Both ACPPs and PCACOs are expected to provide customer support and enrollee coordination. The administrative rates for ACOs are presented in **Table 2.3-D4.15**.

MassHealth payments to ACOs for administrative costs increased over the 2017-2022 Demonstration by design. This was in part due to MassHealth removing some care coordination funding from non-medical rates at the start of the ACO program, as those activities were being financially supported through DSRIP. As DSRIP funding declined over the 2017–2022 Demonstration, MassHealth phased that care coordination funding back into non-medical rates. In all Demonstration years, payments to ACPPs for administrative costs were larger than payments to PCACOs. However, the gap between PCACO and ACPP rates declined over the Demonstration – PCACO administrative rates were 21% of ACPP rates in 2018 and 48% in 2022. As a percentage of medical rates, administrative rates for PCACOs increased from about 1% to 3%, while administrative rates remained relatively flat as a percentage of medical rates for ACPPs (~6%).

Additional tables and figures for Domain 4 are located in **Appendix K**.

Table 2.3-D4.1 Total Capitation (ACPP ACOs) or TCOC Benchmark (PCACOs and MCO-ACOs) for Services with Risk-Sharing Arrangements Among Each of the 17 MassHealth ACOs, Overall and Percentages of Total by Category, Covering the Period of March 1 Through December 31, 2018

ACO	Total Capitation / Benchmark in thousands	Core Medical: Capitation / Benchmark (%)[a]	RC-II Adult Core Medical Capitation / Benchmark (%)[b]	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	High Cost Drugs: Capitation / Benchmark (%)
ACPP-1	$595,331	53.6%	40.1%	2.6%	0.4%	2.4%	0.9%
ACPP-2	$118,217	92.9%	0.0%	2.1%	0.7%	3.5%	0.7%
ACPP-3	$88,732	61.6%	32.3%	2.6%	0.4%	2.2%	0.9%
ACPP-4	$94,257	58.0%	36.4%	2.8%	0.3%	1.6%	0.9%
ACPP-5	$82,047	58.3%	36.6%	2.5%	0.3%	1.6%	0.6%
ACPP-6	$118,127	92.1%	0.0%	1.6%	0.8%	4.4%	1.0%
ACPP-7	$235,726	60.4%	32.4%	2.3%	0.6%	3.2%	1.1%
ACPP-8	$192,230	47.4%	45.2%	2.1%	0.9%	3.7%	0.7%
ACPP-9	$133,512	58.2%	34.2%	2.2%	0.7%	3.6%	1.1%
ACPP-10	$125,616	92.1%	0.0%	2.0%	0.7%	4.0%	1.2%
ACPP-11	$255,098	85.6%	0.0%	0.1%	2.0%	10.3%	2.0%
ACPP-12	$167,325	94.5%	0.0%	2.7%	0.2%	1.7%	0.9%
ACPP-13	$113,535	92.9%	0.0%	2.4%	0.5%	3.2%	1.0%
PCACO-1	$533,654	65.2%	32.6%	2.2%	N/A	N/A	N/A
PCACO-2	$534,348	97.7%	0.0%	2.3%	N/A	N/A	N/A
PCACO-3	$572,956	94.6%	3.1%	2.3%	N/A	N/A	N/A
MCO-ACO-1	$78,860	59.7%	37.2%	3.0%	N/A	N/A	N/A
All ACOs	**$4,039,571**	**75.8%**	**18.9%**	**2.2%**	**0.4%**	**2.1%**	**0.6%**

[a] The Core Medical: Capitation/Benchmark (%) ranged from ~50% to ~100% due to the large RCII adult population for core medical for some ACPPs and PCACOs.

[b] Rating Category (RC) II Adult had an optional core medical risk track where, if selected, the ACO took on less risk

Table 2.3-D4.2 Total Capitation (ACPP ACOs) or TCOC Benchmark (PCACOs and MCO-ACOs) for Services with Risk-Sharing Arrangements Among Each of the 17 MassHealth ACOs, Overall and Percentages of Total by Category, CY2019

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	RC-II Adult Core Medical Capitation (%)[a]	HCV: Gain Capitation (%)	ABA: Gain Capitation (%)	CBHI: Gain Capitation (%)	SUD: Gain Capitation (%)	High Cost Drugs: Capitation (%)
ACPP-1	$801,884	68.62%	23.99%	2.64%	0.86%	2.17%	0.73%	1.00%
ACPP-2	$148,334	72.81%	18.79%	1.88%	1.50%	3.30%	0.87%	0.85%
ACPP-3	$110,359	66.00%	26.83%	2.76%	0.74%	2.10%	0.81%	0.77%
ACPP-4	$118,124	67.84%	25.52%	2.98%	0.59%	1.50%	0.83%	0.74%
ACPP-5	$101,061	65.31%	28.52%	2.38%	0.59%	1.56%	0.97%	0.67%
ACPP-6	$152,713	90.68%	0.00%	1.75%	1.56%	4.15%	0.71%	1.15%
ACPP-7	$277,492	68.06%	23.44%	2.13%	1.15%	3.17%	0.78%	1.27%
ACPP-8	$226,807	80.12%	10.85%	1.84%	1.86%	3.61%	0.75%	0.97%
ACPP-9	$142,605	72.18%	18.25%	1.97%	1.47%	4.02%	0.87%	1.23%
ACPP-10	$149,485	67.04%	23.33%	2.05%	1.54%	3.95%	0.83%	1.26%
ACPP-11	$346,875	82.41%	0.74%	0.14%	4.26%	10.33%	0.10%	2.02%
ACPP-12	$201,075	59.47%	33.39%	2.72%	0.54%	1.74%	1.09%	1.05%
ACPP-13	$149,025	65.89%	25.77%	2.31%	0.98%	3.05%	0.83%	1.18%
ACO	**Total Benchmark**	**Core Medical: Benchmark (%)**	**RC IX Risk Corridor Benchmark (%)**	**HCV: Gain Capitation (%)**	**ABA: Gain Capitation (%)**	**CBHI: Gain Capitation (%)**	**SUD: Gain Capitation (%)**	**High Cost Drugs: Capitation (%)**
PCACO-1	$703,659	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
PCACO-2	$657,921	75.51%	24.49%	N/A	N/A	N/A	N/A	N/A
PCACO-3	$682,126	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
MCO-ACO	$102,874	54.74%	45.26%	N/A	N/A	N/A	N/A	N/A

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	RC-II Adult Core Medical Capitation (%)[a]	HCV: Gain Capitation (%)	ABA: Gain Capitation (%)	CBHI: Gain Capitation (%)	SUD: Gain Capitation (%)	High Cost Drugs: Capitation (%)
All ACOs	**$5,072,417**	**79.49%**	**15.28%**	**1.20%**	**0.84%**	**2.10%**	**0.42%**	**0.66%**

[a] ACPPs RC II Adult had an optional core medical risk track where, if selected, the ACO took on less risk

Table 2.3-D4.3 Total Capitation (ACPP ACOs) or TCOC Benchmark (PCACOs and MCO-ACOs) for Services with Risk-Sharing Arrangements Among Each of the 17 MassHealth ACOs, Overall and Percentages of Total by Category, CY2020

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	SUD: Gain Capitation / Benchmark (%)	High-Cost Drugs: Capitation / Benchmark (%)
ACPP-1	$989,889	93.29%	1.44%	0.88%	2.04%	1.42%	0.92%
ACPP-2	$172,536	91.64%	0.97%	1.69%	3.31%	1.59%	0.80%
ACPP-3	$133,744	93.24%	1.46%	0.82%	2.17%	1.51%	0.80%
ACPP-4	$142,508	93.99%	1.59%	0.64%	1.47%	1.59%	0.72%
ACPP-5	$129,389	94.49%	1.26%	0.57%	1.41%	1.69%	0.58%
ACPP-6	$181,672	90.09%	0.96%	1.76%	4.26%	1.49%	1.44%
ACPP-7	$321,439	91.92%	1.14%	1.24%	3.13%	1.50%	1.07%
ACPP-8	$269,292	91.23%	0.93%	2.04%	3.49%	1.40%	0.91%
ACPP-9	$178,037	91.11%	1.02%	1.48%	3.79%	1.58%	1.02%
ACPP-10	$180,837	90.71%	1.16%	1.59%	3.74%	1.64%	1.17%
ACPP-11	$431,562	81.94%	0.08%	4.73%	10.48%	0.23%	2.55%
ACPP-12	$223,242	93.27%	1.49%	0.57%	1.75%	2.11%	0.81%
ACPP-13	$171,993	92.07%	1.23%	1.07%	3.08%	1.58%	0.97%
Total ACPP	**$3,526,140**	**91.14%**	**1.12%**	**1.59%**	**3.63%**	**1.38%**	**1.14%**

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	SUD: Gain Capitation / Benchmark (%)	High-Cost Drugs: Capitation / Benchmark (%)
ACO	**Total Capitation / Benchmark**	**RC I Child Benchmark (%)**	**RC I Adult Benchmark (%)**	**RC II Child Benchmark (%)**	**RC II Adult Benchmark (%)**	**RC IX and RC X Benchmark (%)**	**ACO**
PCACO-1	$810,150	15.64%	24.45%	2.41%	29.68%	27.82%	PCACO-1
PCACO-2	$729,701	18.79%	21.73%	3.61%	28.46%	27.42%	PCACO-2
PCACO-3	$715,871	17.67%	20.72%	3.94%	26.78%	30.90%	PCACO-3
MCO-ACO	$95,574	1.77%	23.48%	0.34%	28.69%	45.73%	MCO-ACO
All ACOs	**$5,877,437**	16.67%	22.43%	3.16%	28.38%	29.36%	**All ACOs**

Notes: The protected risk corridor for RC-II for ACPPs applied only to RY2018 and RY2019. The new table format is due to PCACO risk share changing in RY2020 to be calculated at the RC level.

Table 2.3-D4.4 Total Spending[a] for Services with Risk-Sharing Arrangements Among Each of the 17 MassHealth ACOs, Overall and by Category, CY2018

ACO	Total Spending in thousands	Core Medical: Spending (%)	RC-II Adult Core Medical Spending (%)[b]	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	High-Cost Drugs: Spending (%)
ACPP-1	$657,964	53.5%	38.1%	5.3%	0.5%	2.3%	0.3%
ACPP-2	$122,054	93.8%	0.0%	1.9%	0.9%	3.1%	0.4%
ACPP-3	$93,760	62.9%	30.2%	5.1%	0.3%	1.4%	0.1%
ACPP-4	$99,276	58.3%	36.5%	2.3%	0.4%	1.6%	0.9%
ACPP-5	$94,818	63.3%	32.9%	2.0%	0.0%	0.9%	0.9%
ACPP-6	$113,820	92.0%	0.0%	1.3%	2.4%	3.5%	0.9%
ACPP-7	$231,934	62.1%	31.9%	2.3%	0.5%	2.4%	0.7%
ACPP-8	$194,952	47.5%	44.7%	2.1%	0.3%	4.7%	0.7%
ACPP-9	$123,562	64.3%	32.0%	1.3%	0.2%	2.0%	0.2%

ACO	Total Spending in thousands	Core Medical: Spending (%)	RC-II Adult Core Medical Spending (%)[b]	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	High-Cost Drugs: Spending (%)
ACPP-10	$119,995	91.9%	0.0%	1.6%	1.0%	3.9%	1.6%
ACPP-11	$247,123	82.3%	0.0%	0.2%	4.0%	11.9%	1.6%
ACPP-12	$161,731	95.5%	0.0%	2.2%	0.6%	0.9%	0.7%
ACPP-13	$120,490	93.4%	0.0%	2.5%	0.5%	3.0%	0.6%
PCACO-1	$521,267	65.0%	31.9%	3.0%	N/A	N/A	N/A
PCACO-2	$531,325	98.2%	0.0%	1.8%	N/A	N/A	N/A
PCACO-3	$551,552	93.3%	3.5%	3.2%	N/A	N/A	N/A
MCO-ACO-1	$81,445	61.7%	35.0%	3.3%	N/A	N/A	N/A
All ACOs	**$4,067,068**	**75.5%**	**18.7%**	**2.8%**	**0.6%**	**2.0%**	**0.4%**

[a] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[b] RC II Adult had an optional core medical risk track where if selected, the ACO took on less risk

Table 2.3-D4.5 Total Spending[a] for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and by Category, CY2019

ACO	Total Spending	Core Medical: Spending (%)	Non-HCV, Non-High Cost Drug, Non-RC IX Core Medical Spending (%)[b]	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUD: Gain Spending (%)	High-Cost Drugs: Spending (%)
ACPP-1	$911,992	64.89%	25.46%	4.63%	0.57%	2.33%	1.73%	0.38%
ACPP-2	$157,821	70.95%	21.73%	1.30%	1.16%	3.58%	0.81%	0.48%
ACPP-3	$118,649	66.25%	28.01%	3.10%	0.50%	1.38%	0.72%	0.05%
ACPP-4	$131,630	66.09%	28.93%	1.84%	0.53%	1.49%	0.68%	0.44%
ACPP-5	$116,468	61.31%	33.94%	1.91%	0.25%	0.99%	0.85%	0.74%
ACPP-6	$150,439	90.15%	0.00%	1.66%	3.13%	3.21%	0.64%	1.21%
ACPP-7	$293,891	67.23%	25.37%	2.14%	1.18%	2.33%	0.84%	0.90%

ACO	Total Spending	Core Medical: Spending (%)	Non-HCV, Non-High Cost Drug, Non-RC IX Core Medical Spending (%)[b]	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUD: Gain Spending (%)	High-Cost Drugs: Spending (%)
ACPP-8	$246,897	78.57%	13.18%	1.79%	0.72%	4.27%	0.97%	0.49%
ACPP-9	$159,301	74.63%	21.02%	1.67%	0.37%	1.70%	0.26%	0.35%
ACPP-10	$150,687	66.24%	24.36%	1.59%	1.76%	3.72%	0.45%	1.88%
ACPP-11	$363,080	79.58%	0.72%	0.01%	5.71%	11.19%	0.08%	2.72%
ACPP-12	$221,975	61.94%	33.30%	1.17%	0.94%	0.92%	0.41%	1.31%
ACPP-13	$159,064	67.36%	25.19%	2.12%	1.01%	2.78%	0.58%	0.96%
ACO	**Total Spending**	**Core Spending (%)**	**RC IX Risk Corridor Spending (%)**	**HCV: Gain Spending (%)**	**ABA: Gain Spending (%)**	**CBHI: Gain Spending (%)**	**SUD: Gain Spending (%)**	**High-Cost Drugs: Spending (%)**
PCACO-1	$702,933	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
PCACO-2	$660,482	76.67%	23.33%	N/A	N/A	N/A	N/A	N/A
PCACO-3	$672,922	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
MCO-ACO	$97,068	55.35%	44.65%	N/A	N/A	N/A	N/A	N/A
All ACOs	**$5,315,298**	**78.19%**	**16.34%**	**1.45%**	**0.87%**	**2.06%**	**0.54%**	**0.55%**

[a] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[b] ACPPs RC II Adult Non-HCV, Non-High Cost Drug, Non-RC IX Core Medical had an optional core medical risk track where, if selected, the ACO took on less risk. PCACOs RC IX had an optional core medical risk track where if selected, the ACO took on less risk. SUD Stands for Substance Use Disorder which was a new carved-out corridor in RY2019

Table 2.3-D4.6 Total Spending[a] for Services with Risk-Sharing Arrangements Among Each of the 17 MassHealth ACOs, Overall and by Category, CY2020

ACO	Total Spending	Core Medical: Spending (%)	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUD: Gain Spending (%)	High-Cost Drugs: Spending (%)
ACPP-1	$938,848	93.31%	1.47%	0.65%	2.05%	2.01%	0.51%
ACPP-2	$152,751	91.85%	0.63%	1.61%	3.99%	1.23%	0.70%

ACPP-3	$125,025	96.01%	0.72%	0.82%	1.59%	0.76%	0.10%
ACPP-4	$135,530	96.07%	0.68%	0.63%	1.31%	0.75%	0.57%
ACPP-5	$118,106	95.80%	1.30%	0.26%	1.02%	1.24%	0.38%
ACPP-6	$167,200	90.62%	0.51%	3.50%	3.42%	0.80%	1.14%
ACPP-7	$284,660	93.79%	0.68%	1.29%	2.24%	0.98%	1.02%
ACPP-8	$249,833	91.26%	0.80%	0.74%	4.89%	1.50%	0.81%
ACPP-9	$168,361	96.84%	0.51%	0.38%	1.30%	0.22%	0.76%
ACPP-10	$175,793	91.76%	0.50%	1.34%	3.23%	0.44%	2.74%
ACPP-11	$388,980	77.50%	0.03%	6.46%	10.75%	0.09%	5.17%
ACPP-12	$215,116	95.86%	0.67%	0.55%	0.80%	0.53%	1.59%
ACPP-13	$161,671	93.24%	0.88%	1.38%	2.82%	0.76%	0.92%
Total ACPP	$3,281,874	91.7%	0.8%	1.6%	3.4%	1.1%	1.4%

ACO	Total Spending	RC I Child Spending (%)	RC I Adult Spending (%)	RC II Child Spending (%)	RC II Adult Spending (%)	RC IX and RC X Spending (%)
PCACO-1	$783,514	16.14%	25.45%	2.09%	29.95%	26.38%
PCACO-2	$720,961	17.65%	21.82%	3.58%	29.82%	27.14%
PCACO-3	$671,499	17.70%	21.05%	3.93%	27.00%	30.32%
MCO-ACO	$93,889	2.13%	23.19%	0.43%	27.72%	46.53%
Total PCACO and MCOACO	**$2,269,864**	**16.50%**	**22.90%**	**3.04%**	**28.94%**	**28.62%**

[a] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

Table 2.3-D4.7 Shared Savings/Losses Among Each of the 17 MassHealth ACOs, Overall and by Category, Covering the Period of March 1 through December 31, 2018

ACO	Total Capitation/ Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	RC-II Adult Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain or Loss (%)	High-Cost Drugs: Gain or Loss (%)
ACPP-1	$595,331	$657,964	-10.52%	-3.63%	-6.89%	-5.57%	-1.95%	-3.28%	-0.10%	-0.21%	0.59%
ACPP-2	$118,217	$122,054	-3.25%	-2.56%	-0.68%	-3.93%	0.00%	0.19%	-0.15%	0.31%	0.33%
ACPP-3	$88,732	$93,760	-5.67%	-2.67%	-2.99%	-4.85%	0.31%	-2.79%	0.07%	0.72%	0.88%
ACPP-4	$94,257	$99,276	-5.32%	-2.35%	-2.98%	-3.37%	-2.07%	0.39%	-0.17%	-0.12%	0.02%
ACPP-5	$82,047	$94,818	-15.57%	-6.94%	-8.62%	-14.87%	-1.38%	0.24%	0.25%	0.57%	-0.38%
ACPP-6	$118,127	$113,820	3.65%	3.24%	0.41%	3.48%	0.00%	0.38%	-1.49%	1.08%	0.20%
ACPP-7	$235,726	$231,934	1.61%	-0.18%	1.79%	-0.70%	0.96%	0.01%	0.04%	0.86%	0.45%
ACPP-8	$192,230	$194,952	-1.42%	-0.76%	-0.65%	-0.79%	-0.13%	-0.02%	0.57%	-1.04%	-0.01%
ACPP-9	$133,512	$123,562	7.45%	-0.22%	7.67%	-1.31%	4.54%	1.04%	0.49%	1.80%	0.89%
ACPP-10[d]	$125,616	$119,995	4.47%	0.10%	0.06%	4.32%	0.00%	0.50%	-0.26%	0.24%	-0.32%
ACPP-11	$255,098	$247,123	3.13%	4.22%	-1.10%	5.82%	0.00%	-0.01%	-1.87%	-1.26%	0.45%
ACPP-12	$167,325	$161,731	3.34%	2.32%	1.02%	2.15%	0.00%	0.54%	-0.34%	0.81%	0.19%
ACPP-13	$113,535	$120,490	-6.13%	-3.68%	-2.44%	-6.15%	0.00%	-0.30%	-0.09%	0.01%	0.40%
PCACO-1	$533,654	$521,267	2.32%	1.51%	0.81%	1.73%	1.37%	-0.78%	N/A	N/A	N/A
PCACO-2	$534,348	$531,325	0.57%	0.12%	0.45%	0.12%	0.00%	0.45%	N/A	N/A	N/A
PCACO-3	$572,956	$551,552	3.74%	2.51%	1.23%	4.81%	-0.29%	-0.78%	N/A	N/A	N/A
MCO-ACO-1	$78,860	$81,445	-3.28%	-0.69%	-2.59%	-3.84%	1.07%	-0.40%	N/A	N/A	N/A
All ACOs	**$4,039,571**	**$4,067,06**	**-0.68%**	**0.00%**	**-0.81%[e]**	**-0.18%**	**0.00%**	**-0.62%**	**-0.16%**	**0.06%**	**0.21%**

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk-sharing arrangements described in **Section 2.2** and adjustments based on each ACO's quality score

[d] The sum of risk-sharing amounts for the plan and MassHealth for this ACO is $5.421 million less than the difference between the total capitation minus total spending. MassHealth caps the amount of shared risk payments at $0 when ACOs would shift from shared losses to shared savings because of price normalization

[e] With the addition of the $5.421 million in savings that were capped as described in **footnote (d)** of this table, this total would equal -0.68%

Table 2.3-D4.8 Shared Savings/Losses Among Each of the 17 MassHealth ACOs, Overall and by Category, CY2019

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference : Gain or Loss (%)	Total plan share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	RC-II Adult Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain or Loss (%)	SUD: Gain or Loss (%)	High-Cost Drugs: Gain or Loss (%)
ACPP-1	$801,884	$911,992	-13.73%	-3.51%	-10.22%	-5.18%	-4.96%	-2.63%	0.21%	-0.48%	-1.24%	0.56%
ACPP-2	$148,334	$157,821	-6.40%	-2.63%	-3.77%	-2.67%	-4.33%	0.50%	0.27%	-0.50%	0.01%	0.33%
ACPP-3	$110,359	$118,649	-7.51%	-3.35%	-4.16%	-5.22%	-3.29%	-0.57%	0.20%	0.62%	0.04%	0.71%
ACPP-4	$118,124	$131,630	-11.43%	-4.12%	-7.32%	-5.80%	-6.72%	0.93%	-0.01%	-0.16%	0.07%	0.26%
ACPP-5	$101,061	$116,468	-15.24%	-4.35%	-10.90%	-5.34%	-10.60%	0.17%	0.29%	0.42%	-0.01%	-0.18%
ACPP-6	$152,713	$150,439	1.49%	1.22%	0.27%	1.87%	0.00%	0.12%	-1.52%	0.98%	0.08%	-0.04%
ACPP-7	$277,492	$293,891	-5.91%	-2.67%	-3.24%	-3.15%	-3.43%	-0.13%	-0.10%	0.70%	-0.12%	0.31%
ACPP-8	$226,807	$246,897	-8.86%	-3.60%	-5.26%	-5.41%	-3.50%	-0.11%	1.08%	-1.03%	-0.31%	0.43%
ACPP-9	$142,605	$159,301	-11.71%	-6.03%	-5.68%	-11.19%	-5.23%	0.11%	1.06%	2.12%	0.58%	0.84%
ACPP-10	$149,485	$150,687	-0.80%	-0.11%	-0.69%	0.27%	-1.23%	0.44%	-0.23%	0.19%	0.38%	-0.63%
ACPP-11	$346,875	$363,080	-4.67%	-0.80%	-3.87%	-0.88%	-0.02%	0.13%	-1.72%	-1.38%	0.01%	-0.83%
ACPP-12	$201,075	$221,975	-10.39%	-5.25%	-5.15%	-8.91%	-3.37%	1.43%	-0.50%	0.72%	0.64%	-0.40%
ACPP-13	$149,025	$159,064	-6.74%	-3.48%	-3.25%	-6.01%	-1.12%	0.04%	-0.10%	0.08%	0.21%	0.16%
PCACO-1	$703,659	$702,933	0.10%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PCACO-2	$657,921	$660,482	-0.39%	0.18%	0.89%	-1.46%	1.07%	0.00%	0.00%	0.00%	0.00%	0.00%
PCACO-3	$682,126	$672,922	1.35%	0.74%	0.61%	1.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MCO-ACO	$102,874	$97,068	5.64%	1.21%	4.28%	2.51%	3.13%	0.00%	0.00%	0.00%	0.00%	0.00%

ACO Program	**$5,072,417**	**$5,315,298**	**-4.79%**	**-1.55%**	**-3.07%**	**-2.45%**	**-1.84%**	**-0.31%**	**-0.07%**	**-0.05%**	**-0.15%**	**0.09%**

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk-sharing arrangements described in **Section 2.2** and adjustments based on each ACO's quality score

Table 2.3-D4.9 Shared Savings/Losses Among Each of the 17 MassHealth ACOs, Overall and by Category, CY2020

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)
ACPP-1	$989,889	$938,848	5.16%	1.21%	3.94%	4.79%	0.05%	0.27%	0.10%	-0.49%
ACPP-2	$172,536	$152,751	11.47%	3.37%	8.10%	10.32%	0.42%	0.27%	-0.22%	0.50%
ACPP-3	$133,744	$125,025	6.52%	1.71%	4.80%	3.49%	0.78%	0.06%	0.68%	0.80%
ACPP-4	$142,508	$135,530	4.90%	1.60%	3.25%	2.63%	0.95%	0.04%	0.22%	0.88%
ACPP-5	$129,389	$118,106	8.72%	3.51%	5.21%	7.05%	0.08%	0.33%	0.48%	0.55%
ACPP-6	$181,672	$167,200	7.97%	2.82%	5.14%	6.69%	0.49%	-1.46%	1.11%	0.75%
ACPP-7	$321,439	$284,660	11.44%	2.05%	9.40%	8.86%	0.54%	0.10%	1.14%	0.64%
ACPP-8	$269,292	$249,833	7.23%	2.90%	4.33%	6.57%	0.19%	1.35%	-1.05%	0.01%
ACPP-9	$178,037	$168,361	5.44%	-0.59%	6.02%	-0.46%	0.54%	1.13%	2.56%	1.37%
ACPP-10	$180,837	$175,793	2.79%	0.38%	2.41%	1.51%	0.67%	0.29%	0.60%	1.21%
ACPP-11	$431,562	$388,980	9.87%	1.56%	8.31%	12.08%	0.05%	-1.10%	0.79%	0.15%
ACPP-12	$223,242	$215,116	3.64%	-0.29%	3.93%	0.90%	0.84%	0.04%	0.98%	1.59%
ACPP-13	$171,993	$161,671	6.00%	1.16%	4.84%	4.42%	0.40%	-0.22%	0.43%	0.87%
Total ACPP	**$3,526,140**	**$3,281,874**	**6.93%**	**1.54%**	**5.39%**	**5.81%**	**0.33%**	**0.07%**	**0.49%**	**0.36%**
ACO[d]	**Total Capitation / Benchmark[a] in thousands**	**Total Spending[b] in thousands**	**Difference: Gain or Loss (%)**	**Total plan share post risk sharing and quality adjustment:**	**Total EOHHS share post risk sharing and quality adjustment:**	**RC I Child Benchmark: Gain or Loss (%)**	**RC I Adult Benchmark: Gain or Loss (%)**	**RC II Child Benchmark: Gain or Loss (%)**	**RC II Adult Benchmark: Gain or Loss (%)**	**RC IX and RC X Benchmark: Gain or Loss (%)**

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)
				Gain or Loss[c] (%)	Gain or Loss[c] (%)					
PCACO-1	$810,150	$783,514	3.29%	1.23%	2.06%	0.03%	-0.16%	0.39%	0.72%	2.30%
PCACO-2	$729,701	$720,961	1.20%	0.00%	0.00%	1.35%	0.17%	0.07%	-1.00%	0.60%
PCACO-3	$715,871	$671,499	6.20%	2.70%	3.50%	1.06%	0.97%	0.25%	1.46%	2.45%
MCO-ACO	$95,574	$93,889	1.76%	0.24%	1.21%	-0.32%	0.70%	-0.09%	1.46%	0.01%
All ACOs	**$5,877,437**	**$5,551,738**	**5.54%**	**1.42%**	**3.96%**	N/A	N/A	N/A	N/A	N/A

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk-sharing arrangements described in **Section 2.2** and adjustments based on each ACO's quality score

[d] This row is included due to different risk corridors applied in 2020

Table 2.3-D4.10 Quality Scores by ACO and Changes in Shared Savings or Losses Based on Quality Score Adjustments, Covering the Period of March 1 through Dec 31, 2018

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Plan share difference before and after quality adjustment: Gain or Loss[c] (%)	State share difference before and after quality adjustment: Gain or Loss[c] (%)
ACPP-1	$595,331	$657,964	-10.52%	-4.47%	-6.05%	1.0	-3.63%	-6.89%	0.84%	-0.84%
ACPP-2	$118,217	$122,054	-3.25%	-3.23%	-0.01%	1.0	-2.56%	-0.68%	0.67%	-0.67%
ACPP-3	$88,732	$93,760	-5.67%	-3.28%	-2.39%	1.0	-2.67%	-2.99%	0.61%	-0.61%
ACPP-4	$94,257	$99,276	-5.32%	-2.98%	-2.35%	1.0	-2.35%	-2.98%	0.63%	-0.63%
ACPP-5	$82,047	$94,818	-15.57%	-8.71%	-6.86%	1.0	-6.94%	-8.62%	1.77%	-1.77%

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Plan share difference before and after quality adjustment: Gain or Loss[c] (%)	State share difference before and after quality adjustment: Gain or Loss[c] (%)
ACPP-6	$118,127	$113,820	3.65%	3.24%	0.41%	1.0	3.24%	0.41%	0.00%	0.00%
ACPP-7	$235,726	$231,934	1.61%	-0.23%	1.84%	1.0	-0.18%	1.79%	0.05%	-0.05%
ACPP-8	$192,230	$194,952	-1.42%	-0.95%	-0.47%	1.0	-0.76%	-0.65%	0.18%	-0.18%
ACPP-9	$133,512	$123,562	7.45%	-0.32%	7.77%	1.0	-0.22%	7.67%	0.10%	-0.10%
ACPP-10[d]	$125,616	$119,995	4.47%	0.10%	0.06%	1.0	0.10%	0.06%	0.00%	0.00%
ACPP-11	$255,098	$247,123	3.13%	4.22%	-1.10%	1.0	4.22%	-1.10%	0.00%	0.00%
ACPP-12	$167,325	$161,731	3.34%	2.32%	1.02%	1.0	2.32%	1.02%	0.00%	0.00%
ACPP-13	$113,535	$120,490	-6.13%	-4.58%	-1.55%	1.0	-3.68%	-2.44%	0.89%	-0.89%
PCACO-1	$533,654	$521,267	2.32%	1.51%	0.81%	1.0	1.51%	0.81%	0.00%	0.00%
PCACO-2	$534,348	$531,325	0.57%	0.12%	0.45%	1.0	0.12%	0.45%	0.00%	0.00%
PCACO-3	$572,956	$551,552	3.74%	2.51%	1.23%	1.0	2.51%	1.23%	0.00%	0.00%
MCO-ACO -1	$78,860	$81,445	-3.28%	-0.82%	-2.46%	1.0	-0.69%	-2.59%	0.13%	-0.13%
All ACOs	**$4,039,571**	**$4,067,068**	**-0.68%**	**-0.25%**	**-0.56%**	**-**	**0.00%**	**-0.81%[e]**	**0.25%**	**-0.25%**

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk-sharing arrangements described in **Table 2.1-D1.3** and adjustments based on each ACO's quality score

[d] The sum of risk-sharing amounts for the plan and MassHealth for this ACO is $5.421 million less than the difference between the total capitation minus total spending. MassHealth caps the amount of shared risk payments at $0 when ACOs would shift from shared losses to shared savings because of price normalization

[e] With the addition of the $5.421 million in savings that were capped as described in footnote (d) of this table, this total would equal -0.68%

Table 2.3-D4.11 Quality Scores by ACO and Changes in Shared Savings or Losses Based on Quality Score Adjustments, CY2019

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Plan share difference before and after quality adjustment: Gain or Loss[c] (%)	State share difference before and after quality adjustment: Gain or Loss[c] (%)
ACPP-1	$801,884	$911,992	-13.73%	-4.35%	-9.38%	0.960	-3.51%	-10.22%	0.84%	-0.84%
ACPP-2	$148,334	$157,821	-6.40%	-3.04%	-3.36%	0.669	-2.63%	-3.77%	0.41%	-0.41%
ACPP-3	$110,359	$118,649	-7.51%	-4.20%	-3.32%	1.000	-3.35%	-4.16%	0.84%	-0.84%
ACPP-4	$118,124	$131,630	-11.43%	-4.84%	-6.59%	0.746	-4.12%	-7.32%	0.72%	-0.72%
ACPP-5	$101,061	$116,468	-15.24%	-5.02%	-10.22%	0.672	-4.35%	-10.90%	0.67%	-0.67%
ACPP-6	$152,713	$150,439	1.49%	1.85%	-0.36%	0.665	1.22%	0.27%	-0.63%	0.63%
ACPP-7	$277,492	$293,891	-5.91%	-3.16%	-2.75%	0.769	-2.67%	-3.24%	0.49%	-0.49%
ACPP-8	$226,807	$246,897	-8.86%	-4.35%	-4.51%	0.858	-3.60%	-5.26%	0.75%	-0.75%
ACPP-9	$142,605	$159,301	-11.71%	-7.36%	-4.34%	0.902	-6.03%	-5.68%	1.33%	-1.33%
ACPP-10	$149,485	$150,687	-0.80%	-0.13%	-0.68%	0.689	-0.11%	-0.69%	0.01%	-0.01%
ACPP-11	$346,875	$363,080	-4.67%	-0.93%	-3.74%	0.722	-0.80%	-3.87%	0.13%	-0.13%
ACPP-12	$201,075	$221,975	-10.39%	-6.05%	-4.34%	0.668	-5.25%	-5.15%	0.81%	-0.81%
ACPP-13	$149,025	$159,064	-6.74%	-4.35%	-2.38%	0.992	-3.48%	-3.25%	0.87%	-0.87%
PCACO-1	$703,659	$702,933	0.10%	0.00%	0.00%	0.856	0.00%	0.00%	0.00%	0.00%
PCACO-2	$657,921	$660,482	-0.39%	0.24%	0.83%	0.745	0.18%	0.89%	-0.06%	0.06%

ACO	Total Capitation / Benchmark[a] in thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before quality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Plan share difference before and after quality adjustment: Gain or Loss[c] (%)	State share difference before and after quality adjustment: Gain or Loss[c] (%)
PCACO-3	$682,126	$672,922	1.35%	1.15%	0.20%	0.642	0.74%	0.61%	-0.41%	0.41%
MCO-ACO	$102,874	$97,068	5.64%	1.50%	3.98%	0.805	1.21%	4.28%	-0.29%	0.29%
All ACOs	**$5,072,417**	**$5,315,298**	**-4.79%**	**-1.82%**	**-2.80%**	**0.786**	**-1.55%**	**-3.07%**	**0.27%**	**-0.27%**

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk-sharing arrangements described in **Section 2.2** and adjustments based on each ACO's quality score

Table 2.3-D4.12 Quality Scores by ACO and Changes in Shared Savings or Losses Based on Quality Score Adjustments, CY2020

ACO	Total Capitation/ Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and post quality adjustment: Gain or Loss[c]	Plan share difference before and after quality adjustment Gain or Loss[c] (%)	State share difference before and after quality adjustment Gain or Loss[c] (%)
ACPP-1	$989,889	$938,848	5.16%	1.25%	3.91%	0.972	1.21%	3.94%	-0.03%	0.03%
ACPP-2	$172,536	$152,751	11.47%	3.55%	7.92%	0.949	3.37%	8.10%	-0.18%	0.18%
ACPP-3	$133,744	$125,025	6.52%	1.72%	4.80%	0.990	1.71%	4.80%	-0.02%	0.00%
ACPP-4	$142,508	$135,530	4.90%	1.64%	3.25%	0.971	1.60%	3.25%	-0.05%	0.00%
ACPP-5	$129,389	$118,106	8.72%	3.76%	4.96%	0.934	3.51%	5.21%	-0.25%	0.25%

ACO	Total Capitation/ Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and post quality adjustment: Gain or Loss[c]	Plan share difference before and after quality adjustment Gain or Loss[c] (%)	State share difference before and after quality adjustment Gain or Loss[c] (%)
ACPP-6	$181,672	$167,200	7.97%	2.82%	5.14%	1.000	2.82%	5.14%	0.00%	0.00%
ACPP-7	$321,439	$284,660	11.44%	2.26%	9.18%	0.904	2.05%	9.40%	-0.21%	0.21%
ACPP-8	$269,292	$249,833	7.23%	2.93%	4.29%	0.990	2.90%	4.33%	-0.03%	0.03%
ACPP-9	$178,037	$168,361	5.44%	-0.74%	6.17%	0.980	-0.59%	6.02%	0.15%	-0.15%
ACPP-10	$180,837	$175,793	2.79%	0.38%	2.41%	0.993	0.38%	2.41%	0.00%	0.00%
ACPP-11	$431,562	$388,980	9.87%	1.65%	8.22%	0.949	1.56%	8.31%	-0.09%	0.09%
ACPP-12	$223,242	$215,116	3.64%	-0.35%	3.99%	0.942	-0.29%	3.93%	0.06%	-0.06%
ACPP-13	$171,993	$161,671	6.00%	1.16%	4.84%	1.000	1.16%	4.84%	0.00%	0.00%
PCACO-1	$810,150	$783,514	3.29%	1.28%	2.00%	0.959	1.23%	2.06%	-0.05%	0.05%
PCACO-2	$729,701	$720,961	1.20%	0.00%	0.00%	0.973	0.00%	0.00%	0.00%	0.00%
PCACO-3	$715,871	$671,499	6.20%	2.88%	3.32%	0.938	2.70%	3.50%	-0.18%	0.18%
MCO-ACO	$95,574	$93,889	1.76%	0.28%	1.17%	0.862	0.24%	1.21%	-0.04%	0.04%
All ACOs	**$5,877,437**	**$5,551,738**	**5.54%**	**1.48%**	**3.90%**	**0.959**	**1.42%**	**3.96%**	**-0.06%**	**0.06%**

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk sharing arrangements described in **Section 2.2** and adjustments based on each ACO's quality score

Table 2.3-D4.13 Observed Costs of Care for ACO and MCO/PCCP Enrollees[a] by Year, CY2015-CY2022

	CY2015 (Baseline)		CY2016 (Baseline)		CY2017 (Baseline)		CY2018		CY2019		CY2020		CY2021		CY2022	
Total N	**899,037**		**705,912**		**873,358**		**861,249**		**863,931**		**1,071,270**		**1,248,017**		**1,385,110**	
ACO[b], N	678,963		557,130		682,519		655,353		697,783		860,611		1,018,786		1,104,726	
MCO/PCCP[b], N	220,074		148,782		190,839		205,896		166,148		210,659		229,231		280,384	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
TCOC ($)	5,857	± 18,362	6,285	± 20,113	6,600	± 20,562	7,010	± 22,139	7,572	± 25,089	7,031	± 24,954	7,161	± 24,386	7,123	± 25,447
ACO[b]	5,814	± 18,371	6,210	± 20,224	6,592	± 20,661	6,952	± 21,912	7,456	± 24,728	6,670	± 22,784	6,978	± 23,191	6,979	± 24,252
MCO /PCCP[b]	5,989	± 18,335	6,563	± 19,688	6,629	± 20,206	7,195	± 22,845	8,060	± 26,545	8,505	± 32,299	7,972	± 29,095	7,687	± 29,683
TCOC, Core Medical Risk Corridor Only ($)	5,748	± 17,988	6,114	± 19,751	6,411	± 20,276	6,815	± 21,905	7,375	± 24,911	6,846	± 24,839	7,000	± 24,290	6,967	± 25,360
ACO[b]	5,709	± 18,015	6,037	± 19,854	6,399	± 20,362	6,758	± 21,669	7,257	± 24,540	6,490	± 22,667	6,818	± 23,089	6,819	± 24,158
MCO/ PCCP[b]	5,870	± 17,901	6,402	± 19,360	6,455	± 19,966	6,996	± 22,639	7,872	± 26,410	8,299	± 32,186	7,812	± 29,018	7,552	± 29,620
FFS Expenditures ($)	2,219	± 12,561	2,458	± 13,769	2,448	± 14,292	3,010	± 15,121	3,350	± 17,743	3,092	± 17,104	3,013	± 16,515	3,050	± 17,288
ACO[b]	2,123	± 12,159	2,375	± 13,616	2,431	± 14,223	2,889	± 14,501	3,149	± 16,867	2,777	± 14,813	2,790	± 15,248	2,812	± 15,533
MCO/ PCCP[b]	2,516	± 13,725	2,768	± 14,327	2,509	± 14,533	3,399	± 16,939	4,194	± 21,006	4,376	± 24,275	4,005	± 21,224	3,989	± 22,906

[a] MassHealth members eligible for ACO enrollment for 320+ days in the year. Individuals who switched plans (ACO, MCO, PCC) were attributed to the plan with which they had the majority of their enrollment during the year.

[b] During the baseline period (2015-2017), the ACO and MCO label reflects attribution to the program that a member would have been enrolled with at the start of the ACO program in March of 2018, rather than actual enrollment with an ACO or MCO/PCCP.

Table 2.3-D4.14 Adjusted Differences in Per Person Per Year TCOC for ACO and MCO/PCCP Enrollees by Year, CY2015-CY2022

Year	Pre-Post ACO – MCO/PCCP DiD, Absolute Scale	ACO – MCO/PCCP Difference in TCOC	ACO – MCO/PCCP Difference Lower 95% CI	ACO – MCO/PCCP Difference Upper 95% CI
TCOC				
CY2015	N/A	$82	$6	$159
CY2016	N/A	$63	$-34	$159
CY2017	N/A	$96	$7	$185
CY2018	-$202	-$113	-$208	-$17
CY2019	-$299	-$210	-$329	-$90
CY2020	-$436	-$347	-$461	-$234
CY2021	-$613	-$523	-$708	-$338
CY2022	-$252	-$163	-$268	-$57
TCOC (Core Medical Only)				
CY2015	N/A	$93	$18	$168
CY2016	N/A	$48	-$46	$143
CY2017	N/A	$82	-$6	$170
CY2018	-$191	-$117	-$211	-$22
CY2019	-$308	-$233	-$352	-$114
CY2020	-$433	-$358	-$471	-$245
CY2021	-$606	-$531	-$716	-$346
CY2022	-$255	-$180	-$285	-$75

Notes: The ACO – MCO/PCCP difference results were produced by a propensity score overlap weighted model that adjusted for covariates in the outcome models and contrasted ACO versus MCO/PCCP TCOC in each year using a set of indicator terms for calendar year interacted with the variable indicating enrollment in an ACO or MCO/PCC. The Pre-Post ACO – MCO/PCCP DiD results represent the difference between the pooled baseline difference (CY2015-CY2017) between the individuals who would have been enrolled with ACOs and MCOs/PCCP, had the ACO program been operational at that time, and each Demonstration year (CY2018-CY2022). MassHealth members eligible for managed care enrollment for 320+ days in the year were included in the analysis. Individuals who switched plans (ACO, MCO, PCC) were attributed to the plan with which they had the majority of their enrollment during the year. CI denotes Confidence Interval. DiD denotes difference in differences analysis.

Table 2.3-D4.15 Per-Member Per-Month (PMPM) Medical and Administrative Rates Set for PCACOs and ACPPs, CY2018-CY2022

	CY2018	CY2019	CY2020	CY2021	CY2022
Rate Type	**PMPM**				
Medical (all ACOs)	$437	$451	$461	$496	$510
Administrative (applies to rows below)					
PCACO	$5	$7	$11	$13	$15
ACPP	$24	$27	$28	$29	$31

2.3.5. Domain 5: Sustainability of Innovative Delivery System Changes, Including ACOs, CPs, and Flexible Services

RQ14: To what extent will innovative delivery system changes including ACOs, CPs, and Flexible Services be sustainable without DSRIP funding?

RQ14 Summary

Accountable Care Organizations (ACOs) and Community Partners (CPs) developed strategies to continue operating under an accountable and integrated care model after the Demonstration ended. With the support of Delivery System Reform Incentive Payment (DSRIP) funding, ACOs focused on ensuring their financial sustainability, developing and supporting their workforce, and building partnerships. CPs relied on partnerships and community resources, defined roles and responsibilities of CP staff, and created interdisciplinary care teams and new specialty staff roles to provide integrated care to their members. ACOs modeled Flexible Services (FS) programs (primarily working with Social Services Organizations (SSOs)) after successful community programs. ACOs automated referral workflows and adjusted services to promote FS program sustainability. ACOs envisioned the FS Program expanding to provide access to more members and to address member health-related social needs (HRSNs) beyond the Demonstration. Despite advance planning for sustainability, some ACOs and CPs remained concerned about how decreases in DSRIP funding, increased programmatic expectations, and workforce capacity issues would impact the long-term sustainability of ACOs, CPs, and the FS Program.

H14.1. ACOs will develop strategies to continue to operate under an accountable and integrated care model after the Demonstration ends.

Consistent with MassHealth's DSRIP program design, ACOs took steps to operate under an accountable and integrated care model after the end of the Demonstration, including strengthening partnerships with community-based organizations, increasing support during member care transitions, hiring new staff roles, training staff, and aligning processes across partnerships.

<u>Financial Sustainability</u>

Supported by DSRIP funding, ACOs developed strategies to operate under an accountable and integrated care model and reduce TCOC for members. ACOs invested in care coordination and

preventative services (e.g., SUD services, pharmacy services for medication management) to reduce the use of acute care, improve member experience, and reduce care costs. ACOs also stated that care quality improved and that they saw decreases in low-value care (i.e., care that is often unneeded and doesn't provide meaningful benefit).

> *"[Certain] conditions drive 70 to 80% of our total cost of care. And so, trying to figure out how can we better serve those members through things like care coordination, interventions around substance use disorder…[we have an] ACO-based pharmacy team that works on quality but also on supporting [the] team on medication management."*
> *– an ACO interview participant*

ACOs also worked with other organizations to develop strategies to reduce care costs. ACOs collaborated with CPs to address care transitions in order to reduce Emergency Department (ED) visits, inpatient admissions, and hospital readmissions. ACOs developed committees and held regular meetings with these organizations to discuss care quality and financial performance.

> *"We developed a clinical strategy committee. It's comprised of several of the medical directors, quality people, and some of the executives [from] the…organizations. We meet regularly to review our financial performance, identify areas that we need to target for improvements, and we also [identify] the strategies or initiatives to deal with managing costs."*
> *– an ACO interview participant*

Another ACO reduced its Total Cost of Care (TCOC) by collaborating more closely with preferred home health agencies.

> *"The other space we've continued to do work [in] despite the COVID-19 pandemic is around home health...It's something that the State had brought to our attention even in the beginning of the ACO that we had pockets of tremendous expenses around home health..." – an ACO interview participant*

ACOs expressed that planned decreased DSRIP funding in the later years of the Demonstration made it difficult for ACOs to meet program requirements and quality performance goals and to hire staff to support increased member volumes. Financial sustainability was perceived to be especially difficult because of the costs of treating members with complex medical and social needs. Many ACOs were concerned about sustaining the ACO model without the additional support of DSRIP funds.

> *"I think, overall, for as ambitious as the program was, and what we were looking to achieve in the five years since we've launched it, this has really made a positive movement forward into what those goals we were looking to achieve are. I think that, really, our concern underlying this is, we want to see, and I know that this is what MassHealth wants to see as well, the security of the safety net providers, and the safety net hospitals, and we are very concerned in the new Waiver that if there are not supports in place to ensure that those hospitals and those provider networks that are seeing the most critical patients, that there will be concerns around consolidation of those*

networks, or even closures, because people cannot keep up on the bottom line of the financials without having those supports." – an ACO interview participant

Some ACOs stated that DSRIP ending may lead to the sunsetting of beneficial programs and resources. With the decrease in DSRIP funds, one ACO reported that they could no longer fund between 15 and 20 staff positions, which were subsequently eliminated. According to ACO interviewees, reductions in staffing combined with service delays during the COVID-19 pandemic and subsequent spikes from pent-up demand affected members' access to care.

Workforce

ACOs developed strategies to hire and train staff to operate under the accountable care model. Some ACOs reported developing liaison roles to facilitate inter-organizational communication and collaboration to improve care integration. ACOs also reported hiring diverse staff who spoke multiple languages to improve member engagement. One ACO reported hiring a benefits navigation trainer to hold bi-weekly training to improve staff understanding of member benefits and to support staff in identifying available resources to address member needs.

"We've hired a trainer…she's been training our practice-based staff on understanding what benefits families might be eligible for and then supporting them through the application process...she does bi-weekly, hour-long trainings, and then she also holds office hours to walk through specific examples. And that's been really exciting, and we're getting a lot of resources and really working on integrating that into our workforce." – an ACO interview participant

However, workforce capacity issues and employee burnout, heavily influenced by the COVID-19 pandemic, were cited as barriers to ACO sustainability. While Statewide Investments (SWIs) helped with capacity building (see **RQ1 H1.2 and H1.3**), some safety net ACOs expressed that SWIs were not as helpful for workforce retention because other organizations could offer higher salaries for similar roles. ACOs noted that these issues often led to a misalignment of workforce expertise with member characteristics and needs.

"I think there has been a lot of challenges in the continuous implementation and engagement of the [SWIs], particularly among the safety net providers, both to implement, engage, and then make the programs palatable for retaining and recruiting a workforce." – an ACO interview participant

“The skill set of the people doing the work doesn’t align with the population. There’s an incredible churn of the coordinators and a vast majority of them are inexperienced. They don’t always have the acumen to really be effective in the role. There are some outliers; obviously, it’s not across the board, but it is a lot. Members that have a serious mental illness need expertise.” – an ACO interview participant

H14.2. CPs will develop strategies to continue to operate under an accountable and integrated care model after the Demonstration ends.

CPs pursued strategies to continue operating under an accountable and integrated care model after the end of the 2017-2022 Demonstration, including aligning goals with partners to reduce care costs, updating staff roles to support efficiency and sustainability, streamlining processes across partnerships, and refining programs.

Financial Sustainability

CPs developed strategies to achieve long-term financial sustainability under the accountable and integrated care model. As such, CPs made an effort to align goals with those of ACOs and MCOs, which were often focused on improving quality performance and reducing care costs. CPs met with ACOs regularly to discuss processes and workflows to meet shared goals, such as care plan completion and timely member outreach. CPs reported that they would like to have better access to member-level cost-of-care data to improve quality performance and better align efforts with ACOs and MCOs. CPs reported that ACOs and MCOs may evaluate the CPs and make decisions affecting the nature of their partnerships and whether partnerships would continue, based in part on their ability to reduce TCOC and generate savings for the ACO or MCO.

> *"…So, [ACOs are] focused on their performance and their goals. But they're also focused on our performance according to what CPs are supposed to be doing, [such as] care plan completion…I think what's going to be really interesting is in the future when our accountability as a CP rather than being to the State will be to the ACOs…[the ACOs will] tell us what they want us to do, and so we'll work with them to make sure that we meet those objectives. The thing that's kind of frightening about that is if a CP contracts with a number of different ACOs then we're going to have perhaps lots and lots of goals that we're supposed to be looking at."*
> *– a CP interview participant*

During the 2017-2022 Demonstration, CPs requested and received an increase in the PMPM payment for services delivered after MassHealth obtained approval from CMS to increase payment rates, and CPs stated that the program would have been unsustainable without this increase. Even incorporating the PMPM increase, some CPs remained concerned about program sustainability with the potential for increased member acuity and administrative burdens. CPs also expressed that high caseloads and high member acuity placed a heavy workload on staff and affected timely access to care for members.

> *"I would say the only reason this program is sustainable is because [of] the increase in PMPM amount. And it's only barely sustainable at this point, so if our members are to get more acute, as we expect them to do with the next Waiver, and if we are going to have to bear increased administrative burden, because of the totally not streamlined processes for the ACOs, that needs to be reflected in the PMPM payment." – a CP interview participant*

Workforce

CPs evolved staffing roles and responsibilities throughout the 2017-2022 Demonstration to support efficiency and sustainability. Several CPs noted that they initially assigned multiple responsibilities to care coordinators, such as member outreach, member engagement, and care management. CPs found that this staffing model was ineffective and subsequently created individual specialized positions for outreach, engagement, and care management to alleviate workforce burden and improve care quality. As noted in the preceding financial sustainability section, if strategies such as creating specialized positions increase quality and cost performance from the perspective of ACO and MCO partners, this may support sustainability through effects on ACO and MCO referral volumes and associated revenue. Moreover, by

alleviating burdens on other members of the care team, the creation of specialized positions may have enhanced retention and improved the effectiveness of care coordination supports because of a more experienced workforce. In addition to developing roles, some CPs reported that changes to marketing teams, human resource departments, and financial teams were central to their success, and promoted sustainability.

> *"We've…created different teams of staff and different positions as the roles and work evolved. The big difference in the model is that a different organizational model was created over time…for instance, one of the things was we had nurse care managers…we created a liaison position…and a team of engagement specialists."*
> *– a CP interview participant*

Partnerships

CPs shared many strategies that emerged during the Demonstration that improved their ability to continue operating under an accountable and integrated care model. CPs reported that continuing existing relationships with community resources and healthcare organizations helped streamline processes. CPs also reported co-locating CP and clinical services (e.g., primary care (PC), behavioral health (BH)) facilitated integrated care delivery. Relationships with these co-located partners improved transitions of care for members.

> *"When you make connections with people from other agencies, it's more of that warm handoff…when you gain that relationship [with the member] it's easier to get them into their program, or whatever services they need."*
> *– a CP interview participant*

Program Refinements

CPs appreciated the numerous flexibilities (i.e., electronic signatures, verbal attestation, texting members, billing for virtual services) allowed in response to the COVID-19 pandemic, stating that these helped CPs support members. CP staff reported that member engagement improved because they were allowed to use virtual and telephonic communication modalities. Many CPs explained that texting helped CPs connect and build rapport with members, especially members diagnosed with BH conditions. Virtual services improved care access for members who could not be present in person (i.e., lack of transportation, having to take time off of work). Many CPs expressed that they hoped that these flexibilities would be maintained after the end of the COVID-19 pandemic because they helped the CPs operate under the accountable, integrated care model.

> *"Also, having the MassHealth flexibilities for the billing allows us to continue to do a lot of care management from home or remotely, to being able to complete an assessment by phone versus having to be face-to-face only. Having that flexibility of being able to do both is super helpful. Following up with ED visits or hospitalizations, things like that that were normally only allowed face-to-face, having that flexibility to do it telephonically has been great…it speaks to being able to provide options to members that really reflect their preference and their comfort." – a CP interview participant*

H14.3. ACOs will pursue strategies to continue to provide FS to members after the Demonstration ends.

ACOs pursued strategies to sustain the FS Program after the end of the 2017 – 2022 Demonstration including developing strategic partnerships, investing in technology solutions to systematize and automate processes, advocating for programmatic changes, and refining programs based on early learnings and MassHealth program changes. The FS Program is described in detail in **RQ1 H1.1 and RQ2 H2.6**.

Partnerships

ACO staff reported that they strategically sought to establish partnerships with specific SSOs, to rely on the knowledge and expertise of those organizations, and to model FS programs after existing, successful SSO and ACO programs. Additional considerations were given to the availability of community resources and service capacity to deliver supportive services for MassHealth members. These strategies allowed ACOs to leverage the expertise and resources of their partners and those preexisting within the ACO, and to promote program sustainability.

> *"We realize that, while we have care managers and social workers who do excellent work, there comes a point where you need to really rely on the expertise of the [community] folks, such as our partners at [redacted], who do this day in and day out, and really have a lot of additional resources that they have access to, [to] kind of help handle this population. We're partnering with them, and we're so happy that they are being so collaborative and running with it."*
> *– an ACO interview participant.*

> *"We shamelessly stole ideas from other organizations who have done great work in this space already…And we said, 'Wow, we can offer something like that to our patients here; we actually have a nutrition program here at a department…And they could offer those courses to our patients, and wouldn't that be a great benefit?'"*
> *– an ACO interview participant*

Data and Risk Stratification

ACO staff used risk stratification data and custom reports to automate the identification of members eligible for FS and reduce the burden on the workforce. Some ACOs worked with data vendors, using SWI funds (see **RQ1 H1.2.**) to help aggregate existing data sources to drive referrals.

> *"One of the really innovative things that we're doing is because our program is so large, yet we have a limited number of people who can run it, we've worked with [a social determinants of health] data vendor to develop a risk stratification that incorporates both the health and the clinical need. So that we're using data to drive referrals into the program instead of people."*
> *– an ACO interview participant*

Program Refinements

MassHealth and ACOs also made adjustments during FS Program implementation to meet the needs of members while strengthening the program for continuation after the 2017-2022

Demonstration ended. MassHealth allowed telephonic screening and planning processes in response to the COVID-19 pandemic, which improved member enrollment and engagement. These remote screening and planning processes replaced many in-person visits, which created flexibility for members to access services.

> *"… not requiring the in-person visit and being able to enroll patients telephonically has been instrumental to the success. We don't think that we'd be able to have enrolled patients if that in-person visit was required. Especially during COVID. So we hope that that's something that stays with the program, so we continue enrolling at the same scale." – an ACO interview participant*

In the latter years of the 2017 – 2022 Demonstration, ACOs adjusted the eligibility criteria and services delivered for individual FS programs to improve member engagement. However, ACOs stated that the FS Program still needed some adjustments for long-term sustainability. Some ACOs expressed that implementing and managing the FS Program was more complex than initially anticipated; ACO staff strongly encouraged MassHealth to remodel and adjust administrative processes, such as the Verification, Planning, and Referral form and reporting requirements, because they slowed the process of connecting members to needed services.

Ongoing issues, such as the statewide housing shortage and a lack of services in certain geographic areas, made it difficult for staff to connect members to needed supports in some circumstances. ACOs desired to expand access to the FS Program to provide more members with needed resources. ACOs hoped to enroll more members in the FS programs than they had the capacity for, to enroll members who did not meet the FS eligibility criteria, and to expand the service offerings to address other HRSNs in addition to nutrition and housing needs. ACO staff also expressed that more enrollees in the FS Program would create a larger sample size to more precisely measure program outcomes.

> *"I think the biggest issue is the scale is very small…But I will say that's a lot of administration for [a small sample]...Now, we've seen some good preliminary results on some of them, especially around food insecurity, but a program with 200 people…we'll never be able to really measure it. It's a really small sample size. We're encouraged by the results…but I think it needs to be reformatted…I actually think it should be more flexible." – an ACO interview participant*

ACOs stated that continued funding to sustain, advance, and scale FS was necessary to operate the program beyond the Demonstration. ACOs continued to look at data to assess the financial impacts of the FS Program on TCOC reduction and program sustainability.

> *"We've definitely used the DSRIP funding to bring on the programs that really deal…with some of the social determinants of health, in terms of care management, in terms of the Flex Services Program, in terms of transportation, in terms of nutrition. All of those programs have been stood up based on the DSRIP funding, and, again, we strongly feel that there needs to be ongoing funding built into the next Waiver to ensure that those programs can continue to function...the challenge of dealing with those issues, which is beyond what the providers can provide in their medical practice setting, is critically important to continuing to reduce care costs." – an ACO interview participant*

Cost, Return on Investment, and Cost-Effectiveness Analyses

As described in the evaluation approach (**Section 2.2**), to test these hypotheses, the DSRIP expenditures for the ACO, CP, FS, and SWI programs and State Operations and Implementation funding streams were analyzed to quantify the DSRIP program overall and per member costs. The results of these analyses of program costs were combined with TCOC results presented in **Section 2.3.4** for the purpose of conducting return on investment analyses of the ACO, CP, and FS programs. Cost-effectiveness analyses of the ACO, CP, and FS programs were subsequently conducted using the DSRIP program costs, TCOC results from **Section 2.3.4**, and select outcome measure results from **Section 2.3.3**. A summary of the results of the cost analyses of DSRIP Investments, the return-on-investment analyses, and the cost-effectiveness analyses are provided below, followed by more detailed results of each analysis.

H14.4 The cost and effect of the ACO Program will warrant continued investment.

DSRIP ACO investments over the 2017-2022 Demonstration period accounted for $1.47 billion in inflation-adjusted 2022 dollars. The annual cost per person year per ACO enrollee was $421 in 2018, $394 in CY2019, $321 in CY2020, $231 in CY2021, $169 in CY2022, and $201 in Q1 of CY2023. Based on ROI analysis, DSRIP investments in the ACO Program were recouped with an additional 35% (95% CI: 6%, 64%) for the population of ACO enrollees included in our analyses, resulting in an aggregate of $512 million in savings over the 2017-2022 Demonstration period. Between CY2018 and CY2022, the ACO Program averted a total of 25,707 all-cause acute unplanned inpatient admissions among the population of ACO enrollees included in our analyses. Since both costs and effects favored the ACO program, the counterfactual based on the MCO/PCCP comparison group was dominated (i.e., superior to the comparison group in this case).

H14.5 The cost and effect of the CP Program will warrant continued investment.

DSRIP CP investments over the 2017-2022 Demonstration period accounted for $483 million in inflation-adjusted 2022 dollars. The average CP Program-related spending per ACO enrollee was $2,946. The average BH CP spending per ACO enrollee was $3,319 and the average long term services and supports (LTSS) CP spending per ACO enrollee was $2,115.

H14.6 The cost and effect of the FS Program will warrant continued investment.

DSRIP expenditures on the FS Program during 2020 through Q1 of CY 2023 totaled $84 million in inflation-adjusted 2022 dollars. Users were enrolled in an average of 1.2 programs with an average cost of $2,882 per user over the program period (Q1 of CY2020 through Q1 of CY2023).

Results

Section One: Cost Analyses of DSRIP Program Funding Streams

1. **DSRIP State Operations and Implementation Funding**

As presented in **Table 2.3-D5.1,** between 2017 and Q1 of CY2023, the state spent $29 million on the administration of the four DSRIP programs (ACO, CP, FS, and SWI programs) and overall DSRIP administration. 51% of DSRIP State Operations and Implementation Funding was

spent on overall DSRIP administration, 32% on the ACO Program, 9% on the CP Program, 5% on the Flexible Services Program, and 4% on the SWI Program.

Table 2.3-D5.1 Total State Operations and Implementation Funding for General DSRIP Administration and for the ACO, CP, FS, and SWI Programs, in Thousands Adjusted to CY2022 $

Programs	CY2017	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023[a]	Total	%
ACO Program	$161	$1,483	$2,807	$1,974	$1,664	$1,276	$108	$9,473	32%
CP Program	$20	$453	$561	$415	$640	$396	$22	$2,507	9%
FS Program[b]	$7	$165	$281	$208	$320	$352	$22	$1,355	5%
SWI Program	$0	$165	$281	$208	$320	$176	$0	$1,150	4%
Overall DSRIP Administration	$0	$1,854	$3,088	$2,389	$3,455	$2,200	$2,002	$14,988	51%
Total	**$188**	**$4,120**	**$7,018**	**$5,194**	**$6,399**	**$4,400**	**$2,154**	**$29,473**	**100%**

[a] CY2023 includes only Q1 (from January 1, 2023 to March 31, 2023).

[b] Expenses in 2017 for the FS Program were financially supported by sources other than DSRIP State Operations and Implementation Funding.

To estimate the marginal cost of the DSRIP State Operations and Implementation Funding expenditures, we analyzed the state staff effort allocated to operating and implementing DSRIP and focused on those activities that were unique to the DSRIP program, not conducted under the two comparator programs (MCO and PCCP programs), and focused on activities that would impact member care, e.g., building system capacity, care coordination, system integration, and addressing member HRSNs.

To initiate and manage the DSRIP program, MassHealth staff dedicated resources to program development and conceptualization, provider engagement, and issuing of guidance for reporting requirements, which were unique to the DSRIP program. MassHealth staff allocated time for routine activities similar to those conducted under the MCO and PCCP programs, including stakeholder engagement (10%), monitoring (10%), internal and external evaluation (10%), routine provider engagement and guidance (20%), and oversight activities (25%). Of the MassHealth staff effort allocated to DSRIP, 20% was allocated to program development and conceptualization, and 5% to provider engagement and guidance. During the preparation year (2017), MassHealth staff efforts were allocated to two activities, program development and conceptualization (80%) and provider engagement (20%).

Table 2.3-D5.2 presents the DSRIP State Operations and Implementation Funding expenditures that were unique to DSRIP, not conducted for the MCO and PCCP programs, and used for program development and conceptualization, and provider engagement. Only 13% (i.e., $3.762 million) of the $29 million in DSRIP State Operations and Implementation Funding was allocated to activities unique to DSRIP, not conducted for the MCO and PCCP programs, and focused on activities related to member care but did not duplicate funding for covered services. Of the approximately $4 million DSRIP State Operations and Implementation Funding expenditures, 66% were allocated to the ACO Program, 17% to the CP Program, 9% to the FS Program, and 8% to the SWI Program.

Table 2.3-D5.2 DSRIP State Operations and Implementation Funding Allocated to the ACO, CP, FS, and SWI programs for Cost Analyses, in Thousands Adjusted to CY2022 $

DSRIP Programs	CY2017	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023[a]	Total	%
ACO Program	$161	$371	$702	$493	$416	$319	$27	$2,489	66%
CP Program	$20	$113	$140	$104	$160	$99	$5	$641	17%
FS Program[b]	$7	$41	$70	$52	$80	$88	$5	$343	9%
SWI Program	$0	$41	$70	$52	$80	$44	$0	$287	8%
Total	**$189**	**$566**	**$982**	**$701**	**$736**	**$550**	**$38**	**$3,762**	**100%**

[a] CY2023 includes only Q1 (from January 1, 2023 to March 31, 2023).

[b] Expenses in CY2017 for the Flexible Services program were financially supported by sources other than DSRIP State Operations and Implementation Funding

As discussed in **Section 2.2**, the subsequent cost analyses of the ACO, CP, FS, and SWI programs incorporate the DSRIP State Operations and Implementation Funding expenditures.

2. DSRIP Statewide Investments (SWIs) Expenditures

Of the 22 SWI programs, six were excluded from the analysis. The SWI 4d Recovery Coach Supervisor Training Incentive Fund program was canceled. The SWI 4f Behavioral Health Partnership Expansion Grant targeted 7 regional workforce investment boards and served members enrolled in ACOs, MCOs and PCCP.[91] SWI 5c Standardized Training for CSAs, SWI 7 Enhanced Diversionary Behavioral Health Activities, SWI 8a Improved Accessibility: Provider Directory, and SWI 8b Improved Accessibility: Accessibility Grant Program were excluded since the objectives and benefits associated with these programs applied to all MassHealth members regardless of their ACO membership.

As presented in **Table 2.3-D5.3**, the expenditures for building and training the primary care and behavioral health workforce (SWIs 1-4) and building capacity for ACOs and CPs (SWI 5) was $71 million. The SWI 5a targeted Technical Assistance (TA) for ACOs and CPs accounted for 46% ($33 million), followed by SWI 1a Student Loan Repayment Program at 16% ($11 million), SWI 3a Family Medicine and Nurse Practitioner Residency Training at 12% ($8 million), SWI 2 Primary Care/Behavioral Health Special Projects Program and SWI 5b Community Health Center Readiness Program at 6% ($4 million) each, the SWI 1b Behavioral Health Workforce Development Program and SWI 3b Community Mental Health Center BH Recruitment Fund at 3% ($2 million) each, SWI 6 Alternative Payment Methods Preparation Fund at 2% ($2 million), and SWI 4a Community Health Worker Training Capacity Expansion Grant at 1% ($1 million). Expenditures for the other programs were less than $1 million.

[91] Susan Pfefferle et al, Jun 28, 2023, Behavioral Health Partnership Expansion Grant Evaluation, Stakeholder Briefing.

Table 2.3-D5.3 Expenditures on SWI Programs by Program and Year, in Thousands Adjusted to CY2022 $

SWIs Program by DSRIP Category	CY2018	CY2019	CY2020	CY2021	CY2022	Total
Building and Training Primary Care and Behavioral Health Workforce (SWIs 1-4)						
[SWI 1a] Student Loan Repayment Program	$963	$1,484	$2,972	$2,762	$2,875	$11,055
[SWI 1b] Behavioral Health Workforce Development Program	$566	$428	$523	$382	$392	$2,290
[SWI 1c] Community Partners (CP) Recruitment Incentive Program	$371	$311	$122	$52	$0	$856
[SWI 2] Primary Care/Behavioral Health Special Projects Program	$1,008	$823	$787	$631	$761	$4,010
[SWI 3a] Family Medicine and Nurse Practitioner Residency Training	$2,237	$2,059	$2,620	$1,557	$0	$8,474
[SWI 3b] Community Mental Health Center BH Recruitment Fund	$177	$262	$789	$460	$535	$2,222
[SWI 4a] Community Health Worker Training Capacity Expansion Grant	$0	$333	$363	$350	$0	$1,046
[SWI 4b] Peer Specialist Training Capacity Expansion Grant	$0	$583	$0	$0	$0	$583
[SWI 4c] Community Health Worker Supervisors Training Grant	$0	$0	$259	$0	$0	$259
[SWI 4e] Competency-Based Training Program for ACOs and CPs	$0	$0	$410	$0	$0	$410
Capacity Building for ACOs and CPs (SWI 5)						
[SWI 5a] Targeted TA for ACOs and CPs	$0	$7,364	$8,721	$8,748	$7,958	$32,791
[SWI 5a] Learning Collaboratives	$0	$0	$405	$424	$0	$829
[SWI 5b] Community Health Center Readiness Program	$940	$906	$876	$867	$826	$4,414
[SWI 5c] SWI Pop-Ups	$0	$219	$131	$66	$0	$416
[SWI 5c] Standardized Training for CPs	$215	$198	$239	$255	$57	$965
[SWI 6] APM Preparation Fund	$0	$408	$408	$408	$408	$1,631
Total	**$6,477**	**$15,378**	**$19,624**	**$16,961**	**$13,811**	**$72,250**

Table 2.3-D5.4 presents the expenditures on the SWI programs targeting the community-based workforce (SWIs 1a, 1b, 1c, SWI 2, and SWIs 3a and 3b) totaling $29 million. Thirty-eight percent ($11 million) was spent on 269 student loan repayment program slots; 29% ($8 million) on 36 family medicine and six nurse practitioner residency training slots; 14% ($4 million) on the primary care/behavioral health special projects program, which financially supported 97 projects;

8% ($2 million) on the BH workforce development program covering 43 student loan repayment slots; 8% ($2 million) on the community mental health center BH Recruitment fund, which financially supported 15 student loan repayments and 14 special projects; and 3% ($0.9 million) on a CP recruitment initiative covering 51 student repayment slots.

Thirty-five percent ($10 million) of SWI community-based workforce program expenditures were for providers affiliated with ACPPs, 30% ($9 million) for providers affiliated with BH CPs, 20% ($6 million) for providers affiliated with PCACOs, 3% ($0.9 million) for LTSS CPs, and 12% ($3 million) for providers not yet in the ACO or CP programs. There were no expenditures for providers affiliated with the MCO-ACO.

Table 2.3-D5.4 Expenditures on SWI Programs Targeting the Community-Based Workforce, in Thousands Adjusted to CY2022 $

Entity	[SWI 1a] Student Loan Repayment Program	[SWI 1b] Behavioral Health Workforce Development Program	[SWI 1c] Community Partners (CP) Recruitment Incentive Program	[SWI 2] Primary Care/Behavioral Health Special Projects Program	[SWI 3a] Family Medicine and Nurse Practitioner Residency Training	[SWI 3b] Community Mental Health Center BH Recruitment Fund	Total
ACPPs	$3,465	$0	$0	$986	$5,743	$0	$10,194
PCACOs	$1,450	$0	$0	$1,623	$2,730	$0	$5,803
MCO-ACO	$0	$0	$0	$0	$0	$0	$0
BH CPs	$4,106	$978	$709	$858	$0	$1,918	$8,569
LTSS CPs	$387	$158	$133	$250	$0	$0	$928
Other	$1,647	$1,154	$13	$293	$0	$305	$3,413
Total	**$11,055**	**$2,290**	**$856**	**$4,010**	**$8,474**	**$2,222**	**$28,906**

Table 2.3-D5.5 presents the expenditures on the SWI programs targeting the frontline workforce (SWI 4), which totaled $2 million. 46% (1 million) was spent on training 620 Community Health Workers (CHWs) under SWI 4a, 25% ($0.6 million) to train 280 peer specialists under SWI 4b, 18% ($0.4 million) on competency-based training for 103 ACO and CP staff under SWI 4e, and 11% ($0.3 million) on training for 127 CHW supervisors under SWI 4c.

Thirty-one percent ($0.7 million) of the SWI community-based workforce program expenditures were for providers affiliated with BH CPs, 28% ($0.7 million) for providers affiliated with ACPPs, 18% ($0.4 million) for providers affiliated with LTSS CPs, 13% ($0.3 million) for providers affiliated PCACOs, 9% ($0.2 million) for providers not in the ACO or CP Programs, and less than $2,000 for providers affiliated with the MCO-ACO.

Table 2.3-D5.5 Expenditures on SWIs Programs Targeting the Frontline Workforce, in Thousands Adjusted to CY2022 $

Entity	[SWI 4a] Community Health Worker Training Capacity Expansion Grant	[SWI 4b] Peer Specialist Training Capacity Expansion Grant	[SWI 4c] Community Health Worker Supervisors Training Grant	[SWI 4e] Competency-Based Training Program for ACOs and CPs	Total
ACPPs	$318	$0	$67	$267	$653
PCACOs	$267	$4	$37	$0	$308
MCO-ACO	$2	$0	$0	$0	$2
BH CPs	$170	$308	$87	$143	$707
LTSS CPs	$95	$271	$50	$0	$415
Other	$194	$0	$18	$0	$213
Total	**$1,046**	**$583**	**$259**	**$410**	**$2,298**

The spending on SWI capacity-building programs was $39 million, of which 83% ($33 million) was for targeted TA for ACOs and CPs (SWI 5a), including 52 1:1 coaching sessions and eight webinars attended by nearly 950 professionals, followed by the Community Health Center Readiness Program (SWI 5b), which accounted for 11% or $4 million. Expenditures on the remaining programs were less than $1 million (see **Table 2.3-D5.6**).

Thirty-eight percent ($15 million) of the SWI capacity-building program expenditures were for providers affiliated with ACPPs, 29% ($12 million) for providers affiliated with BH CPs, 15% ($6 million) for providers affiliated with LTSS CPs, 13% ($5 million) for providers affiliated PCACOs, 4% ($2 million) for providers affiliated with the MCO-ACO and 1% ($0.5 million) for providers not in the ACO or CP programs.

Table 2.3-D5.6 Expenditures on SWI Programs for ACO and CP Capacity Building (SWIs 5), in Thousands Adjusted to CY2022 $

Entity	[SWI 5a] Targeted TA for ACOs and CPs	[SWI 5a] Learning Collaboratives	[SWI 5b] Community Health Center Readiness Program	[SWI 5c] SWI Pop-Ups	[SWI 5c] Standardized Training for CPs	Total
ACPPs	$11,263	$213	$3,376	$46	$6	$14,905
PCACOs	$4,272	$84	$779	$38	$3	$5,175
MCO-ACO	$1,228	$13	$260	$0	$0	$1,501
BH CPs	$10,714	$256	$0	$131	$518	$11,619
LTSS CPs	$5,315	$147	$0	$57	$243	$5,762

Entity	[SWI 5a] Targeted TA for ACOs and CPs	[SWI 5a] Learning Collaboratives	[SWI 5b] Community Health Center Readiness Program	[SWI 5c] SWI Pop-Ups	[SWI 5c] Standardized Training for CPs	Total
Other	$0	$116	$0	$144	$194	$454
Total	**$32,791**	**$829**	**$4,414**	**$416**	**$965**	**$39,415**

Table 2.3-D5.7 shows the expenditures on SWI programs by ACO and CP affiliation. Thirty-seven percent ($27 million) of the overall cost for building and training the primary care and BH workforce (SWIs 1-4), building ACO and CP capacity (SWI 5), and SWI 6 Alternative Payment Methods Preparation Fund (APM) was spent on providers affiliated with ACPPs, 29% ($21 million) was spent on providers affiliated with BH CPs, 17% ($12 million) was spent on providers affiliated with PCACOs, 10% ($7 million) was spent on providers affiliated with LTSS CPs, 6% ($4 million) was spent on providers not yet part of the ACO and CP programs, and only 2% ($1 million) were spent on providers affiliated with the MCO-ACO.

Table 2.3-D5.7 Expenditures on SWI Programs by Provider Program, in Thousands Adjusted to CY2022 $

Entity	CY2018	CY2019	CY2020	CY2021	CY2022	Total
ACPPs	$2,570	$6,872	$7,347	$5,569	$4,210	$26,567
PCACOs	$1,838	$2,839	$3,176	$2,636	$1,613	$12,101
MCO-ACO	$55	$284	$502	$356	$305	$1,502
BH CPs	$1,401	$3,289	$5,651	$5,385	$5,169	$20,895
LTSS CPs	$172	$1,478	$1,791	$2,047	$1,616	$7,105
Other	$441	$617	$1,157	$966	$899	$4,079
Total	**$6,477**	**$15,378**	**$19,624**	**$16,961**	**$13,811**	**$72,250**

As discussed in **Section 2.2**, the subsequent cost analyses of the ACO and CP programs incorporate the DSRIP State Operations and Implementation Funding expenditures and the SWI expenditures allocated to the CP Program.

3. CP Program Expenditures

CPs received DSRIP funds through three sub-streams: 1) care coordination (i.e., program investment); 2) infrastructure and capacity building (i.e., infrastructure investments); and 3) CP accountability payment (i.e., DSRIP Accountability Score payments and Performance Remediation Plan payments based on quality performance and outcome-based payments for achieving benchmarks on utilization metrics). In addition, indirect expenditures were associated with the program, including the SWI expenditures on providers affiliated with the CPs and a portion of the DSRIP State Operations and Implementation Funding expenditures.

Table 2.3-D5.8 presents the total DSRIP expenditures on CP Program Investment and Infrastructure Investments. Expenditures on program investments included personnel, travel, equipment like laptops and rented printers, office supplies, software licensing, and telecommunications. Infrastructure investments were spent on salaries and fringe benefits for Information Technology (IT), workforce development, operations staff, development and adaptation of EHR and care management systems, software for service delivery, recruitment, training and retention, and business start-up costs, among others. 77% ($373 million) of DSRIP expenditures on CPs were spent on Program Investments, and 23% ($114 million) were spent on Infrastructure Investments.

Table 2.3-D5.8 DSRIP Expenditures on CP Program and Infrastructure Investments, in Thousands Adjusted to CY2022 $

CP Expenditure Type	BP1	BP2	BP3	BP4	BP5	Total
Program Investment	$40,706	$68,941	$77,465	$74,901	$111,465	$373,479
Infrastructure Investment	$25,921	$37,370	$22,114	$14,119	$14,454	$113,977
Overall CP Program Expenditures	**$66,627**	**$106,311**	**$99,579**	**$89,020**	**$125,919**	**$487,455**

Note: BP denotes budget period. BP1 corresponds to CY2018, BP2 to CY2019, BP3 to CY2020, BP4 to CY2021, and BP5 to CY2022. BP1 covers the six-month preparation period budget and the six calendar months of operations, while BP5 covers 15 calendar months from Q1 CY2022 through Q1 CY2023.

As presented in **Table 2.3-D5.9,** 83% of the Program and Infrastructure Investments for CPs were spent on BH CPs and 17% on LTSS CPs. Fourteen percent of the Program and Infrastructure Investments for CPs were spent during BP1, covering six calendar months, 22% during BP2, 20% during BP3, 18% during BP4, and 26% during BP5, which covers 15 calendar months.

Table 2.3-D5.9 DSRIP Expenditures on CP Program and Infrastructure Investments by CP type, in Thousands Adjusted to CY2022 $

CP Type	BP1	BP2	BP3	BP4	BP5	Total
BH CPs	$53,754	$86,814	$82,923	$73,876	$106,459	$403,826
LTSS CPs	$12,873	$19,497	$16,656	$15,144	$19,460	$83,629
Total CP Program	**$66,627**	**$106,311**	**$99,579**	**$89,020**	**$125,919**	**$487,455**

Note: BP denotes budget period. BP1 corresponds to CY 2018, BP2 to CY2019, BP3 to CY2020, BP4 to CY2021, and BP5 to CY2022. BP1 covers the six-month preparation period budget and the six calendar months of operations, while BP5 covers 15 calendar months from Q1 2022 through Q1 2023.

In addition to receiving Program Investments and Infrastructure Investments, the CPs were held accountable for three types of payments. **Table 2.3-D5.10** presents the aggregate amount of accountability payments made by year and CP type which includes outcome-based payments for BP2 through BP4 and earned at-risk infrastructure payments for nine CPs in BP3 and 10 CPs in BP4, but excludes the third type of accountability payment (Performance Remediation

Plans “PRP” payments) since those payments were not finalized when this analysis was conducted.

Table 2.3-D5.10 Community Partners Accountability Payment by Budget Period, in Thousands Adjusted to CY2022 $

CP Type	BP1	BP2	BP3	BP4	Total
BH CPs	$0	$10,562	$7,116	$11,548	$29,226
LTSS CPs	$0	$2,528	$2,471	$3,074	$8,073
Total CP Program	**$0**	**$13,090**	**$9,588**	**$14,623**	**$37,301**

Note: Accountability payments for BP5 were not complete when this analysis was conducted. BP denotes budget period. BP1 corresponds to CY 2018, BP2 to CY2019, BP3 to CY2020, BP4 to CY2021, and BP5 to CY2022. BP1 covers the six-month preparation period budget and the six calendar months of operations, while BP5 covers 15 calendar months from Q1 2022 through Q1 2023.

Table 2.3-D5.11 presents the total DSRIP expenditures on the CP Program by expenditure source. 88% ($487 million) of the funding allocated to the CP Program was from the CP Program and Infrastructure Investments, 7% ($37 million) from CP Accountability Payments, 5% ($28 million) from SWI Program spending on providers affiliated with CPs, and 0.1% ($0.6 million) from DSRIP State Operations and Implementation Funding allocated to the CP Program.

Table 2.3-D5.11 DSRIP Expenditures on the CP Program by source, in Thousands Adjusted to CY2022 $

Type of Expenditure	BH CPs	LTSS CPs	CP Program Total
CP Program and Infrastructure Investment	$403,826	$83,629	$487,455
SWI Programs spend on CP Program	$20,895	$7,105	$28,000
CP Accountability Payment[a]	$29,227	$8,074	$37,301
CP Program DSRIP State Operations and Implementation Funding Expenditures	$515	$127	$642
Total Expenditures on CP Program	**$454,463**	**$98,935**	**$553,398**

[a] The CP accountability payment includes earned at-risk infrastructure payments for BP2 through BP4 and outcomes-based payments for nine CPs in BP3 and 10 CPs in BP4, but excludes the third type of accountability payment (Performance Remediation Plans payments) since those payments were not finalized when this analysis was conducted.

Table 2.3-D5.12 shows the annual enrollment in the CP Program, and the percentage and annual person-years of CP Program enrollees who were ACO enrollees. The percentage of CP enrollees who were ACO enrollees increased over the Demonstration period from 80% in CY2018 to 92% in CY2021 and 91% in CY2022.

Table 2.3-D5.12 Average Annual Enrollment in CP Programs by ACO Membership

Enrollee Type	All CP Program enrollees, person-years	CP Program enrollees who were ACO enrollees, person-years	% of CP enrollees who were ACO enrollees
BH CP enrollees			
2018[a]	13,615	10,448	77%
2019	28,372	22,912	81%
2020	26,031	23,329	90%
2021	29,440	26,552	90%
2022	34,746	30,973	89%
2023 (Q1)[a]	12,766	12,186	95%
LTSS CP enrollees			
2018[a]	4,756	4,334	91%
2019	9,283	8,649	93%
2020	9,008	8,599	95%
2021	9,212	8,851	96%
2022	12,766	12,186	95%
2023 (Q1)[a]	3,837	3,644	95%
All CP enrollees			
2018[a]	18,371	14,782	80%
2019	37,655	31,561	84%
2020	35,039	31,929	91%
2021	38,651	35,403	92%
2022	47,513	43,159	91%
2023 (Q1)[a]	14,245	12,852	90%

[a] The amount of time spent enrolled in CPs (i.e., person-years) is lower in the partial years 2018 because the program did not start until Q3, and in 2023 because the evaluation period ended at the end of Q1.

Table 2.3-D5.13 presents the CP Program expenditures by source, the proportion of each source allocated to ACO enrollees who were enrolled in the CP Program, and the total spending on the CP Program attributed to ACO enrollees. On average, 87% of the CP Program expenditures from all sources were for MassHealth members enrolled in the ACO program. Of the $553 million of expenditures on the CP Program, $483 million was spent on members enrolled in the ACO Program.

Table 2.3-D5.13 Source of CP Program Expenditure for MassHealth Members Enrolled in the ACO Program, in Thousands Adjusted to CY2022 $

Type of Expenditure	CP expenditure for all CP enrollees	% allocated to those enrolled in the ACO Program[a]	CP expenditure attributed to ACO enrollees
CP Program and Infrastructure Investment	$487,455	87%	$426,012
SWI Programs spend on CP Program	$28,055	88%	$24,739
CP Accountability Payment	$37,301	85%	$31,729
CP Program DSRIP State Operations and Implementation Funding Expenditures	$642	87%	$563
Total Expenditures on CP Program	**$553,398**	**87%**	**$483,043**

[a] The % varies for the SWI program and accountability due to the type of activities each CP was engaged in under SWI and the CP's ability to meet MassHealth accountability requirements.

Table 2.3-D.14 presents the average cost of the CP Program per ACO enrollee during the Demonstration. The CP Program's average cost per ACO enrollee was $2,946, ranging from $1,689 to $4,722 across CPs due to differences in DSRIP funds allocated to each CP and differing enrollment volumes. The BH CP Program average cost per ACO enrollee was $3,319, ranging from $1,940 to $4,722. The LTSS CP Program average cost per ACO enrollee was $2,115, ranging from $1,689 to $2,408.

Table 2.3-D5.14 Cost of CP Program per ACO Enrollee per Year, Adjusted to CY2022$

ACO	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023 (Q1)	Average
CP BH-1	$5,183	$4,725	$2,535	$2,429	$1,915	$1,552	$3,056
CP BH-2	$2,460	$3,145	$3,391	$3,347	$2,560	$2,082	$2,831
CP BH-3	$6,242	$3,870	$4,022	$3,862	$3,245	$2,840	$4,013
CP BH-4	$4,406	$5,468	$3,511	$3,344	$1,998	$1,531	$3,376
CP BH-5	$5,037	$4,317	$5,836	$3,968	$2,436	$2,028	$3,937
CP BH-6	$5,438	$3,103	$4,853	$3,635	$2,291	$1,596	$3,486
CP BH-7	$6,086	$4,794	$4,247	$1,436	$2,841	$2,468	$3,646
CP BH-8	$3,441	$3,319	$3,653	$3,045	$2,453	$2,110	$3,004
CP BH-9	$5,606	$4,054	$3,579	$3,181	$2,350	$2,041	$3,469
CP BH-10	$7,869	$5,490	$5,289	$4,000	$3,176	$2,510	$4,722
CP BH-11	$3,409	$3,198	$2,878	$3,400	$2,658	$2,221	$2,961
CP BH-12	$3,100	$3,153	$2,961	$3,071	$1,959	$1,467	$2,619
CP BH-13	$2,688	$1,861	$6,418	$3,559	$3,389	$3,104	$3,503
CP BH-14	$3,918	$4,344	$2,685	$2,560	$2,146	$1,924	$2,930
CP BH-15	$5,004	$2,888	$3,698	$3,850	$3,182	$2,910	$3,589
CP BH-16	$3,389	$3,659	$4,363	$3,566	$2,412	$2,286	$3,279
CP BH-17	$1,961	$2,315	$2,193	$1,839	$1,722	$1,609	$1,940
CP BH-18	$3,566	$3,080	$4,191	$3,821	$2,820	$2,433	$3,319
CP LTSS-1	$4,420	$3,037	$2,218	$2,085	$1,394	$1,136	$2,382

ACO	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023 (Q1)	Average
CP LTSS-2	$2,948	$2,669	$2,913	$2,255	$1,635	$1,420	$2,306
CP LTSS-3	$4,468	$2,693	$2,065	$1,459	$1,181	$1,149	$2,169
CP LTSS-4	$2,753	$2,938	$3,030	$2,331	$1,165	$974	$2,199
CP LTSS-5	$2,264	$2,380	$1,580	$2,000	$1,327	$1,162	$1,785
CP LTSS-6	$2,984	$3,105	$2,460	$3,174	$1,498	$1,225	$2,408
CP LTSS-7	$2,569	$2,483	$2,438	$2,185	$1,238	$976	$1,982
CP LTSS-8	$1,700	$1,893	$2,159	$2,344	$1,130	$906	$1,689
Average cost	$3,958	$3,384	$3,430	$2,913	$2,158	$1,833	$2,946

Note: Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the ACO program during each year. It summarizes a combination of the number of people and the amount of time enrolled

Table 2.3-D5.15 shows the total CP Program expenditures attributed to ACO Program enrollees by performance year. Of the $483 million in CP Program expenditures attributed to ACO enrollees, 54% ($261 million) was attributed to members in ACPPs, 45% ($215 million) to members in PCACOs, and 1% ($7 million) to members in the MCO-ACO.

Table 2.3-D5.15 Total CP Program Expenditures Attributed to the ACO Program, in Thousands Adjusted to CY2022 $

ACO	BP1	BP2	BP3	BP4	BP5	Total
ACPP-1	$10,363	$18,804	$18,198	$17,189	$18,976	$83,530
ACPP-2	$1,985	$3,731	$3,051	$2,739	$2,365	$13,871
ACPP-3	$1,206	$2,842	$2,763	$2,561	$2,666	$12,038
ACPP-4	$1,005	$2,562	$2,406	$2,358	$2,400	$10,730
ACPP-5	$2,257	$3,943	$3,229	$3,126	$2,741	$15,296
ACPP-6	$1,285	$3,229	$2,114	$2,020	$2,320	$10,968
ACPP-7	$3,683	$6,528	$5,196	$3,953	$4,643	$24,004
ACPP-8	$3,894	$6,788	$5,848	$5,614	$5,648	$27,791
ACPP-9	$1,585	$2,915	$4,363	$4,684	$6,305	$19,852
ACPP-10	$1,047	$2,814	$2,266	$1,804	$2,543	$10,475
ACPP-11	$1,037	$2,200	$1,640	$1,427	$977	$7,281
ACPP-12	$1,537	$3,263	$2,553	$1,773	$3,003	$12,129
ACPP-13	$1,550	$2,885	$3,202	$2,099	$2,950	$12,687
PCACO-1	$9,030	$15,261	$19,321	$21,827	$23,514	$88,954
PCACO-2	$6,188	$10,871	$8,741	$7,236	$12,870	$45,907
PCACO-3	$6,239	$13,537	$17,698	$18,488	$24,437	$80,400
MCO-ACO	$700	$1,014	$2,400	$1,618	$1,463	$7,194
Total	**$54,591**	**$103,187**	**$104,989**	**$100,517**	**$119,822**	**$483,107**

Note: BP denotes budget period. BP1 corresponds to CY 2018, BP2 to CY2019, BP3 to CY2020, BP4 to CY2021, and BP5 to CY2022. BP1 covers the six-month preparation period budget and the six calendar months of operations, while BP5 covers 15 calendar months from Q1 2022 through Q1 2023.

4. FS Expenditures

Implementation of the FS Program varied by ACO. Examples of FS programs include medically-tailored meals, cooking classes, nutritional counseling, grocery store gift cards, home-delivered meals, tenancy preservation support, and assistance obtaining and maintaining sustainable tenancy preservation. FS programs were categorized under five categories of services:

(1) Pre-Tenancy – Individual
(2) Pre-Tenancy – Transitional

(3) Tenancy Sustaining – Individual
(4) Home Modifications
(5) Nutrition Sustaining Support

Table 2.3-D5.16 presents the annual Performance Year (PY) and total expenditures of the FS Program (including DSRIP State Operations and Implementation Funding expenditures allocated to the FS Program) and the cost per ACO enrollee (all ACO enrollees, i.e., not only FS Program enrollees) by service category. 9% ($7 million) of the FS Program expenditures were incurred during PY3 (2020), 29% ($24 million) during PY4 (2021), and 63% ($56 million) during PY5 (2022 through Q1 2023). 65% ($54 million) of the FS Program expenses were for nutrition-sustaining support services, and 35% ($29 million) were spent on the four tenancy programs: 14% ($12 million) for individual tenancy sustaining programs, 12% ($10 million) for individual pre-tenancy programs, 6% ($5 million) for transitional pre-tenancy programs, and 3% ($2 million) for home modifications.

Table 2.3-D5.16 Expenditures on the FS Program by Program Type and Cost of FS Programs per ACO Enrollee by PY, Adjusted to CY2022 $

FS Program	PY3	PY4	PY5[a]	Total	Cost per ACO member	% of FS Program Spending
Pre-Tenancy – Individual	$785	$4,055	$6,943	$11,783	$9.65	14%
Pre-Tenancy – Transitional	$137	$1,150	$3,546	$4,833	$3.96	6%
Tenancy Sustaining – Individual	$1,279	$3,306	$5,807	$10,392	$8.51	12%
Home Modification	$183	$726	$1,552	$2,460	$2.01	3%
Nutrition-Sustaining Support	$4,764	$14,940	$34,773	$54,477	$44.60	65%
Total FS Expenditures	**$7,148**	**$24,177**	**$52,620**	**$83,945**	**$68.73**	**100%**

[a] PY5 covers the period of January 1, 2022, through March 31, 2023.

Table 2.3-D5.17 presents the FS cost per ACO enrollee (all enrollees) by ACO model. The FS cost per ACO enrollee was $68.73, of which $44.60 was spent on nutrition-sustaining services, $9.65 on individual pre-tenancy programs, $8.51 on individual tenancy sustaining programs, $3.96 on transitional pre-tenancy programs, and $2.01 on home modifications.

ACPPs spent $60.43 per member on the FS Program, with 67% ($40.41 per member) spent on nutrition supports, 30% ($17.89) on the three tenancy programs, and 4% ($2.13) on home modifications. PCACOs spent $80.91 per enrollee on FS programs, with 64% ($51.46 per member) spent on nutrition supports, 34% ($27.57) on the three tenancy programs, and 2% ($1.87) on home modifications. The MCO-ACO spent $68.30 per member on the five FS programs, with 17% ($11.06 per member) spent on nutrition supports, 81% ($51.45) on the 3 tenancy programs, and 1% ($0.79) on home modifications.

Table 2.3-D5.17 FS Cost per ACO Enrollee by ACO Model, Adjusted to CY2022 $

ACO Type	ACO Average Annual Enrollment, 2020-2022	Pre-Tenancy Individual	Pre-Tenancy Transitional	Tenancy Sustaining Individual	Home Modification	Nutrition Sustaining Support	Total
ACPPs	716,949	$8.15	$2.50	$7.25	$2.13	$40.41	**$60.43**
PCACOs	493,224	$11.45	$6.03	$10.10	$1.87	$51.46	**$80.91**
MCO-ACO	11,235	$26.24	$5.90	$19.31	$0.79	$11.06	**$63.30**
ACO Program	1,221,408	$9.65	$3.96	$8.51	$2.01	$44.60	**$68.73**

Table 2.3-D5.18 presents the annual unduplicated enrollment in FS programs by ACO type and the cost per ACO enrollee who used FS programs. Between 2020 and 2022, 29,129 ACO enrollees used the FS programs. On average, members who participated in the FS program participated in 1.2 programs at a cost of $2,882 per user during the 3-year program. During the FS Program period (2020-Q1 2023), 23,787 ACO enrollees used nutrition-sustaining support programs for an average cost of $2,290 per user; 5,023 ACO enrollees enrolled in the pre-tenancy individual programs for an average cost of $2,346 per user; 3,800 ACO enrollees enrolled in the tenancy sustaining individual programs for an average cost of $2,735 per user; 1,680 ACO enrollees enrolled in the home modification programs for an average cost of $1,465 per user; and 1,403 ACO enrollees enrolled in the pre-tenancy transitional programs for an average cost of $3,444 per user.

Table 2.3-D5.18 Cost Per FS User by Program and ACO Type, Adjusted to CY2022 $

ACO Type	Pre-Tenancy Individual	Pre-Tenancy Transitional	Tenancy Sustaining Individual	Home Modification	Nutrition Sustaining Support	Total
Number of users						
ACPPs	2,849	620	2,170	822	13,129	**16,832**
PCACOs	2,919	849	2,235	925	16,694	**19,742**
MCO-ACO	108	34	94	8	187	**335**
ACO Program	5,023	1,403	3,800	1,680	23,787	**36,909**
Cost per user						
ACPPs	$2,050	$2,894	$2,394	$1,860	$2,206	**$2,574**
PCACOs	$1,935	$3,501	$2,228	$997	$1,521	**$2,021**
MCO-ACO	$2,730	$1,949	$2,308	$1,109	$665	**$2,123**
ACO Program	$2,346	$3,444	$2,735	$1,465	$2,290	**$2,274**

5. DSRIP Expenditures for ACOs

ACOs used DSRIP funds to invest in strategies to reduce TCOC relative to historical trends, improve care integration, and develop a holistic, targeted, and high-touch care management model for high-risk enrollees. Investments also sought to reduce avoidable hospital admissions, readmissions, and ED visits; develop integrated BH programs; develop and utilize analytic infrastructure and enhance analytic capabilities, giving providers expanded access to meaningful data to inform treatment decisions and member care; and identify actionable opportunities for performance improvement. DSRIP investments were also intended to help ACOs work collaboratively toward achieving value-based care and provider accountability, address social determinants of health, and deliver culturally and linguistically competent member care.

Table 2.3-D5.19 presents the amount of time spent enrolled in the ACO Program overall (i.e., continued enrollment) and during each year of the Demonstration. This time is presented as person-years of enrollment calculated by summing the amount of time a member was enrolled in the ACO program during the 2017-2022 Demonstration and for each year. It summarizes a combination of the number of people and the amount of time enrolled.

Table 2.3-D5.19 Person-Years of Enrollment in the ACO Program by Calendar Year and for the Duration of the ACO Program during the 2017-2022 Demonstration[a]

ACO Type	CY2018	CY2019	CY2020	CY2021	CY2022 + Q1 CY2023	CY2018-Q1 of CY2023
ACPP	418,788	530,747	579,695	653,449	712,165	144,483
PCACO	281,934	345,875	383,726	443,141	483,465	107,692
MCO-ACO	7,571	4,979	10,403	10,945	11,726	1,493
ACO Program Total	**708,293**	**881,600**	**973,823**	**1,107,535**	**1,207,356**	**253,668**

Notes: Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the ACO program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

Table 2.3-D5.20 presents the DSRIP funds invested in the ACO Program. These funds included startup and ongoing non-at-risk primary care and discretionary investments, which totaled $778 million. 60% of the expenditures were allocated to ACPPs, which served 59% of members enrolled in the ACO Program; 39% were allocated to PCACOs, which served 40% of members enrolled in the ACO Program; and 1% were allocated to the MCO-ACO which served about 1% of members enrolled in the ACO Program. Most of the spending was incurred during PY1 (29%) and PY2 (27%). As designed, DSRIP funding for the ACO Program was reduced over time, with 20% of overall dollars allocated in PY3, 13% in PY4, and 10% in PY5.

Table 2.3-D5.20 DSRIP Funding to ACOs by ACO Model and Performance Year, in Thousands Adjusted to CY2022 $

ACO Type	PY1	PY2	PY3	PY4	PY5	Total
ACPPs	$142,552	$127,264	$93,787	$61,854	$43,043	$468,500
PCACOs	$83,888	$81,409	$63,328	$40,291	$32,291	$301,207
MCO-ACO	$2,052	$2,726	$1,861	$481	$857	$7,976
ACO Program Total	$228,492	$211,399	$158,976	$102,626	$76,191	$777,683

Notes: PY0 expenditures were spread across the 2017–2022 Demonstration and proportionally allocated to each year of the Demonstration. PY1 operational period covers the period of March 1 to December 31, 2018, and PY5 covers the period of January 1, 2022, through March 31, 2023. Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the ACO program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

Table 2.3-D5.21 summarizes DSRIP spending by ACOs by investment category. 48% of DSRIP expenditures by ACOs were on care coordination and care management; 22% on clinical and organizational integration; 14% on HIT, data management, and population health analytics; 13% on innovative investments such as community-based care and primary care improvement initiatives; and 4% on HRSN and health equity programs. Over the 2017-2022 Demonstration, the ACOs spent on average $331.31 per enrollee on care coordination and care management, $150.86 per enrollee on clinical and organizational integration, $94.50 per enrollee on health information technology and data and population health analytics, $90.53 per enrollee on innovative DSRIP investments, and $27.34 per enrollee on health equity initiatives and HRSNs.

Table 2.3-D5.21 DSRIP Spending by ACOs by DSRIP Investment Categories, in Thousands Adjusted to CY2022 $

Type of ACOs	Care Coordination and Care Management	Clinical and Organizational Integration	Health Information Technology and Data and population health analytics	Innovative DSRIP Investments	Health Equity and HRSN	Total DSRIP Spending by ACOs
ACPPs	$240,131	$86,684	$63,772	$61,820	$17,308	$469,715
PCACOs	$127,181	$79,471	$40,984	$38,568	$13,163	$299,366
MCO-ACO	$3,558	$2,722	$1,030	$1,154	$137	$8,602
ACO Program Total	**$370,870**	**$168,877**	**$105,786**	**$101,541**	**$30,609**	**$777,683**

Table 2.3-D5.22 summarizes ACO spending of DSRIP funds, with each line item categorized as either personnel, recurrent, or capital spending. The personnel line item includes expenditures on staff salaries and fringe benefits. Recurrent costs include payments made for consultants, materials, supplies, technology licensing, staff training, communication and marketing, travel, rent and overhead, and other administrative costs for ACPPs. The capital cost includes any item

with a useful life exceeding one year, including equipment and tablets for new employees. Most (67%) of the line-item expenditures were allocated to personnel, 32% to recurrent costs, and a marginal percentage (1%) to equipment costs.

Table 2.3-D5.22 DSRIP Spending by ACOs on Personnel, Recurrent, and Capital Costs, in Thousands Adjusted to CY2022 $

Type of ACOs	Personnel	Recurrent	Capital	Total
ACPPs	$323,762	$140,825	$5,128	$469,715
PCACOs	$189,257	$105,599	$4,510	$299,366
MCO-ACO	$6,490	$2,112	$0	$8,602
ACO Program Total	**$519,509**	**$248,536**	**$9,639**	**$777,684**

Note: Capital cost includes any item with a useful life that exceeds one year

As presented in **Table 2.3-D5.23**, overall spending for the ACO program accounted for $1.469 billion, of which 53% ($778 million, $695 per enrollee) was from DSRIP funding spent by ACOs, 33% ($483 million, $432 per enrollee) from CP Program spending attributed to ACO enrollees, 6% ($84 million, $75 per enrollee) from FS Program spending attributed to ACO enrollees, 6% ($82 million, $74 per enrollee) from ACO accountability payments for PY1 through PY4, 3% ($40 million, $36 per enrollee) from SWI Program spending attributed to ACO providers, and 0.2% ($2 million, $2 per enrollee) from DSRIP State Operations and Implementation Funding allocated to ACO enrollees.

The ACO DSRIP Accountability Score payment amount includes the following: For PY1: at-risk quality Startup/Ongoing Discretionary (SOD) payments for 17 ACOs and at-risk quality Delivery System Transformation Incentive (DSTI) payments for six ACOs. There were no accountability score payments for at-risk TCOC or PRP during this period. For PY2: at-risk quality SOD payments for 17 ACOs and at-risk quality DSTI payments for six ACOs. PRP SOD payments were made for 15 ACOs, and PRP DSTI payments were made for five ACOs. There were no accountability score payments for at-risk TCOC during this period. For PY3: at-risk quality SOD payments for 17 ACOs and at-risk quality DSTI payments for six ACOs. At-risk TCOC SOD financially supported three ACOs, and at-risk TCOC DSTI was paid to one ACO. PRP SOD payments were made for 13 ACOs, and PRP DSTI payments were made for four ACOs. Data was not available to compute the accountability payments for PRP TCOC during this period. For PY4: at-risk quality SOD payments for 17 ACOs and at-risk quality DSTI payments for six ACOs. Data was not available to compute the accountability payments for at-risk TCOC or PRP quality and TCOC payments during this period. Accountability payments were not available for PY5.

Table 2.3-D5.23 Expenditures on the ACO Program by DSRIP Funding Source, in Thousands Adjusted to CY2022 $

Type of Expenditure	PY1 (2018)[a]	PY2 (2019)	PY3 (2020)	PY4 (2021)	PY5 (2022)[b]	Total
ACO DSRIP financially supported programs	$228,492	$211,399	$158,976	$102,626	$76,191	$777,683
CP Program spending attributed to ACOs	$54,593	$103,189	$104,991	$100,519	$119,825	$483,107
SWI Program spending attributed to ACO providers	$4,463	$9,994	$11,024	$8,562	$6,128	$40,171
Flexible Services	$0	$0	$7,148	$24,177	$52,620	$83,945
ACO Accountability Payment	$10,583	$21,989	$29,994	$19,794	N/A[c]	$82,361
DSRIP State Operations and Implementation Funding	$396	$750	$528	$445	$370	$2,489
Total Expenditures on ACO-Related Programs	**$298,527**	**$347,321**	**$312,661**	**$256,123**	**$255,134**	**$1,469,756**

[a] The PY1 (2018) cost includes funds spent during the 2017 preparatory (pre-ACO launch) budget period

[b] The PY5 (2022) cost includes funds spent during the first quarter of 2023

[c] N/A denotes not available; accountability payments for PY5 were not complete when this analysis was conducted

Table 2.3-D5.24 shows total and ACO-specific spending by PY. Of the $1.465 billion ACO Program expenditure, 58% ($848 million) was attributed to ACPPs, 41% ($599 million) was attributed to PCACOs, and 1% ($18 million) was attributed to the MCO-ACO.

Table 2.3-D5.24 ACO Program Expenditures by ACO and PY, in Thousands Adjusted to CY2022 $

ACO	PY1 (2018)[a]	PY2 (2019)	PY3 (2020)	PY4 (2021)	PY5 (2022)[b]	Total
ACPP-1	$46,647	$56,637	$46,515	$34,965	$36,382	$221,145
ACPP-2	$9,784	$11,368	$9,243	$6,012	$4,956	$41,362
ACPP-3	$6,143	$8,453	$6,993	$5,596	$4,569	$31,754
ACPP-4	$6,480	$6,247	$5,219	$4,286	$4,695	$26,927
ACPP-5	$7,536	$8,516	$7,217	$6,562	$5,438	$35,269
ACPP-6	$9,852	$10,254	$7,721	$5,715	$5,462	$39,003
ACPP-7	$13,751	$21,323	$17,354	$11,443	$10,423	$74,293
ACPP-8	$15,063	$18,093	$14,780	$11,655	$12,460	$72,052
ACPP-9	$11,994	$13,309	$13,294	$12,443	$12,427	$63,467

ACO	PY1 (2018)[a]	PY2 (2019)	PY3 (2020)	PY4 (2021)	PY5 (2022)[b]	Total
ACPP-10	$8,394	$10,958	$7,114	$5,463	$5,575	$37,504
ACPP-11	$22,105	$20,629	$23,053	$25,694	$14,040	$105,521
ACPP-12	$13,280	$11,634	$10,031	$6,346	$6,994	$48,285
ACPP-13	$13,824	$13,391	$10,036	$7,478	$9,300	$54,028
PCACO-1	$47,905	$51,842	$58,673	$47,103	$43,725	$249,247
PCACO-2	$27,269	$31,113	$28,544	$24,812	$35,397	$147,136
PCACO-3	$35,608	$49,363	$41,572	$37,780	$40,455	$204,779
MCO-ACO	$2,891	$4,189	$5,299	$2,769	$2,836	$17,984
Total	**$298,526**	**$347,320**	**$312,659**	**$256,120**	**$255,131**	**$1,469,756**

[a] The PY1 (2018) cost includes funds spent during the 2017 preparatory (pre-ACO launch) budget period

[b] The PY5 (2022) cost includes funds spent during the first quarter of CY2023

Table 2.3-D5.25 presents the annual and average PMPY expenditures of ACO-related DSRIP programs from CY2018 to Q1 of 2023. The average total expenditures per ACO enrollee was $286, ranging from $166 to $386. The average expenditures per ACPP enrollee was $307, ranging from $215 to $386. The average expenditures per PCACO enrollee was $234, ranging from $166 to $326. The average expenditures per MCO-ACO enrollee was $238.

Table 2.3-D5.25 Annual DSRIP Program Expenditures per ACO Enrollee Per Year by ACO and Overall During CY 2018 through Q1 of CY 2023 and Total Expenditures per Adjusted Person-Year by ACO, in Adjusted CY2022 $

ACO	CY2018[a]	CY2019	CY2020	CY2021	CY2022	CY2023 (Q1)	Average PY1-PY5[a]
ACPP-1	$531	$503	$375	$249	$225	$178	$338
ACPP-2	$424	$411	$318	$188	$190	$115	$336
ACPP-3	$423	$482	$362	$252	$116	$141	$267
ACPP-4	$493	$386	$298	$215	$149	$173	$304
ACPP-5	$594	$547	$431	$332	$176	$201	$288
ACPP-6	$400	$332	$220	$145	$199	$106	$337
ACPP-7	$323	$425	$328	$191	$206	$290	$386
ACPP-8	$484	$480	$367	$263	$106	$179	$215
ACPP-9	$462	$416	$383	$311	$134	$225	$270
ACPP-10	$337	$353	$211	$139	$206	$217	$334
ACPP-11	$325	$216	$210	$213	$194	$278	$382
ACPP-12	$464	$325	$269	$149	$182	$99	$235
ACPP-13	$635	$480	$344	$222	$212	$325	$301
PCACO-1	$509	$430	$430	$301	$102	$159	$211
PCACO-2	$315	$296	$236	$177	$42	$388	$166
PCACO-3	$352	$411	$329	$259	$157	$235	$326
MCO-ACO	$382	$841	$509	$255	$293	$380	$238
ACO Program	$421	$394	$321	$231	$169	$201	$286

[a] The 2018 expenditures includes funds spent during the 2017 preparatory (pre-ACO launch) budget period

Section Two: Return on DSRIP Funding Invested in the ACO Program

The impact of the 2017-2022 Demonstration on TCOC is covered in **Section 2.3.4**. For the purpose of the return on investment (ROI) analysis, TCOC was adjusted to 2022 dollars.

Table 2.3-D5.26 shows the results of the DiD analysis for annual TCOC, inflation-adjusted to 2022 dollars, for MassHealth members enrolled in the ACO program compared to those enrolled in the MCO/PCCP programs.

The incremental TCOC (i.e., the difference between TCOC of ACO enrollees and TCOC of MCO/PCCP members) associated with the ACO program was negative in each Demonstration year. This indicates that the ACO program was less costly than the counterfactual (i.e., what the cost would have been for ACO enrollees in that year if the ACO program had not been implemented) represented by the DiD comparison with MCO/PCCP enrollees. A negative incremental TCOC indicates a benefit to MassHealth in the sense that MassHealth is saving on TCOC relative to the counterfactual. TCOC for an ACO enrollee was $230 lower than the counterfactual in 2018, $328 lower in 2019, $462 lower in 2020, $642 lower in 2021, and $252 lower in 2022.

Table 2.3-D5.26 Result of DiD Analyses of TCOC, in Adjusted CY2022 $

		95% CI[a]	
	Cost	**Lower**	**Higher**
Baseline difference in TCOC for a would-be ACO enrollee compared to a would-be MCO/PCCP enrollee	$104.08	$15	$193
Incremental TCOC per ACO enrollee in 2018	-$230	-$354	-$106
Incremental TCOC per ACO enrollee in 2019	-$328	-$481	-$175
Incremental TCOC per ACO enrollee in 2020	-$462	-$608	-$317
Incremental TCOC per ACO enrollee in 2021	-$642	-$873	-$412
Incremental TCOC per ACO enrollee in 2022	-$252	-$385	-$119
Cost before Demonstration	$7,299	$7,222	$7,377

[a] The propensity-weighted DiD analysis contrasted ACO and MCO/PCCP TCOC in each post-implementation year (2018-2022) with the difference between groups during a pooled baseline period (2015-2017); results presented on an absolute scale. CI denotes confidence interval.

DSRIP investments in the ACO Program produced an ROI of 35% (95% CI: 6%, 64%) in TCOC savings gained (**Table 2.3-D5.27**) for the population of ACO enrollees included in our analyses. The Benefit to Cost Ratio (BCR) (1.35; 95% CI: 1.06, 1.64) indicates that each $1 in DSRIP spending on the ACO program was associated with $0.35 in TCOC savings over and above the cost of the program (i.e., for every DSRIP dollar invested, there were $1.35 in TCOC savings), for an aggregate of approximately $512 million (95% CI: $81 million, $942 million) in TCOC savings over the CY2018-CY2023 (Q1) period. The return on DSRIP investments in the ACO Program varied by Demonstration year, with DSRIP program investments partially recouped during 2018 (BCR: 0.55; 95% CI: 0.25, 0.84) and 2019 (BCR: 0.83; 95% CI: 0.44, 1.22), and then net positive returns for 2020 (BCR: 1.44; 95% CI: 0.99, 1.89), 2021 (BCR: 2.78: 95% CI: 1.78, 3.78), 2022 (BCR: 1.49; 95% CI: 0.70, 2.28), and Q1 of 2023 (BCR: 1.25; 95% CI 0.59, 1.91). Program costs peaked in CY2019 and declined in each successive year, while TCOC savings increased each year through CY2021, before declining in Q1 of CY2022.

Table 2.3-D5.27 ROI and Aggregate Net Savings of DSRIP Investments in the ACO Program, in Adjusted CY2022 $

	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023 (Q1)	Total or Average[a]
A. Person-years of ACO enrollment	708,293	881,600	973,823	1,107,535	1,207,356	253,668	5,132,275
B. Saved TCOC per ACO enrollee[b]	$230 ($106, $354)	$328 ($175, $481)	$462 ($317, $608)	$642 ($412, $873)	$252 ($119, $385)	$252[c] ($119, $385)	$386 ($302, $470)
C. ACO program cost per ACO enrollee	$421	$394	$321	$231	$169	$201	$286
D. Loss/Saving (B-C)	-$192 (-$316, -$67)	-$66 (-$219, $87)	$141 (-$4, $286)	$411 ($180, $642)	$83 (-$50, $216)	$51 (-$82, $184)	$100 ($16, $184)
Benefit Cost Ratio (BCR) (B/C)	0.55 (0.25, 0.84)	0.83 (0.44, 1.22)	1.44 (0.99, 1.89)	2.78 (1.78, 3.78)	1.49 (0.70, 2.28)	1.25 (0.59, 1.19)	1.35 (1.06, 1.64)
Return on Investment (ROI) (B-C/C*100%)	-45% (-75%, -16%)	-17% (-56%, 22%)	44% (-1%, 89%)	178% (78%, 278%)	49% (-30%,128%)	25% (-41%, 91%)	35% (6%, 64%)
Aggregate loss/saving, in Thousands 2022 $ (A*D)[c]	-$135,646 (-$223,569, -47,723)	-$58,440 (-193,222, $76,341)	$137,696 (-$36,072, $278,999)	$455,469 ($199,818, $711,120)	$99,931 (-$60,583, $260,445)	$12,852 (-$20,872, $46,577)	$511,863 ($81,532, $942,193)

Note: Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the ACO program during each year. It summarizes a combination of the number of people and the amount of time enrolled. Total adjusted person-years over the 2017-2022 Demonstration. Computed aggregate loss/saving based on values reported in this table would be different due to rounding.

[a] The person-years of enrollment and aggregate loss/savings values in this column reflect totals summed across CY2018–CY2023 (Q1). Other values in this column are averages weighted by person-years of ACO enrollment across CY2018–CY2023 (Q1).

[b] The estimate and 95% confidence interval for TCOC savings in each individual calendar year was calculated from a difference-in-difference model comparing ACO versus MCO/PCCP enrollees in each CY versus the baseline period (CY2015-CY2017). The 95% confidence interval for the CY2018-CY2023 (Q1) weighted average for TCOC savings was calculated using the standard error from a 1,000 sample bootstrapped difference-in-difference multivariable regression model with the post-implementation years CY2018-CY2022 pooled together.

[c] At the time of the analysis, data was not available to calculate TCOC in 2023. For the purpose of the ROI analysis we assumed that the 2022 TCOC savings applied to Q1 of 2023.

To project DSRIP ROI over ten years (i.e., through five years after the end of the DSRIP program), the following assumptions about ongoing program costs were made, informed by the contents of MassHealth's 2022-2027 Demonstration: 1) there will be a continuation of some DSRIP program costs that will be paid by the Commonwealth from other funding sources (i.e., CP, FS, and Commonwealth implementation and operations), and 2) the number of ACO enrollees will decline over time because of redeterminations after the end of the COVID-19 pandemic.

We developed three scenarios for what could occur after the DSRIP program ended based on the following assumptions regarding the benefit of the program, i.e., reduction in enrollee's TCOC: For scenario 1 (central scenario), we assumed the reduction in the TCOC for ACO enrollees versus MCO/PCCP enrollees will be constant over time using the 2022 value as the constant. For scenario 2, i.e., the lower bound, we assumed an ongoing annual decline in the difference in TCOC of 60% (i.e., continuation of the change year over year that was observed between CY 2021 and 2022), and for scenario 3, i.e., the upper bound, we assumed an annual increase of 17% (based on the average change year over year during the 2017-2022 Demonstration). Based on those assumptions, the projected savings from the DSRIP program over a 10-year period would be $962 million under the central scenario, $554 million under the lower bound scenario, and $2.83 billion under the upper bound scenario.

Table 2.3-D5.28 shows the program costs for the BH CP Program, the incremental TCOC per BH CP Program enrollee, and the net cost associated with the program. As presented in **Table 2.3-D6.6**, the TCOC of ACO enrollees enrolled in the BH CP Program was higher than the TCOC of MCO/PCCP enrollees who were similar (i.e., met diagnostic and utilization-based criteria for CP enrollment, and with a similar distribution of sociodemographic and clinical characteristics because of propensity weighting) but not enrolled in BH CPs. Summing the DSRIP investments in the BH CP Program and the incremental TCOC, the aggregate loss to MassHealth varied from approximately $7,936 (95% CI: $6,043, $9,829) per BH CP enrollee in 2019 to approximately $4,366 (95% CI: $2,931, $5,800) in 2022.

Table 2.3-D5.28 BH CP Program Cost, Incremental TCOC Per Enrollee Per Year, and Aggregate Losses Associated with the BH CP Program, Adjusted to CY2022 $

	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023
Person-years of CP enrollment among ACO enrollees	10,448	22,912	23,329	26,552	30,973	9,208
Cost of BH CP Program						
CP Program annualized cost per BH CP enrollee[a]	$4,089	$3,549	$3,646	$3,050	$2,577	$2,167
ACO Program annualized	$323	$240	$163	$93	$50	$60

	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023
cost per BH CP enrollee[a]						
A. Total BH CP Program cost, in thousands	$4,411	$3,789	$3,809	$3,143	$2,627	$2,227
TCOC						
B. Incremental TCOC (Intervention TCOC-comparison TCOC)	$2,259 (95% CI: $455, $4,063)	$4,147 (95% CI: $2,254, $6,040)	$1,636 (95% CI: -$159, $3,431)	$1,514 (95% CI: -$580, $3,608)	$1,738 (95% CI: $304, $3,173)	$1,738 (95% CI: $304, $3,173)[b]
Annual losses per enrollee (A+B)	$6,670 (95% CI: $4,866, $8,474)	$7,936 (95% CI: $6,043, $9,829)	$5,445 (95% CI: $3,650, $7,240)	$4,657 (95% CI: $2,563, $6,751)	$4,366 (95% CI: $2,931, $5,800)	$3,965 (95% CI: $4,047, $5,399)

[a] The propensity-weighted TCOC comparative analysis required 320 days of enrollment, so no estimate was made for 2018 because the CP Program did not start until July 2018. The 2018 incremental TCOC was imputed as the average incremental TCOC for the years 2019-2022. The cost includes all MassHealth expenditures on the BH CP Program from 2017 through Q1 2023 and the ACO cost attributed to BH CP enrollees.

[b] At the time of the analysis, data was not available to calculate TCOC in 2023. For the purpose of the ROI analysis we assumed that the 2022 TCOC savings applied to Q1 of 2023. Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the CP program during each year. It summarizes a combination of the number of people and the amount of time enrolled. Total adjusted person-years over the 2017-2022 Demonstration

Table 2.3-D5.29 shows the program costs for the LTSS CP Program, the incremental TCOC per LTSS CP Program enrollee, and the aggregate cost associated with the program. As presented in **Table 2.3-D6.9**, the TCOC of ACO enrollees enrolled in the LTSS CP Program was higher than the TCOC of similar MCO/PCCP enrollees not enrolled in LTSS CPs. Summing the DSRIP investments in the LTSS CP program and the incremental TCOC, the aggregate loss to MassHealth varied from approximately $2,533 (95% CI: -$568, $4,787) in 2019 to approximately $2,885 (95% CI: $94, $3,390) in CY2022.

Table 2.3-D5.29 LTSS CP Program Cost, Incremental TCOC Per Enrollee Per Year, and Aggregate Losses Associated with the LTSS CP Program, Adjusted to CY2022 $

	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023
Person-years of CP enrollment among ACO enrollees[a]	4,334	8,649	8,599	8,851	12,186	3,644
Cost of LTSS CP Program						
CP Program cost per LTSS CP enrollee	$2,739	$2,528	$2,318	$2,199	$1,317	$1,101

	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023
ACO Program cost per LTSS enrollee	$323	$240	$163	$93	$50	$60
A. Total LTSS CP Program cost[b]	$3,062	$2,768	$2,482	$2,292	$1,368	$1,162
TCOC						
B. Incremental TCOC (Intervention TCOC-comparison TCOC)	$1,020 (-$1,796, $3,835)[c]	-$235 (-$3,337, $2,867)	$1,722 (-$956, $4,400)	$1,074 (-$1,617, $3,766)	$1,517 (-$1,273, $4,308)	$1,517 (-$1,273, $4,308)[c]
Losses per enrollee (A+B)	$4,082 ($1,266, $5,080)	$2,533 (-$568, $4,787)	$4,203 ($1,525, $4,502)	$3,366 ($674, $4,313)	$2,885 ($94, $3,390)	$2,679 (-$112, ($3,185)

[a] The TCOC required 320 days of enrollment. Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the CP program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

[b] The cost includes all MassHealth expenditures on the LTSS CP Program from 2017 through Q1 2023 and the ACO cost attributed to LTSS CP enrollees.

[c]The 2018 incremental TCOC was computed as the average incremental TCOC for the years 2019-2022. At the time of the analysis, data was not available to calculate TCOC in 2023.

Table 2.3-D5.30 shows the program costs of the FS Program per enrollee, the incremental TCOC per FS Program enrollee, the ROI, and the aggregate savings associated with the FS Program during the full period of FS Program operation (Q1 CY2021 through Q1 CY2023). As presented in **Tables 2.3-D6.1** and **2.3-D6.2**, the TCOC of ACO enrollees enrolled in the FS Program was lower for housing (-$1,439; 95% CI: -$3,149, $271) and nutrition (-$712; 95% CI: -$1,950, $525) program enrollees, but not statistically significantly different than TCOC of ACO enrollees eligible but not enrolled in the FS Program. The aggregate cost associated with the FS tenancy preservation programs was approximately $16 million ($0, $32 million), and approximately $37 million ($8 million, $67 million) for the nutrition programs.

Table 2.3-D5.30 ROI of DSRIP Investments in the FS Program during Q1 2020 through Q1 2023, Adjusted to CY2022 $

	Housing Estimate (95% CI)	Nutrition Estimate (95% CI)
A. Number of ACO FS Program enrollees	9,417	23,773
B. Incremental TCOC per ACO FS Program enrollee	-$1,439 (-$3,149, $271)	-$712 (-$1,950, $525)

	Housing Estimate (95% CI)	Nutrition Estimate (95% CI)
C. FS Program cost per enrollee	$3,129	$2,292
D. Loss/Saving (B-C) Net cost per ACO FS Program enrollee	$1,690 (-$20, $3,400)	$1,571 ($342, $2,817)
ROI (B-C/C*100%)	54% (-1%, 109%)	69% (15%, 123%)
Benefit-Cost Ratio (B/C)	0.46 (0.09, 1.01)	0.31 (0.23, 0.85)
Aggregate Cost, in Thousands of 2022 $ (A*D)	$15,918 (-$186, $32,021)	$37,336 ($8,119, $66,957)

Section Three: Cost Effectiveness of the ACO Program

Two measures were used to estimate the cost-effectiveness of the ACO Program. The first measure is acute unplanned hospital admissions, and the second is unplanned admissions for acute ambulatory care sensitive conditions (ACSCs).

The effectiveness of the ACO Program at reducing acute unplanned hospital admissions among ACO enrollees compared to MCO/PCCP enrollees is covered in **Section 2.3.3**. TCOC and ROI for ACO enrollees versus MCO/PCCP enrollees are covered in **Section 2.3.4 and 2.3.5**, respectively. For the cost-effectiveness analysis (CEA), TCOC was adjusted to 2022 dollars.

Table 2.3-D5.31 shows the results of the DiD analysis for acute unplanned hospital admissions comparing MassHealth members enrolled in the ACO program to those enrolled in the MCO/PCCP programs. Prior to the 2017-2022 Demonstration, the acute unplanned hospital admission rate per 100 would-be enrollees in the MCO/PCCP programs was 10.13 admissions per 100 enrollees, and the rate for would-be ACO enrollees was 10.25 admissions per 100 enrollees. The incremental rate of acute unplanned hospital admissions per 100 ACO enrollees was lower by 0.51 in CY2018, 0.52 in CY2019, 0.72 in CY2020, 0.61 in CY2021, and 0.31 in CY2022 versus the MCO/PCCP counterfactual.

As presented in **Table 2.3-D5.32,** the ACO Program averted a total of 25,707 (24,675, 26,308) all-cause acute inpatient admissions between 2018 and 2022: 3,612 (3,541, 3,683) in CY2018, 4,584 (4,496, 4,584) in CY2019, 7,012 (6,622, 7,401) in CY2020, 6,756 (5,648, 7,642) in CY2021, 3,743 (3,139, 4,226) in CY2022, and 786 (660, 888) in Q1 of CY2023. As reported in the preceding ROI section, DSRIP investments in the ACO Program were recouped with an additional 35% (95% CI:[92] 6%, 64%) in TCOC savings gained (**Table 2.3-D5.27**) for the population of ACO enrollees included in our analyses. Since both costs and effects favored the ACO program, the counterfactual based on the MCO/PCCP comparison group was dominated and an incremental cost-effectiveness ratio was not calculated for this measure.

[92] 95% confidence intervals (CI) were constructed using 95% CI for TCOC savings. DSRIP Program spending was considered fixed.

Table 2.3-D5.31 Result of DiD Analysis of Acute Unplanned Hospital Admissions per 100 ACO enrollees

	Admissions per 100 members	95% Confidence interval[a]	
		Lower	Higher
Baseline difference in acute unplanned hospital admissions for a would-be ACO enrollee compared to an MCO/PCCP enrollee	0.08	-0.17	0.33
Incremental admissions per ACO enrollee in 2018	-0.51	-0.50	-0.52
Incremental admissions per ACO enrollee in 2019	-0.52	-0.52	-0.51
Incremental admissions per ACO enrollee in 2020	-0.72	-0.76	-0.68
Incremental admissions per ACO enrollee in 2021	-0.61	-0.69	-0.51
Incremental admissions per ACO enrollee in 2022	-0.31	-0.26	-0.35
Acute unplanned hospital admissions before Demonstration	10.13	N/A	N/A

[a] The lower and upper limits of the 95% confidence interval of TCOC estimated in the modeling performed for Domain 3 were used for the deterministic sensitivity analyses.

N/A (not applicable)

Table 2.3-D5.32 Effectiveness of the ACO Program on Averting All-cause Acute Unplanned Hospital Admissions[a]

	CY2018 Estimate (95% CI)	CY2019 Estimate (95% CI)	CY2020 Estimate (95% CI)	CY2021 Estimate (95% CI)	CY2022 Estimate (95% CI)
A. Person-years of ACO enrollment[b]	708,293	881,600	973,823	1,107,535	1,207,356
B. Rate of all-cause inpatient admissions averted per 100 ACO enrollees	0.51 (0.50, 0.52)	0.52 (0.51, 0.52)	0.72 (0.68, 0.76)	0.61 (0.51, 0.69)	0.31 (0.26, 0.35)
C. Annual averted number of all-cause inpatient admissions (A*C)/100)	3,612 (3,541, 3,683)	4,584 (4,496, 4,584)	7,012 (6,622, 7,401)	6,756 (5,648, 7,642)	3,743 (3,139, 4,226)
Total averted number of all-cause inpatient admissions (2018-2022)	**25,707 (24,675, 26,308)**				

[a] The analysis covers the period of CY2018 through CY2022.

[b]Person-years of enrollment are calculated by summing the amount of time each ACO enrollee was enrolled in the ACO program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

Table 2.3-D5.27 shows the net cost of the ACO program (program cost minus TCOC cost), which generated savings over the Demonstration. **Table 2.3-D5.33** presents the impact of the ACO program on unplanned acute ACSC admissions. Adult ACO enrollees had an estimated 807 (392-1,333) more unplanned acute ACSC admissions compared to MCO/PCCP enrollees over the period 2018-2022. Since the ACO program was associated with more ACSC admissions and it generated TCOC savings, when combined into an Incremental Cost Effectiveness Ratio (ICER), the savings generated per additional acute unplanned ACSC admission tolerated would be $459,312 ($275,435, $944,678) .

Table 2.3-D5.33 Impact of ACO Program on Unplanned Acute ACSC Admissions,[a] Adjusted to CY2022 $

Acute ACSC Hospitalization	CY2018 Estimate (95% CI)	CY2019 Estimate (95% CI)	CY2020 Estimate (95% CI)	CY2021 Estimate (95% CI)	CY2022 Estimate (95% CI)[a]
A. Person-years of ACO enrollment[b]	337,914	350,828	453,814	576,011	644,471
B. ACO Program cost per ACO enrollee	$421	$394	$321	$231	$169
C. Incremental TCOC per ACO adult enrollee	-$361	-$344	-$409	-$583	-$427
D. Net loss/saving (C-B)	$60	$50	-$88	-$352	-$258
E. Difference in acute adult ACSC Hospitalizations per 100 persons	0.06 (0.04, 0.07)	0.04 (0.02, 0.05)	0.04 (0.02, 0.05)	0.06 (0.02, 0.11)	0.00 (-0.01, 0.01)
F. Number of additional acute adult ACSC hospitalization (E*A)	201 (149, 245)	128 (78, 174)	165 (101, 225)	319 (116, 657)	-6 (-51, 33)
G. Aggregate net cost in thousands for ACO enrollees (D*A), in Thousand of $2022	$20,402	$17,368	-$39,724	-$202,654	-$166,438
H. Number of additional acute ACSC hospitalizations (2018-2022) (sum row F)	807 (392, 1,333)				
I. Aggregate net savings in thousands of ACO program for adults (2018-2022) (sum of row G)	$370,706 ($367,113, $370,706)				
Cost-Effectiveness Ratio (I/H)	$459,312 ($275,435, $944,678)	Savings per additional acute adult ACSC hospitalization tolerated			

[a] The analysis covers the period of CY2018 through CY2022.

[b]Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the CP program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

Two measures were used to estimate the cost-effectiveness of the BH CP Program: the first measure is acute unplanned hospital admissions, and the second is PC sensitive ED visits. As presented in **Table 2.3-D6.5**, the estimates for acute unplanned inpatient admissions and primary care sensitive ED visits were not statistically different from those of the comparison group (except for primary care sensitive ED visits in 2020) and favored non-BH CP enrollees. With higher costs and lower effectiveness, the BH CP Program was dominated by the counterfactual for those measures and an ICER was not calculated.

Two measures were used to estimate the cost-effectiveness of the LTSS CP Program; the first measure is acute unplanned hospital admissions, and the second is long-term nursing home admissions. As presented in **Table 2.3-D6.8**, the estimates for acute unplanned inpatient admissions were not statistically different from those of the comparison group and favored CP enrollees. **Table 2.3-D5.34** presents the result of the cost-effectiveness analysis. During the CP Program period (July 2018 through Q1 2023), the LTSS CP Program was estimated to have averted 925 acute unplanned hospital admissions with a (95% confidence interval: -2,333 to 732) for an ICER of $152,027 ($60,313-$192,331) per averted case.

Table 2.3-D5.34 Effectiveness and Cost-Effectiveness of the LTSS CP Program on Averting Acute Unplanned Inpatient Admissions, Adjusted to CY2022 $[a]

	CY2018	CY2019	CY2020	CY2021	CY2022
Person-years of LTSS CP enrollment[b]	4,334	8,649	8,599	8,851	12,186
Cost of LTSS CP Program					
LTSS CP cost per enrollee	$2,739	$2,528	$2,318	$2,199	$1,317
LTSS CP ACO cost per enrollee	$323	$240	$163	$93	$50
Incremental annual TCOC per ACO LTSS CP enrollee	$1,020	-$235	$1,722	$1,074	$1,517
Net cost	**$4,082**	**$2,533**	**$4,203**	**$3,366**	**$2,885**
Incremental effectiveness, hospitalizations per person	-0.02 (-0.05, 0.02)	-0.03 (-0.07, 0.01)	-0.01 (-0.04, 0.03)	-0.01 (-0.05, 0.03)	-0.03 (-0.06, 0.00)
Incremental Cost-Effectiveness Ratio, in Thousand of $2022	$194 (-$75, $221)	$79 (-$38, $303)	$526 (-$105, $140)	$234 (-$62, $99)	$97 (-$51, $1,702)
Averted acute unplanned	-182 (-471,160)	-276 (-574, 72)	-69 (-346, 259)	-127 (-481, 300)	-379 (-727, 22)

	CY2018	CY2019	CY2020	CY2021	CY2022
inpatient admissions					
Aggregate cost, in Thousand of $2022	$17,690	$21,911	$36,145	$29,793	$35,158

[a] The analysis covers the period of CY2018 through CY2022.

[b]Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the CP program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

As presented in **Table 2.3-D3.9**, long-term nursing home admission rates increased from baseline among ACO enrollees relative to MCO/PCC enrollees. Similar findings applied to ACO adults enrolled in the LTSS CP Program. As presented in **Table 2.3-D5.35** long-term nursing home admissions increased by 0.02 per member enrolled in CP LTSS, in 2018 and 2020, 0.04 in 2019, 0.01 and 0.002 per member enrolled in CP LTSS in 2021 and 2022 respectively. There were 697 (95% CI: 322, 1,541) additional long-term nursing home admissions during the Demonstration period.

Table 2.3-D5.35 Effectiveness and Cost-Effectiveness of the LTSS CP Program on Long-term Nursing Home Admissions,[a] Adjusted to CY2022 $

	CY2018	CY2019	CY2020	CY2021	CY2022
Person-years of LTSS CP enrollment[b]	4,334	8,649	8,599	8,851	12,186
Cost of LTSS CP Program					
LTSS CP cost per enrollee	$2,739	$2,528	$2,318	$2,199	$1,317
LTSS CP ACO cost per enrollee	$323	$240	$163	$93	$50
Incremental annual TCOC per ACO LTSS CP enrollee	$1,020	-$235	$1,722	$1,074	$1,517
Net cost	**$4,082**	**$2,533**	**$4,203**	**$3,366**	**$2,885**
Incremental effectiveness, nursing home admissions per person	0.02 (0.01, 0.04)	0.04 (0.02, 0.09)	0.02 (0.01, 0.03)	0.01 (0.00, 0.03)	0.002 (0.001, 0.005)
Additional long-term nursing home admissions	77 (36, 169)	355 (167, 757)	153 (81, 290)	89 (30, 265)	23 (9, 60)
Aggregate cost, in Thousand of $2022	$17,690	$21,911	$36,146	$29,793	$35,158

[a] The analysis covers the period of CY2018 through CY2022.

[b]Person-years of enrollment are calculated by summing the amount of time each ACO enrollee enrolled in the CP program during each year. It summarizes a combination of the number of people and the amount of time enrolled.

Three measures were used to estimate the cost-effectiveness of the FS Program. The first measure was unplanned inpatient hospitalizations,[93] the second was all-cause ED visits, and the third was PC sensitive ED visits. The effectiveness of the FS Program is presented in **Table 2.3-D6.1** and **Table 2.3-D6.2. Table 2.3-D5.36** presents the effectiveness and cost-effectiveness of the FS Program in averting inpatient hospitalization and ED visits for ACO enrollees enrolled in the FS Program. The FS Program averted 15,064 (12,703, 17,674) inpatient hospitalizations – 68% of the averted cases were for ACO members enrolled in the nutrition program, and 32% for ACO members enrolled in the tenancy program. The FS Program averted 11,271 (10,057, 12,709) ED visits – 69% of the averted cases were for ACO members enrolled in the nutrition program, and 31% for ACO members enrolled in the tenancy program. The FS Program averted 6,520 (5,535, 7,669) PC sensitive ED visits – 74% of the averted cases were for ACO members enrolled in the nutrition program, and 26% for ACO members enrolled in the tenancy program.

Table 2.3-D5.36 The Effectiveness and Cost-Effectiveness of the FS Program on Averting Inpatient Hospitalization and ED Admissions, in adjusted to CY2022 $

	Housing	Nutrition
Inpatient Hospitalization		
A. Net cost per FS program enrollee	$1,693	$2,292
B. Averted inpatient hospitalization per enrollee	0.51 (0.43, 0.60)	0.43 (0.37, 0.51)
C. ICER (A/B)	$3,337 ($2,821, $3,966)	$5,296 ($4,531, $6,273)
D. Number of FS enrollees	9,417	23,773
E. Averted inpatient hospitalization (B*D)	4,777 (4,020, 5,651)	10,287 (8,684, 12,024)
ED Admissions		
A. Net cost per FS program enrollee	$1,693	$2,292
B. Averted ED admissions per enrollee	0.37 (0.31, 0.44)	0.33 (0.30, 0.36)
C. ICER (A/B)	$4,596 ($3,805, $5,529)	$6,983 ($6,395, $7,594)
D. Number of FS enrollees	9,417	23,773
E. Averted ED admissions (B*D)	3,469 (2,883, 4,190)	7,801 (7,174, 8,519)
PC Sensitive ED visits		
A. Net cost per FS program enrollee	$1,693	$2,292

[93] Unplanned inpatient hospitalizations was substituted for PC sensitive ED visits as an effectiveness measure for the FS Program cost-effectiveness analysis to increase the diversity of effectiveness measures, rather than use two ED visit based measures.

	Housing	Nutrition
B. Averted PC sensitive ED visits per enrollee	0.18 (0.15, 0.21)	0.20 (0.17, 0.24)
C. ICER (A/B)	$9,282 ($7,926, $11,022)	$11,344 ($9,628, $13,323)
D. Number of FS enrollees	9,417	23,773
E. Averted PC sensitive ED admissions (B*D)	1,718 (1,446, 2,011)	4,802 (4,089, 5,658)

Note: ICER denotes Incremental Cost Effectiveness ratio.

RQ 15: To what extent did alternative and value-based payments constitute an increasingly larger proportion of the payments to organizations and providers managing the care of MassHealth members?

RQ15 Summary

The proportion of payments by MassHealth to plans under APMs increased from baseline and over the course of the 2017-2022 Demonstration. Prior to the Demonstration, managed care eligible MassHealth members were either enrolled in MCOs (approximately 64%) or MassHealth's PCCP (approximately 36%), neither of which are APMs. At the launch of the ACO Program in March 2018, over 70% of managed care eligible MassHealth members shifted into ACOs (a form of APM),[94] and this percentage increased to a high of 83% in 2022.

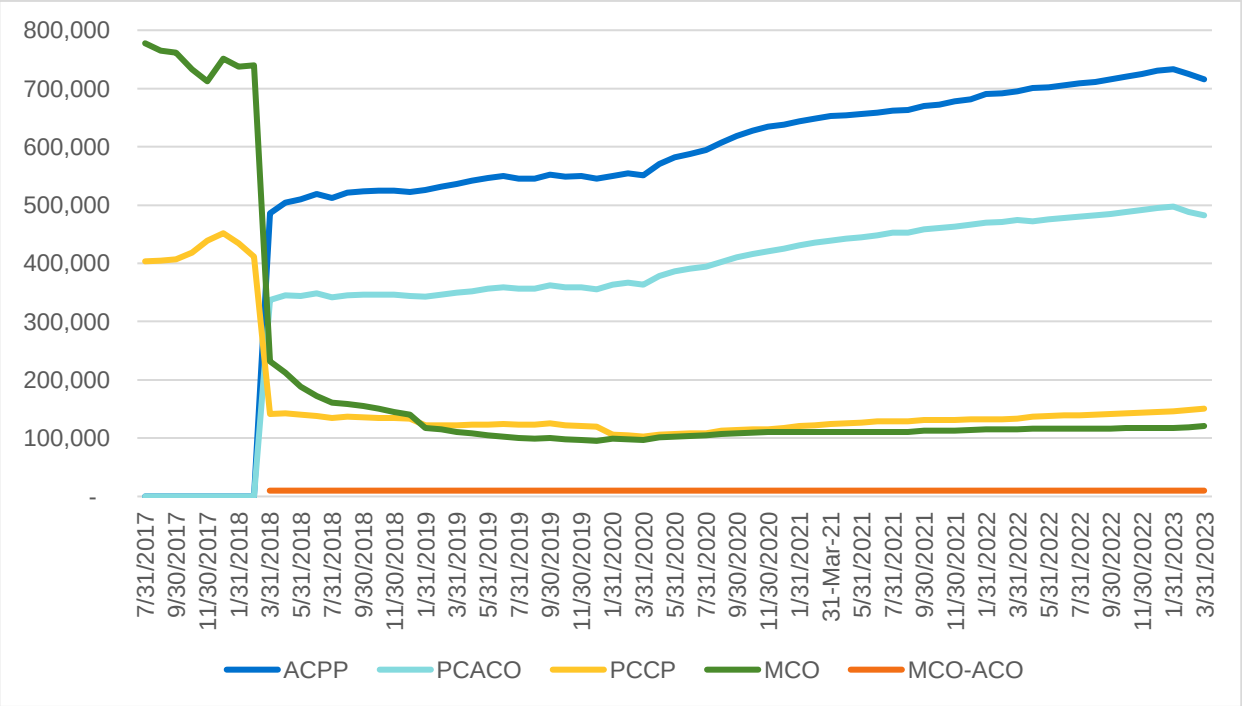
ACOs and MCOs shared their involvement and experiences using alternative and value-based payments with their affiliated providers. ACOs and MCOs suggested streamlining provider contracts would facilitate their ability to incentivize providers with value-based payments.[79] Such provider payments were tied to performance to operationalize value-based care for certain providers. Value-based payments between ACOs and their affiliated providers were focused on quality and cost performance. SWIs facilitated the delivery system's shift towards value-based payments as the TA Program supported ACO affiliated providers adoption of APMs. Despite the complex process of shifting to value-based care, organizations foresaw that providers would continue moving toward APMs in the 2022-2027 Demonstration. Many suggestions were made to continue engaging providers in a value-based payment arrangement, including modifying and designing workflows, as well as working with MassHealth regarding programmatic expectations.

H15.1. The number of members cared for in ACOs will increase.

MassHealth launched its ACO program in March 2018. By the end of the first year, more than three-quarters of the 1.2 million eligible members had been shifted from traditional managed care into ACOs (**Figure 2.3-D5.1**). The percentage of eligible MassHealth members enrolled in ACOs continued to increase to a maximum of 83% in 2022, and this percentage remained stable for the remainder of the Demonstration. The distribution of ACO enrollment among the different ACO types remained consistent throughout the Demonstration, with a majority (58 to 60%) in ACPPs, about 1% in the sole MCO-ACO, and the remainder in PCACOs.

[94] HCPLAN. (2016). *Alternative payment models: A primer*. HCPLAN. https://hcp-lan.org/workproducts/apm-whitepaper.pdf

Figure 2.3-D5.1 MassHealth Managed Care Enrollment in ACOs, MCOs, and the PCCP Plan, Monthly Cross-Sections, 2017-2023



Source: MassHealth caseload snapshot and enrollment summary report - February 2021 and MassHealth caseload snapshot and enrollment summary report - January 2024.

Note: MCO refers to MassHealth-contracted Managed Care Organizations, excluding MCO-ACO enrollment. Since the caseload snapshots and enrollment summary reports do not include MCO-ACO enrollment, there is a constant assumption of 10,000 MCO-ACO enrollees over time based on prior MassHealth reporting.

Additional tables and figures for Domain 5 are located in **Appendix K**.

H15.2. ACOs and MCOs will engage in value-based payment arrangements with specialist providers.

ACOs and MCOs established contracts with MassHealth early in the Demonstration to accept responsibility for TCOC and support further transition away from the FFS model. However, APMs (i.e., at least some payment is linked to the effective management of the health of a population or an episode of care)[95] at the organizational level did not always influence the payment of providers who were part of the ACO or MCO. Contracts between MassHealth and ACOs or MCOs only specify the payment structure or amount of risk to be used by ACOs and MCOs in their relationships with affiliated providers if that service was considered a State Directed Payment (SDP). Therefore, the extent to which ACOs and MCOs engaged PCPs and specialists in value-based payment arrangements (i.e., payments to providers based on achievement of quality or cost targets)[96] depended on the initiatives and strategies they chose to implement. These included ACOs' value-based payment arrangements and non-financial engagement strategies with health centers and individual PC clinicians. ACO and MCO

[95] Health Care Payment Learning & Action Network. (n.d.). *Overview of APM Framework*. Hcp-lan.org. Retrieved July 11, 2024, from https://hcp-lan.org/apm-framework/

[96] Medicaid and CHIP Payment and Access Commission. (March 18, 2024). *Value-based Payment*. Macpac.gov. https://www.macpac.gov/subtopic/value-based-purchasing/

interviewees did not describe value-based payment arrangements with specialist providers. Thus, as we did not have evidence from other sources, there was no evidence to support the hypothesis that ACOs and MCOs would engage in such arrangements. MassHealth staff interviewees mentioned that the adoption of APMs was supported by changes in pricing policy that granted ACOs credit for APMs when setting rates. MassHealth staff also noted that adoption of APMs was supported by the SWI TA Program but shared concerns that FFS relationships persisted in most relationships between providers and plans (**see RQ1 H1.2** for more SWI information).

> *"I would say that the investment that we've discussed thus far that probably is most relevant to adoption of APM is the technical assistance program…let's get out of the fee-for-service mentality and let's start figuring out how can we make investments in population health, or prevention, or health-related social needs, and getting people earlier, before they end up needing to go into the emergency department or inpatient utilization…I think that the conversation isn't so much whether there was adoption of APM, but it was more [about] how successful people are operating within an APM environment. Because for ACOs, they're already in that sort of framework…MassHealth has an APM contract with the ACO, but the ACO doesn't necessarily have APM contracts with the providers that make up the ACO. There still is a fee-for-service mentality between the provider, or between the plan ACO and then the provider."*
> *– a MassHealth staff interview participant*

Value-based payment arrangements between ACOs and their affiliated providers were focused on quality and cost performance. One ACO collaborated with its practices by engaging chief financial officers at PC practices through a governing document that helped determine the financial performance of participating health centers. Another ACO engaged providers by assessing their readiness to move toward a capitated model.

> *"We have recently deployed another tool to engage health centers, specifically the CFOs [chief financial officers]. We have an internal financial system at [redacted]. It's called the internal financial architecture, IFA. The IFA is a document that governs all of the financial and quality outputs and [inputs] between [redacted] and a participating health center. And that financial model is built out by our actuaries…[and] used to adjudicate the financial performance, both in between state government and…our participating health centers. All CFOs have credentials to log directly into that system so that they can examine all aspects of their financial performance as prepared by our actuaries." – an ACO interview participant*

Some ACOs described challenges in the complex process and culture change that was needed to occur in order to shift toward value-based care. Separately, ACOs stated that the timeline for receiving shared savings from MassHealth after the reconciliation process represented an operational challenge to implementing value-based payment arrangements that relied on such revenue for making incentive payments to providers.

> *"This… value-based care is a different paradigm; it's a culture change. I think it takes two years to change your culture. And two years in, we hit a*

pandemic…so there was a whole lot of other energy going other places. We're back in the groove here and doing work. But I think that that process, the culture change process, because it was new to everybody, learning how it's going to work is also a learning curve. The misalignment of payment is the ultimate driver in change…You need to put food on the table today, you need to pay your employees today, you need to know what you're going to have for revenue today, this fiscal year. You save money, you might get a tax [refund], you might get money down the line, but you can't book that in this fiscal year, because you don't have it in your bank. And so the reconciliation process being so separate from the time frame of the program has been a challenge in really shifting the needle." – an ACO interview participant

ACO interviewees appreciated MassHealth's discretion regarding how and when dollars were used to pay clinicians. This allowed ACOs the freedom to create value-based payment arrangements that were appropriate to their organizational structure and applicable to the populations they served. ACO staff also stressed the importance of multi-payer alignment when compensating providers and practices, with one ACO indicating a desire for workflows and care models to be payer-agnostic.

"We are currently also examining and bringing in some experts to help us understand as the State moves to the Waiver renewal, and prospective primary care capitation is something that we are excited about…Whether we should be taking a different approach to individual PCP compensation and moving away from the predominant method of compensation, which is salaried PCPs, we're not really sure what the answer is there, and how much." – an ACO interview participant

"This is a very complicated contract and a difficult fee schedule. But it is increasingly more and more of our commercial business that is capitated. As our contracts renew, we expect more of that. So that is the direction we're going as a system…We're increasingly designing the workflows and the model of care to be as payer-agnostic as possible." – an ACO interview participant

H15.3. ACOs and MCOs will engage in alternative payment models and value-based payment arrangements with hospitals.

ACOs and MCOs did not report engaging hospitals in APMs and value-based payment arrangements. For some ACOs, the hospital anchor for the health system was still viewed as "*the mothership,*" underscoring the centrality of the hospital and its revenue to an ACO's strategy. Interviewees acknowledged the challenges of obtaining buy-in from hospital and health system leaders to invest in better access to outpatient preventative care to reduce ED and hospital utilization when such declines were expected to result in a net financial loss to the health system or its hospitals. Declines in hospital service volume during the early years of the COVID-19 pandemic caused financial challenges for hospital-anchored ACOs (i.e., ACOs that include one or more hospitals). However, even when hospital volume returned, one ACO acknowledged the distinct funding stream for staff dedicated to the integrated and accountable care model meant that as DSRIP funding declined many care model staff positions were eliminated.

"… You can't expect [an ACO administrator] to call a practice [and ask] 'what are you doing to avoid avoidable care?' There's just no margin in that practice to do that function, and there's no hospital support to say we need to shut down the EDs…We're going to put all kinds of lines of defenses in there, and the APM is going to be rich enough to do that. And the answer is, no way. I have to build stuff that I can convince my CFO would be awesome for the patients, and revenue-neutral."
– an ACO interview participant

"I'd say one of the challenges we've had in the last two years is our costs have fallen off the cliff. Like, utilization at the hospital, I mean, has just plummeted. We're on the uptake now with non-COVID patients, but patients who delayed services because of COVID, we're very, very busy across the board in the institution…We've reduced the model of care staff because of the reduction in DSRIP. The model of care staff is paid for by DSRIP. Our DSRIP really goes with nothing else but the model of care, and a few administrative things like people who do the data analysis and things like that, but it is people" – an ACO interview participant

Although ACOs did not report engaging hospitals in APMs, they engaged hospital providers in other ways to pursue integrated and accountable care. ACOs described the advantages of locating care management and coordination staff (including CP staff) within hospital and ED settings, including better engagement with enrollees and collaboration with providers. Many ACOs noted that hospital-based member outreach and engagement models, supported by TA funds, were used to meet higher-need members directly at the point of care.

"And I'll also add that I think that there's a lot of added value … [in] the hospital-based community health workers. That they are able to engage with some of the people that we can't catch in the community if you will ... because they're hospital-based they actually are able to meet the patient when the patient comes into the ED … and maybe engage with them there to continue on that relationship post their hospital visit." – an ACO interview participant

"[In] a couple of our offices, the care management team is co-located with a Community Partners program… [an LTSS CP] is embedded within the hospital system, which makes it much easier for them to collaborate with their providers. [In a BH CP], down in the [city] area, our [care] team sits in the same office with the Community Partners.… that co-location really facilitates shared resources and shared care planning as well." – an ACO interview participant

ACOs expect to continue to learn about the best ways to collaborate with their community and partners regarding the implementation of and participation in alternative and value-based payment models. The work of getting members the services they need and ultimately preventing high-cost acute care service utilization was described as resource-intensive, with many care team members involved. Several ACOs described examples of successful programs that helped members access upstream services and reduced emergency service utilization, but some ACOs expressed concerns that current payment may not be adequate to support such high-touch efforts.

"We really have been able to grow the family network and get everybody involved to take care of patient[s]. It takes a village…You may have five or six people working on one patient to help that patient get services, and you don't really get compensated for that work. But it works. There are a lot of success stories that we've had, especially around our multi-visit patient program with patients who frequent the ED and the hospital. It's many, many, many people getting their tentacles around that patient, and working with the patient, and the providers, and the community to kind of make it happen…That is what we're talking about, value-based care, but I don't know that the reimbursement is necessarily there for that kind of work."
– an ACO interview participant

2.3.6. Domain 6: Effects of specific DSRIP investments and actions

RQ16: To what extent can observed changes in care processes, outcomes, and costs be attributed to DSRIP?

H16.1. Improvements in care processes will be associated with DSRIP-funded delivery system changes at the organizational and state level.

H16.2. Improvements in member outcomes will be associated with DSRIP-funded delivery system changes at the organizational and state level.

H16.3. Moderated TCOC trends will be associated with DSRIP-funded delivery system changes at the organizational and state levels.

H16.4. The state and local context will modify the relationship between DSRIP with DSRIP-funded delivery system changes and ACO quality and cost performance.

RQ16 Summary

Two DSRIP-funded delivery system changes were evaluated to address **RQ16**: 1) the Flexible Services (FS) Program, and 2) the Community Partners (CP) Program. For the FS Program, two parallel sets of analyses were conducted for enrollees of FS tenancy preservation and nutrition programs during the period Q1 CY2020 through Q1 CY2023 (the portion of the DSRIP Program where the FS Program was operating). For the CP Program, two parallel sets of analyses were conducted for enrollees of behavioral health (BH) CPs and long-term supports and services (LTSS) CPs during CYs 2019-2022; as the CP program did not launch until July of 2018 and the analyses required 320 days of enrollment, 2018 was not included. Some findings from these FS and CP Program analyses supported **H16.1-H16.3**, while others did not.

Compared with MassHealth members who were referred to but not enrolled in FS programs, across all enrollees (adults and children combined) in FS Program tenancy preservation supports during Q1 CY2020 – Q1 CY2023 (i.e., the full FS Program period) had ~ 15-30% lower rates of unplanned acute hospital admissions (i.e., inpatient hospitalizations) and emergency department (ED) use. Similar healthcare utilization outcomes were observed in the nutrition programs. For both tenancy supports and nutrition programs, impacts on ED visits and primary-care sensitive ED visits were greater after the worst of the COVID-19 had subsided in PY5

(2022-Q1 2023). Effects on healthcare utilization were notably larger in adults as compared to children.

The total cost of care (TCOC) was lower among enrollees in FS Program tenancy preservation and nutritional supports, but differences were not statistically significant across the full waiver period. However, in the subgroup enrolled in FS Program during CY2022–CY2023 (after the early years of FS Program implementation and after the peak of the COVID-19 pandemic) the TCOC was statistically significantly lower among both FS Program tenancy preservation and nutrition enrollees as compared to eligible members who did not receive services. Heterogeneity of findings over time from before, during, and after the COVID-19 pandemic supported **H16.4** that state and local context would modify the relationship between the DSRIP-funded delivery system changes and quality and cost performance.

ED visit rates and unplanned admission rates declined over the analysis period (CY2019–CY2022) among BH CP enrollees. However, enrollment in a BH CP was not associated with lower rates of ED visits (primary care (PC)-sensitive or all-cause) or unplanned inpatient admissions, or with lower TCOC in propensity-weighted comparisons with similar members not enrolled in BH CPs. For BH CP enrollees, unplanned admission rates declined over the analysis period (CY2019–CY2022), while ED visits declined in the first year of the COVID-19 pandemic and then returned close to the pre-pandemic level (CY2019). The TCOC was higher in CY2019 and CY2022 and similar in CY2020 and CY2021 for BH CP enrollees versus the comparison group. For BH CP enrollees, BH CP performance on care process quality measures improved in CY2020–CY2022 compared with CY2019 for some measures (antidepressant medication management, BH CP engagement, follow-up after an ED visit, follow-up after a hospitalization). Performance varied over time for other measures (annual PC visit, annual treatment plan).

All-cause ED visit rates were lower in CY2019, but not in CY2020–CY2022, for LTSS CP enrollees versus a propensity-weighted comparison group of members not enrolled with CPs. In comparisons of LTSS CP versus non-LTSS CP enrolled members, point estimates for the unplanned hospital admissions measure were consistently lower among LTSS CP enrollees throughout the analysis period (CY2019–CY2022), but the results were not statistically significant. The TCOC was not statistically significantly different for LTSS CP enrollees versus the comparison group for each year of analysis (CY2019–CY2022); the point estimate for TCOC was lower for LTSS CP enrollees in CY2019 and higher in CY2020-2022. Among LTSS CP enrollees, performance on care process quality measures improved in CY2020–CY2022 compared with CY2019 for some measures (annual treatment plan, follow-up after a hospitalization or post-acute stay, annual PC visit), and performance varied over time for the LTSS CP engagement measure.

FS Program Results

The characteristics of FS Program enrollees are presented in **Appendix L.** Supplemental analyses for the FS program are presented in **Appendix M**.

FS Program- Tenancy Preservation Supports

Table 2.3-D6.1 contains the results of composite analyses of the FS Program tenancy supports (all types) delivered to pediatric and adult MassHealth members. Primary analyses focused on

the first uninterrupted period of continuous enrollment for each member in the FS Program (adults and children together), with start dates ranging from January 2020 to March 2023. During the full period of FS Program implementation (CY2020–Q1 CY2023), the changes in TCOC and primary care visit rates of recipients of FS Program tenancy supports versus those eligible who did not receive them were not significantly different. However, the reduction in TCOC directionally favored FS Program enrollees (-$1,439; 95% CI: -3,149, 271). Hospitalization (aIRR: 0.82; 95% CI: 0.69, 0.97), ED visit (aIRR: 0.83; 95% CI: 0.72, 0.95), and PC-sensitive ED visit (aIRR: 0.76; 95% CI: 0.64, 0.89) rates were statistically significantly lower among FS Program tenancy supports recipients. In other words, hospitalization rates were 18% lower, ED visit rates were 17% lower, and PC-sensitive ED visit rates were 24% lower among FS Program tenancy supports participants. Estimates of FS Program tenancy supports enrollment during the study period ranged from 30 to 914 days, with a mean (standard deviation) enrollment time of 126 (135) days.

The first two years of FS Program implementation coincided with the most impactful waves of the COVID-19 pandemic. Therefore, we conducted a stratified analysis among participants who enrolled in FS Program tenancy supports during the first two years of the COVID-19 pandemic (CY2020 and CY2021) and afterward (CY2022–Q1 CY2023) to evaluate program effects during and after the height of the COVID-19 pandemic, once vaccinations were widely available and the COVID-19 Delta variant wave subsided. The first two years of the program (CY2020 through CY2021) were also the period of early implementation of the FS Program, during which organizations and health systems implementing the FS Program had to overcome additional challenges to launch a new program during the COVID-19 pandemic. Among those who enrolled in FS Program tenancy supports during PY3-PY4, TCOC ($316; 95% CI: -$2,489, 3,121), inpatient admissions rate (aIRR: 0.85; 95% CI: 0.68, 1.06), ED visit rate (aIRR: 0.87; 95% CI: 0.73, 1.05), and PC-sensitive ED visit rate (aIRR: 0.86; 0.69, 1.08) were not significantly different compared to housing unstable adults who were referred to but not enrolled in FS programs. Among those who enrolled in FS Program tenancy supports during PY5, TCOC (-$3,047; 95% CI: -$5,079, -$1,015), ED visits (aIRR: 0.77; 95% CI: 0.64, 0.93), and PC-sensitive ED visit rates (aIRR: 0.66; 95% CI: 0.52, 0.83) were significantly lower among FS Program tenancy preservation support recipients as compared to housing unstable adults who were referred to but not enrolled in FS tenancy preservation programs.

Appendix M contains additional analyses of the FS Program tenancy preservation supports stratified by adults and children.

Table 2.3-D6.1 Comparisons of TCOC, Inpatient Admissions, and ED Visits Among Members Receiving FS Program Tenancy Supports Versus Members Assessed as Eligible That Did Not Receive FS Program Tenancy Supports

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
All participants	PY3-PY5[d]	TCOC, $	Treatment: N=8,667 Comparison: N=1,020	-1,439 (-3,149, 271)

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
All participants	Started in PY3-4 (first two years of the FS Program and COVID-19 pandemic)	TCOC, $	Treatment: N=4,427 Comparison: N=478	316 (-2,489, 3,121)
All participants	Started in PY5[d]	TCOC, $	Treatment: N=4,240 Comparison: N=542	-3,047[c] (-5,079, -1,015)
All participants	PY3-PY5[d]	Inpatient hospitalizations, aIRR	Treatment: N=8,667 Comparison: N=1,020	0.82[c] (0.69, 0.97)
All participants	Started in PY3-4 (first two years of the FS Program and COVID-19 pandemic)	Inpatient hospitalizations, aIRR	Treatment: N=4,427 Comparison: N=478	0.85 (0.68, 1.06)
All participants	Started in PY5[d]	Inpatient hospitalizations, aIRR	Treatment: N=4,240 Comparison: N= 542	0.76 (0.57, 1.02)
All participants	PY3-PY5[d]	ED visits, aIRR	Treatment: N=8,667 Comparison: N=1,020	0.83[c] (0.72, 0.95)
All participants	Started in PY3-4 (first two years of the FS Program and COVID-19 pandemic)	ED visits, aIRR	Treatment: N=4,427 Comparison: N=478	0.87 (0.73, 1.05)
All participants	Started in PY5[d]	ED visits, aIRR	Treatment: N=4,240 Comparison: N=542	0.77[c] (0.64, 0.93)
All participants	PY3-PY5[d]	Primary care sensitive ED visits, aIRR	Treatment: N=8,667 Comparison: N=1,020	0.76[c] (0.64, 0.89)
All participants	Started in PY3-4 (first two years of the FS Program and COVID-19 pandemic)	Primary care sensitive ED visits, aIRR	Treatment: N=4,427 Comparison: N=478	0.86 (0.69, 1.08)
All participants	Started in PY5[d]	Primary care sensitive ED visits, aIRR	Treatment: N=4,240 Comparison: N=542	0.66[c] (0.52, 0.83)

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
All participants	PY3-PY5[d]	Primary care visits, aIRR	Treatment: N=8,667 Comparison: N=1,020	1.01 (0.99, 1.04)
All participants	Started in PY3-4 (first two years of the FS Program and COVID-19 pandemic)	Primary care visits, aIRR	Treatment: N=4,427 Comparison: N=478	1.02 (0.98, 1.06)
All participants	Started in PY5[d]	Primary care visits, aIRR	Treatment: N=4,240 Comparison: N=542	1.00 (0.96, 1.04)

Abbreviations: aIRR (adjusted incidence rate ratio), N/E (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department), FS (Flexible Services)

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting FS and during FS Program enrollment. Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and employment; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS), experiencing food insecurity, and CP enrollment; 3) histories of health care utilization including a diagnosis-based medical complexity summary score (DxCG) and a pharmacy-based medical complexity summary score (RxCG) in the year prior to FS Program start dates, plus total cost of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to the FS Program start date; 4) diagnostic histories from claims in the year prior to the FS Program start date, including COVID-19, cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders, suicide attempts, psychoses, eating disorders, bipolar disorder, depression, anxiety, other mental health conditions, high-risk pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, and miscarriage; and 5) random effects for MassHealth region

[b] Comparison groups are comprised of members who were referred to FS programs but not enrolled. There are distinct comparison groups for tenancy preservation and nutrition, but they are not mutually exclusive. It's possible to be in both the nutrition and tenancy preservation comparison groups. In addition, some members serve in the tenancy preservation treatment group and nutrition comparison group, and vice versa, depending on which programs they were referred to and which programs ultimately contacted and enrolled them in services.

[c] $P<0.05$

[d] The PY5 (2022) cost includes funds spent during the first quarter of 2023.

FS Program- Nutrition Services

Table 2.3-D6.2 contains the results of composite analyses of the FS Program nutrition supports (all program models by all participating SSOs) delivered to pediatric and adult MassHealth members. Primary analyses focused on the first uninterrupted period of continuous enrollment for each member in the FS Program, with start dates ranging from January 2020 to March 2023. During the full period of FS Program implementation (CY2020–Q1 2023), the differences in TCOC and PC-sensitive ED visit rate of recipients of FS Program nutrition supports versus those eligible who did not receive them was not statistically significant. The point estimate for change in TCOC directionally favored FS Program enrollees (-$712; 95% CI: -1,950, 525). The hospitalization (aIRR: 0.77; 95% CI: 0.65, 0.90) and ED visit (aIRR: 0.87; 95% CI: 0.80, 0.95) rates were statistically significantly lower among FS Program nutrition supports recipients, as compared to those who were referred but did not enroll. In other words, hospitalization rates were 23% lower and ED visit rates were 13% lower among FS Program nutrition participants. Estimates of FS Program nutrition enrollment duration during the study period ranged from 3 to 1004 days, with a mean (standard deviation) enrollment time of 138 (131) days.

In FS nutrition services analyses stratified by adults and children, impacts on hospitalizations were comparable among adults to the overall findings, yet impacts were not statistically significant for children (see **Appendix M**). For adults, an estimated 15% reduction in ED visits was associated with FS participation. However, there were no observed differences in ED visits among children participants. Finally, TCOC trended lower for adults at an estimated -$1,178 (-2,759, 402) but did not reach statistical significance. Among adults who received nutrition services for at least 90 days, the TCOC was significantly lower (-$2,502; 95% CI: -4,641, -363) (see **Appendix M**).

The first two years of FS programs were implemented during the initial challenging waves of the COVID-19 pandemic. Similar to the tenancy programs, subgroup analyses were conducted among members who enrolled in FS Program nutrition supports during PY3 and PY4 (CYs 2020-2021), and among those who enrolled in PY5 (CY2022–Q1 CY2023), after vaccinations were widely available and the COVID-19 Delta variant wave had subsided. Similar to the findings among FS tenancy preservation supports, among those who enrolled in FS nutrition supports during PY3-PY4, differences in TCOC ($165; 95% CI: -$1,607, $1,937), inpatient hospitalization rate (aIRR: 0.92; 95% CI: 0.77, 1.12), ED visit rate (aIRR: 0.95; 95% CI: 0.84, 1.07), and primary care sensitive ED visit rate (aIRR: 1.06; 95% CI: 0.77, 1.48) were not significantly lower among FS Program nutrition supports recipients as compared to nutrition-insecure ACO enrollees who were referred to but not enrolled in FS programs (see **Table 2.3-D6.2**). Among those who enrolled in FS Program nutrition supports during PY5, TCOC (-$1,721; 95% CI: -3,431, -10), ED visit (aIRR: 0.79; 95% CI: 0.70, 0.90) and inpatient admissions rates (aIRR: 0.53; 95% CI: 0.41, 0.67) were significantly lower among FS Program nutrition supports recipients as compared to nutrition-insecure ACO enrollees who were referred to but not enrolled in FS programs.

Table 2.3-D6.2 Comparisons of TCOC, Inpatient Admissions, and ED Visits Among Members Receiving FS Program Nutrition Supports Versus Members Assessed as Eligible That Did Not Receive FS Program Nutrition Supports

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
All participants	PY3-PY5[d]	TCOC, $	Treatment: N=20,403 Comparison: N=2,108	-$712 (-1,950, 525)
All participants	Started in PY3-4 (COVID-19 emergency period)	TCOC, $	Treatment: N=10,409 Comparison: N=1,035	$165 (-1,607, 1,937)
All participants	Started in PY5[d]	TCOC, $	Treatment: N=9,994	-$1,721 (-3,431, -10)[c]

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
			Comparison: N=1,073	
All participants	PY3-PY5[d]	Inpatient hospitalization, aIRR	Treatment: N=20,403 Comparison: N=2,108	0.77 (0.65, 0.90)[c]
All participants	Started in PY3-4 (COVID-19 emergency period)	Inpatient hospitalization, aIRR	Treatment N=10,409 Comparison: N=1,035	0.92 (0.77, 1.12)
All participants	Started in PY5[d]	Inpatient hospitalization, aIRR	Treatment: N=9,994 Comparison: N=1,073	0.53 (0.41, 0.67)[c]
All participants	PY3-PY5[d]	ED visits, aIRR	Treatment: N=20,403 Comparison: N=2,108	0.87 (0.80, 0.95)[c]
All participants	Started in PY3-4 (COVID-19 emergency period)	ED visits, aIRR	Treatment: N=10,409 Comparison: N=1,035	0.95 (0.84, 1.07)
All participants	Started in PY5[d]	ED visits, aIRR	Treatment: N=9,994 Comparison: N=1,073	0.79 (0.70, 0.90)[c]
All participants	PY3-PY5[d]	Primary care sensitive ED visits, aIRR	Treatment: N=20,403 Comparison: N=2,108	1.01 (0.86, 1.19)
All participants	Started in PY3-4 (COVID-19 emergency period)	Primary care sensitive ED visits, aIRR	Treatment: N=10,409 Comparison: N=1,035	1.06 (0.77, 1.48)

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
All participants	Started in PY5[d]	Primary care sensitive ED visits, aIRR	Treatment: N=9,994 Comparison: N=1,073	1.05 (0.83, 1.34)
All participants	PY3-PY5[d]	Primary care visits, aIRR	Treatment: N=20,403 Comparison: N=2,108	1.00 (0.99, 1.03)
All participants	Started in PY3-4 (COVID-19 emergency period)	Primary care visits, aIRR	Treatment: N=10,409 Comparison: N=1,035	1.02 (0.99, 1.04) [c]
All participants	Started in PY5[d]	Primary care visits, aIRR	Treatment: N=9,994 Comparison: N=1,073	0.98 (0.96, 1.01)

Abbreviations: aIRR (adjusted incidence rate ratio), N/E (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department), FS (Flexible Services)

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting the FS Program and during FS Program enrollment. 'Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and employment; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS), and CP enrollment; 3) histories of health care utilization including a diagnosis-based medical complexity summary score (DxCG) and a pharmacy-based medical complexity summary score (RxCG) in the year prior to the FS Program start date, plus total costs of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to the FS Program start date; and 4) diagnostic histories from claims in the year prior to the FS Program start date, including COVID-19, cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders, suicide attempts, psychoses, eating disorders, bipolar disorder, depression, anxiety, other mental health conditions, high-risk pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, and miscarriage; and random effects for ACO.

[b] Comparison groups comprised members who were referred but not enrolled. There are distinct comparison groups for tenancy preservation and nutrition, but they are not mutually exclusive. It's possible to be in both the nutrition and tenancy preservation comparison groups. In addition, some members serve in the tenancy preservation treatment group and nutrition comparison group, and vice versa, depending on which programs they were referred to and which programs ultimately contacted and enrolled them in services.

[c] $P<0.05$

[d] The PY5 (2022) cost includes funds spent during the first quarter of 2023.

Additional FS Program nutrition supports analyses focused on 3,000 adult members receiving medically tailored meals (MTMs) from the largest MTM provider in the FS Program, Community Servings. These analyses involved additional data from Community Servings and partnering ACOs. MTM analyses focused on adult participants as adults represented the vast majority of MTM enrollees. For this subset of FS Program nutrition supports enrollees receiving MTMs,

exact program enrollment dates were obtained from Community Servings, and MTM enrollment ranged from 3 to 1004 days, with a mean (SD) enrollment time of 140 (117) days.

Table 2.3-D6.3 contains the results of propensity-weighted analyses comparing TCOC, inpatient hospitalizations, ED visits, and PC-sensitive ED visits between MTM enrollees and the comparison group of FS Program nutrition supports referred but not enrolled members.

The Inpatient hospitalization rate (aIRR: 0.74; 95% CI: 0.62, 0.89), and ED visit rate (aIRR: 0.82; 95% CI: 0.71, 0.94) were statistically significantly lower among MTM enrollees during the full waiver period than the comparison group. In other words, there was a 26% lower rate of hospitalizations and a 18% lower rate of ED visits associated with enrollment in Community Servings FS MTM programs. TCOC trended lower for adult MTM participants but did not reach statistical significance. In contrast with the overall nutrition group and tenancy preservation group, FS MTM receipt was associated with changes in hospitalizations and ED visits during the onset of the COVID-19 pandemic in PY3-4. Medically tailored meals were the most intensive nutrition program offered and included home delivery, which may have helped to provide increased benefits to participants during the COVID-19 outbreak.

Table 2.3-D6.3 Comparisons of TCOC, Inpatient Admissions, and ED Visits Among Members Receiving FS Program MTM Supports from Community Servings Versus Members Assessed as Eligible That Did Not Receive FS Program MTM Supports

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
Adults	PY3-PY5[d]	TCOC, $	Treatment: N=2,882 Comparison: N=1,1400	-$1,086 (-3,000, 826)
Adults	Started in PY3-4 (COVID-19 emergency period)	TCOC, $	Treatment: N=1,562 Comparison: N=785	-$2,222 (-4,848, 403)
Adults	Started in PY5[d]	TCOC, $	Treatment: N=1,320 Comparison: N=615	-$203 (-2,753, 3,160)
Adults	PY3-PY5[d]	Inpatient hospitalizations, aIRR	Treatment: N=2,882 Comparison: N=1,1400	0.74 (0.62, 0.89)[c]

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
Adults	Started in PY3-4 (COVID-19 emergency period)	Inpatient hospitalizations, aIRR	Treatment: N=1,562 Comparison: N=785	0.81 (0.67, 0.99) [c]
Adults	Started in PY5[d]	Inpatient hospitalizations, aIRR	Treatment: N=1,320 Comparison: N=615	0.63 (0.45, 0.83)[c]
Adults	PY3-PY5[d]	ED visits, aIRR	Treatment: N=2,882 Comparison: N=1,1400	0.82 (0.71, 0.94)[c]
Adults	Started in PY3-4 (COVID-19 emergency period)	ED visits, aIRR	Treatment: N=1,562 Comparison: N=785	0.88 (0.81, 0.95) [c]
Adults	Started in PY5[d]	ED visits, aIRR	Treatment: N=1,320 Comparison: N=615	0.77 (0.66, 0.90)[c]
Adults	PY3-PY5[d]	Primary care sensitive ED visits, aIRR	Treatment: N=2,882 Comparison: N=1,1400	1.04 (0.96, 1.12)
Adults	Started in PY3-4 (COVID-19 emergency period)	Primary care sensitive ED visits, aIRR	Treatment: N=1,562 Comparison: N=785	1.02 (0.67, 1.57)

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
Adults	Started in PY5[d]	Primary care sensitive ED visits, aIRR	Treatment: N=1,320 Comparison: N=615	0.91 (0.64, 1.27)
Adults	PY3-PY5[d]	Primary care visits, aIRR	Treatment: N=2,882 Comparison: N=1,1400	1.00 (0.98, 1.02)
Adults	Started in PY3-4 (COVID-19 emergency period)	Primary care visits, aIRR	Treatment: N=1,562 Comparison: N=785	1.01 (0.99, 1.04)
Adults	Started in PY5[d]	Primary care visits, aIRR	Treatment: N=1,320 Comparison: N=615	0.98 (0.95, 1.00)

Abbreviations: aIRR (adjusted incidence rate ratio), N/E (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department) FS (Flexible Services).

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting the FS Program and during FS Program enrollment. Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and employment; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS), CP enrollment; 3) histories of health care utilization including a diagnosis-based medical complexity summary score (DxCG) and a pharmacy-based medical complexity summary score (RxCG) in the year prior to FS program start dates, plus total costs of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to FS Program start date; 4) diagnostic histories from claims in the year prior to FS Program start date, including COVID-19, cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders , suicide attempts, psychoses, eating disorders, bipolar disorder, depression, anxiety, other mental health conditions, high-risk pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, and miscarriage; and 5) random effects for ACO.

[b] Comparison groups are comprised of members who were referred but not enrolled. There are distinct comparison groups for tenancy preservation and nutrition, but they are not mutually exclusive. It's possible to be in both the nutrition and tenancy preservation comparison groups. In addition, some members serve in the tenancy preservation treatment group and nutrition comparison group, and vice versa, depending on which programs they were referred to and which programs ultimately contacted and enrolled them in services.

[c] $P<0.05$

[d] The PY5 (2022) cost includes funds spent during the first quarter of 2023.

CP Results

The characteristics of CP enrollees are presented in **Appendix L**.

BH CP

Changes in care process quality measures were evaluated over time among BH CP enrollees during the period CY2019–CY2022 (see **Table 2.3-D6.4**). Since the specifications were specific to CP enrollees, comparisons were not made to members not enrolled with CPs.

The percentage of BH CP enrollees achieving numerator criteria for the antidepressant medication management measure, which monitors antidepressant adherence and persistence (i.e., the amount of time spent using the medication) during two phases (acute and chronic), increased over time. Performance on this measure peaked in CY2022 when 60.9% (aOR vs. CY2019: 1.28; 95% CI: 1.18, 1.40) and 40.2% (aOR vs. CY2019: 1.28; 05% CI: 1.17, 1.39) of enrollees were adherent during the acute and chronic phases, respectively. Performance also improved compared with CY2019 in the percentage of BH CP enrollees who received timely follow-up after an ED visit or hospitalization, with aORs versus CY2019 in the range of 2.34 to 2.78 for follow-up after an ED visit and aORs in the range of 2.07-2.37 for follow-up after a hospitalization during CY2020–CY2022.

The percentage of BH CP enrollees meeting the numerator criteria for the annual treatment plan measure was in the range of 55.9% to 57.3% during CY2019–CY2022; comparisons for CY2020–CY2022 versus CY2019 were not statistically significant.

Table 2.3-D6.4 Observed and Adjusted Performance for Care Processes Among ACO Enrollees Who Were Enrolled in BH CPs Over Time, CY2019–CY2022

Measure	2019	2020	2021	2022
Antidepressant medication management (acute phase), n of CP enrollees	4,796	5,345	5,181	5,345
CP observed, %	53.8	54.1	58.0	60.9
Comparison with 2019, aOR (95% CI)	Reference	1.01 (0.93, 1.10)	1.15 (1.04, 1.27)	1.28 (1.18, 1.40)
Antidepressant medication management (chronic phase), n of CP enrollees	4,796	5,345	5,181	5,345
CP observed, %	34.0	36.0	36.6	40.2
Comparison with 2019, aOR (95% CI)	Reference	1.09 (1.01, 1.19)	1.04 (0.94, 1.16)	1.28 (1.17, 1.39)
BH CP engagement, n of CP enrollees	28,555	29,295	33,009	35,230
CP observed, %	11.1	12.8	12.0	11.7
Comparison with 2019, aOR (95% CI)	Reference	1.17 (1.11, 1.23)	1.13 (1.06, 1.20)	1.05 (1.00, 1.11)
BH CP treatment plan, n of CP enrollees	12,335	13,989	13,067	13,496

Measure	2019	2020	2021	2022
CP observed, %	56.9	55.9	56.0	57.3
Comparison with 2019, aOR (95% CI)	Reference	0.95 (0.90, 1.00)	0.96 (0.90, 1.02)	1.01 (0.96, 1.06)
BH CP follow-up after ED visit, n of CP enrollees	23,447	20,648	26,718	24,779
CP observed, %	16.9	37.5	43.8	45.4
Comparison with 2019, aOR (95% CI)	Reference	2.34 (2.25, 2.43)	2.66 (2.55, 2.78)	2.78 (2.67, 2.90)
BH CP follow-up after hospitalization, n of CP enrollees	12,280	12,741	13,767	13,072
CP observed, %	10.4	19.7	23.0	23.2
Comparison with 2019, aOR (95% CI)	Reference	2.07 (1.92, 2.22)	2.37 (2.19, 2.57)	2.30 (2.13, 2.48)
BH CP primary care visit, n of CP enrollees	15,044	16,997	15,958	22,676
CP observed, %	51.5	47.4	53.4	49.2
Comparison with 2019, aOR (95% CI)	Reference	0.88 (0.84, 0.92)	1.20 (1.13, 1.26)	1.01 (0.97, 1.06)

Abbreviations: CY (calendar year); aOR (adjusted odds ratio), ACO (accountable care organization); BH (behavioral health); CP (Community Partner); CI (confidence interval).

Changes in several utilization outcome measures were examined over time for CY2019–CY2022 among ACO enrollees who were enrolled in a BH CP. To align the time period for performance measurement with time spent enrolled in the CP program, analyses were restricted to those who were enrolled with BH CPs for at least 320 days each year. Therefore, we did not examine these measures during CY2018 because the CP Program did not start until July 2018. We also compared performance on these measures in each year between ACO enrollees who were enrolled in BH CPs versus MCO/PCCP enrollees who were not enrolled in CPs (i.e., non-CP enrollees) while adjusting for differences using overlap propensity score weights. The MCO/PCCP comparison group comprised individuals who met diagnostic and utilization-based criteria for enrollment with a BH CP (consistent with MassHealth's assignment algorithm[97]) in the year preceding the measurement year. Conceptually, the weighted comparison group reflects MCO/PCCP enrollees who likely would have enrolled with a BH CP if they had been ACO enrollees.

In CY2019, the first year of the analysis and the only year before the COVID-19 pandemic, PC-sensitive and all-cause ED visit rates among BH CP enrollees were 177.9 and 313.7 per 100 enrollees per year, respectively (see **Table 2.3-D6.5**). Both PC-sensitive and all-cause ED visit

[97] MassHealth's BH CP assignment algorithm required membership in at least one of three groups (1. Highest need BH diagnosis; 2. High need BH diagnosis; 3. SUD diagnosis) based on a combination of diagnoses and utilization:

rates declined during the remainder of the 2017–2022 Demonstration, reaching lows of 142.3 and 274.9 in CY2022, the final year of the Demonstration. For PC-sensitive ED visits, propensity-weighted comparative estimates were not statistically different for BH CP enrollees versus comparators except in CY2020 (aIRR: 1.02; 95% CI: 0.95, 1.09), the first year of the COVID-19 pandemic. All-cause ED visit rates were consistently higher among BH CP enrollees, with aIRRs ranging from a low of 1.09 in CY2019 to a high of 1.18 in CY2020. All-cause ED visit rates among the subgroup of members with SMI/SUD were not statistically significantly different between BH CP enrollees and the comparison group throughout the analysis period (CY2019–CY2022). However, the ED boarding rate was lower among BH CP enrollees in each of the four years, with aIRRs ranging from 0.51 in CY2019 to 0.33 in CY2022.

Acute unplanned inpatient admission rates among BH CP enrollees declined from a high of 88.6 in 2019 to a low of 76.3 admissions per 100 enrollees per year in CY2022 (see **Table 2.3-D6.5**). Propensity-weighted comparative estimates were higher among BH CP enrollees, with aIRRs ranging from a low of 1.09 in CY2019 to 1.18 in CY2020. Comparative estimates were not statistically significantly different throughout the analysis period (CY2019–CY2022) within the subgroup of members with SMI/SUD. Acute unplanned admission rates for acute ambulatory care sensitive conditions (ACSCs) fluctuated from a rate of 0.6 per 100 enrollees per year among CP enrollees in CY2019 to 1.1 in CY2020 and 0.2 per 100 enrollees per year in CY2022. Rates of acute unplanned admissions for chronic ACSCs among BH CP enrollees were 0.1, 4.2, 2.4, and 0.4 per 100 enrollees per year in CY2019-CY2022, respectively. Propensity-weighted comparative estimates were imprecise (i.e., large confidence intervals or not estimable due to a small number of events) for both the acute and chronic ACSC admission measures. For acute unplanned hospital readmissions, propensity-weighted comparative estimates were lower for CP enrollees in 2019 and higher for CP enrollees during the pandemic (2020-2022) versus non-CP enrollees.

Table 2.3-D6.5 Observed and Comparative Performance for Outcomes Among ACO Enrollees Who Were Enrolled with BH CPs and MCO/PCCP non-CP Enrollees, CY2019–CY2022

Measure	2019	2020	2021	2022
PC Sensitive ED Visits, n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, count per 100 members	177.9	163.4	148.4	142.3
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	1.02 (0.95, 1.09)	1.11 (1.03, 1.20)	1.06 0.98, 1.015)	1.01 (0.94, 1.08)
All-Cause ED Visits, n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, count per 100 members	313.7	293.5	288.0	274.9
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	1.09 (1.03, 1.06)	1.18 (1.09, 1.28)	1.14 (1.02, 1.27)	1.16 (1.09, 1.24)

Measure	2019	2020	2021	2022
ED Visits for Adults with SMI/SUD, n of CP enrollees	7,064	7,282	10,097	11,815
CP Observed, count per 100 members	322.2	301.1	298.7	286.7
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)	0.97 (0.88, 1.05)	1.00 (0.91, 1.10)	1.00 (0.85, 1.17)	1.07 (0.99, 1.14)
ED Boarding for Adults with BH Conditions[a], n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, count of days per 100 members	101.5	261.7	220.7	221.6
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.51 (0.40, 0.64)	0.44 (0.38, 0.50)	0.32 (0.25, 0.40)	0.33 (0.28, 0.38)
Acute Unplanned Inpatient Admissions, n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, count per 100 members	88.6	80.4	81.0	76.3
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	1.09 (0.99, 1.18)	1.18 (1.07, 1.30)	1.16 (1.03, 1.30)	1.12 (1.03, 1.23)
Acute Unplanned Inpatient Admissions for Acute ACSCs, n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, count per 100 members	0.6	1.1	0.5	0.2
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.33 (0.06, 1.80)	1.56 (0.17, 14.2)	0.82 (0.07, 9.34)	0.36 (0.03, 4.03)
Acute Unplanned Inpatient Admissions for Chronic ACSCs, n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, count per 100 members	0.1	4.2	2.4	0.4
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.22 (0.02, 2.35)	N/E[b]	6.14 (0.66, 57.11)	5.48 (0.55, 54.75)
Acute Unplanned Admissions among Adults with SMI/SUD, n of CP enrollees	7,064	7,282	10,097	11,815
CP Observed, count per 100 members	94.6	86.0	87.2	82.6

Measure	2019	2020	2021	2022
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.93 (0.84, 1.04)	0.96 (0.86, 1.08)	1.02 (0.88, 1.19)	1.08 (0.98, 1.18)
Acute unplanned hospital readmissions, n	4,548	4,282	5,707	6,118
CP Observed, %	0.32	0.35	0.36	0.34
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.87 (0.76, 1.00)	1.11 (0.97, 1.27)	1.19 (0.98, 1.44)	1.25 (1.09, 1.42)

[a] Models report the annual difference between ACO+BH CP enrollees and MCO/PCCP enrollees who met MassHealth's algorithmic criteria for BH CP assignment. Estimates are generated from negative binomial regression models with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included age, sex, disability status, housing status, COVID-19 diagnoses on inpatient and outpatient records, high-risk BH group from the BH CP assignment algorithm, baseline TCOC, baseline inpatient admissions, baseline ED visits, a diagnosis-based medical complexity summary score (DxCG), a pharmacy-based medical complexity summary score (RxCG), and neighborhood socio-economic risk score (NSS).

[b] N/E (not estimable)

The TCOC among BH CP enrollees was approximately $45,000 per enrollee per year throughout the analysis period (CY2019–CY2022) (see **Table 2.3-D6.6**). In propensity-weighted comparisons, the annual per enrollee TCOC was $3,782 higher among BH CP versus MCO/PCCP non-CP enrollees with similar characteristics in CY2019 and $1,738 higher among BH CP enrollees in CY2022. Comparative estimates were not statistically significantly different in CY2020 or CY2021. Costs by select specific categories of service are presented in **Appendix I.**

Table 2.3-D6.6 Observed and Comparative Performance for Cost Among ACO Enrollees Who Were Enrolled with BH CPs and MCO/PCCP Non-CP Enrollees, CY2019–CY2022

Measure	2019	2020	2021	2022
TCOC, n of CP enrollees	7,771	7,987	11,125	13,045
CP Observed, $ per member per year	45,076	44,448	45,646	45,253
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aOR (95% CI)[a]	3,782 (2,056, 5,508)	1,544 (-150, 3,237)	1,444 (-553, 3,440)	1,738 (304, 3,173)

[a] Models report the annual difference between ACO+BH CP enrollees and MCO/PCCP but not CP enrollees who met MassHealth's algorithmic criteria for BH CP assignment. Estimates are generated from negative binomial regression models with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included age, sex, disability status, housing status, COVID-19 diagnoses on inpatient and outpatient records, high-risk BH group from the BH CP assignment algorithm, baseline TCOC, baseline inpatient admissions, baseline ED visits, a diagnosis-based medical complexity summary score (DxCG), a pharmacy-based medical complexity summary score (RxCG), and neighborhood socio-economic risk score (NSS).

LTSS CP

Changes in care process quality measures were evaluated over time among LTSS CP enrollees during the period CY2019-CY2022 (see **Table 2.3-D6.7**). Since the specifications were specific to CP enrollees, comparisons were not made to members not enrolled with CPs. Performance

on LTSS CP quality measures generally remained stable or improved in each of CY2020–CY2022 versus CY2019, except for LTSS CP engagement, where performance declined in CY2020 and then improved in CY2021. The percentage of LTSS CP enrollees receiving timely follow-up after an acute or post-acute stay within 3 days increased from 11.5% in CY2019 to a high of 37.3% in CY2021 (aOR: 3.11; 95% CI: 2.57-3.78). The percentage of LTSS CP enrollees meeting numerator criteria for the treatment plan measure increased from 57.2% in CY2019 to a high of 68.8% in CY2022 (aOR: 1.70; 95% CI: 1.53-1.88). The percentage of LTSS CP enrollees with an annual primary care visit increased from 61.6% in CY2019 to 70.8% in 2022 (aOR: 1.59; 95% CI: 1.49-1.69).

Table 2.3-D6.7 Observed and Adjusted Performance for Care Processes Among ACO Enrollees Who Were Enrolled with LTSS CPs Over Time, CY2019–CY2022

Measure	2019	2020	2021	2022
LTSS CP engagement, n of CP enrollees	9,620	12,171	12,404	13,829
CP Observed, %	11.9	9.5	13.4	12.6
Comparison with 2019, aOR (95% CI)	Reference	0.80 (0.73-0.87)	1.26 (1.15-1.39)	1.06 (0.98-1.16)
LTSS CP care plan completion, n of CP enrollees	4,425	4,489	3,947	3,576
CP Observed, %	57.2	61.1	67.6	68.8
Comparison with 2019, aOR (95% CI)	Reference	1.19 (1.09-1.31)	1.46 (1.31-1.62)	1.70 (1.53-1.88)
LTSS CP follow-up within 3 days after hospitalization or post-acute stay, n of CP enrollees	1,327	1,093	1,212	1,179
CP Observed, %	11.5	25.7	37.3	34.4
Comparison with 2019, aOR (95% CI)	Reference	2.13 (1.75-2.60)	3.11 (2.57-3.78)	2.85 (2.33-3.47)
LTSS CP primary care visit, n of CP enrollees	11,129	11,003	9,604	10,668
CP Observed, %	61.6	65.6	70.2	70.8
Comparison with 2019, aOR (95% CI)	Reference	1.30 (1.22-1.38)	1.62 (1.50-1.74)	1.59 (1.49-1.69)

Abbreviations: CY (calendar year); aOR (adjusted odds ratio), ACO (accountable care organization); LTSS (long-term services and supports); CP (Community Partner); CI (confidence interval).

Changes in several utilization outcome measures were examined over time for CY2019–CY2022 among ACO enrollees who were enrolled with LTSS CPs. To align the time period for performance measurement with time enrolled in the CP program, analyses were restricted to members who were enrolled with LTSS CPs for at least 320 days each year. Therefore, these

measures were not examined for CY2018 because the CP program did not start until July 2018. Measure performance was compared in each year between ACO enrollees who were enrolled with LTSS CPs versus MCO/PCCP enrollees who were not enrolled in CPs (i.e., non-CP enrollees) while adjusting for differences using overlap propensity score weights. The MCO/PCCP comparison group was comprised of individuals who had any LTSS spending in the year preceding the measurement year. An indicator for three months of consecutive spending of at least $300 at baseline (the criterion used in MassHealth's LTSS CP assignment algorithm) was included in the propensity score. Conceptually, the weighted comparison group reflects MCO/PCCP enrollees who likely would have enrolled with an LTSS CP if they had been ACO enrollees.

In CY2019, the first year of the analysis and the only year before the COVID-19 pandemic, PC-sensitive and all-cause ED visit rates among LTSS CP enrollees were 41.8 and 106.5 per 100 enrollees per year, respectively (see **Table 2.3-D6.8**). Both PC-sensitive and all-cause ED visit rates declined during the first year of the COVID-19 pandemic (CY2020) to lows of 28.1 and 85.7 visits per 100 enrollees before increasing in CY2021 and again in CY2022. All-cause ED visit rates were lower among LTSS CP enrollees in CY2019 (aIRR: 0.85; 95% CI: 0.78-0.93) and not significantly different during the latter three years of the analysis period (CY2020–2022), which coincided with the COVID-19 pandemic. Comparative estimates for PC-sensitive ED visits followed a similar pattern. Within the subgroup with SMI/SUD, all-cause ED visit rates were lower among LTSS CP enrollees in CY2019 (aIRR: 0.80; 95% CI: 0.69-0.91) and 2020 (aIRR: 0.79; 95% CI: 0.65-0.96), but not CY2021 or CY2022.

Acute unplanned inpatient admission rates among LTSS CP enrollees declined from a high of 27.2 in CY2019 to a low of 21.8 admissions per 100 enrollees per year in the first year of the COVID-19 pandemic (CY2020); admission rates increased to 24.6 per 100 enrollees per year in CY2021 (see **Table 2.3-D6.8**). Propensity-weighted comparative point estimates favored LTSS CP enrollees throughout the CY2019–CY2022 period, with the largest differences in CY2019 (aIRR: 0.88; 95% CI: 0.76-1.03) and CY2022 (aIRR: 0.88: 0.76-1.01), although these results were not statistically significant (CIs contained 1.0). Within the subgroup of members with SMI/SUD, unplanned hospitalization rates were lower among LTSS CP enrollees in CY2019 (aIRR: 0.76; 95% CI: 0.60-0.95), and point estimates favored LTSS CP enrollees during CY2020-2022 but were not statistically significant. Acute unplanned admission rates for acute ACSCs fluctuated from a rate of 3.4 per 100 enrollees per year among LTSS CP enrollees in CY2019 to 0.0 in CY2020 and CY2022. Rates of acute unplanned admissions for chronic ACSCs among LTSS CP enrollees were 2.8, 0.8, 0.6, and 0.0 per 100 enrollees per year in CY2019–CY2022, respectively. Propensity-weighted comparative estimates were imprecise (i.e., large confidence intervals or not estimable due to a small number of events) for both the acute and chronic ACSC admission measures. Comparative estimates for acute unplanned hospital readmission rates were also imprecise and were not statistically significant in any year.

Table 2.3-D6.8 Observed and Comparative Performance for Outcomes Among ACO Enrollees Who Were Enrolled with LTSS CPs and MCO/PCCP Non-CP Enrollees, CY2019–CY2022

Measure	2019	2020	2021	2022
PC Sensitive ED Visits, n of CP enrollees	2,752	2,793	3,748	3,512
CP Observed, count per 100 members	41.8	28.1	34.0	39.3
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.84 (0.75, 0.93)	0.91 (0.80, 1.04)	1.11 (0.98, 1.25)	1.17 (1.06, 1.29)
All-Cause ED Visits, n of CP enrollees	2,752	2,793	3,748	3,512
CP Observed, count per 100 members	106.5	85.7	92.7	95.7
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.85 (0.78, 0.93)	0.95 (0.85, 1.07)	1.04 (0.92, 1.18)	1.08 (1.00, 1.17)
ED Visits for Adults with SMI/SUD, n of CP enrollees	906	854	1,244	1,245
CP Observed, count per 100 members	132.6	122.1	147.9	142.4
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.80 (0.69, 0.91)	0.79 (0.65, 0.96)	0.98 (0.82, 1.17)	1.04 (0.92, 1.18)
Acute Unplanned Inpatient Admissions, n of CP enrollees	2,752	2,793	3,748	3,512
CP Observed, count per 100 members	27.2	21.8	24.6	23.9
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.88 (0.76, 1.03)	0.96 (0.82, 1.14)	0.94 (0.78, 1.14)	0.88 (0.76, 1.01)
Acute Unplanned Inpatient Admissions for Acute ACSCs, n of CP enrollees	2,752	2,793	3,748	3,512
CP Observed, count per 100 members	3.4	0.0	0.7	0.0
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	5.95 (0.95, 37.3)	N/E[b]	N/E[b]	N/E[b]
Acute Unplanned Inpatient Admissions for Chronic ACSCs, n of CP enrollees	2,752	2,793	3,748	3,512
CP Observed, count per 100 members	2.8	0.8	0.6	0.0

Measure	2019	2020	2021	2022
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	4.35 (0.45, 42.05)	1.68 (0.15, 18.57)	N/E[b]	N/E[b]
Acute Unplanned Admissions among Adults with SMI/SUD, n of CP enrollees	906	854	1,244	1,245
CP Observed, count per 100 members	40.2	35.8	41.7	42.3
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	0.76 (0.60, 0.95)	0.91 (0.73, 1.14)	0.87 (0.68, 1.12)	0.88 (0.74, 1.05)
Acute unplanned hospital readmissions, n	359	304	423	319
CP Observed, %	0.18	0.15	0.22	0.22
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aIRR (95% CI)[a]	1.13 (0.76, 1.70)	0.81 (0.48, 1.37)	0.75 (0.49, 1.16)	0.96 (0.61, 1.50)

[a] Models report the annual difference between ACO+LTSS CP enrollees and MCO/PCCP but not CP enrollees who had any baseline LTSS utilization. Estimates are generated from negative binomial regression models with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison group have perfect covariate balance on all measures included in the propensity score model. The propensity score model included age, sex, disability status, housing status, COVID-19 diagnoses on inpatient and outpatient records, an indicator for LTSS spend of at least $300 for three consecutive months in the baseline year, total LTSS spending at baseline, baseline TCOC, baseline inpatient admissions, baseline ED visits, a diagnosis-based medical complexity summary score (DxCG), a pharmacy-based medical complexity summary score (RxCG), and neighborhood socio-economic risk score (NSS).

[b] N/E (not estimable)

The TCOC among LTSS CP enrollees was highest in CY2019 ($50,111 per enrollee per year) and was approximately $45,000 to $46,000 during the period from CY2020–CY2022 (see **Table 2.3-D6.9**). In propensity-weighted comparisons, the annual TCOC per enrollee was not statistically significantly different for LTSS CP and non-CP enrollees in each year of the analysis period CY2019–CY2022. Costs by select specific categories of service are presented in **Appendix I.**

Table 2.3-D6.9 Demonstration Period (CY2018–CY2022) Observed and Comparative Performance for Cost among ACO Enrollees who were enrolled with LTSS CPs and MCO/PCCP non-CP Enrollees

Measure	2019	2020	2021	2022
TCOC, n of CP enrollees	2,752	2,793	3,748	3,512
CP Observed, $ per member per year	50,111	45,369	44,965	45,730
ACO+CP enrollees vs. MCO/PCCP non-CP enrollees, aOR (95% CI)[a]	-214 (-3043, 2615)	1,625 (-902, 4152)	1,024 (-1,542, 3,590)	1,517 (-1,274, 4,308)

[a] Models report the annual difference between ACO+LTSS CP enrollees and MCO/PCCP but not CP enrollees who had any baseline LTSS utilization. Estimates are generated from negative binomial regression models with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included age, sex, disability status, housing status, COVID-19 diagnoses on inpatient and outpatient records, an

indicator for LTSS spending of at least $300 for three consecutive months in the baseline year, total LTSS spending at baseline, baseline TCOC, baseline inpatient admissions, baseline ED visits, a diagnosis-based medical complexity summary score (DxCG), a pharmacy-based medical complexity summary score (RxCG), and neighborhood socio-economic risk score (NSS).

Heterogeneity by Organizational Characteristics

We performed several stratified analyses by select ACO organizational characteristics (ACO size, ACO type) for key healthcare utilization measures and TCOC (**Appendix J**). For hybrid quality measures, results stratified by ACO size are presented in **Figures 2.3-D2.1, 2.3-D2.2, 2.3-D2.4, 2.3-D2.5, 2.3-D2.6** alongside the overall results for those measures.

2.4. Discussion

MassHealth and numerous DSRIP stakeholders improved care processes at the organizational level and moderated cost growth while generally meeting member needs and maintaining or improving clinical quality and member outcomes.

Key findings from the evaluation of the DSRIP program include:

1. **MassHealth implemented and sustained 17 new accountable care organizations (ACOs) and 27 Community Partners (CPs) with fidelity to their initial design.** With strong guidance and support from MassHealth, participating organizations overcame many early challenges to developing new relationships and operating under an integrated and accountable care model. This included setting and maintaining contractual requirements of ACOs and CPs and consistently engaging with key stakeholders to implement and refine programs.
2. **MassHealth shifted more than 80% of eligible members into Medicaid ACOs with little disruption.** MassHealth's policies of preserving existing patient-provider relationships, extending the plan selection period, suspending network restrictions temporarily, and using multimodal communication strategies promoted a smooth member experience during the transition to ACOs.
3. **MassHealth successfully implemented the Statewide Investment (SWI) Program, which was essential to delivery system reforms.** SWIs supported workforce development including recruitment, training, and retention of primary care and behavioral health providers and staff. Other SWIs supported accommodations for members with physical and mobility disabilities and those for whom English is not their primary language. Investments in technology and technical assistance supported organizations in establishing new and improving existing health information technology (HIT) capabilities.
4. **ACOs engaged providers in delivery system change, including through governance, special projects, and performance improvement initiatives.** Financial incentives based on performance on quality and member experience measures, panel size, total cost of care (TCOC) performance, and productivity were also used to engage providers.
5. **ACOs established and enhanced systems to comprehensively identify and address members' needs, including health-related social needs (HRSNs).** ACOs' strategic partnerships with CPs and social services organizations (SSOs) helped these

organizations collaboratively improve their care plan documentation, information sharing, and care navigation support.

6. **Care integration and physical, behavioral, Long-Term Services and Supports (LTSS), and HRSNs care processes improved or remained stable.** Additionally, ACO enrollee ratings of their primary care, behavioral health (BH), and LTSS providers were consistently positive throughout the evaluation period (2018-2022) among respondents to surveys of adults and children.
7. **ACOs, SSOs, and some CPs aligned resources and took joint actions to implement the Flexible Services (FS) Program, including developing service contracts, co-designing individual nutrition and tenancy sustaining programs, and sharing evaluation plans.** Despite launching during the COVID-19 pandemic and the existence of a large deficit in affordable housing availability in Massachusetts, the FS Program delivered nutritional and tenancy supports to over 30,000 ACO enrollees in the first three years of program operation.
8. **Members who received nutritional or tenancy preservation supports in the FS Program had fewer emergency department (ED) admissions and hospitalizations than a comparison group of eligible and referred members who did not enroll in the FS Program.** The cost of the FS Program was partially offset by savings from lower TCOC among FS Program enrollees.
9. **The quality of BH and LTSS CP care coordination supports improved over time for most measures.** TCOC was higher among BH CP enrollees versus a non-CP enrolled comparison group, and this appeared to be driven by higher spending on outpatient BH services. The TCOC among LTSS CP enrollees was not significantly different from the comparison group, with higher spending on outpatient services and lower spending on inpatient care.
10. **ACOs and CPs demonstrated flexibility and adapted to the many challenges faced throughout the COVID-19 pandemic, with continued efforts to address members' challenges in accessing care.** ACOs and CPs were resilient and sustained operations to serve members despite the massive disruptions caused by the COVID-19 pandemic.
11. **ACO enrollee outcomes improved (i.e., fewer hospitalizations overall), deteriorated (i.e., an increase in hospitalizations related to ambulatory care sensitive conditions (ACSC)), fluctuated due to impacts of COVID-19 (i.e., clinical outcomes), or were consistent (i.e., self-reported health ratings) over the evaluation period (2018-2022).** ACO adult enrollee data conveyed favorable shifts in service use, with more annual primary care visits, fewer hospitalizations, and less ED boarding, than would have been expected absent the ACO Program.
12. **Results of TCOC analyses suggest cost growth was moderated for ACO enrollees relative to a comparison group (i.e., TCOC savings) in each year (2018-2022).** The largest difference between the groups occurred during the peak of the COVID-19 pandemic (2020-2021). Driven by the two pandemic years, ROI analysis suggests that

the TCOC savings for ACO enrollees exceeded the $1.47 billion cost of the DSRIP program. We only partially understand the mechanisms driving this finding, which did not manifest as a year-over-year increasing advantage (the amount of TCOC savings declined in 2022). Additional analyses of the existing data may shed light on mechanisms, although additional years of data during the post-pandemic period are needed to credibly estimate the net cost (savings) to be expected from sustaining delivery system reforms supported by the DSRIP Program.

The 2017-2022 Demonstration and its ambitious DSRIP Program were designed to transform and improve care delivery and health outcomes for MassHealth members. Key components of the program included two-sided risk contracts with ACOs, the creation of the CP Program to coordinate care for members with BH and LTSS needs, funding of the FS Program to address HRSNs, and SWIs to enhance the workforce and provide other necessary supports for delivery system reform. The DSRIP Program brought together ACOs, CPs, and SSOs under an integrated delivery system for MassHealth members.

MassHealth's approach to transforming the Medicaid delivery system takes place in the context of national and state-wide efforts to improve the value and effectiveness of health care. At the state level, the Massachusetts Roadmap for BH Reform (the BH Roadmap),[98] for example, is a multi-year plan that was implemented toward the end of the 2017-2022 Demonstration. The BH Roadmap includes a range of activities designed to make outpatient treatment more accessible for all residents with BH conditions. Also at the state level, Chapter 224 of the Massachusetts Acts of 2012 ("Chapter 224") created the Massachusetts Health Policy Commission, an independent state agency charged with monitoring healthcare spending growth in Massachusetts, and directed MassHealth to adopt APMs "to the maximum extent feasible" to further the goals of containing health care costs and improving quality.[99] The adoption of APMs in Medicaid, in turn, builds on the work of CMS to expand the use of APMs through Medicare ACOs and other initiatives. Predating the public-payer Medicare and Medicaid APM initiatives, many health systems in the Commonwealth had commercial experience with APMs through the Blue Cross Blue Shield Alternative Quality Contract that began in CY2009.[100]

ACOs and CPs were in their early stages of development at the onset of the COVID-19 pandemic in March 2020, with two or fewer years of cost, quality, and member experience data available post-implementation of ACOs in March 2018, CPs in July 2018, and FS in January 2020. Thus, we cannot observe the full effects of ACO implementation absent the COVID-19 pandemic. For most analyses, we generated annual estimates for each year (CY2018-CY2022) to facilitate a cautious interpretation of the ACO effect in the presence of the COVID-19 pandemic during the two peak years (CY2020-CY2021) and afterward (CY2022). Furthermore, the effects of large-scale delivery system reforms typically accumulate over time, meaning that

[98] MassHealth. (n.d.). *Roadmap for Behavioral Health Reform*. Retrieved July 6, 2024, from https://www.mass.gov/roadmap-for-behavioral-health-reform

[99] Robert Seifert, Rachel Gershon. (September 28, 2012). *Chapter 224 of the Acts of 2012: Implications for MassHealth.* Bluecrossmafoundation.org. https://www.bluecrossmafoundation.org/publication/chapter-224-acts-2012-implications-masshealth

[100] Song Z, Safran DG, Landon BE, Landrum MB, He Y, Mechanic RE, Day MP, Chernew ME. The 'Alternative Quality Contract,' based on a global budget, lowered medical spending and improved quality. Health Aff (Millwood). 2012 Aug;31(8):1885-94.

the analyses of the first few years of several new programs can only offer early signals of potential longer-term changes in healthcare delivery. A five-year Demonstration period is insufficient to observe the full scope of the hypothesized benefits for costs, quality, and member experience from investments that have begun to shift care towards accountable and integrated delivery models for MassHealth providers throughout the Commonwealth. The transition of healthcare delivery and payment away from fee-for-service and towards integrated and accountable models of care is incremental and takes time – as described by the APM Learning Action Network, "it is useful to view this transition as a journey with origins, way stations, and destinations both for individual providers and for national spending as a whole."[101]

The primary finding from this IESR as it relates to the DSRIP Program is that MassHealth and numerous DSRIP stakeholders collaborated extensively and made substantial progress in the early years of implementation toward transforming healthcare, improving care processes at the organizational level, and improving outcomes for members, while moderating increases in the TCOC. As depicted in **Figure 2.3-D5.1**, as of the end of CY2022, more than 80% of the more than 1.4 million managed care-eligible members had been shifted from traditional managed care into APMs (i.e., ACOs). This level of APM adoption is well above the accountability target of 45% adoption by 2022 set by CMS for the MassHealth Demonstration.[102] Hundreds of new partnerships were formed within and between healthcare and community-based organizations to integrate care across the continuum. In the last full year of the Demonstration (CY2022), more than 40,000 MassHealth members were enrolled with CPs and received new forms of care coordination supports. In the approximately three years after the launch of the FS Program in early 2020, over 30,000 members with HRSNs received nutritional and tenancy preservation supports through the program.

As described in detail in previous sections, the ACO, CP, and FS Programs were implemented with fidelity to their design, and substantial progress was made during the 2017-2022 Demonstration in the shift to an integrated and accountable delivery system. Before the COVID-19 pandemic, though several measures did not improve, there were early signs of improvement in clinical outcomes and some progress in shifting utilization from high-cost to lower-cost outpatient settings while maintaining high levels of member satisfaction. Some of this progress was sustained throughout the COVID-19 pandemic, while in other cases, decrements in performance were observed. Those were generally system-wide and often at least partially reversed by the last year of the 2017-2022 Demonstration.

With support from MassHealth, participating organizations overcame many of the early challenges associated with developing new relationships and operating under an integrated and accountable care model and were resilient to the massive disruptions caused by the COVID-19 pandemic. On most measures, the new ACO Program fared as well or better than the legacy MCO and PCCPs that continued to operate throughout the 2017-2022 Demonstration and served as the counterfactual comparison group for our analyses. Most notably, the ACO Program produced TCOC savings (in the range of $224 to $644 per ACO enrollee per year) estimates that were potentially sufficient to offset the costs of the DSRIP Program. Our pre-

[101] Health Care Payment Learning & Action Network. (2017). *Alternative Payment Model APM Framework*. https://hcp-lan.org/workproducts/apm-refresh-whitepaper-final.pdf

[102] Source: MassHealth DSRIP Protocol effective July 1, 2017 – June 30, 2022

planned analyses suggest that the estimated net value amounted to over $500 million in savings compared with what would have been expected absent the Demonstration. Looking beyond the DSRIP Program, smaller marginal costs to sustain programs (estimated at $27-$33 per ACO enrollee per year during 2023-2027) compared with the larger up-front costs during the DSRIP Program ($142-$394 per ACO enrollee per year) will require smaller amounts of TCOC savings to achieve net savings. Unlike the ACO Program, our estimates for the CP Program suggest costs to MassHealth were substantially larger with the CP Program than they would have been absent from the CP Program. However, both BH and LTSS CPs increased the use of outpatient services and improved quality performance on several measures over the 2017-2022 Demonstration, and further analyses are needed to obtain a more complete understanding of the costs and benefits of the CP Program. FS Program tenancy and nutrition enrollees had fewer ED visits and inpatient hospitalizations, with TCOC savings that partially offset program costs.

In summation, much progress was made in realizing the goals of the DSRIP, ACO, CP, and FS Programs during the 2017-2022 Demonstration to shift the delivery system to an integrated and accountable care model while moderating rising healthcare costs. Yet, at the conclusion of the 2017–2022 Demonstration there remained substantial room for improvement in most quality, utilization, and outcome measures, particularly those where decrements in performance occurred during the COVID-19 pandemic. Looking ahead, sustained effort is warranted from MassHealth and the organizations participating in MassHealth's Demonstration programs, and further research and evaluation are needed to clarify the mechanisms by which TCOC savings and losses were realized and to determine longer-term trends.

Summary Discussion of Findings by Evaluation Domain

This IESR used a mixed-methods approach to evaluate both delivery system actions taken by key stakeholders and changes in care delivery, quality, costs, and outcomes during the period from 07/01/2017 to 03/31/23. This encompassed the Demonstration between July 1, 2017 and September 30, 2022, with the DSRIP Program extending through March 31, 2023. Individual programs launched at different times (e.g., ACO Program in March 2018, CP Program in July 2018, FS Program in January 2020) and evaluation periods were generally aligned with the various program periods. The evaluation design and methods are anchored in the DSRIP Evaluation Logic Model, which links the Demonstration Goals and initiatives to the desired Activities ("secondary drivers"), Outputs ("primary drivers"), and Outcomes ("purpose") of the Demonstration.

The summative findings reported here rely on primary data collected by the evaluation team, primary data collected by MassHealth and its partners, documents prepared by or submitted to MassHealth, and MassHealth administrative data (e.g., enrollment, claims, and encounter records). Primary data sources include:

- Two waves of KII's of DSRIP program stakeholders, including ACO leaders and staff, CP leaders and staff, MassHealth members, and MassHealth staff, and one wave of interviews with SSO representatives; and
- Two waves of surveys of members, ACO primary care practice site administrators, ACO primary care providers, and CP staff.

Below we summarize and interpret the findings by the six evaluation domains and related research questions (RQs) from our mixed-methods analyses. The six evaluation domains include:

- Domain 1: State, organizational, and provider-level actions promoting delivery system transformation
- Domain 2: Changes in care processes
- Domain 3: Changes in member outcomes
- Domain 4: Changes in healthcare cost trends
- Domain 5: Sustainability of innovation delivery system changes, including ACOs, Community Partners and Flexible Services
- Domain 6: Effects of Specific DSRIP Investments and Actions

After summarizing the findings by RQ, we list lessons learned with associated policy implications and recommendations by evaluation domain.

2.4.1. Domain 1: State, organizational, and provider-level actions promoting delivery system transformation

Domain 1 addresses four research questions (RQs) (**Table 2.4-1**).

Table 2.4-1 Summary of Domain 1 Research Questions and Hypotheses

Research Questions	Hypotheses
RQ1: To what extent did the state take actions to support delivery system transformation?	**H1.1.** DSRIP ACO and CP funding will support delivery system transformation **H1.2.** Statewide investment (SWI) initiatives aimed at increasing the supply, preparedness, and retention of the community-based workforce (SWI 1 through 4) will support delivery system transformation **H1.3** SWI initiatives aimed at providing technical assistance to ACOs and CPs, supporting provider preparedness to enter alternative payment models, reducing emergency department boarding, and improving access for people with disabilities and for whom English is not a primary language (SWI 5 through 8) will support delivery system transformations
RQ2: To what extent did ACOs take organizational-level actions to transform care delivery under an accountable and integrated care model?	**H2.1.** ACOs will vary with respect to governance structure (e.g., lead provider, role of provider and patients), service scope, and local conditions (e.g., experience participating in payment reforms, local context/market served) **H2.2.** ACOs will engage providers (primary care and specialty) in delivery system change through financial (e.g., shared savings) and non-financial levers (e.g., data reports) **H.2.3.** ACOs will implement Health Information Technology (HIT)/Health Information Exchange (HIE) infrastructure to support population health management (e.g., reporting, data analytics) and data exchange within and outside the ACO **H2.4** ACOs will implement non-CP-related population health management activities including risk stratification, needs screenings and assessments, and programs to address identified needs **H2.5** ACOs will implement structures and processes to coordinate care across the care continuum

Research Questions	Hypotheses
	H2.6 ACOs will implement processes to identify and address health-related social needs (HRSN), including management of Flexible Services H2.7 ACOs will implement strategies to reduce the total cost of care (e.g., utilization management, referral management, administrative cost reduction), excluding the population health management/care programs mentioned above **H2.8.** Accountable Care Partnership Plans (Model A) will transition more of the care management responsibilities to their ACO partners over the course of the Demonstration **H2.9** ACOs will establish processes to facilitate member engagement **H2.10** ACOs will monitor quality performance and establish mechanisms to support quality improvement efforts
RQ3: How and to what extent did CPs target resources and take actions to operate under an accountable and integrated care model?	**H3.1:** CPs will engage constituent entities in delivery system change **H3.2:** CPs will recruit, train, and/or retrain staff by leveraging SWIs and other supports **H3.3:** CPs will develop HIT/HIE infrastructure and interoperability to support care coordination (e.g. reporting, data analytics) and data exchange (e.g., internally with ACOs and MCOs, and externally with BH, LTSS, specialty providers, and social service entities) **H3.4:** CPs will develop systems to coordinate services across the care continuum that complement services provided by other state agencies (e.g., DMH)
RQ4: How and to what extent did ACOs, MCOS, and CPs align resources and take common actions to operate under an accountable and integrated care model?	**H4.1:** ACOs, MCOs, and CPs establish structures and processes to promote improved administrative coordination between organizations (e.g. enrollee assignment, engagement, and outreach) **H4.2:** ACOs, MCOs, and CPs establish structures and processes to promote improved clinical integration across their organizations (e.g. flow of patient and patient information across settings, integrated care plans) **H4.3:** ACOs, MCOs, and CPs establish structures and processes for joint management of performance, quality, and conflict resolution

RQ1 To what extent did the state take actions to support delivery system transformation?

Key actions taken by the state over the five-year 2017–2022 Demonstration included:

Procuring and supporting the implementation of 17 new ACOs and 27 CPs, including setting and maintaining contractual requirements of ACOs and CPs and engaging with key stakeholders regularly and consistently to communicate implementation plans, obtain feedback, and refine programs.

Supporting ACOs and CPs in quality measure monitoring and improvement, including investing in claims, enrollment, and performance reporting, and analytics capacity throughout the Demonstration.

Developing the new FS Program to provide HRSN supports to MassHealth members.

Launching and maintaining the SWI Program to offer funding for workforce development efforts, including recruitment and retention of providers and staff, training, and infrastructure support, in addition to other areas of support.

Allocating funds to finance and sustain delivery system reform efforts, including funds for enhanced HIT systems and data analysis capabilities across entities.

Recruiting and retaining dedicated staff to oversee various programs and investments.

Discussion of RQ1 Findings

Before the launch of the ACO program in March 2018 and the CP program in July 2018, MassHealth made substantial efforts to achieve a significant restructuring of its managed care delivery system, including designing the new ACO, CP, FS, and SWI Programs, and hiring dedicated staff to establish, oversee, and support their operations and management. Throughout the five years of the Demonstration, MassHealth supported the ACO, CP, and DSRIP Program implementation by proactively engaging participating entities and modifying program specifics in response to their concerns to address organizational challenges and facilitate implementation. The state's implementation of delivery system transformation benefited from several facilitators. Particularly in the early years of implementation (2018-2019), funding was essential to recruit and train staff, build HIT infrastructure and systems, enhance data analysis capabilities and reporting, and start up and sustain operations. MassHealth took several actions to support transformation and provide ACOs with needed support. For example, in 2016, MassHealth implemented the first-in-the-nation social determinants of health risk-adjusted payment model in preparation for setting fair payments and benchmarks for ACOs once the program launched during the 2017-2022 Demonstration.[103] This model was refined throughout the Demonstration, informed by stakeholder feedback.[104] MassHealth also supported ACOs in reducing TCOC and supported ACOs and CPs in improving quality performance for their enrollees. MassHealth provided market comparisons to help ACOs identify areas where interventions could potentially improve utilization management and financial performance.

MassHealth implemented SWIs throughout the 2017-2022 Demonstration that were essential to the success of the DSRIP Program. SWIs supported infrastructure development, supported accommodations for members with physical and mobility disabilities, and increased workforce capacity. Investments were also made in technology to address the language, comprehension, and verbal communication needs of members. MassHealth contracted with organizations with expertise that could administer and manage the various SWI programs. SWIs can be divided into several categories, including building and training the PC and BH workforce, building capacity for ACOs, CPs, and providers, and implementing initiatives to address statewide gaps in care delivery. Technical Assistance (TA) funds made available through the SWIs were highly valued by ACOs and CPs and included assistance in population health management, HIT, and

[103] Ash AS, Mick EO, Ellis RP, Kiefe CI, Allison JJ, Clark MA. Social Determinants of Health in Managed Care Payment Formulas. JAMA Intern Med. 2017 Oct 1;177(10):1424-1430.

[104] Alcusky MJ, Mick EO, Allison JJ, Kiefe CI, Sabatino MJ, Eanet FE, Ash AS. Paying for Medical and Social Complexity in Massachusetts Medicaid. JAMA Netw Open. 2023 Sep 5;6(9):e2332173.

telemedicine efforts, to name a few. The student loan repayment program was widely used; MassHealth reported this as extremely successful, with 90% retention rates observed as of 2021.[105] Certifications and advanced educational opportunities were made available through the SWIs, which fostered the retention of staff across entities.

Significant implementation progress was made in the early years of implementation, although challenges persisted, such as in recruiting and retaining providers and staff. These challenges were exacerbated by COVID-19 pandemic-associated staff turnover and overall workforce shortages that began in 2020. MassHealth offered additional supports and flexibilities to mitigate the challenges experienced throughout the COVID-19 pandemic including allowing ACOs to develop COVID-19 FS Programs to address member HRSNs related to COVID-19 and working with CMS to relax in-person screening and planning requirements. Although organizations highly valued having funds available to increase staff capacity, organizations raised some concerns regarding the availability of longer-term sources of funding to sustain certain positions. To help sustain progress made during the DSRIP program, the state increased the amount of non-medical payments to ACOs for care coordination over the course of the 2017-2022 Demonstration and developed plans to increase payment for primary care in the 2022-2027 Demonstration for ACOs.

RQ2 To what extent did ACOs take organizational-level actions to transform care delivery under an accountable and integrated care model?

The most consequential measures taken by ACOs throughout the five-year Demonstration included:

Instituting ACO governance structures early in the Demonstration that supported ACO activities and needs, incorporated MassHealth members, supported partnerships with CPs and SSOs, and facilitated DSRIP-related decision-making. Governance structures appeared stable, with relatively few changes occurring once established.

Using DSRIP funding to establish new and improve existing HIT platforms and capabilities. Over the course of the Demonstration, ACOs improved their capacity for data use, information exchange, and performance monitoring of clinical providers, practices, and the ACOs.

Establishing and enhancing systems to identify and address members' needs comprehensively, including HRSNs.

Implementing strategies to reduce TCOC, such as increasing data analytic capabilities, using algorithms to identify members with complex, costly needs across the ACO's network, and developing workforce expertise, capacity, and diversity.

Forming strategic partnerships with CPs and SSOs, leveraging their expertise and knowledge to provide services and supports to members, improving communication with partners, and coordinating and integrating care.

Engaging providers in delivery system change, including governance, quality, and performance improvement initiatives, and through financial incentives based on performance on quality measures, panel size, member experience measures, TCOC performance, and productivity.

[105] MassHealth. (2024, January). *MassHealth Delivery System Restructuring: 2021 Update Report. Executive Office of Health & Human Services.* https://www.mass.gov/doc/masshealth-restructuring-2021-update-report/download

Throughout the 2017-2022 Demonstration, ACOs tracked quality measures and shared data to improve the performance of clinical providers, practices, and the ACO.

Discussion of RQ2 Findings

ACOs undertook extensive actions to develop the HIT/HIE infrastructure and staffing models needed to operate successfully under an integrated and accountable care model. ACOs used TA support provided by DSRIP to develop their HIT capacity and establish standardized data management, sharing, and analytic processes. By the final years of the Demonstration, ACOs had improved their capacity to use data internally, facilitate data exchange between entities, screen and refer for HRSNs, and track quality performance.

ACOs implemented strategies to reduce TCOC, such as developing internal workgroups and committees that focused on addressing the needs of high-cost, high-need members, developing interdisciplinary teams, creating care coordination and care management programs, investing in staffing to increase access to outpatient services, and supporting providers' efforts to improve care effectiveness. ACOs stated that these strategies and programs allowed the ACO staff to mitigate ongoing workforce capacity issues, outpatient service shortages, and lengthy wait times to obtain PC appointments, which facilitated reductions in members' use of unnecessary higher-cost services. Care coordinators helped members with complex needs stay engaged in their care, and a mix of co-located provider types (e.g., physicians, nurses, social workers, care coordinators) facilitated improved clinical and social service integration to address HRSN contributions to adverse health outcomes and potentially avoidable acute and emergency care costs. However, members reported routinely encountering challenges accessing care due to transportation barriers, and members were at times unaware or unable to access the full range of care coordination, CP, or FS programs available to them.

ACOs designed FS programs by leveraging the content expertise of their SSO partners and the ACO clinicians' and staff's understanding of their membership. ACOs constantly monitored, reevaluated, and restructured FS programs to fit members' needs following the program's implementation, including by applying risk stratification to drive referrals of those with the greatest needs to these services. ACOs attested that, through the FS Program, they were able to address member needs. ACOs also reported providing feedback to SSO partners to improve service delivery. Members who received FS supports were satisfied with the supports received through the program. Some ACO staff voiced frustrations that they couldn't always provide services to the number of members referred due to program capacity limitations and workforce shortages. ACO staff also found that the structure of the FS Program forced their staff to address pediatric and/or individual member needs without considering the needs of families or households, which was described as counterproductive. MassHealth has received authority in their 2022-2027 Demonstration to fund the delivery of certain FS nutritional supports at the household level.

Throughout the 2017-2022 Demonstration, ACOs engaged PCPs through financial incentives and non-financial means to promote delivery system change. In both 2020 and 2022, just over 50% of surveyed ACO PCPs (physicians, nurse practitioners, physician's assistants, nurses, and social workers) reported receiving financial incentives based on their performance on

quality measures. Interviewed ACO staff shared different opinions regarding the effectiveness of such financial incentives in encouraging delivery system reform.

ACOs also responded to the COVID-19 pandemic and subsequent PHE declaration by adapting clinical operations, such as increasing telemedicine use, to address members' needs. In the final two years of the Demonstration, ACOs still reported some access challenges because of the increase in membership following the disenrollment preclusions of the PHE and diminished workforce capacity related to the COVID-19 pandemic.

RQ3 How and to what extent did CPs target resources and take actions to operate under an accountable and integrated care model?

Key actions taken by CPs over the 2017-2022 Demonstration included:

Developing and sustaining robust relationships with ACOs, SSOs, and MassHealth to drive delivery system change and meet member needs.

Refining core activities over the course of the Demonstration, including making advancements in care planning (e.g., care plan documentation and sharing), supporting care navigation to connect members to clinical, social, and other services, and enhancing overall care coordination.

Prioritizing and refining member engagement strategies, including incorporating motivational interviewing skills for staff, adding specific member engagement specialists, and tailoring care plans to meet member's prioritized needs.

Using SWIs to increase workforce capacity, including SWIs specific to the recruitment, training, and retention of staff.

Leveraging SWI TA and other available funds to enhance HIT and data analytic capabilities.

Adapting to the many challenges faced throughout the COVID-19 pandemic, with continued efforts to address members' challenges in accessing care (e.g., conducting home visits, assisting members with transportation, taking members to appointments, and assisting them with telemedicine and technology needs).

Discussion of RQ3 Findings

Effective collaboration and information sharing were essential to the CP Program's success. Collaboration with ACOs increased across the Demonstration. Half of ACO practice site administrators (PSAs) surveyed in CY2019 reported that CPs made it easier to deliver high-quality care to MassHealth members some or almost all of the time, and this increased to 75% in CY2021. Within their own organizations, CPs worked to define and refine roles as the program matured and priorities emerged, for example, creating dedicated staff roles for member outreach and engagement efforts. CPs also developed additional solutions to meet ongoing needs, including creating care transition teams, liaison roles, and social service specialist roles (added later in the Demonstration). Additionally, many CPs capitalized on existing relationships within their own communities and the partnerships that were formed before and during the 2017-2022 Demonstration, such as with SSOs, and leveraged those partnerships to meet member needs. Results from a survey of CP staff indicated most either agreed or strongly agreed, 82%

in Wave 1 and 83% in Wave 2, respectively, that staff were well informed about available community resources for members.

A primary focus for CPs was on establishing strong relationships with members. CPs incorporated motivational interviewing into their member engagement practices and invested in training staff in motivational interviewing skills. CPs focused their care planning efforts on their members' prioritized needs and goals despite the complexity, in many cases, of their health conditions and comorbidities. For example, finding suitable housing may have been a primary care plan goal in addition to addressing a member's high A1C or multiple BH conditions. Prioritizing member's goals, which often may reflect non-medical barriers to improving their health, was important for engaging members in care and subsequently successfully addressing medical components of the care plan. CPs were effective in their care coordination assistance, providing members with support in connecting them to various clinical, social, and other services. CP care coordinators made appointments for members, went with members to their appointments, assisted members with filling out applications, and helped members gain access to equipment and supplies needed. CP staff reported that members became more confident and successful in navigating their care with less of the CP staff members' support over time.

CPs focused on workforce development initiatives throughout the 2017-2022 Demonstration. CPs adjusted their recruitment and retention strategies to mitigate the workforce challenges before and during the COVID-19 pandemic. CPs leveraged the SWIs to support these efforts. CPs focused on hiring staff with experience in the field who had served in similar roles in other agencies and who were connected with the community. CPs focused on recruiting staff with medical expertise at the beginning of the Demonstration. However, they found over time that hiring staff with engagement and outreach expertise was especially important. CPs also placed a large emphasis on hiring multilingual staff who represented their communities and had lived experience. Staff training was a large focus for CPs throughout the Demonstration, with initial efforts focused on technical skills and trauma-based care and later efforts focused on diversity and equity training. CPs emphasized team-based environments and encouraged informal collaboration amongst staff through meetings and communications, and formally in peer-to-peer mentorship programs. Many CPs also offered incentives to promote staff retention, including those tied to meeting performance milestones.

CPs faced challenges within their organizations in terms of maintaining staff morale and decreasing staff burnout due to heavy caseloads and fatigue. This contributed to challenges in staff recruitment and retention despite resources invested in expanding the workforce through SWIs and other incentives offered. The COVID-19 pandemic only increased workforce challenges for CPs; competition for recruiting new staff across entities became a growing issue.

CPs noted challenges in member engagement, citing, at times, incorrect or inconsistent contact information for members and a lack of baseline clinical information. CPs invested in building and enhancing HIT systems over the course of the Demonstration to improve internal and external information sharing. CPs used DSRIP infrastructure and capacity-building funds to support HIT building and enhancement efforts in the early part of the Demonstration and leveraged SWI TA funds throughout the Demonstration. Early in the Demonstration, CPs shared care plans with

ACOs via file-sharing platforms and fax with single points of contact. This advanced to more sophisticated electronic information sharing, such as using secure file transfer protocols (i.e., software tools that allow individuals to protect and transfer files), in the latter part of the Demonstration. Such improvements in information sharing may have contributed to better performance over time on measures of timely follow-up after ED visits and hospitalizations among CP enrollees, as reported in RQ9.

RQ4 How and to what extent did ACOs, MCOs, and CPs align resources and take common actions to operate under an accountable and integrated care model?

ACOs, MCOs, and CPs invested heavily within their organizations and across partnerships to improve coordination and care integration.
Successful strategies included:

- Establishing documented processes early in the Demonstration that specified ways in which the organizations would work together clinically and administratively to coordinate member care across partners.
- Establishing and optimizing interoperable data processes and systems to foster improvements in care delivery.
- Encouraging a team-based approach to care through person-centered comprehensive assessments and care planning that combines clinical, behavioral, and social needs.
- Forming and maintaining organizational structures and workflow processes to jointly manage performance, quality, and conflict resolution.
- Aligning resources and joint actions of ACOs with SSOs and, in some cases, with CPs to implement FS programs, including negotiated service contracts, co-designed programs, and shared evaluation plans.

Discussion of RQ4 Findings

ACOs, MCOs, and CPs established partnerships and processes to promote clinical integration and care coordination. More than half of ACO providers agreed or strongly agreed that they had established relationships with CPs and believed that the CP programs helped their practices meet member needs better in 2022. In 2022, about half (46%) of ACO providers[106] agreed or strongly agreed that care was well coordinated with CPs, and a little more than half agreed that care was well coordinated with community resources. While community-based organization partnerships are not uncommon in healthcare, we are unaware of other examples at the scale of MassHealth's BH and LTSS CP Programs, where care coordination responsibilities were delegated to community-based organizations for large segments of the MassHealth program's membership. In another study using the same survey instrument, <25% of providers from 97 federally qualified health centers and safety net clinics in 10 midwestern states strongly agreed that member care was well-coordinated both internally (within the practice) and externally (with providers outside the practice), which suggests that MassHealth's ACOs and CPs have much higher levels of intra and inter-organizational coordination of member care than may be typical

[106] MCO providers were not surveyed and similar data for MCO providers were not available.

among safety net providers in other parts of the country.[107] Since there is no baseline data for inter-organizational coordination between medical providers and community-based providers in Massachusetts, it is unknown to what extent coordination improved from the pre-demonstration period.

Ongoing collaboration between ACOs, MCOs, and CPs was central to the model's success. ACOs, MCOs, and CPs worked within their organizations and across entities to test various methods to improve collaboration. As required by MassHealth, these organizations established documented processes early in the Demonstration that specified how they would work together clinically and administratively. The development of documented processes helped set clear expectations for administrative coordination for the inter-organizational relationships. In the final years of the 2017-2022 Demonstration, ACOs, MCOs, and CPs met regularly to review the care of shared members, designated and consistently worked through key contact persons at each organization, and established interoperable systems, to improve information-sharing.

CPs reported that they initially faced challenges in building relationships with ACOs and MCOs, exacerbated by issues with information-sharing, a lack of shared EHR access and interoperability, and poorly defined roles of staff across entities. To foster relationships, CPs encouraged regular communication with ACOs and MCOs, improvements in information-sharing strategies, and the defining of roles and responsibilities within and across entities.[108] In interviews, CPs reported using DSRIP infrastructure and capacity-building dollars and SWI funding to strengthen internal HIT systems and build data dashboards and visualization capacity to meet member needs. Beginning in late 2019, MassHealth began providing monthly member-level files to CPs. In response to the CP Staff Survey, only 42% of CP staff in 2020 and 49% in 2022 agreed that they were well-informed about a member's medical history and ongoing treatments at initial engagement with a member, possibly indicating that it may have taken some time for CPs to make use of MassHealth reports. Shared EHR access between ACOs and CPs was identified as a best, but uncommon, practice during early implementation of the ACO-CP model; shared access became more common over the 2017–2022 Demonstration. Throughout the Demonstration, CPs and ACOs improved performance on care plan-related quality measures, which many organizations attributed to improvements in inter-organizational information exchange and member engagement.

Finally, partner organizations collaboratively established and maintained structures for the management of performance, quality, and conflict resolution throughout the Demonstration. While conflict was rare, documented processes helped de-escalate conflicts and improve workflow and care delivery. In the first few years of the Demonstration, many ACOs, MCOs, and CPs reported that jointly managing processes for performance and quality was challenging. The accountability slates of measures for ACOs and CPs were only partially overlapping and on different schedules, with ACOs being held financially accountable for quality performance as early as Year 2 of the DSRIP program and CPs remaining in pay-for-reporting until pay-for-

[107] Derrett S, Gunter KE, Samaranayaka A, Singer SJ, Nocon RS, Quinn MT, Breheny M, Campbell A, Schaefer CT, Heuer LJ, Chin MH. Development and Testing of the Provider and Staff Perceptions of Integrated Care (PSPIC) Survey. Med Care Res Rev. 2019 Dec;76(6):807-829.

[108] Kachoria AG, Sefton L, Miller F, Leary A, Goff SL, Nicholson J, Himmelstein J, Alcusky M. Facilitators and Barriers to Care Coordination Between Medicaid Accountable Care Organizations and Community Partners: Early Lessons From Massachusetts. Med Care Res Rev. 2023 Oct;80(5):507-518.

performance began in Year 3. This difference was by design, as CPs, in general, had less experience tracking and being held accountable for quality performance than most ACOs. However, the differences contributed to some misalignment in priority settings between ACOs and CPs.

Domain 1: Implications, Recommendations, and Lessons Learned

- **Lesson learned:** System transformation requires substantial upfront investments in capacity building. The required partnerships within and between ACOs and CPs were unlikely to have formed in the absence of DSRIP (or other) funding, except where there were pre-existing relationships.
    - Implication: Funding is a critical component to catalyzing broad-based delivery system reforms and supporting partnerships essential to integrated care.
    - Recommendation: CMS and states seeking to integrate healthcare and community-based organizations should be prepared to invest a large amount of start-up resources.
- **Lesson learned:** Size, prior experience with value-based and alternative payment models, and other characteristics influenced the ease with which organizations were able to implement programs. MassHealth paid larger amounts to safety net ACOs through their risk adjustment and DSRIP Program funding formulas.
    - Implication: Organizations serving populations with the greatest needs may require larger up-front and ongoing investments to successfully operate under an integrated and accountable care model and achieve desired delivery system changes.
    - Recommendation: MassHealth should continue to develop and update payment formulas for continuing and new initiatives that allocate funding based on the distribution of needs among organizations and the populations they serve.
    - Recommendation: In Massachusetts and other states implementing delivery system reforms, funding, and technical assistance should be directed by a well-resourced design and implementation team and targeted to entities with the greatest need.
- **Lesson learned:** With strong guidance and support from MassHealth, including setting and maintaining contractional requirements of ACOs and CPs, and consistently engaging with key stakeholders to implement and refine programs, participating organizations overcame many early challenges to developing new relationships and operating under an integrated and accountable care model.
    - Implication**:** Dedicated Medicaid staff can foster ownership of new programs amongst staff and promote productive longitudinal relationships with healthcare and community-based organizations participating in reform efforts.
    - Recommendation**:** States implementing new accountable and integrated models of care that do not already have a dedicated unit for payment and delivery system

transformation should consider creating and adequately resourcing a dedicated staffing model to support program design and implementation.

- **Lesson learned**: Recruitment and retention of PCPs and BH specialists to work in community-based settings is challenging. SWI programs, such as student loan repayment and recruitment incentives, were important for recruitment and retention.
    - Implication: Up-front and ongoing investments in training, recruiting, and retaining BH specialists and PCPs are needed to develop and sustain the community-based workforce needed by Medicaid ACOs and their partners.
    - Recommendation: MassHealth and other states implementing and sustaining integrated and accountable care models should invest in developing their community-based workforce.[109]
- **Lesson learned:** Data sharing within and between organizations is needed to support population health management and care coordination. New and enhanced data exchange, management, and analysis capabilities helped ACOs and CPs track costs, understand health inequities, improve member engagement and care, and monitor member utilization patterns. However, CPs continued to report challenges with accessing and utilizing member clinical data. CPs and SSOs faced challenges coordinating across multiple ACOs that often used different platforms and processes for information exchange.
    - Implication: DSRIP investments, including TA, supported ACOs and CPs in developing their HIT capacity and in establishing standardized data management, sharing, visualization, and analytic processes, but organizations particularly CPs may require further support.
    - Recommendation: MassHealth should continue to offer TA to CPs facing challenges with timely data access and use and should consider requiring shared EHR access for partnering ACOs and CPs.
    - Recommendation: MassHealth should continue to explore opportunities to increase efficiency and reduce the burden on community-based organizations associated with coordinating with multiple ACOs by supporting or incentivizing standardization or through the development of centralized platforms.
    - Recommendation: States implementing integrated and accountable care models should support the development and improvement of HIT, data management, data-sharing, and analytic capabilities at healthcare and community organizations.
- **Lesson learned:** All ACOs and CPs participated for the full contract period. Narrowing and deepening of ACO and CP relationships evolved over the course of the Demonstration, particularly in circumstances where large volumes of members were shared between organizations.

[109] MassHealth has received $43.24 million in expenditure authority for BH and PC workforce initiatives in the state's 2022-2027 Demonstration (see STC 13: https://www.mass.gov/doc/stcs-masshealth-1115-waiver-extension-3/download)

  - Implication: CP participation and sustainability was supported by MassHealth's initial requirement for ACOs to partner with CPs in their service areas.
  - Implication: Preferred partnerships were facilitated by MassHealth's decision to relax requirements for the number of partnerships ACOs and CPs had to maintain. This allowed ACOs and CPs to be selective with the partners with which they chose to work.
  - Recommendation: States implementing care coordination models that involve healthcare partnerships with community-based organizations should calibrate program design elements to promote participation while achieving sustainability and effectiveness of partnerships.
- **Lesson learned:** Effective communication through key contacts, strong interpersonal relationships, data-sharing, and clearly defined roles and responsibilities across organizations promoted collaboration between ACOs and CPs and integration of member care. Co-location of ACO providers and CP staff was especially effective in promoting collaboration and timely information exchange but was not widely adopted.
  - Implication: Effective collaboration and care coordination were supported by the efforts of organizations to adapt workflows and processes, develop and refine expectations for staff activities, and initiate innovative strategies and opportunities for sharing information essential to quality care.
  - Recommendation: Further quantitative evaluation should examine the relative effectiveness of co-located staffing models, and if found to be more effective, MassHealth should consider supporting or incentivizing co-location of ACO providers and CP staff.
  - Recommendation: States embracing integrated, coordinated care models must support collaborating organizations in assessing, adapting, and innovating workflows and care processes to meet members' needs and reduce unnecessary service utilization.

2.4.2. Domain 2: Changes in care processes

Domain 2 addresses six RQs (**Table 2.4-2**).

Table 2.4-2 Summary of Domain 2 Research Questions and Hypotheses

Research Question	Hypotheses
RQ5: To what extent did the identification of member needs including physical, BH, LTSS, and social needs improve?	**H5.1:** The identification of individual members' unmet needs (including health-related social needs, BH, and LTSS needs) will improve
RQ6: To what extent did access to physical care,	**H6.1:** Access to physical care services will improve or remain consistent for members

Research Question	Hypotheses
BH care, and LTSS improve?	**H6.2:** Access to BH services will improve or remain consistent for members **H6.3:** Access to LTSS will improve or remain consistent for members
RQ7: To what extent did engagement with physical care, BH care, and LTSS improve?	**H7.1:** Engagement with physical care services will improve or remain consistent for members **H7.2:** Engagement with BH services will improve or remain consistent for members **H7.3:** Engagement with LTSS will improve or remain consistent for members
RQ8: To what extent did care processes improve for physical, BH, and LTSS?	**H8.1:** Physical health care processes (e.g., wellness and prevention, chronic disease management) will improve for members **H8.2:** BH care processes will improve for members **H8.3:** LTSS processes will improve for members **H8.4:** The management of health-related social needs will improve through the use of Flexible Services and/or other social service interventions for members **H8.5:** Provider staff will report an improved experience delivering healthcare services to members
RQ9: To what extent did integration between physical health, behavioral, and long-term services increase?	**H9.1:** Integration across the care continuum (e.g., physical health, BH, LTSS, acute care, social services) will increase **H9.2:** Provider staff will report increased care integration (within and between ACOs and CPs)
RQ10: How did the volume and mix of services change during the course of the Demonstration?	**H10.1:** The volume and mix of services utilized will shift, when clinically appropriate, in the direction of lower-cost sites and types of care **H10.2:** The utilization of low-value care will decrease

RQ5 To what extent did the identification of member needs, including physical, BH, LTSS, and social needs, improve?

Findings in RQ5 were generally consistent with the hypothesis that the identification of individual members' unmet needs would improve during the 2017-2022 Demonstration period.

Key findings included:

Performance on the Self-Management Support Composites of the adult and pediatric PC member experience surveys, which ask whether providers ask members about their health goals and barriers to managing their health, improved over the evaluation period (2018-2022) among caregiver respondents to the pediatric survey and remained relatively consistent among adult respondents.

In all years of the evaluation (2018-2022), most members responding to the BH and LTSS adult and pediatric member experience surveys reported that their BH and LTSS needs were well met.

The percentage of PC practice site administrators who agreed or strongly agreed that providers followed a clear, established process for screening for service needs at home that are important for a member's health increased from 48% in 2019 to 68% in 2021.

Screening for HRSN, as measured based on the ACO quality measure that requires screening for 5 HRSNs, improved from 11% in 2018 to 26% in 2022.

Discussion of RQ5 Findings

Identifying and addressing members' physical health, BH, LTSS, and social needs across the care continuum are central to the delivery of integrated and accountable care. The richest data available regarding needs identification and fulfillment were available from the pediatric and adult BH and LTSS member surveys. However, response rates were low (<20%), and the perceived need to maintain anonymity for respondents resulted in our not being able to characterize non-response bias; these findings should thus be interpreted cautiously as they may not reflect the experience of all MassHealth members with BH conditions or using LTSS. Scores on the Needs Met Composite measures from the adult and pediatric BH and LTSS member experience surveys were consistently >80 (on a 0- to 100-point scale) throughout the 2017-2022 Demonstration. This suggests that the transition from the legacy managed care system to ACOs worked well and that the new delivery system's ability to address member needs was largely preserved in the face of the disruptions due to the COVID-19 pandemic. However, there is no baseline data on these measures with which to describe change.

Both ACOs and CPs were held accountable for CP engagement quality measures. CP engagement requires timely completion of a comprehensive assessment and sign-off on a care plan that addresses members' needs. Therefore, an improvement in CP enrollee engagement rates represents an improvement in the identification of member needs for these important subgroups of MassHealth members. Performance on these measures improved modestly over time but remained low, reflecting the challenge of engaging the clinically and socially complex population of members served by CPs and the challenge of obtaining signoff from member's PCPs (or their designees), although this latter challenge was reported in interviews with CPs to be less pronounced over time.

In our interim report, we noted that low levels of reported HRSN screenings in 2018 and 2019 were not entirely unexpected for a first-of-its-kind measure with which providers were unfamiliar and because the HRSN quality measure was not in pay-for-performance in 2018 or 2019. In interviews with ACOs, concerns were expressed regarding screening for HRSNs when there was not an appropriate referral source available to address identified needs; this may have also contributed to low screening rates. As expected, HRSN screening rates increased over time, more than doubling from <11% in 2018-2019 to 26% in 2022. The shift to pay-for-performance and the launch of the FS Program in 2020 likely contributed to the observed increase, which occurred simultaneously with the COVID-19 pandemic, which may have affected the magnitude of this increase.

To understand how screening rates in MassHealth ACOs compare to other Medicaid programs, we compare MassHealth performance calculated for this evaluation to national averages among Medicaid plans. Developmental screening rates for MassHealth ACO enrollees (72%-78%

during the study period) were consistently well above national Medicaid rates (33-42% for the median state) throughout the study period, although heterogeneity in methods across states complicates cross-state comparisons.[110] Childhood lead screening rates were also higher for MassHealth ACO enrollees (68%-84% during the study period) versus Medicaid managed care plans nationally (62%-70%) during the study period.[111] Childhood oral health evaluations were higher for MassHealth ACO enrollees (46%-63%) during the study period compared to the national median Medicaid rate in 2022 (43%).[112] Adolescent well-care visit rates among MassHealth ACO enrollees (or would-be ACO enrollees[113]) were comparable at baseline (56-57% in 2015-2017) but lower during 2018-2022 (35-48%) than national Medicaid rates (53%-66%).[114] MassHealth ACO's performance on this measure was consistent when telehealth visits were included and excluded.

Among MassHealth ACO enrolled adults with new SUD diagnoses, rates of initiation (49%-54%) and engagement (10%-16%) in alcohol, opioid, or other drug abuse or dependence treatment calculated for this evaluation were stable and similar to the median national Medicaid rates of initiation (38-45%) and engagement (10-15%) during the study period, although national rates were improving over time.[115]

RQ6 To what extent did access to physical care, BH care, and LTSS improve?

Findings in RQ6 generally supported the hypothesis that access to care would improve or remain stable during the 2017–2022 Demonstration.

Key findings included:

Most members responding to member experience surveys reported timely access to primary, BH, and LTSS care throughout the evaluation period (CY2018-CY2022), although scores on the adult and pediatric primary care surveys' Organizational Access Composite measures declined modestly during the COVID-19 pandemic period (CY2020-CY2022), and member experience data were not available for a comparison group.

The percentage of adult ACO enrollees (or would-be ACO enrollees at baseline) receiving annual PC visits, a gateway into care and supports, increased 7-8 percentage points from

[110] Medicaid.gov. (2016-2021). *CMS Children's Health Care Quality Measures (2016-2021).* https://www.medicaid.gov/medicaid/quality-of-care/performance-measurement/adult-and-child-health-care-quality-measures/childrens-health-care-quality-measures/index.html

[111] The National Committee for Quality Assurance. (2022). *Lead Screening in Children (LSC).* https://www.ncqa.org/hedis/measures/lead-screening-in-children/

[112] Medicaid.gov. (2022). *Performance on the Child Core Set Measures.* https://www.medicaid.gov/medicaid/quality-of-care/downloads/performance-on-the-child-core-set-measures-ffy-2022.zip

[113] During the baseline period (2015-2017), MassHealth members were attributed as would-be ACO enrollees or would-be MCO/PCCP enrollees based on the type of plan they would have been assigned to if the ACO Program had been operating in those years.

[114] The National Committee for Quality Assurance. (2016-2021). *Child and Adolescent Well-Care Visits (W30, WCV).* https://www.ncqa.org/hedis/measures/child-and-adolescent-well-care-visits/

[115] The National Committee for Quality Assurance. (2016-2021). *Initiation and Engagement of Substance Use Disorder Treatment (IET).* https://www.ncqa.org/hedis/measures/initiation-and-engagement-of-alcohol-and-other-drug-abuse-or-dependence-treatment/

baseline to 2018-2019, and the percentage of ACO enrollees with an annual PC visit was higher than among MCO/PCCP enrollees throughout the evaluation period.

The number of practice site administrators who reported that scheduling at their practice enables same-day appointments increased 13 percentage points from 2019 to 2021.

ACO providers and CP staff reported significant increases in the use of telemedicine over the course of the Demonstration, coinciding with the early years of the COVID-19 pandemic PHE.

Large decreases in rates of ED boarding (defined as an ED stay of >24 hours[116]) for ACO enrollees with BH conditions occurred from 46-55 days in 2016-2017 to 30-33 days per 100 members in 2018-2019, before increasing to 62-72 days per 100 members during the COVID-19 pandemic (2020-2022). ED boarding was less common for ACO and CP enrollees versus comparison groups. These findings suggest that access to diversionary and outpatient BH services improved but was disrupted by the COVID-19 pandemic, possibly attributed to closed services due to staffing shortages, illness, and the need to quarantine patients.

Discussion of RQ6 Findings

Access has been defined as "the timely use of personal health services to achieve the best health outcomes."[117] Shifts to new ACO networks after the program launched in 2018 did not appear to affect members' perceived access to timely care. MassHealth policies, including preserving existing provider relationships, extending the plan selection period, and a 90-day continuity of care period (i.e., continued coverage of members' existing providers)[118], and using multimodal communication strategies appear to have promoted a smooth member experience of the transition to ACOs. Improvement in measures of care processes, clinical quality, and rates of PCP utilization described in other sections of this report (e.g., RQ8, RQ10, RQ11) suggests that access improved from 2018 to 2019 prior to the COVID-19 pandemic. However, many ACO providers surveyed in 2020 agreed or strongly agreed that providing equitable access to care had become more difficult for several subgroups since the start of the COVID-19 pandemic; fewer agreed with these statements when surveyed in 2022 about their experience in the prior year, though substantial challenges persisted for certain subgroups (e.g., children and adolescents, those with HRSNs, LTSS needs, and those with BH needs; see **Table D2.22**). Accordingly, in 2021 and 2022, ACO-enrolled children and adolescents were less likely to receive an annual well-care visit than MCO/PCC-enrolled children. Throughout the evaluation period (2018-2022), ACO-enrolled adults were more likely to have an annual PC visit and to have any ambulatory care visit compared with MCO/PCCP enrollees.

[116] Measured in administrative data as being discharged later than the same or next day as admitted.

[117] As defined by the Institute of Medicine. (1993). *Access to Health Care in America.* https://www.ncbi.nlm.nih.gov/books/NBK235882/

[118] MassHealth. (April 6, 2018). *Additional Member Supports Through Transition to New Plans.* Mass.gov. https://www.mass.gov/doc/continuity-of-care-april-6-2018-letter-0/download

To understand how measures of access in the MassHealth delivery system compare to other Medicaid programs, we compared MassHealth performance to national averages among Medicaid plans. MassHealth ACO enrollees responding to the adult and child primary care surveys reported higher rates of "always" obtaining timely access to urgent (72-73%) and routine care (68%) in 2018-19, which was above rates of 64% for urgent care and 56% for routine care among Medicaid plans nationally in 2019.[119] More recent CG-CAHPS member survey data for these items were not available regarding Medicaid plans nationally.[120] Low rates of telemedicine use among MassHealth PCPs in 2019 were consistent with low rates nationally,[121] and sustained widespread use of telemedicine through 2022 is also consistent with national trends.[122] Rates of adult access to preventative/ambulatory care were slightly higher (80%-83%) in MassHealth ACOs during the study period than national Medicaid rates (73%-80%).

Large decreases in rates of ED boarding for ACO enrollees with BH conditions occurred in the years prior to the COVID-19 pandemic, before increasing in 2020-2022. 2020-2022 saw decreased access to BH care driven by staffing shortages, illness, and the need to quarantine patients. After many months of quarantine, the negative behavioral health effects of isolation, avoidance of medical treatment, and changes in the modalities of BH treatment led to large increases in the need for services for many members. While the Office of Behavioral Health (OBH) did provide supplemental payments to freestanding inpatient units to try to support access, providers still struggled to effectively address this increased need with the available services, leading many enrollees with BH conditions to seek support in EDs.

RQ7 To what extent did member engagement with physical care, BH care, and LTSS improve?

High levels of engagement with care planning for BH and LTSS reported on member experience surveys were consistent with the evaluation hypotheses that member engagement with physical care, BH care, and LTSS will improve. However, most ACO providers and CP staff perceived lower levels of member engagement.

<u>Key findings included:</u>

Most members who responded to the BH and LTSS surveys reported high scores for the BH Care Plan and LTSS Care Plan Composites, which asked respondents about involvement in care planning and choice of services.

[119] Agency for Healthcare Research and Quality. (n.d.). *AHRQ CAHPS Survey Aggregated Data.* Retrieved July 6, 2024, from https://cahpsdatabase.ahrq.gov/CAHPSIDB/default.aspx

[120] Agency for Healthcare Research and Quality. (n.d.). *CAHPS Clinician & Group Survey Database.* Retrieved July 6, 2024, from https://www.ahrq.gov/cahps/cahps-database/cg-database/index.html

[121] Patel SY, Rose S, Barnett ML, Huskamp HA, Uscher-Pines L, Mehrotra A. (2021). Community factors associated with telemedicine use during the COVID-19 pandemic. *JAMA network open,* 4(5), e2110330-e2110330.https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2779940

[122] National Health Statistics Reports. (June 20, 2024). *Declines in Telemedicine Use Among Adults United States, 2021 and 2022.* CDC.gov. https://www.cdc.gov/nchs/data/nhsr/nhsr205.pdf

In ACO provider and CP staff surveys conducted in 2020 and 2022, half or fewer ACO primary care providers and CP staff agreed or strongly agreed that most members with chronic conditions, BH needs, or LTSS took responsibility for their care.

The gaps in care between human immunodeficiency virus (HIV) medical visits and antidepressant medication management measures were examined as proxies for members being better informed and engaged with the health care services recommended for managing their clinical conditions.

a. Gaps in care for MassHealth ACO enrollees with HIV were rare at baseline and remained rare during the 2017-2022 Demonstration.

b. Adult rates of antidepressant medication management during the evaluation period (2018-2022) among MassHealth ACO enrollees were similar to rates among Medicaid members nationally during both the acute (MH: 50%-66%; National: 54%-61%) and chronic (MH: 30%-40%; National: 38%-44%) phases of treatment.[123]

c. Compared to MCO/PCCP enrollees, antidepressant medication management engagement was similar in ACO patients.

Discussion of RQ7 Findings

Member engagement is defined broadly as "actions an individual must take to obtain the greatest benefit from the healthcare services available to them."[124] Member engagement is difficult to measure from sources other than member self-reports. It was not feasible for MassHealth's member surveys to include entire instruments designed to measure member engagement (e.g., the member activation measure).[125] Therefore, we used measures of needs discussion, member interactions with their provider, and engagement in care planning as proxies for engagement in subpopulations with BH and LTSS needs. We also asked ACO providers and CP staff whether their members take responsibility for managing their health (i.e., perceived engagement). It is important to note that provider survey data reflect the provider rather than the member perspective, and that "take responsibility for managing their health" may not adequately capture the notion of member engagement. We examined regular visit attendance as a proxy for member engagement among the subgroup of MassHealth ACO enrollees with HIV and among ACO-enrolled children with medical complexity, where regular monitoring and medication adherence are critical. We found that gaps in care were much less common than previously reported in a 2017 study among members of HIV clinics[126] and slightly

[123] The National Committee for Quality Assurance. (2016-2022). *Antidepressant Medication Management (AMM).* https://www.ncqa.org/hedis/measures/antidepressant-medication-management/

[124] Gruman, J., Rovner, M. H., French, M. E., Jeffress, D., Sofaer, S., Shaller, D., & Prager, D. J. (2010). From patient education to patient engagement: implications for the field of patient education. *Patient education and counseling,* 78(3), 350-356. https://pubmed.ncbi.nlm.nih.gov/20202780/

[125] Hibbard, J. H., Stockard, J., Mahoney, E. R., & Tusler, M. (2004). Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers. *Health services research*, 39(4p1), 1005-1026.https://pubmed.ncbi.nlm.nih.gov/15230939/

[126] Byrd, K. K., Bush, T., & Gardner, L. I. (2017). Do persons living with HIV continue to fill prescriptions for antiretroviral drugs during a gap in care? Analysis of a large commercial claims database. *Journal of the International Association of Providers of AIDS Care* (JIAPAC), 16(6), 632-638. https://journals.sagepub.com/doi/10.1177/2325957417729750

more common than among commercially insured members.[127] The percentage of children with medical complexity meeting the measure criterion for continuity of care increased among ACO enrollees over the course of the 2017-2022 Demonstration (from 42% in 2018 to 51% in 2021). This level of care continuity was approximately double what was previously reported in two other state Medicaid programs, although during an earlier period (2011-2012).[128] The percentage of children meeting the measure criterion in 2017 was 51%, which suggests the drop to 42% in 2018 may have been associated with shifting networks and care-seeking patterns in the first year of the ACO Program.

RQ8 To what extent did care processes improve for physical care, BH, and LTSS?

Quality measure and member survey results indicated that physical, behavioral, LTSS, and HRSN care processes generally improved or remained stable over the 2017-2022 Demonstration, consistent with evaluation hypotheses. Declines in certain measures occurred during the COVID-19 pandemic.

Key findings included:

The rates of childhood and adolescent immunization and the timeliness of prenatal care significantly increased over the period 2018-2022.

Respondents to adult and pediatric PC, BH, and LTSS surveys reported high and relatively stable composite measures of provider communication with and knowledge of the member.

In ACO provider and CP staff surveys conducted in 2020 and 2022, the majority of ACO providers and CP staff agreed that their organizations delivered patient-centered care that included communicating with members in a way they could understand, seeing members as equal partners in their care, encouraging them to actively take part in setting goals, designing care plans to meet the preferences of members and their families, and routinely using member feedback to improve services.

ACOs and SSOs successfully partnered to launch various FS programs to provide tenancy preservation and nutritional supports to MassHealth members. FS were delivered with increasing frequency to a diverse subgroup of MassHealth members during the approximately three years after the program launched (Q1 2020 through Q1 2023).

Most ACO providers and CP staff reported that it had not become easier to deliver high-quality care to MassHealth members in the 12 months prior to being surveyed in 2022.

Discussion of RQ8 Findings

For the purposes of the evaluation, we conceptualized care processes as the delivery of evidence-based services in a member-centered manner. We found hybrid quality measures of care processes improved from CY2018 to CY2022, including immunizations for children and adolescents enrolled in ACOs and timeliness of prenatal care. However, performance on childhood and adolescent immunization measures declined modestly in the first year of the

[127] Ibid.

[128] Arthur KC, Mangione-Smith R, Burkhart Q, Parast L, Liu H, Elliott MN, McGlynn EA, Schneider EC. Quality of Care for Children With Medical Complexity: An Analysis of Continuity of Care as a Potential Quality Indicator. Acad Pediatr. 2018 Aug;18(6):669-676.

COVID-19 pandemic (CY2020). Performance on the childhood (but not adolescent) immunization measure continued to decline in 2021 and 2022. Performance on measures of medication management for children with certain BH conditions improved between the baseline period and the evaluation period (2018-2022), though comparative estimates between ACO and MCO/PCCP enrollees suggested improvement occurred in both programs. Entering the Demonstration, inadequate outpatient treatment capacity for children with BH conditions and inpatient services for children with complex specialized needs were cited as weaknesses of the Massachusetts BH care system.[129]

For measures of PCP communication, MassHealth ACO PCPs were rated highly and similarly to Medicaid PCPs nationally on both child and adult surveys.[130] Performance on the childhood immunization hybrid quality measure in 2018-2022 (43%-56%) was higher among MassHealth ACO enrollees than among children enrolled in Medicaid managed care nationally in CY2019-CY2022 (32%-38%).[131] Compliance with the adolescent immunization hybrid quality measure in 2018-2022 among MassHealth ACO enrollees (39-44%) was slightly above the rate among adolescents enrolled in Medicaid managed care nationally (35-38%).[132] Rates of timely prenatal care among MassHealth ACO enrollees improved steadily from 2018 (78%) to 2022 (84%) but were slightly below the average among Medicaid-managed care plans nationally in 2018-2022 (82%-87%).[133] Although we did not include metrics for care processes specific to diabetes and hypertension, the improvement in the outcome measures among ACO enrollees reported in RQ11 suggests that the quality of care improved for members with those highly prevalent chronic conditions before the COVID-19 pandemic.

Rates of metabolic monitoring for children and adolescents on antipsychotic medications in MassHealth ACOs (26%-40%) were similar to rates found in Medicaid nationally (32%-38%) during the study period.[134] Follow-up care rates for children prescribed ADHD medications were higher among MassHealth ACO enrollees and would-be ACO enrollees at baseline (43-60%; a low of 43% occurred in 2021 during the COVID-19 pandemic) compared to national Medicaid rates (40%-44%) during the study period.[135]

[129] https://www.bluecrossmafoundation.org/publication/ready-reform-behavioral-health-care-massachusetts

[130] AHRQ CAHPS Survey Aggregated Data. (n.d.). Consumer Assessment of Healthcare Providers and Systems. Retrieved July 6, 2024, from https://cahpsdatabase.ahrq.gov/CAHPSIDB/default.aspx

[131] The National Committee for Quality Assurance. (2016-2022). *Childhood Immunization Status (CIS).* https://www.ncqa.org/hedis/measures/childhood-immunization-status/

[132] The National Committee for Quality Assurance. (2016-2022). *Immunizations for Adolescents (IMA).* https://www.ncqa.org/hedis/measures/immunizations-for-adolescents/

[133] The National Committee for Quality Assurance. (2016-2022). *Prenatal and Postpartum Care (PPC).* https://www.ncqa.org/hedis/measures/prenatal-and-postpartum-care-ppc/

[134] The National Committee for Quality Assurance. (2016-2022). *Metabolic Monitoring for Children and Adolescents on Antipsychotics. (APM).* https://www.ncqa.org/hedis/measures/metabolic-monitoring-for-children-and-adolescents-on-antipsychotics/

[135] The National Committee for Quality Assurance. (2016-2022). *Follow-Up Care for Children Prescribed ADHD Medication (ADD, ADD-E).* https://www.ncqa.org/hedis/measures/follow-up-care-for-children-prescribed-adhd-medication/

RQ9 To what extent did integration between physical, behavioral, and long-term services increase?

Quality measures and survey results generally indicated that integration of care improved or remained stable during the Demonstration, with declines observed on certain measures during the COVID-19 pandemic.

Key findings included:

Most MassHealth members responding to the PC, BH, and LTSS surveys perceived care to be well coordinated between their PCP and other providers throughout the 2018-2022 period, with little significant change over time despite COVID-related disruptions.

In surveys conducted in 2020 and 2022, most ACO providers and CP staff reported high levels of coordination internally and with external providers.

Among CP staff survey respondents, more than 80% reported being well-informed about available community resources for members. A smaller majority of ACO providers reported care was well coordinated with community resources (60% in Wave 1 in 2020, 51% in Wave 2 in 2022).

There was a significant improvement in the percentage of practice site administrators who reported that they almost always communicated with members within 72 hours of discharge, from 42% during Wave 1 (2019) to 58% in Wave 2 (2021).

The rate of follow-up for CP enrollees after ED visits (BH CPs) and hospitalizations (BH and LTSS CPs) improved over the course of the 2017–2022 Demonstration. However, this improvement did not appear to translate into fewer readmissions.

Discussion of RQ9 Findings

Marked progress towards integration across the care continuum was made by ACOs and CPs during the Demonstration, but substantial room for further improvement remains (see discussion of RQs1-4). At the organizational level, hundreds of new partnerships were formed or formalized between ACOs, BH CPs, LTSS CPs, and SSOs. Within these organizations, new relationships were also developed (e.g., new consortium CPs, between providers newly sharing population health management responsibility for members in ACOs).

Performance on measures of care integration among MassHealth ACO enrollees was consistently better than performance nationally during our study period. Scores on Integration of Care composite measures from the PC member experience surveys of adults and proxy respondents for children enrolled with MassHealth ACOs were above national scores for CY2018-CY2019 (the most recent years available).[136] Follow-up within seven days after a hospital visit for mental illness declined from 52% among would-be ACO enrollees at baseline to 48% among ACO enrollees in CY2019 and 41% in 2022; however, declines over time were also observed nationally for this measure, and follow-up rates were consistently lower among

[136] Agency for Healthcare Research and Quality. (n.d.). *CAHPS Clinician & Group Survey Database*. Retrieved July 6, 2024, from https://www.ahrq.gov/cahps/cahps-database/cg-database/index.html

Medicaid enrollees nationally (36-46%).[137] Follow-up rates within seven days of an ED visit for mental illness were almost twice as high among MassHealth ACO enrollees than Medicaid enrollees nationally (74-79%% versus 40-42%);[138] however, in Massachusetts, emergency service providers assess most members arriving for BH conditions daily within the ED, and such assessments count as follow-up, which may make the rates non-comparable to other states. Internal data from MassHealth's BH vendor indicated that excluding visits in the ED with emergency service providers, the seven-day follow-up rate for this measure would have been about 45% during CY2018-CY2019, which is still above national rates. Follow-up rates after an ED visit were not significantly different for ACO and MCO enrollees. Although denominator sizes were small, cardiovascular monitoring rates for ACO enrollees with schizophrenia and cardiovascular disease (67-78%) were generally consistent with national rates (73-77%) during the study period.[139]

RQ10 How did the volume and mix of services utilized by members change during the course of the Demonstration?

During the 2017–2022 Demonstration, there appeared to be favorable shifts in service use among ACO enrollees in select areas.

Key findings included:

PCP visit rates increased slightly for ACO enrollees relative to MCO/PCCP visit rates.

Institutional post-acute care use declined among ACO enrollees in 2021-2022, while home post-acute care remained relatively stable.

The percentage of acute unplanned admissions occurring in community hospitals increased for PCACO enrollees.

Appropriate testing and prescribing practices for antibiotics were more likely to occur for would-be ACO enrollees versus would-be MCO/PCCP enrollees at baseline, and there was a relative increase in appropriate testing and prescribing for ACO enrollees during most of the evaluation period (2018-2022).

Measures of appropriate imaging (for low back pain and of the abdomen) were not significantly different between ACO and MCO/PCCP enrollees, though there was some improvement from baseline for ACO enrollees relative to MCO/PCCP enrollees during 2019-2022. About one in six ACO enrollees was receiving potentially inappropriate imaging for low-back pain throughout the evaluation period 2015-2022, indicating there is room for improvement.

Discussion of RQ10 Findings

[137] The National Committee for Quality Assurance. (2016-2022). *Follow-Up After Hospitalization for Mental Illness (FUH).* https://www.ncqa.org/hedis/measures/follow-up-after-hospitalization-for-mental-illness/

[138] The National Committee for Quality Assurance. (2016-2022). *Follow-Up After Emergency Department Visit for Mental Illness (FUM).* https://www.ncqa.org/hedis/measures/follow-up-after-emergency-department-visit-for-mental-illness/

[139] The National Committee for Quality Assurance. (2021). *Diabetes and Cardiovascular Disease Screening and Monitoring for People With Schizophrenia or Bipolar Disorder (SSD, SMD, SMC).* https://www.ncqa.org/hedis/measures/diabetes-and-cardiovascular-disease-screening-and-monitoring-for-people-with-schizophrenia-or-bipolar-disorder/

The findings for RQ10, interpreted alongside declines in ED boarding and inpatient utilization reported in RQ6 and RQ11, suggest that the volume and mix of services started to shift towards lower-cost outpatient settings. However, some setbacks occurred during the COVID-19 pandemic.

Relative increases in primary care visit rates for ACO enrollees versus MCO/PCCP enrollees are encouraging, though absolute declines in visit rates during the COVID-19 pandemic (CY2020-CY2022) raise concerns. Note that observed primary care use does not capture the use of non-traditional communication (e.g., texting, email, patient portals), better management of clinical conditions such as diabetes, and increased engagement of high-risk populations by care management and care coordination program providers and staff (e.g., nurses, social workers, pharmacists, CP staff). The administrative measures reported here only include billable encounters for a subset (i.e., physicians, nurse practitioners, physician's assistants) of all team members involved in delivering primary care within an integrated care model. However, non-billing team members are central to a primary care-based integrated delivery model. Increases in primary care visits with these providers are encouraging and consistent with prior research. For example, previous studies of medical homes have found that increasing the coordination of care leads to increased utilization of primary care, better quality, and improved adherence to treatment plans among underserved populations.[140]

MassHealth ACO enrollees had low rates for some measures of low-value care during the evaluation period. ACO performance on low-value care measures was similar to, and sometimes better than MCO/PCCP enrollees (the in-state counterfactual) and equal to or better than performance among Medicaid plans nationally (an external benchmark). The percentage of ACO enrollees with new low back pain episodes that (appropriately) did not receive imaging (>80%) was above national Medicaid managed care rates (71-77%) throughout the study period, but ACO performance was not significantly different in adjusted comparisons with MCO/PCCP enrollees.[141] Performance on the strep testing for childhood pharyngitis measure was high (i.e., few had low-value care – antibiotics without a strep test) among ACO enrollees at baseline (>90%), which remained relatively stable until a decline to approximately 80% in 2022; rates were well above national rates of 68-80% during the study period and were higher in adjusted comparisons with MCO/PCCP enrollees.[142] Rates of appropriate avoidance of antibiotic treatment for acute bronchitis among MassHealth ACO enrollees (57-62% during the Demonstration) were above national rates early in the 2017–2022 Demonstration (36-52% in

[140] See 2017 and 2009 reports by Domino et al.: Domino, M. E., Kilany, M., Wells, R., & Morrissey, J. P. (2017). Through the looking glass: estimating effects of medical homes for people with severe mental illness. *Health services research,* 52(5), 1858-1880. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5583299/; https://pubmed.ncbi.nlm.nih.gov/19786921/

[141] The National Committee for Quality Assurance. (2016-2022). *Use of Imaging Studies for Low Back Pain (LBP).* https://www.ncqa.org/hedis/measures/use-of-imaging-studies-for-low-back-pain/

[142] The National Committee for Quality Assurance. (2016-2022). *Appropriate Testing for Pharyngitis (CWP).* https://www.ncqa.org/hedis/measures/appropriate-testing-for-children-with-pharyngitis/#:~:text=Appropriate%20Testing%20for%20Children%20with%20Pharyngitis%20(CWP),streptococcus%20test%20for%20the%20episode

2018-2019) and similar towards the end (55-62% in CY2020-CY2022); ACO enrollees had lower rates of inappropriate antibiotic use for bronchitis than MCO/PCCP enrollees in adjusted comparisons during 2018-2022.[143] The percentage of ACO enrollees receiving duplicate abdominal CT scans was consistently below 5% during 2018-2022, which was lower than the 7.7% rate for Medicare fee-for-service enrollees nationally in 2018;[144] comparisons to MCO/PCCP enrollees were imprecise due to small numbers.

Domain 2 Lessons Learned, Implications, and Recommendations

- **Lesson learned:** MassHealth shifted more than 80% of eligible members from legacy managed care delivery systems into Medicaid ACOs with minimal disruption.
  - Implication: MassHealth policies, including preserving existing patient-provider relationships, extending the plan selection period, suspending network restrictions temporarily, and using multimodal communication strategies, appear to have promoted a smooth member experience during the transition to ACOs.
- **Lesson learned:** Annual primary care visit rates were higher and all-cause unplanned hospitalization rates were lower (as reported in Domain 3) among ACO-enrolled adults than what would be expected absent the ACO Program. However, among ACO-enrolled adults with BH conditions and LTSS needs, rates of community tenure loss (as reported in Domain 3) were not lower than what would be expected absent the ACO Program.
  - Implication: MassHealth ACOs began to shift costs and utilization away from high-cost acute care settings and towards proactive preventative care in ambulatory care settings but have not done so with equal success across various subgroups.

  Recommendation: Further analyses should examine the heterogeneity of ACO Program effect estimates for subgroups of enrollees with different sociodemographic and clinical characteristics.
- **Lesson learned:** BH ED boarding rates were lower, and diversionary care utilization rates were higher among ACO and CP enrollees versus comparison groups. However, rates of ED boarding increased during the COVID-19 pandemic.

  Implication: ACOs and CPs made progress during the Demonstration in enhancing access to outpatient services for enrollees with BH needs, but the BH system in Massachusetts struggled to meet the needs of MassHealth members during the COVID-19 pandemic.
- **Lesson learned:** Members, ACO providers, and CP staff perceived care to be integrated during the Demonstration, though perceptions did not change much over time.

  Implication: Delivery system reforms may be less apparent to members and frontline staff. Standard instruments administered to distinct samples in successive years

[143] The National Committee for Quality Assurance. (2016-2022). *Avoidance of Antibiotic Treatment for Acute Bronchitis/Bronchiolitis (AAB)*. https://www.ncqa.org/hedis/measures/avoidance-of-antibiotic-treatment-for-acute-bronchitis-bronchiolitis/

[144] Davis, M., McKiernan, C., Lama, S., Parzynski, C., Bruetman, C., & Venkatesh, A. (2020). Trends in publicly reported quality measures of hospital imaging efficiency, 2011–2018. American Journal of Roentgenology, 215(1), 153-158. https://ajronline.org/doi/full/10.2214/AJR.19.21993

may not be sensitive enough to detect changes associated with specific programs and subpopulations.

Recommendation: MassHealth and other states implementing delivery system reforms should consider enhancing standard instruments and collecting baseline data followed by repeated measurements to enable tracking of changes before and after the implementation of new programs. Measures should be accessible and available in multiple languages.

Lessons learned: Performance on several quality measures improved over time after ACO implementation, while others did not improve. Variation in performance was observed between ACOs.

Implication: One or more elements of the shift to an accountable and integrated model of care improved the quality of care for ACO enrollees on certain metrics, but not others. Metrics that improved for both ACO and MCO/PCCP enrollees likely would have improved in the absence of the ACO Program.

Implication: Characteristics of ACOs (e.g., structure), their practice sites (e.g., payer mix), and their programs (e.g., target populations) may have contributed to within and between ACO variation in quality performance.

Recommendation: Further analyses should examine the heterogeneity of performance between ACOs and PC practices to identify characteristics associated with variation in quality performance.

Lesson learned: Low but increasing HRSN screening rates suggest that ACOs may face initial barriers to systematic screening of HRSNs, but progress can be made over time, which may be facilitated by pay-for-performance accountability and availability of resources to address identified needs.

Implication: ACOs and their care teams may have been more willing to screen for HRSNs once the FS Program was implemented and FS programs were available to help address identified health-related tenancy and nutritional needs.

Implication: ACOs and their care teams may not prioritize HRSN screening in the absence of value-based payment incentives tied to performance on HRSN screening measures.

Recommendation: States considering implementing HRSN screening quality measures should engage front-line providers and staff to identify barriers to screening for HRSNs while investing resources to address identified HRSNs.

Lesson learned: A flexible grant-style Medicaid FS Program to address health-related tenancy and nutritional needs was used by all 17 MassHealth ACOs, primarily through partnerships with SSOs, and it served a large volume of members shortly after launching. A large deficit in affordable housing availability in Massachusetts was a barrier to addressing tenancy needs.

Implication: Health systems serving Medicaid members perceive value in delivering nutritional and tenancy supports to address their enrollees' needs and are willing

to accept responsibility for designing programs in partnership with local SSOs to access resources to address such needs.

Recommendation: States should evaluate the prevalence of HRSNs among their members and work to increase the resources available to address them. FS-like programs should leverage existing community programs, and find ways to encourage ACOs and others to develop new programs to help address gaps in local community-based resources.

2.4.3. Domain 3: Changes in member outcomes

Domain 3 addresses two RQs (**Table 2.4-3**).

Table 2.4-3 Summary of Domain 3 Research Questions and Hypotheses

Research Question	Hypotheses
RQ11: To what extent did member outcomes improve?	**H11.1:** Inpatient and emergency department utilization rates will decrease overall **H11.2:** Inpatient and emergency department utilization rates will decrease for adults and children with specific conditions including ambulatory care-sensitive conditions **H11.3:** Inpatient and emergency department utilization rates will decrease among adults with mental illness, substance addiction, co-occurring conditions, or LTSS needs **H11.4:** Community tenure will increase **H11.5:** Members will report improved ratings of health
RQ12: To what extent did member experience improve during the Demonstration?	**H12.1:** Members will report improved overall ratings of their healthcare provider

RQ11 To what extent did member outcomes improve?

ACO enrollee outcomes sometimes improved (fewer hospitalizations overall), deteriorated (more ACSC hospitalizations), fluctuated due to the impacts of COVID-19 (clinical outcomes), or remained largely stable (self-reported health ratings) over the evaluation period (2018-2022). Key findings included:

Between 2018 to 2019, improvement was observed in clinical outcomes measuring the quality of diabetes and blood pressure management for ACO members. Performance declined in the first year of the COVID-19 pandemic (2020) and then returned to 2018 levels in 2022.

Rates of depression remission and response, another clinical outcome measure, were low throughout the 2017–2022 Demonstration (6-11%).

From the first to the second year of the Demonstration (2018-2019), changes in self-reported health ratings were small and mostly positive among ACO members responding to the

primary care, BH, and LTSS surveys. Ratings of self-reported health were mostly stable during the COVID-19 pandemic (2020-2022).

ED utilization rates were higher among ACO members in 2018-2019 compared to baseline (2015-2017) rates among members who would have been attributed to ACOs had the program been implemented at that time. ED visit rates declined similarly among ACO and MCO/PCCP enrollees during the COVID-19 pandemic (2020-2022) compared with the pre-pandemic period.

All-cause unplanned hospitalization rates declined among ACO enrollees compared to baseline (2015-2017) rates. Unplanned hospitalization rates for ACO enrollees were below the rates observed among the comparison group of MCO/PCCP enrollees. However, hospitalization rates for acute and chronic ACSCs were generally higher among ACO enrollees than MCO/PCCP enrollees during 2018-2021.

Rates of community tenure loss were higher during the COVID-19 pandemic among ACO enrollees with BH conditions (higher rates during 2020-2022) and those with LTSS needs (higher rates during 2021-2022) compared with MCO/PCCP enrollees with BH conditions and LTSS needs.

Discussion of RQ11 Findings

As summarized in the DSRIP evaluation logic model, the effects of DSRIP investments on member outcomes are conceptually mediated through improvements in coordination, integration, and quality. If these relationships hold, the effects of DSRIP programs will be larger for subgroups of members with clinical and social conditions where these improvements can prevent adverse health consequences that manifest in acute service utilization.

Improved prevention of acute conditions and better management of chronic conditions can improve health outcomes and reduce acute and emergency service utilization. Two measures used by MassHealth for ACO accountability evaluated the quality of chronic condition management, specifically, control of diabetes and hypertension. Since these two measures require EHR data to calculate (i.e., hybrid quality measures), data were not available to support direct comparisons to baseline or with MCO/PCCP enrollees. However, MassHealth reported values for adults 18-64 in 2017 were 66% for blood pressure control and 37% for poor diabetes control. Performance on A1c control (33% to 30%, lower is better) and blood pressure control (67% to 72%, higher is better) measures improved among ACO enrollees from CY2018 to CY2019, and 2018 performance was better than MassHealth reported rates for CY2017. Performance declined precipitously for both measures in 2020 (the first year of the COVID-19 pandemic), and then returned close to baseline values in 2022. The percentage of ACO members with poor diabetes control (33%-41%) was slightly below the national Medicaid rate (40%-45%) throughout the study period.[145] The percentage of ACO members with adequate blood pressure control (67-72%) was above the national Medicaid rate (56%-61%) during the study period.[146] Taken together, the changes over time in ACO performance and the

[145] The National Committee for Quality Assurance. (2016-2022). *Comprehensive Diabetes Care (CDC).* https://www.ncqa.org/hedis/measures/comprehensive-diabetes-care/

[146] The National Committee for Quality Assurance. (2016-2022). *Controlling High Blood Pressure (CBP).* https://www.ncqa.org/hedis/measures/controlling-high-blood-pressure/

comparisons to national benchmarks suggest providers who would later join MassHealth ACOs were already doing better than Medicaid averages at baseline, this gap widened after ACO implementation and may have continued to widen, but the COVID-19 pandemic temporarily brought ACO performance on these measures close to national averages.

Two other measures, acute and chronic unplanned admissions for ambulatory care sensitive conditions (ACSCs), evaluated how often individuals were hospitalized for conditions where the admission could have been averted through better care in the outpatient setting. Among ACO enrollees, both acute and chronic ACSC admission rates declined from baseline to 2019, increased during the first two years of the COVID-19 pandemic (2020-2021), and then declined in 2022. Rates of chronic and acute ACSC admissions were higher among ACO enrollees than MCO/PCCP enrollees during 2018-2021. Though estimates were imprecise due to a small number of events, these findings are contrary to hypotheses that ACOs would reduce hospitalizations through improved outpatient care, and further work is needed to evaluate what other types of hospitalizations were reduced such that all-cause admission rates were lower among ACO enrollees. Hospitalization rates for acute (1.1 per 1,000 persons at baseline and 0.8 per 100,000 in 2019) and chronic ACSCs (2.4 per 1,000 persons at baseline and 1.7 per 1,000 persons in 2019) among MassHealth ACO enrollees were similar to national all-payer rates of acute (1.2 per 1,000 persons) and lower than national all-payer rates for chronic (5.5 per 100,000 persons) ACSC hospitalizations during 2019. In the most recent year of data available nationally (CY2020), acute ACSC admission rates were higher, and chronic ACSC rates were similar for ACO enrollees versus national rates, potentially reflecting the disproportionate concentration of the burden of COVID-19 in Massachusetts during the first year of the COVID-19 pandemic relative to the nation on average.[147]

Asthma is a leading chronic condition that causes hospital admissions among children,[148] and the asthma admission rate is a pediatric quality measure used nationally. The pediatric asthma admission rate declined over time from 1.5 admissions per 100 children at baseline to 0.4-1.2 admissions per 100 children during the evaluation period (2018-2022). In adjusted comparative analyses, these declines appeared larger than the declines observed among MCO/PCCP enrollees, suggesting ACOs may have outperformed MCO/PCCPs in managing asthma care for MassHealth enrolled children, but the differences were not statistically significant. Nationally, all-payer rates of asthma admissions among children remained relatively stable at 0.1 per 100 children from 2016 to 2019 (the most recent data available),[149] Indicating asthma admission rates among would-be MassHealth ACO enrollees were well above national all-payer rates at

[147] Of 19,860 COVID-19 deaths experienced in Massachusetts during 2020-2022, 49.7% occurred in 2020. Nationally, 33.6% of 1,092,842 COVID-19 deaths during 2020-2022 occurred during 2020. Source is the authors' analysis of: https://covid.cdc.gov/covid-data-tracker/#trends_weeklydeaths_select_00

[148] https://hcup-us.ahrq.gov/reports/statbriefs/sb299-Hospital-Stays-Children-2019.jsp#:~:text=Children%20are%20hospitalized%20for%20a,such%20as%20asthma%20and%20pneumonia.&text=Pediatric%20hospitalizations%20have%20been%20declining%20in%20recent%20years.

[149] Agency for Healthcare Research and Quality. (n.d.). *Archives QI Modules.* Retrieved July 6, 2024, from https://qualityindicators.ahrq.gov/archive/qi_modules

baseline. Commercially insured children typically have less medical and social complexity, and research in Massachusetts has previously highlighted that MassHealth-enrolled children are hospitalized more than 1.5 times as often as commercially insured children.[150] However, this evaluation's findings of improvement among ACO enrollees during the Demonstration indicate the size of this gap was meaningfully reduced (e.g., by almost 50% from baseline as of 2019); progress was reversed in 2022 but to a lesser extent among ACO enrollees. Evaluation results also suggest that ACOs outperformed MCO/PCCPs in preventing readmissions in children, another indicator of effective pediatric care management, though findings were not statistically significant.

RQ12 To what extent did member experience improve during the 2017-2022 Demonstration?

ACO enrollee ratings of their primary care, BH, and LTSS providers were consistently positive throughout the evaluation period (2018-2022) among respondents to the adult and child surveys. Key findings included:

Most ACO adult and child survey respondents to the six surveys (adult and child PC, BH, and LTSS) would recommend their primary care, BH, and LTSS providers.

Respondents to the adult and pediatric PC surveys rated their PC office staff and providers highly, with composite scores of at least 80 (on a scale of 0-100 points) in all study years of the evaluation period (2018-2022). Changes over time were small.

Ratings of BH and LTSS providers by respondents to the adult and child BH and LTSS surveys were also positive and relatively consistent over time (composite scores >70 in all Demonstration years).

Discussion of RQ12 Findings

Most ACO members responding to the adult (68-72%) and child (75-78%) PC surveys rated their PCP nine or ten on a ten-point scale, compared with 67-69% among Medicaid adults nationally and 75-78% of child survey respondents nationally during the study period.[151]

Domain 3 Lessons Learned, Implications, and Recommendations

- **Lesson learned:** Most MassHealth ACOs improved the intermediate clinical outcomes of blood pressure (13 of 17 ACOs) and diabetes (12 of 17 ACOs) from the first to the second year of implementation before progress was temporarily reversed during the COVID-19 pandemic.
    - Implication: There may be little lag time between the launch of a Medicaid ACO program and improvement on measures that are sensitive in the short term to changes in clinical management, though confirmatory evidence is needed.
    - Implication: Temporary decrements in the control of chronic conditions during the COVID-19 pandemic will likely delay the time to hypothesized improvements in

[150] Goff SL, Shieh MS, Lindenauer PK, Ash AS, Krishnan JA, Geissler KH. Differences in Health Care Utilization for Asthma by Children with Medicaid versus Private Insurance. Popul Health Manag. 2024 Apr;27(2):105-113.

[151] Agency for Healthcare Research and Quality. (n.d.). *AHRQ CAHPS Survey Aggregated Data*. Retrieved July 6, 2024, from https://cahpsdatabase.ahrq.gov/CAHPSIDB/default.aspx

clinical outcomes (e.g., macrovascular and microvascular complications) downstream of the intermediate clinical outcomes.

  - Recommendation: Further evaluation is needed to examine whether intermediate outcomes continued to improve during the post-COVID-19 pandemic period and whether such improvements are associated with reduced incidence of downstream adverse health outcomes.

- **Lesson learned:** MassHealth ACOs reduced unplanned hospital admission rates among adults compared with what would have been expected absent the ACO program, but had higher rates of unplanned admissions for acute and chronic adult ACSCs than MCO/PCCPs.
  - Implication: ACO activities and outputs of those activities (i.e., needs identification, access to care, care planning, care processes, care integration, cost, and population health management), as specified in the evaluation logic model, led to fewer adverse health outcomes that required hospitalization in some circumstances but not for others.
- **Lesson learned:** ACO enrollees' ratings of their health and their care teams were mostly stable over time during the five years following implementation of the ACO Program.
  - Implication: Among respondents to member experience surveys, on average, member perceptions of their health and their care teams did not appear affected by delivery system reforms. The characteristics and perspectives of non-respondents were not captured by available data.
  - Recommendation: Additional survey respondent characteristics and utilization patterns should be identified and analyzed with non-respondent characteristics to examine the heterogeneity of the survey population.

2.4.4. Domain 4: Changes in healthcare cost trends

Domain 4 addresses one RQ (**Table 2.4-4**).

Table 2.4-4 Summary of Domain 4 Research Questions and Hypotheses

Research Question	Hypotheses
RQ13: To what extent were Medicaid total cost of care trends moderated for the ACO population?	**H13.1:** The rate of increase in the total cost of care for the ACO population will decrease

RQ13 To what extent were Medicaid total cost of care trends moderated for the ACO population?

The rate of increase in the TCOC for ACO enrollees was reduced relative to what would have been expected absent the DSRIP and ACO Programs, which was represented by the experience of enrollees in MassHealth's MCO and PCC Programs.

Key findings included:

The adjusted per person per year TCOC for an ACO enrollee was below the cost of an MCO/PCCP enrollee throughout the five years of the ACO Program (-$202, -$299, -$436, -$613, and -$252, respectively, in CY2018-CY2022) that were evaluated. These reductions represent approximately 3-10% of the annual TCOC (~$6,200) among MassHealth members at baseline.

Program-wide, ACO expenditures on healthcare services (which do not include DSRIP investments) were close to cost benchmarks set by MassHealth: The mean ratio of ACO expenditures to total capitated payments/benchmarks among the 17 ACOs was 101.2% in 2018. It increased slightly in the program's second year (CY2019) to 105.6%, then decreased to 93.9% in the third year (CY2020).

After adjustments for shared risk arrangements and quality scores, the ACOs and MassHealth shared a net value of $32.92 million in losses in 2018, $234.18 million in losses in 2019, and $319.95 million in savings in CY2020.

Discussion of RQ13 Findings

The **Domain 4 analyses** address two separate but related questions: 1) would healthcare costs for MassHealth members have been different absent the Demonstration? and 2) did ACOs meet pre-specified spending thresholds set by MassHealth?

The comparison of TCOC over time between ACO enrollees and the MCO/PCCP comparison group addresses the first question (*would healthcare costs for MassHealth members have been different absent the Demonstration?*). Based on the results of our analyses, the TCOC for MassHealth members was lower in the presence of the Demonstration. This was the case in each of the years of the ACO Program (2018-2022), although the magnitude was greatest in CY2020 and CY2021, which suggested ACOs and their enrollees were affected by and experienced the COVID-19 pandemic differently than MCO/PCCP enrollees. The TCOC for ACO enrollees declined from 2019 to 2020 and then remained below 2019 levels in 2021 and 2022. However, as depicted in F2.3-D4.4, the TCOC for ACO enrollees would likely have continued to increase absent the COVID-19 pandemic based on extrapolation of trends from 2015-2019. TCOC also decreased among MCO/PCCP enrollees in 2020 but to a lesser extent, and then returned to approximately the 2019 level in 2021 and then dropped below 2019 in 2022. In the absence of the COVID-19 pandemic, extrapolation of 2015-2019 trends suggests the TCOC would have continued to increase and the difference in cost between ACO and MCO/PCCP enrollees would have gradually continued to widen. Based on these analyses, the TCOC savings among ACO enrollees in the presence of the pandemic appeared comparable in 2020, higher in 2021, and smaller in 2022 than they otherwise would have been absent the COVID-19 pandemic.

Medical complexity (as measured by the diagnosis-based DxCG and pharmacy-based RxCG summary scores) was similar for ACO and MCO/PCCP enrollees (or would-be enrollees) from CY2015-CY2018. Medical morbidity diverged in CY2019, with MCO/PCCP enrollees appearing sicker than ACO enrollees on both summary scores. This was followed by lower rates of

COVID-19 diagnoses (2% versus 2.9%) but higher rates of COVID-19 hospitalizations (0.24% versus 0.21%) among MCO/PCCP versus ACO enrollees in 2020. Pharmacy-based morbidity continued to be higher for MCO/PCCP enrollees in 2020 and 2021. The higher medical morbidity and higher hospitalization rate despite lower overall rates of COVID-19 for MCO/PCCP raises the possibility that there were residual unmeasured differences in medical complexity between MCO/PCCP enrollees compared with ACO enrollees that could have introduced confounding. However, throughout the ACO program period, ACO enrollees lived in more socioeconomically stressed neighborhoods and had a higher prevalence of coded homelessness than MCO/PCCP enrollees, which would have been expected to have contributed to a higher burden of COVID-19 based on relationships observed in the U.S. and internationally.[152] It is possible the ACO Program, and other resources supported by DSRIP funding including CPs and FS, helped mitigate the effects of COVID-19 for ACO enrollees, but this cannot be concluded from the data in this report alone and the topic merits further study.

Both analyses – the comparison of ACO versus MCO/PCCP enrollees in the presence of the COVID-19 pandemic using observed data and the extrapolation to approximate what may have happened absent the COVID-19 pandemic – require cautious interpretation in light of assumptions and limitations. The extrapolation of pre-pandemic period trends assumes that these trends and the relationships between enrollee characteristics and TCOC would have continued absent the COVID-19 pandemic, which may not have been the case. Comparisons between the ACO and MCO/PCCP enrollees will be biased to the extent that differences in factors affecting TCOC are imbalanced between the groups and not adjusted for in our modeling. One potential mechanism where this may have occurred is through selection bias, where more complex and costly individuals opted out of participation in the ACO Program, which could have driven up hospitalization rates among the MCO/PCCP comparison group, for example. The findings presented are based upon pre-planned analyses; we are exploring additional analyses to further evaluate the robustness of findings to alternative assumptions and specifications. A fuller description of the evaluation's limitations is provided in the limitations section of the methods (**Section 2.2.6**).

Enrollment in MassHealth ACOs was associated with increasing TCOC savings over time during the first four years of the ACO Program (CY2018-CY2021). As a percentage of baseline TCOC levels, the amount by which ACO spending was below the amount that would have been expected absent the Demonstration was 3% in 2018, and this grew to approximately 10% in 2021. A similar finding has been reported for Medicare Shared Savings Program ACOs, where TCOC savings also increased the longer that ACOs were operating.[153] Savings in the first years of the Medicare ACO Shared Savings Program were smaller and concentrated among

[152] McGowan VJ, Bambra C. COVID-19 mortality and deprivation: pandemic, syndemic, and endemic health inequalities. Lancet Public Health. 2022 Nov;7(11):e966-e975.

[153] McWilliams JM, Hatfield LA, Landon BE, Hamed P, Chernew ME. Medicare Spending after 3 Years of the Medicare Shared Savings Program. N Engl J Med. 2018 Sep 20;379(12):1139-1149.

physician-anchored ACOs. Reviews of the impacts of other state Medicaid ACO programs on costs have yielded mixed findings.[154,155] Evidence from a head-to-head comparison of Oregon's ACO-like program to a control state reported a 7% reduction in costs during the first two years of the program.[156] Like in Massachusetts, the Oregon program had widespread participation, close working relationships between ACOs and the Medicaid program, up-front infrastructure investments, global budgets with quality accountability, a focus on integration of care across the continuum, and an FS program to address HRSNs. In contrast to the Massachusetts and Oregon programs, the Medicare Shared Savings Program is implemented diffusely across the country, has not included many of these features, and has faced issues with selective participation and weak incentives.[157]

The analysis of shared savings and shared losses for ACOs addresses a second question (*did ACOs meet pre-specified spending thresholds set by MassHealth?*). The evidence here can only be examined for the first three years of the ACO Program (CY2018-CY2020) because data for CY2021-CY2022 were not yet available at the time of this analysis. In brief, 2 of 3 PCACOs met spending thresholds set by MassHealth and received shared savings in both pre-pandemic years (CY2018-CY2019), while most ACPPs achieved shared savings in CY2018, but only one did in CY2019. In CY2020, the first year of the COVID-19 pandemic, 2 of 3 PCACOs and 11 of 13 ACPPs achieved shared savings. Analyses of 2019 financial performance in MassHealth's 2019 DSRIP Annual Report suggested that ACPP's financial performance was affected by rising acuity.[158] Most ACPPs, which bore insurance risk for changes in member acuity, had expenditures that exceeded their capitation payments by more than 2% in 2019, while 2 of 3 PCACOs (which did not bear insurance risk) achieved shared savings.

Domain 4 Lessons Learned, Implications, and Recommendations

- **Lesson learned**: ACOs appear to have achieved meaningful reductions in TCOC of their enrollees compared to what would have been expected absent the Demonstration.
    - Implication: ACOs may have reduced TCOC through mechanisms such as preventing high-cost acute care episodes (consistent with some findings in Domain 3), shifting utilization to lower-cost ambulatory care settings (consistent with some findings in Domain 2), and addressing HRSNs (consistent with some findings in Domain 6).

[154] Holm J, Pagán JA, Silver D. The Impact of Medicaid Accountable Care Organizations on Health Care Utilization, Quality Measures, Health Outcomes and Costs from 2012 to 2023: A Scoping Review. Med Care Res Rev. 2024 Apr 15:10775587241241984.

[155] Meredith B. Rosenthal et al., Realizing the Potential of Accountable Care in Medicaid (Commonwealth Fund, Apr. 2023).

[156] McConnell KJ, Renfro S, Lindrooth RC, Cohen DJ, Wallace NT, Chernew ME. Oregon's Medicaid Reform and Transition To Global Budgets Were Associated With Reductions In Expenditures. Health Aff (Millwood). 2017 Mar 1;36(3):451-459.

[157] J. Michael McWilliams, Alice J. Chen. (November 12, 2020). *Understanding The Latest ACO "Savings": Curb Your Enthusiasm And Sharpen Your Pencils—Part 1*. Health affairs. https://www.healthaffairs.org/content/forefront/understanding-latest-aco-savings-curb-your-enthusiasm-and-sharpen-your-pencils-part-1

[158] MassHealth Restructuring: 2019 Update Report. Available from: https://www.mass.gov/doc/masshealth-restructuring-2019-update-report/download

  - Recommendation: MassHealth should continue the ACO Program and continue to study the ACO Program's impacts to better understand how ACOs may be reducing TCOC and for which enrollees, to evaluate sustainability post-DSRIP, and to validate the robustness of findings.
- **Lesson learned:** Shared savings and shared losses amounts varied widely from year to year and between ACOs, with large changes in program-wide shared savings and losses from 2018 to 2019 and from 2019 to 2020.
  - Implication: Insurance risk borne by ACPPs contributed to lower amounts of shared savings compared with PCACOs, which do not bear insurance risk. Protections may be needed to mitigate insurance risk and promote shared savings for prospectively paid APMs.[159]
  - Implication: Volatility in shared savings amounts may impede ACO efforts to use shared savings to sustain delivery system reforms that were previously financially supported by DSRIP funds. Evaluation of the reasons for within-ACO and between-ACO differences in performance may support policy development that promotes ACO financial stability.
  - Implication: If shared savings are achieved in consecutive years, diminishing marginal returns imply that ACOs who are successful in reducing potentially avoidable and wasteful spending will face an increasingly challenging task of identifying residual spending to mitigate.
  - Implication: Large amounts of shared losses in one or more years may affect ACO decisions regarding ongoing participation in the program.
  - Recommendation: When establishing payment and accountability policy for ACO-like arrangements, MassHealth and other states must balance multiple goals that may at times be in competition, including improving member and provider experience, quality improvement, cost containment, likelihood, amount, and predictability of shared savings, and the expected net benefit of continued program participation from the perspective of organizations.

2.4.5. Domain 5: Sustainability of Innovative Delivery System Changes, Including ACOs, CPs, and Flexible Services

Domain 5 addresses two RQs (**Table 2.4-5**).

Table 2.4-5 Summary of Domain 5 Research Questions and Hypotheses

Research Question	Hypotheses
RQ14: To what extent will innovative delivery system changes including ACOs, CPs, and Flexible Services	**H14.1:** ACOs will develop strategies to continue to operate under an accountable and integrated care model after the Demonstration ends

[159] MassHealth has shifted to concurrent risk adjustment for ACPPs to help mitigate insurance risk. While insurance risk borne by ACPPs impacted shared savings compared with PCACOs, it is important to note that for 2021 and 2022, MassHealth implemented several risk mitigation strategies, including market corridors, APMs in reconciliation, and stop loss provisions, to address these concerns.

Research Question	Hypotheses
will be sustainable without DSRIP funding?	**H14.2:** CPs will develop strategies to continue to operate under an accountable and integrated care model after the Demonstration ends **H14.3:** ACOs will pursue strategies to continue to provide Flexible Services to members after the Demonstration ends' **H14.4** The costs and effects of the ACO program will warrant continued investment **H14.5** The costs and effects of the CP program will warrant continued investment **H14.6** The costs and effects of the FS program will warrant continued investment
RQ15: To what extent did alternative and value-based payments constitute an increasingly larger proportion of the payments to organizations and providers managing the care of MassHealth members?	**H15.1:** The number of members cared for in ACOs will increase **H15.2:** ACOs and MCOs will engage in value-based payment arrangements with specialist providers **H15.3:** ACOs and MCOs will engage in alternative payment models and value-based payment arrangements with hospitals **H15.4** The number of primary care practices participating in ACOs will increase

RQ14: To what extent will innovative delivery system changes, including ACOs, CPs, and Flexible Services, be sustainable without DSRIP funding?

ACOs and CPs developed strategies to continue operating under an accountable and integrated care model after the Demonstration ended. From the MassHealth perspective, DSRIP investments in the ACO Program were recouped with an additional 35% in TCOC savings gained over the 2017–2022 Demonstration, supporting the feasibility of sustaining the programs without DSRIP funding.

Key findings included:

Over the course of the Demonstration, ACOs and CPs increasingly focused on financial sustainability (e.g., by performing internal evaluations of programs and sunsetting those deemed of low value), developing and supporting their workforce, and developing preferred partnerships.

ACOs and CPs worked to reduce care costs by targeting high-cost programs and potentially avoidable utilization (e.g., increasing support during member care transitions to reduce hospital readmissions), hiring staff in new roles to support efficiency, training staff, aligning processes across partnerships, and refining programs.

ACOs, in partnership with SSOs, modeled FS programs after successful community programs, automated referral workflows, and adjusted services to promote FS program sustainability.

From the MassHealth perspective, the return on DSRIP investments in the ACO Program varied by Demonstration year, with TCOC savings partially offsetting the costs of DSRIP program investments during CY2018 and CY2019. A positive ROI (TCOC savings were greater than DSRIP program costs) was observed in CY2020 through CY2022.

The benefit-to-cost ratio (BCR: 1.35; 95% CI:1.06, 1.64) indicates that each $1 in DSRIP spending on the ACO program was associated with $0.35 in TCOC savings over and above the cost of the program for an aggregate of $512 million in net savings over the 2018-2022 evaluation period and a projected $962 million in net savings over a 10-year period (CY2018-CY2028).

DSRIP investments in the ACO Program averted an estimated 25,707 (CI: 24,675, 26,308) acute unplanned inpatient admissions between CY2018 and CY2022.

For enrollees of the BH CPs included in this analysis, TCOC was significantly higher in 2019 and 2022 than among non-CP enrollees. Among enrollees of LTSS CPs, the TCOC was not significantly different from non-CP enrollees, though point estimates were higher among LTSS CP enrollees in 2020-2022. The higher TCOC for CP enrollees when combined with the costs of the CP Program produced estimates of net costs (losses) per enrollee ranging from approximately $4,366 to $7,936 per year among BH CP enrollees and approximately $2,533 to $4,203 per year among LTSS CP enrollees.

The FS nutrition and tenancy sustaining programs were effective in reducing hospitalization and ED visit rates. Enrollees in FS nutrition programs had lower costs after the peak of the COVID-19 pandemic (2022-2023 Q1), and enrollees in FS tenancy programs had lower TCOC after the peak of the pandemic. However, neither group had lower TCOC during the overall evaluation period (2020-Q1 2023), though TCOC was significantly lower over the overall evaluation period among the subgroup of FS nutrition participants who received more than 90 days of services. Estimates of the net costs (program costs minus TCOC savings) per hospitalization and ED visit avoided were well below commonly accepted willingness to pay thresholds.

From the MassHealth perspective, the DSRIP investments in the FS Program were partially recouped for the tenancy preservation program (BCR: 0.46) and nutrition program (BCR: 0.31).

Discussion of **RQ14** Findings

ACOs and CPs developed strategies to hire and train new staff to operate under the accountable care model to facilitate inter-organizational communication and to improve care integration. As part of programmatic requirements, all ACOs collaborated with partners to address care transitions to reduce ED visits, inpatient admissions, and hospital readmissions. ACOs also expanded access to upstream and preventative care to reduce TCOC. However, ACOs and CPs remained concerned about planned decreases to DSRIP funding, increases in programmatic expectations, and continuing workforce capacity issues and how these may impact the long-term sustainability of ACOs, CPs, and the FS Program. Although having funds available to increase staff capacity was noted as positive, organizations raised concerns regarding the longer-term availability of funding to sustain certain positions.

MassHealth has taken steps to invest in the sustainability of ACOs, CPs, and the FS Program under the 2022-2027 Demonstration.[160] MassHealth developed plans to increase payment to ACOs for primary care, which will help sustain progress made during the 2017-2022 Demonstration. MassHealth has invested in FS Program sustainability through the HRSN Integration Fund to support new SSOs and enhance the functioning of ACO-SSO partnerships by supporting new HIT and information exchange infrastructure. MassHealth has also invested in the continued development of LTSS CPs by investing in technology and information system infrastructure to support these organizations in expanding their scope of care coordination responsibilities beyond their prior focus on LTSS for 2017-2022.

The positive ROI for the DSRIP program was calculated based on a thorough accounting of the cost of the DSRIP program and all spending on care for members by MassHealth but does not yet account for shared savings and shared losses payments by MassHealth to ACOs (some of which are still outstanding), and differences in non-medical payment rates for ACOs versus the legacy MCO and PCCP delivery system. Adding these costs to the costs of the DSRIP program could partially attenuate the ROI estimate. Yet even an attenuation on the order of 20-30% (~$102-$154 million in aggregate) would have little impact on the main implications of estimated savings on the order of several hundred million dollars over and above the more than $1 billion invested through the DSRIP program. A preliminary analysis of MassHealth non-medical rates paid per enrollee in our TCOC analysis during the evaluation period indicated that MassHealth non-medical payments were 10-25% higher for ACO enrollees versus the MCO/PCC comparison group when assuming zero non-medical payments made for enrollees in the PCC Plan. This difference would be smaller if the $10 care coordination add-on payment associated with most visits to PCC Plan PCCs was included in the calculation as a non-medical payment for PCC plan enrollees.

The annual ROI was not positive (program costs within a given year were not recouped through TCOC savings in that same year) on an annual basis until 2020, and it decreased from CY2021 to CY2022. Additional commentary on the potential impacts of COVID-19 on TCOC savings is included in the Domain 4 discussion section. The ROI would likely have been different in the absence of the COVID-19 pandemic. Estimates of future ROI must be interpreted cautiously. Furthermore, as with all observational studies, we cannot exclude the potential for unmeasured confounding contributing to an over or underestimation of the difference in TCOC for ACO and MCO/PCCP enrollees.

RQ15: To what extent did alternative and value-based payments constitute an increasingly larger proportion of the payments to organizations and providers managing the care of MassHealth members?

Enrollment in MassHealth ACOs increased over the 2017–2022 Demonstration**,** therefore a larger proportion of MassHealth's payments for care for MassHealth members flowed through APMs. Experiences with value-based payments to providers varied between ACOs.

[160] MassHealth. (n.d.). *1115 MassHealth Demonstration*. Mass.gov. Retrieved July 6, 2024, from https://www.mass.gov/info-details/1115-masshealth-demonstration-waiver#currently-approved-1115-masshealth-demonstration-(

Key findings included:

The percentage of MassHealth managed care eligible members cared for in ACOs increased from 0% prior to the Demonstration to a maximum of 83% in CY2022. The distribution of ACO enrollment among the different ACO types remained consistent throughout the Demonstration, with the majority enrolled in ACPPs.

Value-based payment arrangements between ACOs and their affiliated providers focused on the quality and cost performance of PCPs.

ACOs and MCOs did not report engaging hospitals in APMs and value-based payment arrangements. However, ACOs and MCOs engaged hospital providers in other ways to pursue integrated and accountable care.

Discussion of RQ15 Findings

In both CY2020 and CY2022, a little more than half of the surveyed MassHealth PC physicians reported receiving financial incentives based on their performance on quality measures. While Commonwealth Fund survey findings revealed that 56% of PC physicians throughout the U.S. received fee-for-service (FFS) payments with links to quality, FFS remains the dominant payment model in PC practices throughout the U.S.[161] ACO staff reported that the shift to alternative and value-based payment arrangements was challenging to implement because it required a culture shift throughout the organization. SWIs facilitated the delivery system's shift towards value-based payments as the TA Program supported ACO adoption of APMs. While ACOs reported on many care team successes and positive member health outcomes under the ACO model, they continued to explore best practices to engage their partners in alternative and value-based payment models that held their providers accountable for quality and cost. Reducing costs in a member population with complex needs was resource-intensive, requiring large care teams and the engagement of multiple partner organizations. ACOs stressed the importance of inter-organizational and multi-payer alignment when incentivizing and compensating providers and practices.

Since the passage of the Patient Protection and Affordable Care Act, alternative and value-based payment models have emerged as critical strategies for payers looking to improve member experience, provider experience, and healthcare quality while reducing care costs. Uptake of APMs has been most widespread in Medicare, where over a quarter of members were enrolled in APMs with upside and downside risk as of 2021. In Medicaid nationally, APM adoption (which includes MassHealth's ACOs) was 17% in CY2021.[162] Therefore, at greater than 70% APM adoption among eligible members since the launch of the ACO Program in CY2018, MassHealth has been a national leader in APM adoption both among Medicaid programs and relative to other payers.

In Massachusetts and other states, Medicaid ACOs to date have focused on primary care-centric delivery system reforms. From the data we collected, we did not observe value-based payment arrangements or APMs between MassHealth ACOs and hospitals or other providers outside of the primary care setting. Such arrangements with providers other than PCPs were

[161] Celli Horstman and Corinne Lewis, "Engaging Primary Care in Value-Based Payment: New Findings from the 2022 Commonwealth Fund Survey of Primary Care Physicians," *To the Point* (blog), Commonwealth Fund, Apr. 13, 2023. https://doi.org/10.26099/k3v8-0k69

[162] Health Care Payment Learning & Action Network. (2021). *APM Measurement Effort*. https://hcp-lan.org/apm-measurement-effort/2022-apm/2022-infographic/

optional as part of the MassHealth ACO Program, and their apparent absence implies engaging non-PCPs in these ways was not a priority during the first ACO program cycle. PCPs are the point person managing the care team for most individuals, and therefore, population-level reforms that focus on engaging PCPs will have a larger expected impact on care delivery and outcomes than initiatives that target other providers. In addition to smaller expected effects, engaging hospitals and other non-PC providers may be more difficult due to revenue streams and incentives that are distinct from PCPs and which, in some instances, will conflict with ACO population health and TCOC management goals. Ultimately, our findings support the notion that ACO (and APM) success is facilitated by care integration and alignment of goals and incentives across care team members and care settings. Further efforts to achieve such alignment are needed.

Alternative and value-based payment models have shown promising success in state Medicaid programs. Some state Medicaid programs implementing APMs have reported reductions in healthcare spending while maintaining or improving quality metrics by promoting care coordination, integrating care across partners, improving member outcomes and experiences, and encouraging innovations in care delivery.[163] The findings from Massachusetts and other states provide valuable evidence about how alternative and value-based payment models are being used and may improve Medicaid member outcomes and experiences while slowing the growth of healthcare expenditures. Additional rigorous evaluations over longer time horizons will be important to understand the full scope of strategies employed by ACOs and the effects of various payment and delivery system reforms.

Domain 5 Lessons Learned, Implications, and Recommendations

- **Lesson learned:** In Massachusetts, more than 80% of eligible members were shifted into Medicaid APMs within a five-year period. DSRIP investments that supported the shift from a traditional Medicaid managed care delivery system to an accountable and integrated Medicaid APM were partially offset by TCOC savings in the first two years of implementation and more than fully offset (i.e., net savings) over the course of five years post-implementation.
    - Implication: DSRIP-like investments in Medicaid delivery system reforms can produce value for states and CMS.
    - Implication: In scenarios where the shift to Medicaid APMs reduces the TCOC, and in the absence of adverse selection, the aggregate return on DSRIP investments will increase with increases in the number of members shifted into the new APMs.
    - Recommendation: CMS and states should consider evaluating opportunities to leverage DSRIP-like investments to shift Medicaid programs to ACO-like arrangements.
- **Lesson learned:** Care coordination support programs like the MassHealth CP Program for Medicaid members with BH and LTSS needs may increase the TCOC in the short term by better-engaging enrollees in care and connecting them with needed services.

[163] Holm J, Pagán JA, Silver D. The Impact of Medicaid Accountable Care Organizations on Health Care Utilization, Quality Measures, Health Outcomes and Costs from 2012 to 2023: A Scoping Review. Med Care Res Rev. 2024 Apr 15:10775587241241984.

  - Implication: Better identifying and meeting the needs of BH and LTSS CP enrollees should improve outcomes in the longer term, but this has not yet been demonstrated.
  - Recommendation: Longitudinal analyses should be conducted to evaluate the longer-term impacts of CP enrollment on utilization, outcomes, and costs.
- **Lesson learned:** FS tenancy and nutritional supports reduced inpatient hospitalization and ED visit rates during the period of enrollment in the program. The ratios of net costs per hospitalization and ED visit averted were well below commonly accepted thresholds for incremental cost-effectiveness ratios, meaning that the intervention would be considered cost effective.
  - Implication: Both the FS tenancy and nutritional programs are effective and cost-effective when considering costs and effects during the period of enrollment. Program benefits may extend beyond the end of enrollment in the program.
  - Recommendation: The FS tenancy and nutritional supports should be continued with further evaluation of the impacts of FS programs on other effectiveness measures and during the post-program period.

2.4.6. Domain 6: Effects of specific DSRIP investments and actions

Domain 6 addresses one RQ (**Table 2.4-6**).

Table 2.4-6 Summary of Domain 6 Research Questions and Hypotheses

Research Question	Hypotheses
RQ16: To what extent can observed changes in care processes, outcomes, and costs be attributed to DSRIP?	**H16.1:** Improvements in care processes will be associated with key DSRIP inputs and outputs **H16.2:** Improvements in member outcomes will be associated with key DSRIP inputs and outputs **H16.3:** Moderated total cost of care trends will be associated with key DSRIP inputs and outputs **H16.4:** The State and local context will modify the relationship between DSRIP outputs and ACO quality and cost performance

RQ16: To what extent can observed changes in care processes, outcomes, and costs be attributed to DSRIP?

FS Program
In both nutrition and tenancy programs, participation in the FS Program was associated with reductions in ED admissions and hospitalizations as compared to a comparison group of eligible and referred members who did not enroll in the FS Program.

Key findings included:

During the full FS Program period (CY 2020–CY 2023 Q1), hospitalizations were 18% lower for FS tenancy preservation participants and 23% lower for FS nutrition participants, as compared to eligible non-participants.

During the full FS Program period (CY 2020–CY 2023 Q1), ED admissions were lower by 17% for FS tenancy participants and by 13% for FS nutrition participants, as compared to eligible non-participants. Similarly, adults with BH conditions receiving tenancy preservation supports were noted to have an estimated 17% reduction in ED visits during the full FS Program period. Among MTM participants, FS receipt was associated with an 18% reduction in ED visits, slightly larger than the effect for all nutrition program recipients.

The TCOC point estimate favored both FS tenancy and nutrition participants but was not statistically significant during the full evaluation period (Jan 2020–Mar 2023). However, TCOC was significantly lower among both FS tenancy and FS nutrition participants as compared to non-enrolled comparison members in PY5 (CY2022–Q1 CY2023) after the worst of the COVID-19 pandemic had subsided. During the full evaluation period, TCOC was also significantly lower in the subgroup of FS nutrition participants who were enrolled for more than 90 days and adults with BH conditions receiving tenancy preservation supports.

For both tenancy preservation and nutrition FS Program recipients, effects on hospitalizations, ED visits, and TCOC were not statistically significantly different from the comparison groups during the early waves of the COVID-19 pandemic (CY2020–2021). The exception was for MTM recipients, for whom reductions in hospitalizations and ED visits were still observed in CY 2020-2021. After the COVID-19 outbreak period in CY 2022-Q1 2023, reductions in hospitalizations and ED visits for FSP nutrition and tenancy recipients were larger than the effects reported for the full evaluation period (Jan 2020-Mar 2023).

Impacts on healthcare utilization and TCOC were significantly greater among adult participants than children participants in both tenancy preservation and nutrition programs.

Discussion of RQ16 FS Program Findings

Food insecurity and housing insecurity have consistently been associated with worse health, higher healthcare utilization, and greater healthcare costs.[164,165] The magnitude of reductions in healthcare utilization and costs observed in this evaluation of FS programs are notable but in line with several quasi-experimental studies and randomized trials evaluating the impacts of nutrition and tenancy preservation supports, including among SNAP recipients,[166] recipients of

[164] Taylor L. Housing And Health: An Overview Of The Literature. *Health Affairs*. 2018; doi: 10.1377/hpb20180313.396577

[165] Tarasuk V, Cheng J, de Oliveira C, Dachner N, Gundersen C, Kurdyak P. Association between household food insecurity and annual health care costs. *Cmaj*. Oct 6 2015;187(14):E429-e436. doi:10.1503/cmaj.150234

[166] Berkowitz SA, Palakshappa D, Rigdon J, Seligman HK, Basu S. Supplemental Nutrition Assistance Program Participation and Health Care Use in Older Adults : A Cohort Study. *Ann Intern Med*. Dec 2021;174(12):1674-1682. doi:10.7326/m21-1588

MTMs with a range of diet-related illnesses,[167] heart failure,[168] and HIV/AIDS,[169] and recipients of shelter-in-place housing programs during the COVID-19 pandemic.[170] The Accountable Health Communities (AHC) model piloted by CMS, in which members with unmet social needs were referred to community resources but no funds were provided for the provision of services, achieved a small reduction of ED visits but not in inpatient hospitalizations or total costs of care, and most participants still had unmet social needs after referral.[171]

It is important to note that not all previous studies on nutrition and tenancy preservation supports for high-risk individuals have found reductions in healthcare utilization and costs,[71,172] suggesting that factors like program design and target population matter greatly. In our own evaluation, we have found varying impacts by program design, for example, greater reductions in TCOC among participants of one medically tailored meal provider. Importantly, our primary analyses also combine all FS Program participants together who experience a broad range of behavioral and physical health conditions. We conducted several analyses that explored program impacts by some key subgroups (see **Appendix M**), but much further evaluation work remains to evaluate the heterogeneity of program impacts.

The COVID-19 pandemic unleashed unprecedented disruptions in clinical care and the U.S. economy. For example, members were advised not to come to clinics unless urgently needed, and many received care via telemedicine for the first time, experienced disruptions in work or loss of work, and shouldered additional childcare demands with schools closed. Significant federal stimulus aid and increasing nutritional benefits like SNAP and WIC could have partially diluted FS Program impacts during this time period. Interviews with ACO and SSO staff also detail significant challenges in launching programs amidst the COVID-19 pandemic. Our findings that in PY5 FS tenancy participants had significant reductions in TCOC after vaccines were widely available and the COVID-19 pandemic Delta wave subsided, whereas TCOC trended downward but were not statistically significant during the early COVID-19 pandemic, supports these considerations. The finding of greater benefit of FS nutrition programs on hospitalizations and ED admissions after the intensity of the early COVID-19 pandemic subsided aligns with two recent studies that found null effects of nutrition programs like produce

[167] Seth Berkowitz JT, Lisa Randall, Kevin Cranston, David Waters, John Hsu. Association Between Receipt of a Medically Tailored Meal Program and Health Care Use. *JAMA Intern Med*. 2019;179(6): 786-793

[168] Go AS, Tan TC, Horiuchi KM, et al. Effect of Medically Tailored Meals on Clinical Outcomes in Recently Hospitalized High-Risk Adults. *Med Care*. Oct 1 2022;60(10):750-758. doi:10.1097/mlr.0000000000001759

[169] Palar K, Sheira LA, Frongillo EA, et al. Food Is Medicine for Human Immunodeficiency Virus: Improved Health and Hospitalizations in the Changing Health Through Food Support (CHEFS-HIV) Pragmatic Randomized Trial. *The Journal of Infectious Diseases*. 2024;doi:10.1093/infdis/jiae195

[170] Fleming MD, Evans JL, Graham-Squire D, et al. Association of Shelter-in-Place Hotels With Health Services Use Among People Experiencing Homelessness During the COVID-19 Pandemic. JAMA Network Open. 2022;5(7):e2223891-e2223891. doi:10.1001/jamanetworkopen.2022.23891

[171] Parish W, Beil H, He F, et al. Health Care Impacts Of Resource Navigation For Health-Related Social Needs In The Accountable Health Communities Model. *Health Aff (Millwood)*. Jun 2023;42(6):822-831. doi:10.1377/hlthaff.2022.01502

[172] Finkelstein A, Zhou A, Taubman S, Doyle J. Health Care Hotspotting - A Randomized, Controlled Trial. *N Engl J Med*. Jan 9 2020;382(2):152-162. doi:10.1056/NEJMsa190684

prescriptions and clinic-based food pantries for members with diabetes during the COVID-19 pandemic.[75,173]

The FS Program analysis has several limitations for consideration. With the exception of medically tailored meal participants of one SSO, we did not have exact start and end dates for participants, but rather quarters of enrollment. This created some unavoidable non-differential misclassification since we did not know the exact days in which most participants started and ended the program, and thus cannot know with 100% certainty whether observed healthcare utilization occurred during, before, or after FS program enrollment. This type of misclassification likely biased our results toward the null hypothesis, meaning our evaluation may underestimate the true impact of the FS Program. Conversely, the comparison group of those referred but not enrolled could introduce selection bias that either under or overestimates the impacts on healthcare utilization and costs if these individuals were systematically more or less medically and socially complex than participants who ultimately enrolled and received services. Our difference-in-difference overlap propensity score weighting approach addressed many observed sources of potential confounding, but the threat of unmeasured confounding in such analyses cannot be excluded.

Finally, several policy-relevant analyses could be pursued to better understand the FS Program's impact on member health that are additive to the required analyses from the 2017-2022 Evaluation Design Document presented in this report. These include analyses such as exploring FS Program impacts by subcategory of tenancy preservation program and by subcategory of nutrition program, evaluating robustness of findings when using alternative comparison groups (e.g., MassHealth members who were never screened and referred to FS services), investigating the role of enrollment length on member outcomes, exploring impacts among key member populations (i.e., high-risk pregnancies), and assessing if there are longer-term impacts on healthcare utilization and costs after FS enrollment ends. UMass Medical School investigators plan to continue analyses in their ongoing role as independent evaluators during the 2022-2027 1115 Demonstration period.

CP Program

In both the LTSS and BH CP Programs, quality of care coordination supports generally improved over time during the Demonstration. In comparison to non-CP enrollees, utilization and TCOC findings were mixed and varied between enrollees of BH and LTSS CPs.

Key findings included:

Among BH CPs:

- Performance on quality measures, including antidepressant medication management, BH CP engagement, follow-up after an ED visit, and follow-up after a hospitalization, improved in CY2020-CY2022 versus CY2019.
- ED visit and hospitalization rates declined over time but were higher than rates among a propensity-weighted comparison group of non-CP enrollees.

[173] Doyle J, Alsan M, Skelley N, Lu Y, Cawley J. Effect of an Intensive Food-as-Medicine Program on Health and Health Care Use: A Randomized Clinical Trial. *JAMA Internal Medicine*. 2024;184(2):154-163. doi:10.1001/jamainternmed.2023.6670

- The TCOC was higher in CY2019 and CY2022 and not significantly different in CY2020 and CY2021 for BH CP enrollees versus a comparison group of non-CP enrollees. Costs for outpatient BH services were higher among BH CP enrollees during CY2019-CY2022.

Among LTSS CPs:

- Performance on quality measures including annual treatment plan, follow-up after a hospitalization or post-acute stay, and annual primary care visit improved in CY2020-CY2022 versus CY2019.
- ED visit rates were lower in CY2019 and hospital admission rates were lower throughout 2019-2022 among LTSS CP enrollees versus a propensity-weighted comparison group not enrolled with CPs. However, these differences in hospital admission rates were not statistically significant.
- The TCOC was not significantly different in each of CY2019-CY2022 between LTSS CP enrollees and a comparison group not enrolled in CPs. Costs for outpatient services were higher among LTSS CP enrollees during CY2019-CY2022.

Discussion of RQ16 CP Program Findings

Improvements in the quality-of-care coordination supports delivered by CPs over the study period (CY2019-CY2022) are consistent with the qualitative findings discussed in Domain 1 that described many indicators of progress in developing foundational infrastructure and staff skills, refining the CP care coordination staffing model, and integrating with ACO and MCO partners. As noted in other sections of this report, many CPs lacked experience with quality accountability and did not have close working relationships with ACO PC practices (whose collaboration was needed for CP engagement and care plan quality measures) at the start of the CP Program, which among other factors contributed to lower performance on quality measures early in the program. In our evaluation logic model, improvements in the quality-of-care coordination supports over time were hypothesized to lead to improved outcomes and reduced TCOC. Our findings thus far suggest BH CP enrollees did not have lower hospital and ED utilization than comparators, and BH CP enrollees had higher TCOC, though this may represent a desirable increase in access to and engagement with care. Supporting this notion, professional costs for SUD services were significantly higher among CP enrollees, and in 2022, the magnitude of higher SUD costs represented 95% of the difference in TCOC costs between BH CP enrollees and non-CP enrollees. Among LTSS CPs, we observed signals of reductions in ED and hospital utilization and, while TCOC was not reduced, further examination of the distribution of spending across categories is needed. Preliminary results of increased spending on office and home services for LTSS CP enrollees versus non-enrollees are also consistent with potentially greater access to and engagement with care.

Conclusions regarding the extent to which this hypothesis was realized are complicated by several factors, including 1) the massive disruption introduced by the onset of the COVID-19 pandemic less than two years after the launch of the CP Program; 2) the heterogeneity of the exposure to CP care coordination supports among CP enrollees; 3) the challenge of identifying an appropriate comparison group; and 4) the breadth of the potential effects of CPs on

outcomes (e.g., quality of life, self-efficacy, well-being), which is not adequately captured in the data available for this evaluation. The COVID-19 pandemic affected CPs in some similar and other distinct ways compared with healthcare providers. As described in interviews, CPs faced considerable challenges in locating, contacting, and engaging members. Many CPs deployed staff to meet members where they were in the community. This practice was paused and, in some cases, not fully resumed with the same frequency, as reflected in interviews and CP staff survey responses. The use of telemedicine increased substantially among CP staff, similar to ACO PCPs. The importance of developing trusting relationships was a theme in interviews with both CP staff and members. Decreases in in-person communication between CP enrollees and staff may have impaired relationship development and member engagement, but this requires further study.

Although the CP Program was designed to preserve existing relationships between members and organizations (that became CPs) when present, the program was also designed such that CPs would receive assignments for members identified by MassHealth (and later by ACOs and MCOs) who were often not engaged in care and who lacked valid contact information. The ability of CPs to influence utilization, outcomes, and costs of their enrollees therefore depended to a large extent on whether an enrollee could be contacted and engaged in CP supports. The analyses we've conducted thus far included all CP enrollees, regardless of their engagement status or cumulative duration of enrollment beyond one year. Further analyses will be conducted to examine the heterogeneity of effects by engagement status and cumulative effects over periods of enrollment that extend beyond one year.

To estimate the impacts of the CP Program, a comparison group of non-CP enrollees was needed. Identifying such a comparison group was challenging due to the simultaneous implementation of the CP Program across the state, including throughout the MassHealth ACO and MCO Programs. Therefore, there was no variation in time or geography to leverage for identifying a comparison group. Instead, since CP enrollment rates were below ACO enrollment rates, and only a limited segment of PCC enrollees were eligible for CP enrollment, we selected non-CP comparison groups separately for BH and LTSS CPs from within the larger MCO/PCCP comparison group used for estimating the impact of the ACO program. We generally restricted the comparison group to individuals who met MassHealth's algorithmic criteria for CP assignment. The MassHealth CP Program was designed to serve complex ACO and MCO enrollees with BH and LTSS needs. This was reflected in the algorithm used by MassHealth to assign members to CPs in the early years of the CP Program, which for BH CPs required both a BH diagnosis and a history of substantial health care utilization, and for LTSS CPs, this required chronic LTSS use defined based on substantial spending on LTSS for at least three consecutive months. Although we followed these algorithms in selecting potential comparators and then used propensity score weighting to balance observed characteristics between CP enrollees and comparators, such comparisons between users and non-users are highly susceptible to confounding by indications that may not be fully addressed by our approach. We plan to explore the feasibility of alternative methods (e.g., instrumental variables) that rest on different assumptions and may account for different sources of bias to further interrogate the robustness of our initial findings.

Domain 6 Lessons Learned, Implications, and Recommendations

- **Lesson learned:** ACO enrollees who received FS tenancy supports had lower rates of ED visits and lower rates of inpatient admissions than Medicaid members with similar characteristics who did not receive FS tenancy supports. FS tenancy supports were more effective in reducing the TCOC in the later years (2022-2023) of the FS Program.
    - Implication: Addressing health-related tenancy needs may reduce TCOC due at least in part to reduced acute and emergency services utilization.
    - Implication: FS programs delivering tenancy supports may have increased in effectiveness the longer programs were operating or may have been more effective after the worst disruptions of the COVID-19 pandemic had subsided.
    - Recommendation: CMS and states should continue to test and evaluate programs that deliver tenancy supports to Medicaid members with health-related tenancy needs, including exploring the impacts of the FS program on participants of specific FS program types.
- **Lesson learned:** ACO enrollees who received FS nutrition supports had lower rates of ED visits and lower rates of inpatient admissions than Medicaid members with similar characteristics who did not receive FS nutrition supports. FS nutrition supports were more effective in reducing the TCOC in the later years (2022-Mar 2023) of the program after the COVID-19 pandemic had subsided. Reductions in hospitalizations and ED visits while actively receiving services were observed only among adults, and not children.
    - Implication: Addressing health-related nutrition needs may reduce TCOC due to reduced acute and emergency services utilization, especially after the COVID-19 emergency period.
    - Implication: FS programs delivering nutrition supports may be more likely to reduce healthcare utilization and costs among adults as compared to children.
    - Recommendation: CMS and states should continue to test and evaluate programs that deliver nutrition supports to Medicaid members with health-related nutritional needs and explore additional outcomes for children aimed at childhood development and longer-term prevention.
- **Lesson learned:** In the overall population of enrollees in FS tenancy and nutrition programs, rates of hospitalizations and ED admissions were reduced.
    - Implication: FS Program enrollees with a range of diagnoses, social risk, and age, participated in more than 80 diverse programs, and program effects may vary based on program and enrollee characteristics.
    - Recommendation**:** Further analyses should explore the impacts of the FS Program on key subgroups and participants of specific program types to support policymakers with the development and refinement of programs in Massachusetts and nationally.
- **Lesson learned:** Medicaid members with BH needs who enrolled with BH CPs had higher TCOC and higher costs for outpatient BH service utilization than members with similar characteristics who were not enrolled with BH CPs.

  - Implication: BH CPs appeared successful in connecting enrollees with BH services, but the costs of the additional outpatient services and the CP Program were not offset by lower costs of acute and emergency services.
  - Recommendation: Further analyses are needed to evaluate the heterogeneity of BH CP program impacts on cost and utilization, including by member characteristics and across varying levels of engagement.
- **Lesson learned:** Medicaid members with LTSS needs who enrolled with LTSS CPs had (non-significantly) higher TCOC, higher outpatient service costs, and lower acute care costs compared with members with similar characteristics who were not enrolled with LTSS CPs.
  - Implication: LTSS CPs appeared successful in connecting enrollees with needed outpatient services while reducing acute hospital utilization, though reductions in acute care costs were not sufficient to offset spending on the CP Program and higher rates of outpatient services utilization.
  - Recommendation: Further analyses are needed to evaluate the heterogeneity of LTSS CP program impacts on cost and utilization, including by member characteristics and across varying levels of engagement.

3. Demonstration Goal 3: Maintain Near-Universal Health Insurance Coverage

3.1. Background

The Commonwealth of Massachusetts (Commonwealth) has a long history of efforts to improve health insurance coverage. The state's landmark healthcare reform legislation providing near-universal health coverage (Chapter 58 of the Massachusetts Acts of 2006) dramatically increased health insurance coverage and became the model for the national Affordable Care Act (ACA). Before and after the ACA's implementation, the Commonwealth incorporated several waves of state-level reform, leading to near-universal health insurance coverage in the state. MassHealth has been a large part of this effort by expanding Medicaid and Children's Health Insurance Program eligibility policies, developing comprehensive enrollment materials and training to support consumer choice, streamlining redetermination procedures for select members, and improving eligibility systems and member-facing website functionalities.

MassHealth supported several eligibility programs and policies under the 2017–2022 Demonstration to facilitate and sustain health insurance enrollment, including premium assistance and cost-sharing subsidies. Programs and efforts outside of the 2017–2022 Demonstration's authority, such as Express Lane Eligibility,[174] the use of electronic rather than paper forms, and electronic income verification have simplified the application and renewal

[174] The findings of a program designated as an express lane agency can be used to conduct simplified eligibility and renewal determinations that enable members to automatically remain enrolled in Medicaid or CHIP as long as there are no changes in status; MassHealth. (2019, September 25). "*MassHealth Section 1115(a) Demonstration 2014-2017 Evaluation Final Report, August 2019*." MassHealth Section 1115(a) Demonstration 2014-2017 Evaluation Final Report, August 2019

processes and contributed to access and continuity of insurance coverage. Nevertheless, temporary loss of insurance eligibility due to job loss or gain, changes in income, and affordability are ongoing challenges to sustaining universal coverage in the Commonwealth.

The 2017–2022 Demonstration continued support for three programs and payment policies from prior Demonstrations:

1. Premium Assistance program for members with Employer-Sponsored Insurance

   MassHealth's Employer-Sponsored Insurance Premium Assistance (ESI PA) program assists eligible members who have access to qualifying employer-sponsored insurance (ESI) by paying for some of the employee shares of monthly premiums, covering out-of-pocket expenses, and providing a coverage wrap. The employer-sponsored healthcare coverage and employer premium contributions must meet minimal requirements.[175] MassHealth reviews member eligibility and makes a determination of their qualification for the ESI PA program. Through this program, MassHealth members have access to both MassHealth and a private insurance plan, increasing members' access to providers and covering a broader range of services.

2. Services paid for through the Health Safety Net Trust Fund

   The Health Safety Net (HSN) Trust Fund was established in October 2007 by Chapter 58 of the Acts of 2006 as part of the state's healthcare reform legislation. The fund pays for medically necessary services provided by HSN-participating acute care hospitals and community health centers for eligible individuals who are uninsured or underinsured. The HSN Trust Fund reimburses hospitals and community health centers for certain healthcare services, medical hardship expenses (when qualifying medical expenses exceed a specified percentage of a family's income), and some types of bad debt. The fund also pays for other services or expenses in specific situations. To facilitate reimbursement, the HSN Trust Fund redistributes revenue from hospitals and health insurers based on a formula designed to spread the cost of providing care to uninsured and underinsured members more equitably among acute hospitals and community health centers.[176]

   State residents who are underinsured or uninsured and have incomes under certain percentages of the Federal Poverty Level (FPL) are eligible to have services paid for through the HSN Trust Fund. While not a form of insurance or support for coverage, this funding mechanism allows eligible individuals to receive care they otherwise might not be able to afford. Massachusetts residents whose incomes are at or under 150% of the FPL may be eligible for healthcare services paid for through the fund without a deductible. Massachusetts residents with incomes between 151% and 300% of the FPL may be eligible for healthcare services paid for through the HSN Trust Fund with a deductible. Residents can also qualify to have services paid for the fund through a Presumptive Determination (established in 2016) to enable them to temporarily obtain healthcare services paid for through the HSN Trust Fund if they are not able to complete the application on the date of service, with the expectation that they would complete the

[175] For more information about eligibility requirements, please see https://www.mass.gov/info-details/masshealth-premium-assistance-pa

[176] Mass.Gov. (2023, January). *Health Safety Net Annual Report*. PowerPoint Presentation (mass.gov)

process at a later point. The fund can act as a primary payer for those who are uninsured, or it can act as a secondary payer for those enrolled in other types of insurance, including commercial insurance, Medicare, student health insurance, or certain MassHealth programs.

3. Premium subsidies to low-income individuals to purchase commercial health insurance through the Health Connector

   The Health Connector subsidy program provides premium assistance and cost-sharing subsidies. At the same time, the Health Safety Net pays for certain healthcare services provided to low-income adults during gaps in their insurance coverage, such as before enrollment in a Health Connector plan. As noted below, cost-sharing subsidies and services provided during a coverage gap became eligible for federal matching funds under this 2017–2022 Demonstration.

The 2017–2022 Demonstration newly supported four programs or policies:

1. Health Connector cost-sharing subsidies for members in ConnectorCare and services provided to low-income individuals during the gap in insurance coverage before their enrollment in ConnectorCare

   The MassHealth ConnectorCare subsidy program provides premium assistance, cost-sharing, and gap coverage (until enrollment in ConnectorCare begins) to low-income adults. Before the 2017–2022 Demonstration, only premium assistance spending was eligible for federal matching funds. However, following approval of the 2017–2022 Demonstration, the cost-sharing subsidies and the gap coverage became eligible for federal matching funds under this program. The Health Connector subsidy program is evaluated as one single program.

2. The CommonHealth 65+ Program

   CommonHealth 65+ has been in place for several years using state funds but was newly authorized for expenditure authority under the 2017–2022 Demonstration. Massachusetts residents aged 65 and over are eligible to enroll (or to continue their CommonHealth enrollment when they turn 65) if they have qualifying disabilities and have currently or recently paid employment for 40 hours or more per month. This program benefits a population of employed individuals who have a disability and would have lost coverage once they turned 65 and are now able to continue coverage of CommonHealth services, most importantly those who are not covered by Medicare or private health insurance.

3. Student Health Insurance Program Premium Assistance

   Since the late 1980s, the Commonwealth has required that students in higher education maintain health insurance and that schools provide a Student Health Insurance Program (SHIP). After full implementation of the ACA in January 2014, fewer students were enrolled in SHIPs, most likely due to Medicaid eligibility expansions allowing more students to become MassHealth eligible. MassHealth partnered with the Health Connector in State Fiscal Year (SFY) 2017 to launch the MassHealth SHIP Premium Assistance (SHIP PA) program with the state's public colleges and universities. Massachusetts students maintained their Medicaid benefits while enrolling in their school's SHIP, with the SHIP as the primary payer and MassHealth as the secondary

payer. MassHealth required members who were students attending participating post-secondary schools in the state to enroll in school-sponsored insurance.

Under the MassHealth SHIP PA, the state provided premium and cost-sharing assistance and benefits wrap-around coverage to ensure that the SHIP benefits were equivalent to MassHealth coverage, including keeping out-of-pocket costs at the same level as if services were being received directly from MassHealth. As students were generally enrolled for an academic year or partial year (fall or spring semester only), students maintained 12-month continuous eligibility for MassHealth benefits during periods when they were not Medicaid-eligible or during breaks in SHIP insurance coverage. For Goal 3, we report on the SHIP PA enrollment measure. Additional analysis of SHIP PA on cost-saving to MassHealth is described in Chapter 7.

In July 2020, MassHealth decided to end SHIP PA after the 2019–2020 academic year and transition participants back to other MassHealth managed care plans for which they were otherwise eligible. This decision came after an analysis by MassHealth, which showed that the program was no longer cost-effective for the commercial plans and non-MassHealth students due to increased premiums for SHIP enrollees, as MassHealth members who tend to have more care needs than non-MassHealth members entered into the risk pool of commercial plans. Most members were transitioned back to MassHealth managed care plans following the end of SHIP PA. Some members who would have otherwise lost eligibility were protected with MassHealth coverage until the COVID-19 pandemic Public Health Emergency (PHE) ended as MassHealth maintained insurance coverage during the PHE with the limited exceptions allowable under the Families First Coronavirus Response Act. Although the program ended in August 2020, it remained in the Expenditure Authority and the Special Terms and Conditions of the 2017–2022 Demonstration through September 30, 2022.[177] Our analysis focuses on enrollment in SHIP PA while the program was active.

4. Disregard of state veteran annuity payments for Medicaid eligibility determination and post-eligibility treatment of income

   The Commonwealth, in conjunction with the Department of Veterans' Services, provides the Gold Star Veteran Annuity (GSVA) of $2,000 annually to eligible members (i.e., veterans with a disability and surviving parents or surviving unmarried spouses of deceased members of the United States Armed Forces) in increments of $1,000 paid out on February 1 and August 1 of each year. Through the June 2018 and May 2019 amendments to the 2017–2022 Demonstration, the annuity no longer counts as income for determining Medicaid eligibility and post-eligibility treatment of income (PETI). This change aimed to provide broader eligibility for these individuals, particularly those for whom this annuity would increase their income above MassHealth limits.

COVID Implications for Coverage and Eligibility

[177] Mass.Gov. (2021, March 31). *MassHealth Special Terms and Conditions (STCs)*. https://www.mass.gov/service- details/1115-masshealth-demonstration-waiver.

The evaluation period in this Independent Evaluator Summative Report (IESR) includes the onset of the COVID-19 pandemic and the coverage protections put in place during the PHE. The Secretary of the U.S. Department of Health and Human Services invoked the PHE authority to waive or modify certain requirements of the Social Security Act from March 2020 to May 2023 to ensure that healthcare services were available to meet the needs of individuals, as described in **Section 1.1.3**. The Families First Coronavirus Response Act (FFCRA) prohibited premium increases and protected enrolled Medicaid and CHIP members from losing coverage for any reason other than death, voluntary termination of benefit eligibility, or moving out of state during the COVID-19 pandemic.[178, 179] This continuous coverage protection meant that downgrades and terminations would not occur based on changes in circumstances. MassHealth and the Health Connector responded to the COVID-19 pandemic by making the required temporary changes to eligibility and enrollment that were likely to increase enrollment.[180]

The potential effect of the PHE is described in more detail in **Section 3.4**.

3.2. Research Question and Study Design

Demonstration Goal 3 examines one research question (RQ) with four hypotheses (H), described as follows.

RQ1: Has near-universal coverage in Massachusetts been maintained after the implementation of Demonstration investments?

H1. Massachusetts will maintain near-universal coverage over the Demonstration.

H2. The percentage of MassHealth members with a coverage gap of 45 days or more in a 1-year period will not increase over the study period (i.e., stable churn).

H3. Massachusetts will maintain higher coverage, overall and among populations eligible for exchange subsidies, than states without premium and cost-sharing subsidies.

H4. Enrollment in new and select ongoing programs financially supported with Demonstration investments supports near-universal coverage in Massachusetts.

3.2.1. Study Design

The evaluation design used a repeated cross-sectional analysis to examine health insurance coverage trends before and during the 2017–2022 Demonstration. We also examined the extent to which members had coverage gaps in MassHealth insurance. In addition, we compared the trend in coverage in Massachusetts to 23 other states to assess what the insurance rate of state residents under 65 years old would have been in the absence of Health Connector subsidies. These states were similar to Massachusetts in their Medicaid eligibility criteria at the time of the start of the 2017–2022 Demonstration but did not offer premium and cost-sharing subsidies

[178] Massachusetts Law Reform Institute. (2021, June 14). *What changes has the MassHealth agency made to the policy of providing continuous coverage during the COVID-19 public health emergency?*. Changes in MassHealth's Continuous Coverage Policies (masslegalservices.org)

[179] Mass.Gov. (2021, May) *MassHealth Renewals/RFIs and Continuous Coverage During the Federal Public Health Emergency.*

[180] Congress.Gov. (2019-2020) *H.R.6201 - 116th Congress (2019-2020): Families First Coronavirus Response Act | Congress.gov | Library of Congress*

comparable to those offered by the Health Connector and among populations eligible for exchange subsidies through the state (less than 300% FPL).

We conducted secondary data analyses tracking program enrollment in the 2017–2022 Demonstration investment activities that support near-universal coverage, including SHIP PA, CommonHealth 65+, ConnectorCare cost-sharing subsidies, and state GSVA payment disregard. We also tracked the enrollment in select ongoing Demonstration investment activities: ESI PA, the HSN Trust Fund, and Connector Care premium subsidies. Finally, we examined the use of long-term services and supports (LTSS) by CommonHealth 65+ participants to gain insight into utilization trends among this population.

3.2.2. Study Period

The overall evaluation period for this goal begins up to 3 years before the implementation of the 2017–2022 Demonstration (i.e., Calendar Year (CY) 2014 or 2015, depending on the data) to establish a pre-demonstration baseline period and extends through the end of CY2022. To analyze uninsurance rates, we used data from CY2014 through CY2022. For ongoing programs, we tracked estimates from CY2015 through CY2022. Data for the SHIP PA program was analyzed from SFY2017 to SFY2022, which corresponds to the program's start and end dates. The GSVA payment disregard data was analyzed from the policy start in May 2019 through December 2022. Study periods for each program, shown in **Table 3.2-1** below, vary due to such factors as data availability, program start/end dates, and whether data are reported by the calendar or fiscal year.

Table 3.2-1 Evaluation Period for Each Demonstration Program Under Goal 3

Program	Authorized Under Prior Demonstration(s)	Authorized Under This Demonstration	Evaluation Period for the IESR
ESI PA	Yes	Yes	CY2015–CY2022
Services paid for through the HSN Trust Fund	Yes	Yes	CY2015–CY2022
Health Connector Premium Subsidies	Yes	Yes	CY2015–CY2022
Health Connector Cost-Sharing Subsidies	No	Yes	CY2015–CY2022
CommonHealth 65+	No	Yes	Enrollment; LTSS Health Service Utilization: CY2015–CY2022
SHIP PA	No	Yes	SFY2017–SFY2020[a]
State GSVA Payment Disregard	No	Yes	5/23/19–CY2022

[a] Program ended in 2020

3.2.3. Data Sources

The evaluation of Goal 3 used three primary data sources for the research question and hypotheses, as described below. **Table 3.2-2** describes the measures, populations of interest, data sources, and analytic approach for **H1** through **H4**.

American Community Survey

The American Community Survey (ACS) is an annual national survey conducted by the U.S. Census Bureau. The ACS collects information about health insurance coverage nationwide and by state, which is disseminated for public use and released annually in a report form. As noted in the Evaluation Design Document (EDD),[181] ACS is considered an appropriate data source for comparing health insurance coverage rates by state, as it provides more robust state-level estimates and less complicated questions than other national surveys.[182] ACS estimates have been demonstrated to be similar to Massachusetts-specific health insurance coverage survey.[183]

Program Enrollment Data

We used program reports and other summary data to track enrollment in MassHealth programs. We obtained these data sets and operational statistics from MassHealth, the Health Connector, and other state agencies within the Executive Office of Health and Human Services and other secretariats. The data sets include:

- ESI PA program data: These program data provide annual figures for the number of 2017–2022 Demonstration-eligible individuals enrolled in the ESI PA program.
- HSN Trust Fund program data: The program data provide annual figures for the number of individuals who receive healthcare services paid for through the HSN Trust Fund.
- The Health Connector subsidy program data: These program data provide annual figures for the number of individuals that take up Qualified Health Plan (QHP) coverage with the assistance of the Health Connector subsidy program.
- CommonHealth 65+ program data: These data provide annual figures for the average number of members enrolled in the program and the average length of enrollment.
- SHIP PA program data: These data provide annual figures for the number of members enrolled in the program.
- State GSVA payment disregard data: These data provide annual figures for the number of members eligible for MassHealth due to the disregard of state GSVA payments for Medicaid eligibility and PETI determinations.

Medicaid Administrative Data

We used MassHealth Medicaid Management Information System (MMIS) data to evaluate study population enrollment and service utilization for the health insurance churn and LTSS service use analyses.

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[181] MassHealth. (2018, December). Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017–2022. Mass.gov. Independent Evaluation Design Document

[182] Reschovsky, J., Heeringa, J., & Colby, M. (2018, June). Selecting the Best Comparison Group and Evaluation Design: A Guidance Document for State Section 1115 Demonstration Evaluations (White Paper). Medicaid.gov. https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/comparison-grp-eval-dsgn.pdf

[183] Skopec, Urban Institute, L., Long, Urban Institute, S., Sherr, SRSS, S., Dutwin, SRSS, D., & Langdale, SRSS, K. (2017, December). The 2017 Massachusetts Health Insurance Survey (Rep.). Chiamass.gov. http://www.chiamass.gov/assets/docs/r/survey/mhis-2017/2017-MHIS-Report.pdf

3.2.4. Study Population

The study population used to examine health insurance coverage for **H1** and **H2** consists of all Commonwealth residents. Annual estimates of the percentage insured were obtained from a sample of respondents to the ACS from approximately 6.9 million residents. For the supporting analyses tracking enrollment in specific programs, the study populations consisted of enrollees in SHIP PA, ESI PA, CommonHealth 65+, Health Connector premium subsidy and cost-sharing subsidy enrollees, member and qualifying parent or spouse enrollees of state GSVA payments, and individuals who receive healthcare services paid for through the HSN Trust Fund.

3.2.5. Comparison Group

A comparison group of 23 states (listed below), similar to the Commonwealth in their baseline Medicaid eligibility criteria, were included to estimate what the state's insurance rate among residents less than 65 years old would have been in the absence of Health Connector subsidies to respond to **H3**.

Alabama	Kentucky	North Dakota
Arizona	Maryland	Ohio
Arkansas	Michigan	Oregon
California	Montana	Pennsylvania
Delaware	Nevada	Rhode Island
Illinois	New Hampshire	Washington
Indiana	New Jersey	West Virginia
Iowa	New Mexico	

These states were chosen based on the following criteria (as of CY2017, when the evaluation design was written):[184]

- States that have Medicaid Eligibility criteria similar to the Commonwealth (minimum of approximately 138% FPL for childless adults); and
- States that do not provide income-based state subsidies on top of federal subsidies; and
- States that have not had changes to Medicaid eligibility in the previous 12 months.

We recognized that there may be other differences between Massachusetts and the comparison group states that may account for variances in health insurance coverage. The comparison group makeup was maintained during the evaluation period to facilitate analysis over time; however, state-level changes to criteria were tracked. In addition, we controlled for sociodemographic variables in the analysis. In addition to the 23 comparison group states described above, we compared health insurance coverage in the Commonwealth to national estimates. This comparison provided insight into the effects of any relevant federal policy changes on insurance rates in the Commonwealth relative to the nation as a whole.

Given the varied Medicaid programs and policies that are being implemented in other states, it was not feasible to identify comparison group states to isolate the effect of the specific

[184] Details of the rationale and criteria for selecting these states are available in Appendix E of the Evaluation Design Document, available at https://www.mass.gov/service-details/1115-masshealth-demonstration-waiver.

Commonwealth programs or policies in place for residents less than 65 years old by identifying states that are similar to the state in all aspects except for the presence of these programs. In addition, as the measures for **H4** are tracked to provide supporting evidence for the continued high insurance coverage in the state and these programs are accessible by all residents, there is no comparison group for these analyses.

3.2.6. Measures

We identified population-level measures using ACS, program enrollment data, or Medicaid administrative data. Data sources are reported on a monthly, quarterly, or annual timeframe.

ACS Data

- Percent of Commonwealth residents less than 65 years old who are uninsured
- Percent of residents of 23 comparison states less than 65 years old who are uninsured

Program Enrollment Data

- Percent of individuals in the ESI PA program
- Number of individuals who received healthcare services financially supported through the HSN Trust Fund
- Number of individuals who take up QHP coverage with assistance from the Massachusetts Health Connector state subsidy program
- Number of individuals who are enrolled in CommonHealth 65+
- Average length of enrollment in CommonHealth 65+
- Number of individuals who are enrolled in SHIP PA

Medicaid Administrative Data

- Percent of MassHealth members with a 45-day or longer coverage gap in a 1-year period
- LTSS received by CommonHealth 65+ enrollees
- Number of individuals who have state GSVA payment disregarded for both MassHealth eligibility and PETI[185]
- Average length of enrollment of individuals who have state GSVA payment disregarded for both MassHealth eligibility and PETI

3.2.7. Data Analysis

We conducted descriptive analyses of the percentage of Commonwealth residents uninsured during each calendar year. We compared the percentage of uninsured individuals under 65 years old to the comparison group states and the U.S. overall in each calendar year. Descriptive statistics are also used for the program enrollment data.

[185] Per the EDD, the evaluation team planned to assess the number of individuals who had the payment disregarded for eligibility and post-eligibility separately, but the data did not specify this differentiation.

We used linear probability modeling to estimate the predicted probabilities of being uninsured in the Commonwealth and the comparison states, adjusting for relevant control variables (e.g., age, education, race, income, marital status, citizenship, disability status, number of people in the household, whether living in a mobile home, year, state).[186] We used a difference-in-difference (DiD) approach by comparing uninsurance rates before and after CY2017 and by comparing Massachusetts with the other 23 states. We compared the uninsurance rates of MA and the 23 comparison states at baseline (i.e., between CY2014 and CY2017) and confirmed the comparability of these states; all rates declined from CY2014 to CY2015 and were relatively stable from CY2015 to CY2016. While we controlled for sociodemographic variables in the analysis, we acknowledge that additional differences, including changes to programs after the beginning of the 2017–2022 Demonstration, may exist between the Commonwealth and the comparison group states that have not been accounted for.

To assess current trends in continuous MassHealth enrollment, we examined the percentage of MassHealth members with a coverage gap of 45 days or more in a one-year period by quarter (Q) (i.e., churn rate). We examined the churn rate for three groups of MassHealth members with a coverage gap: “all members,” "new members," and "existing members." "All members" are those who had a gap in coverage in a calendar year quarter during the evaluation period. The "new members" group is a subset of “all members” and is defined as members who do not have a MassHealth enrollment record in the 24 months before an index quarter.[187] The "existing members" group is also a subset of “all members” and consists of individuals enrolled in MassHealth at some point within the 24 months before the index quarter. We present descriptive statistics of the churn rate annually during the 2017–2022 Demonstration.

Data are presented in tables and graphs to display trends over time for each population-level measure. Evaluation questions, measures, data sources, and analytic approach are summarized in **Table 3.2-2**. Limitations for the data analysis are detailed in the Discussion section.

Table 3.2-2 Methodology Overview

Hypothesis	Measure(s) and Population of Interest	Data Source and Analytic Approach
H1. Massachusetts residents will continue to have near-universal healthcare coverage	Percentage of Massachusetts residents less than 65 years old without insurance	• ACS • Descriptive statistics (percentages) • DiD
H2. The percentage of MassHealth members with a 45-day or longer gap in coverage in a 1-year period will not increase over the study	Percentage of MassHealth members with a gap in coverage of 45 days or longer in 1 year	• Medicaid administrative data • Descriptive statistics (percentages)

[186] The generalized estimation equation does not work well when there are many survey weights to apply. Therefore, the evaluation team used linear regression models with robust standard error. Linear probability models also generate coefficients for marginal effects and are easier to interpret than a logistic regression model.

[187] An index quarter is the first quarter in which a member is identified in the data as enrolled in MassHealth

Hypothesis	Measure(s) and Population of Interest	Data Source and Analytic Approach
H3. Massachusetts will maintain higher coverage, overall and among populations eligible for exchange subsidies, than states without premium and cost-sharing subsidies	Percentage of residents without insurance in Massachusetts, 23 comparison states, and the U.S.	• ACS • Descriptive statistics (percentages)
H4. Enrollment in new and select ongoing programs funded with Demonstration investments supports near-universal coverage in Massachusetts	Number of individuals who take up QHP coverage with assistance from the Massachusetts Health Connector state subsidy program	• ConnectorCare program enrollment data • Descriptive statistics (frequencies)
H4. Enrollment in new and select ongoing programs funded with Demonstration investments supports near-universal coverage in Massachusetts	Percentage of individuals enrolled in ESI PA	• ESI PA program data • Descriptive statistics (percentages)
H4. Enrollment in new and select ongoing programs funded with Demonstration investments supports near-universal coverage in Massachusetts	Number of individuals receiving healthcare services paid for through the HSN Trust Fund and exchange premium assistance and cost-sharing subsidies in Massachusetts	• EOHHS and Health Connector subsidy program data • Descriptive statistics (frequencies)
H4. Enrollment in new and select ongoing programs funded with Demonstration investments supports near-universal coverage in Massachusetts	Number of MassHealth members enrolled in MassHealth SHIP PA[a]	• SHIP program data; Medicaid administrative data • Descriptive statistics (frequencies)
H4. Enrollment in new and select ongoing programs funded with Demonstration investments supports near-universal coverage in Massachusetts	Number of MassHealth members enrolled and average length of enrollment in CommonHealth 65+ LTSS received by CommonHealth 65+ members	• CommonHealth 65+ program data; Medicaid administrative data • Descriptive statistics (frequencies and percentages)
H4. Enrollment in new and select ongoing programs funded with Demonstration investments supports near-universal coverage in Massachusetts	Number and length of enrollment of MassHealth members with state Gold Star VA payment disregarded for MassHealth eligibility and PETI	• Veteran annuity program data; Medicaid administrative data • Descriptive statistics (frequencies)

[a] SHIP program data provided by MassHealth did not include the average length of enrollment

3.3. Summative Findings

This section presents analysis results that respond to the four hypotheses.

3.3.1. Hypothesis 1: Massachusetts will maintain near-universal coverage over the 2017–2022 Demonstration

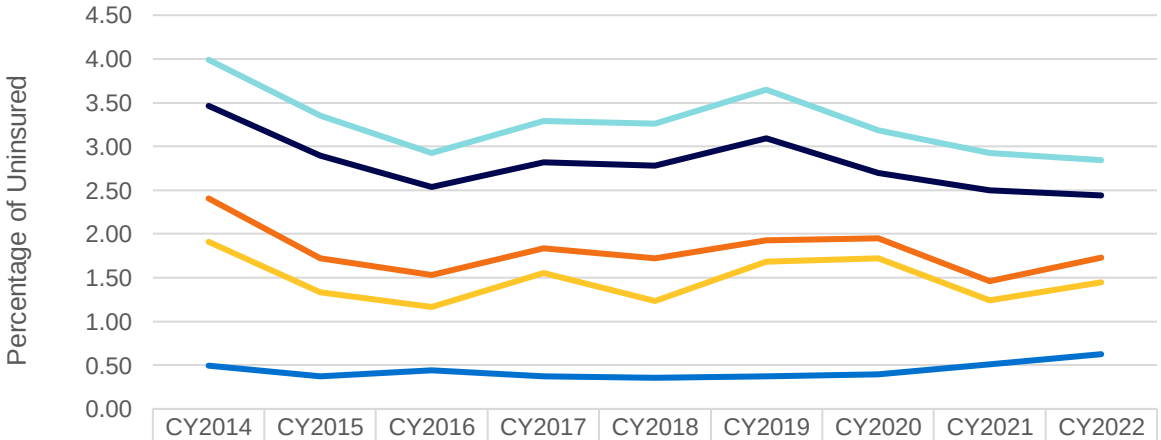
Overview

Massachusetts maintained near-universal health insurance coverage during the 2017–2022 Demonstration, ending the period with an uninsurance rate of 2.8%.

Detailed Results

During the 2017–2022 Demonstration, this measure was associated with a decrease in the percentage of uninsured residents in Massachusetts (see **Figure 3.3-1**). Before the 2017–2022 Demonstration started, the uninsurance rate for all residents was trending down, dropping almost one percentage point between CY2014 and CY2016. The percentage of uninsured residents increased from CY2017 to CY2019 before falling slightly from CY2020 to CY2022. The trend was similar for those under 65 years old. The uninsurance rate for the 65-year-old and older population was the lowest (around 0.5%) and most stable of all groups, likely due to most individuals aging into Medicare coverage. The uninsurance rates among those less than 21 years old and those less than 19 years old were approximately one percentage point lower than the groups of all individuals and those less than 65 years old between CY2014 and CY2022. By CY2015, the uninsurance rate was below 2% for both groups and remained so through CY2022, with only slight variations during that time. Of note, the uninsurance rate in the state among those aged 65 and older remained low and did not increase alongside other age groups.

Figure 3.3-1 Percentage of Uninsured Residents in Massachusetts by Age, Survey Years CY2014–CY2022



	CY2014	CY2015	CY2016	CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
Age <=19 %	1.91	1.33	1.17	1.56	1.24	1.68	1.72	1.24	1.45
Age <=21 %	2.41	1.72	1.53	1.84	1.72	1.93	1.95	1.46	1.73
Age <65 %	3.99	3.35	2.93	3.29	3.26	3.65	3.19	2.93	2.84
Age >=65 %	0.49	0.38	0.45	0.37	0.36	0.37	0.40	0.51	0.63
All age %	3.46	2.90	2.54	2.82	2.78	3.09	2.70	2.50	2.44

Source: American Community Survey, 1-Year Estimates

3.3.2. Hypothesis 2: The percentage of MassHealth members with a gap in coverage of 45 days or more in a 1-year period will not increase over the study period (i.e., stable churn)

Overview

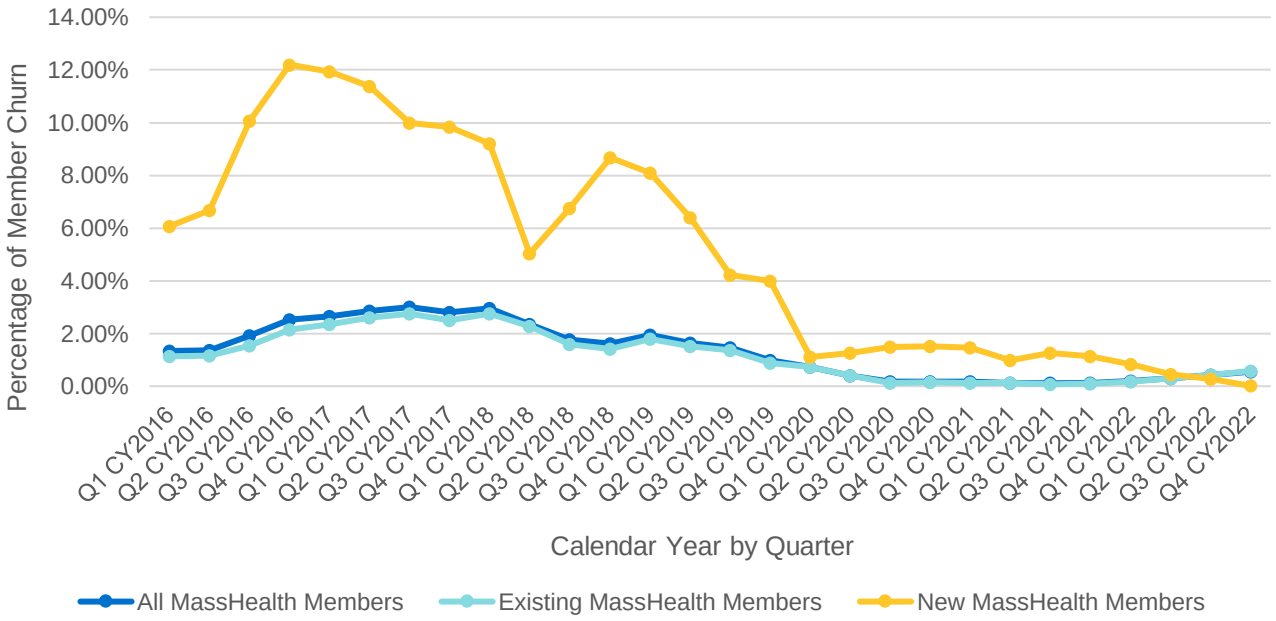
After an initial rise, the rates of MassHealth members with a coverage gap (i.e., churn) trended downward, ending the 2017–2022 Demonstration period at nearly 0%, likely influenced by PHE requirement to maintain continuous enrollment during the COVID-19 pandemic.

Detailed Results

The rates of "all members" and "existing members" churning on and off MassHealth were similar and remained relatively stable during the study period (see **Figure 3.3-2**). The rates for both groups rose substantially, almost two percentage points, between Q1 CY2016 and Q1 CY2018 before falling slightly during the remainder of CY2018. The rates for these two groups remained fairly stable between CY2018 and the middle of CY2019 at around 2%. Between the latter half of CY2020 and the end of CY2021, the rate was close to zero, as the PHE required continuous coverage without regard to eligibility.

The churn rate among "new members" was more volatile than the other groups. The percentage rose from just below 6% to almost 12% during the first two quarters in CY2017 and then tailed off steadily, down to approximately 4.5% in Q2 CY2018 (see **Figure 3.3-2**). The churn rate for the "new members" rose to about 9% for the remainder of CY2018, and by Q3 CY2019, the rate dropped to about 4% and remained at about 4% for Q4 CY2019. By Q1 CY2020, the churn rate for “new members" dropped to about 1% and remained below 2% for the remainder of the 2017–2022 Demonstration, dropping to almost 0% by the end of CY2022 due to the PHE allowing for continuous coverage. Because the churn rates of the "all members" and "existing members" groups were similar throughout CY2016–CY2022, the churn rate of the "new members" group, which was roughly 3-4% in each index quarter during that same period, did not have a great influence on the overall rate of churn of MassHealth members because they were a small proportion of all members in the analyses.

Figure 3.3-2 Churn Rate for "All MassHealth Members," "Existing MassHealth Members," and "New MassHealth Members" Over Time, CY2016–CY2022



Source: MassHealth Administrative Data

Note: 'Churn' is defined as a coverage gap of 45 days or more in a one-year period

3.3.3. Hypothesis 3: Massachusetts will maintain higher coverage, overall and among populations eligible for exchange subsidies, than states without premium and cost-sharing subsidies

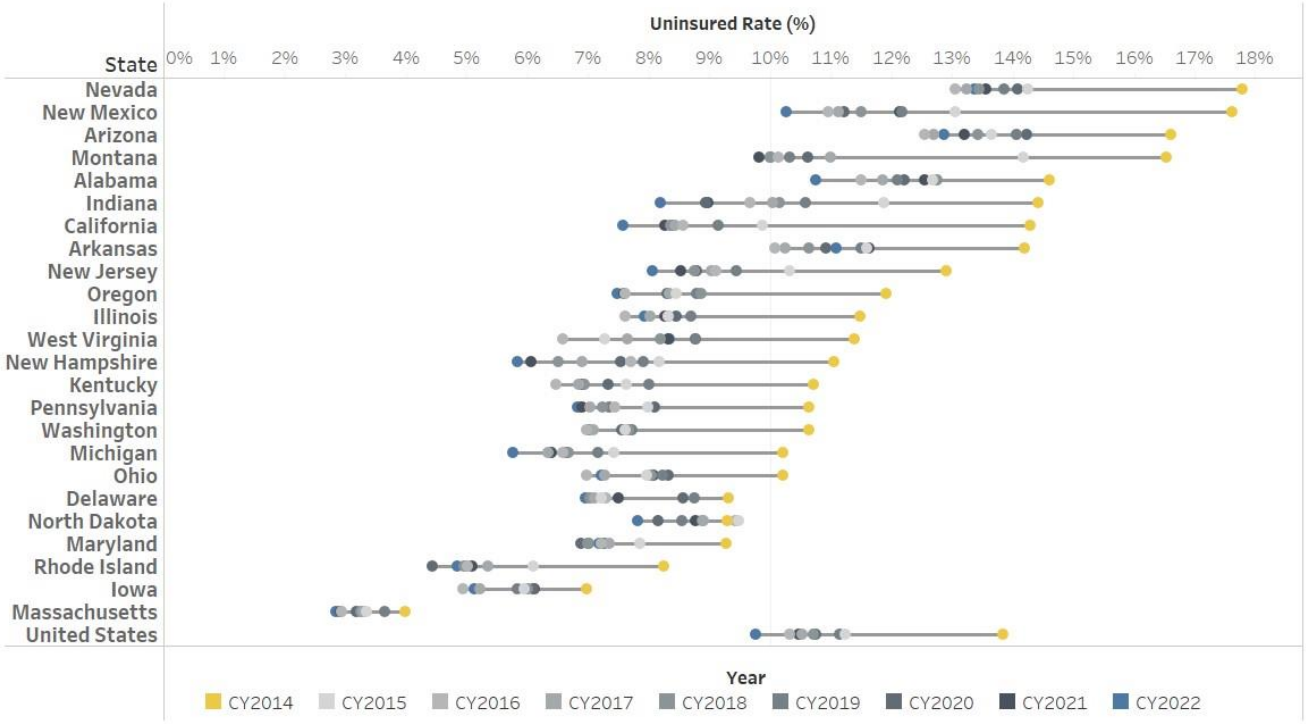
Overview

Massachusetts' uninsurance rate was the lowest among the 23 comparison states throughout the 2017–2022 Demonstration.

Detailed Results

As shown in **Figure 3.3-3**, the 23 comparison states began the baseline period in CY2014 with uninsurance percentages ranging from 7.0% in Iowa to 17.8% in Nevada and collectively decreased by an average of 3.8 percentage points in CY2016. Between CY2017 and CY2022, improvements in the percentage of uninsured individuals were mixed, though the national percentage stayed around 10% during that period. Of the 23 states, 17 (74%) reduced their uninsurance rates, ranging from .01% to 1.8%, in CY2022 compared to CY2017. Rhode Island decreased its rate to below 5% for at least one year between CY2017 and CY2022, while five states (Alabama, Arizona, Arkansas, Nevada, and New Mexico) had uninsurance rates above 10% over the entirety of the Commonwealth's 2017–2022 Demonstration. The comparison states' uninsurance rates were an average of 4.0% percentage points lower in CY2022 compared to CY2014, with decreases ranging from less than 1.5% in North Dakota to 7.3% in New Mexico. By comparison, Massachusetts' uninsurance percentage stayed stable, averaging 3.4% during the baseline period and 3.2% during the 2017–2022 Demonstration period.

Figure 3.3-3 Percentage of Residents Less than 65 Years Old Who are Uninsured in U.S., MA, and 23 Comparison States, Survey Years CY2014–CY2022



Source: American Community Survey, 1-Year Estimates

Note: Data are presented in order of 2014 percentages, from highest to lowest

After controlling for individual characteristics, further regression analysis shows that in Massachusetts, the uninsured rate was 5% lower compared to other states (see **Table 3.3-1)**. After CY2017, the uninsurance rate for all comparison states decreased by one percentage point after controlling for individual states' characteristics. The difference in uninsurance rates between Massachusetts and other states increased by 0.9 percentage points after CY2017 compared to before CY2017. All results were found to be statistically significant at the P<0.0001 level.

Table 3.3-1 Regression of Massachusetts vs. non-Massachusetts Residents' Uninsurance Rate, Survey Years 2014–2022

Variable Definition	Estimate (%)	Standard Error (%)	T-Value	P-Value
Intercept	13.07	0.25	51.29	<.0001
Massachusetts (1 = Massachusetts; 0 = Other)	-5.07	0.01	-66.4	<.0001
Year 2017 (1 = 2017 or After; 0 = Before 2017)	-0.85	0.03	-26.79	<.0001
Interaction of Massachusetts and Year	0.86	0.09	9.9	<.0001

Source: American Community Survey, 1-Year Estimates

Note: Covariates used include state, year (before CY2017 or otherwise), age, gender, race, marital status, education, citizen status, income group, disability status, number of persons in the household, and whether living in a mobile home. For the outcome, '1' means uninsured, and '0' means insured.

3.3.4. Hypothesis 4: Enrollment in new and select ongoing programs funded with 2017–2022 Demonstration investments supports near-universal coverage in Massachusetts

Overview

- Near-universal health insurance coverage in Massachusetts was supported by new and ongoing programs and policies, including Health Connector premium and cost-sharing subsidies, ESI PA and SHIP PA, services paid for through the HSN Trust Fund, CommonHealth 65+, and the GSVA payment disregard.
- Usage of Health Connector premium and cost-sharing subsidies, SHIP PA, CommonHealth 65+, and the GSVA payment disregard generally grew during the 2017–2022 Demonstration.
- The use of ESI PA fell, likely due to the economic downturn brought on by the COVID-19 pandemic as well as MassHealth being unable to enforce enrollment in ESI during the PHE.
- The number of people who received healthcare services paid through the HSN Trust Fund was stable for HSN Full and HSN Partial groups and declined among members covered by MassHealth Limited.

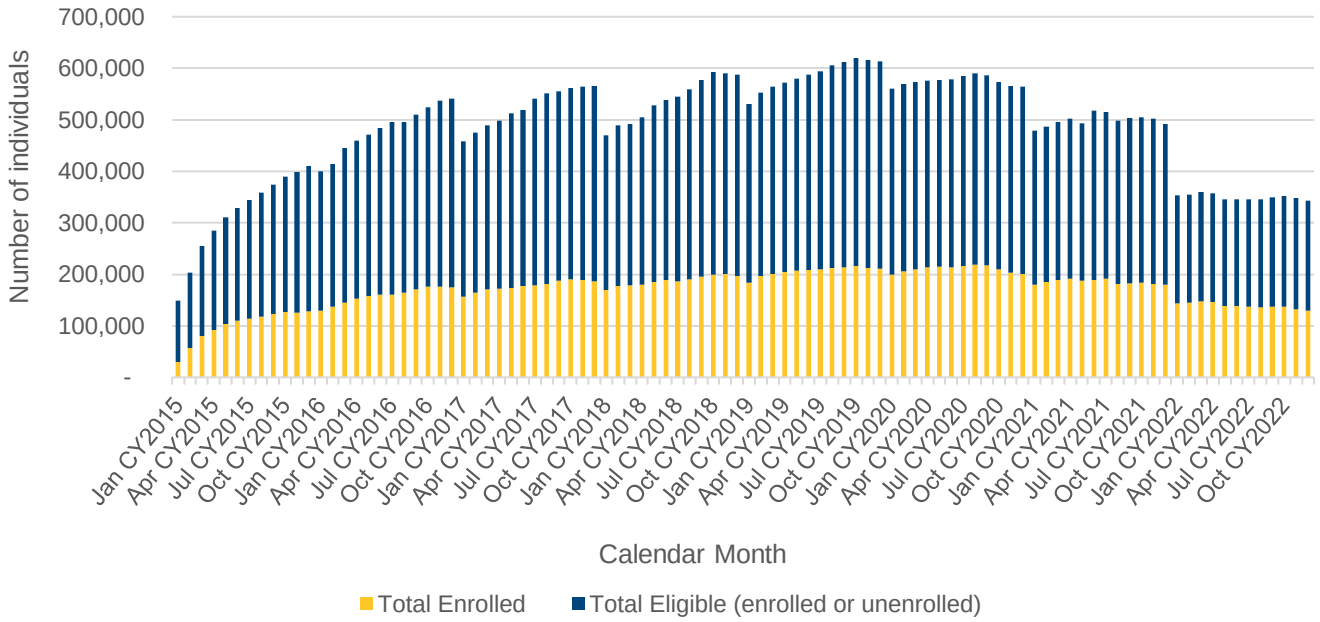
Detailed Results

Health Connector Premium Assistance and Cost-Sharing Subsidies

The number of individuals enrolled in QHPs with the Health Connector subsidy program's assistance (see **Figure 3.3-4**) increased by 188,195 between January 2015 and September 2020. In late CY2020, the number of individuals taking up QHP coverage decreased, reflecting fewer enrollments and eligibility as people moved to MassHealth coverage during the COVID-19 pandemic and utilized the protections offered during the PHE period.[188] The number of individuals enrolled in QHPs with the Health Connector subsidy program's assistance declined by 87,804 between September 2020 and December 2022. The proportion of those enrolled versus those eligible during the 2017–2022 Demonstration averaged 56.9%, which was higher than the proportion in the two years (CY2015–CY2016) prior to the Demonstration (47.3%). The number of individuals eligible and enrolled declined in January of each calendar year between CY2017 and CY2022, as compared to the previous December, likely due to individuals' coverage ending and not being automatically re-enrolled. The corresponding rise in the number of individuals eligible for and enrolled in insurance in the following months at the start of each calendar year may correspond to the re-enrollment of those individuals and insurance open enrollment periods when more people become enrolled.

[188] Email from Marissa Woltmann, Health Connector, 3/5/21

Figure 3.3-4 Number of Individuals Eligible for and Enrolled in QHP Coverage with Assistance of Health Connector Subsidy Program, CY2015–CY2022[a]



Source: Massachusetts Health Connector

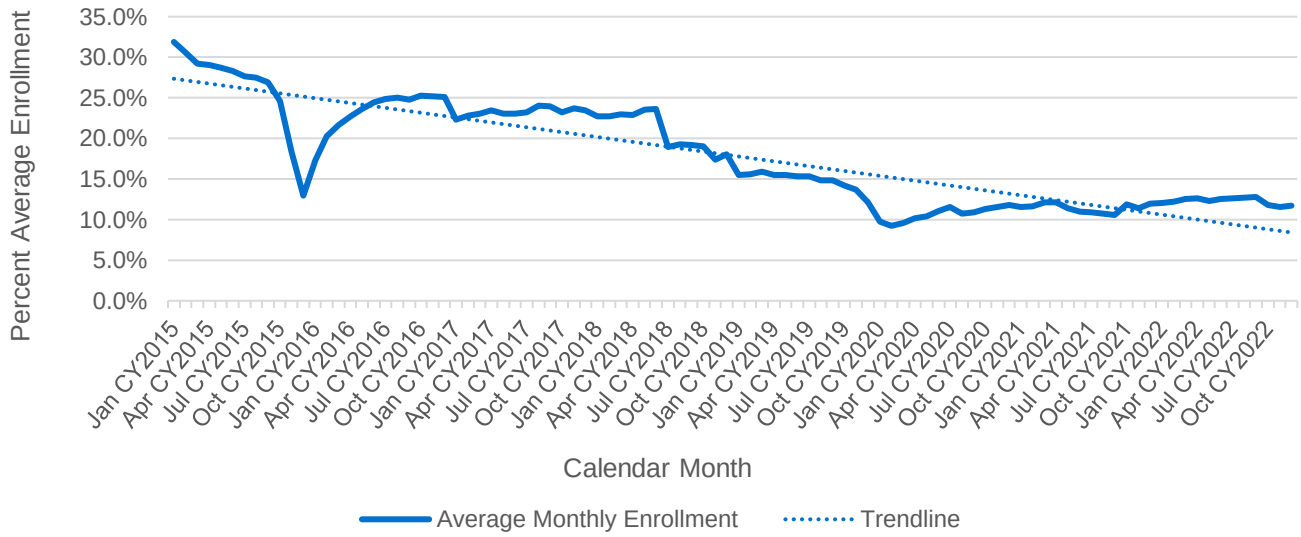
[a] Data for CY2015-CY2019 has been revised since the Independent Evaluation Interim Report due to an overstatement of the number of eligible but not enrolled individuals

Employer-Sponsored Insurance Premium Assistance

The percentage of MassHealth-eligible members receiving ESI PA trended downward throughout the Demonstration. During the pre-Demonstration period (CY2015–CY2016), the monthly average number of individuals receiving ESI PA dropped 8.4 percentage points, from a high of 31.9% to 23.5%, due to the phaseout of the Small Business Employee premium assistance[189] and the removal of protections that were in place during the state's transition to the Health Insurance Exchange (HIX/IES) system (see **Figure 3.3-5**). The rate of eligible members receiving ESI PA continued a downward trend, falling to 9.2% in February 2020 (its lowest point in the 2017–2022 Demonstration). The percentage rose slightly after that, ending the evaluation period in December 2022 at 11.7%.

[189] Through the Small Business premium assistance program, MassHealth provided premium assistance to uninsured adults with incomes between 133% and 300% of the federal poverty level who worked for small employers and were ineligible for MassHealth coverage. See 130 CMR 506.000: Health Care Reform: MassHealth: Financial Requirements

Figure 3.3-5 Monthly Percentage of Eligible MassHealth Members Enrolled in the ESI Premium Assistance Program, CY2015-CY2022



Source: MassHealth Program Data

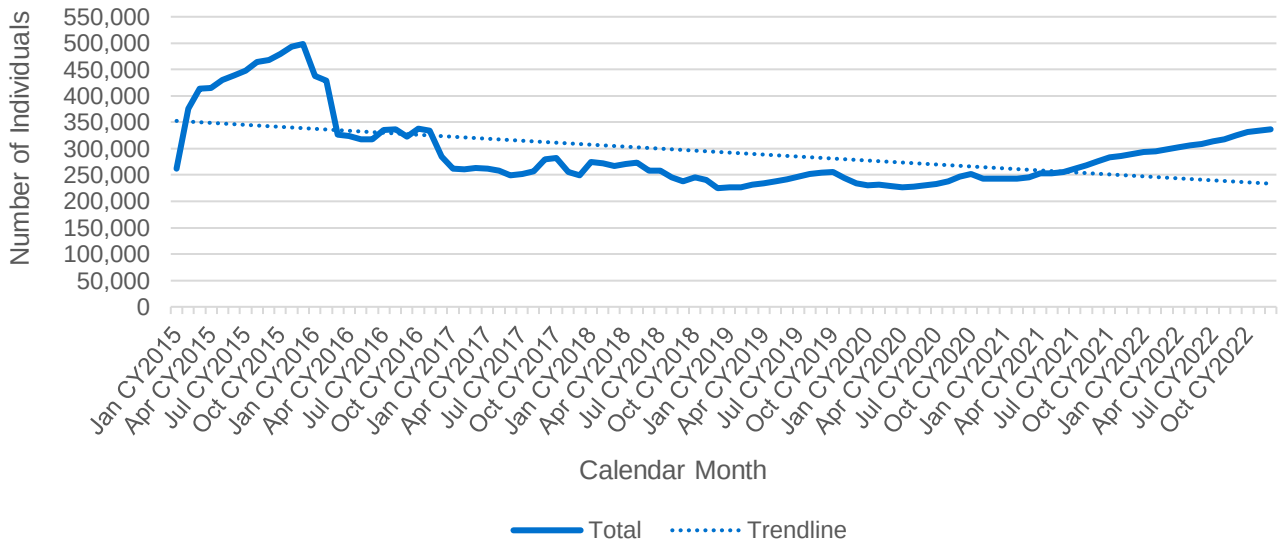
Note: Eligible MassHealth members are defined as MassHealth members who are eligible for ESI.

Individuals Receiving Services Paid for through the Health Safety Net Trust Fund

Overall, the total number of individuals receiving services paid for through the HSN Trust Fund declined from CY2016 to CY2022 after peaking at about 500,000 in December 2015 (see **Figure 3.3-6).** The number of individuals accessing services paid for through the HSN Trust Fund steadily decreased from about 325,000 in CY2016 to approximately 230,000 in early CY2020. This may be reflective of the sustainability initiatives implemented in CY2016 to better align with other related programs and reduce the fiscal shortfall, such as reducing the retroactive eligibility and adjusting qualifying income levels. Starting in mid-CY2020, the number steadily increased throughout the rest of the 2017–2022 Demonstration, to about 337,000 individuals at the end of CY2022.

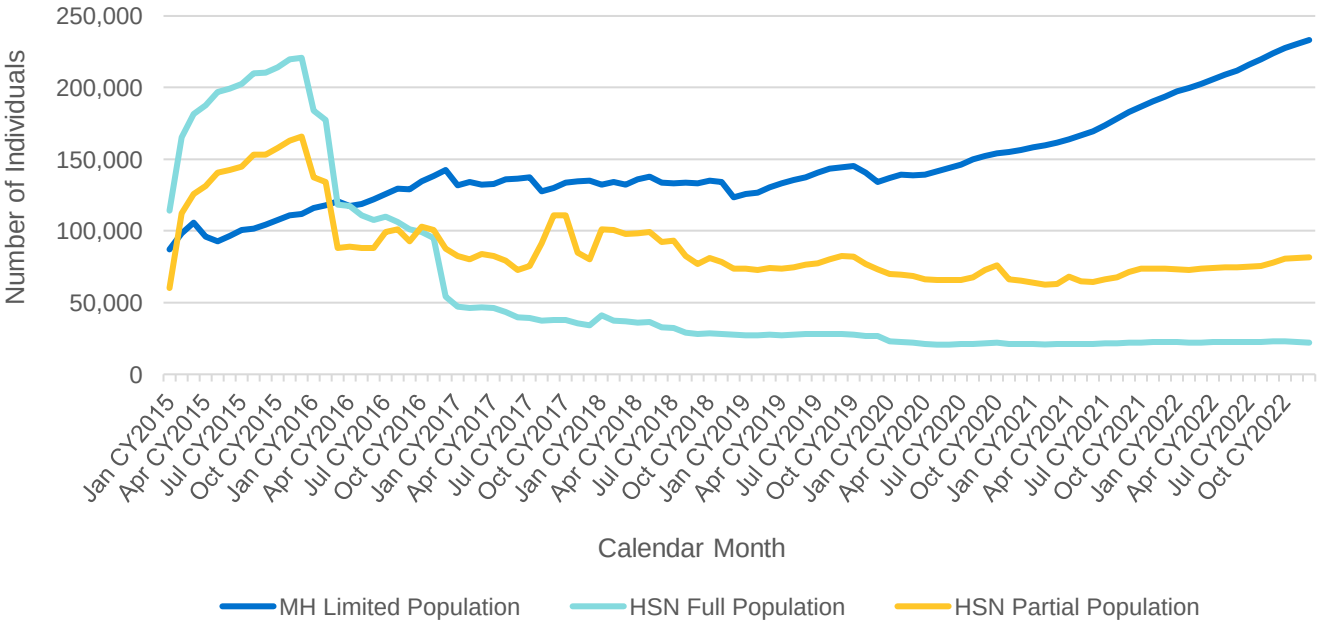
Subgroup analysis suggested that the group of individuals receiving services for whom the HSN Trust Fund is the primary payment mechanism (HSN Full population; see **Figure 3.3-7**) has the most volatility, as the number of users initially rose in late CY2015, fell below other groups (MassHealth Limited and HSN Partial) from CY2017 to CY2018, dropped to about 27,000 at the beginning of CY2020 and held steady until the end of CY2022. The HSN Partial population (for whom the HSN Trust Fund is a secondary payment mechanism) also rose from CY2015 to the beginning of CY2016 (to about 166,000), then dropped to about 87,000 by early CY2016; since then, the number of HSN Partial members fluctuated a bit but was overall steady through CY2022, reaching about 81,000 by the end of CY2022. After an initial rise, the MassHealth Limited subgroup's use of emergency services paid for through the HSN Trust Fund remained fairly stable until early CY2020, when it rose steadily through CY2022, which corresponds to the increased ED volume during the COVID-19 pandemic. This group contained the largest number of individuals using services paid for through the HSN Trust Fund during the 2017–2022 Demonstration.

Figure 3.3-6 Number of Individuals Who Received Health Care Services Paid for Through the Health Safety Net Trust Fund, CY2015–CY2022



Source: MassHealth HSN Trust Fund Program Data

Figure 3.3-7 Number of Individuals Who Received Health Care Services Paid for Through the Health Safety Net Trust Fund, by Group, CY2015–CY2022



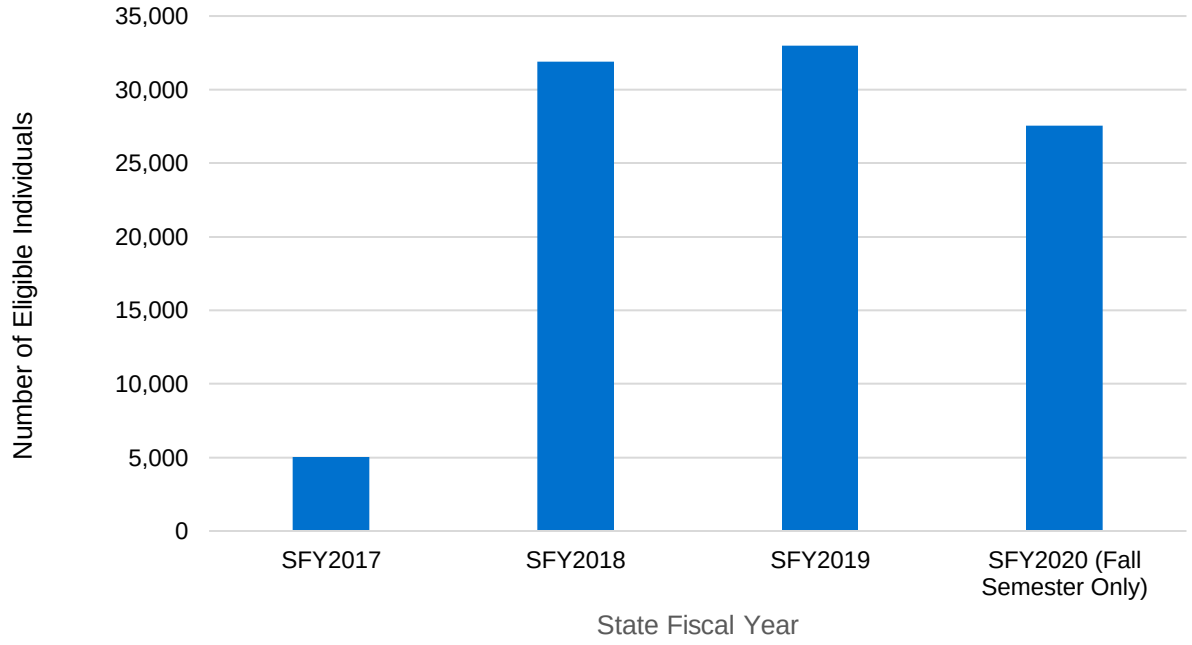
Source: MassHealth HSN Trust Fund Program Data

Note: MassHealth Limited Population is a subgroup of HSN Partial Population

Student Health Insurance Premium Assistance

Enrollment data show the participation of over 30,000 members per year in SHIP PA in the full academic years of SFY2018 through SFY2020 (see **Figure 3.3-8**). The increase between SFY2018 and SFY2019 largely reflects the change of making participation in the SHIP PA program mandatory for MassHealth-eligible students at participating schools. Detailed data for the average length of enrollment in the SHIP PA program was not available.

Figure 3.3-8 Number of Eligible MassHealth Members Enrolled in SHIP PA, SFY2017–SFY2020

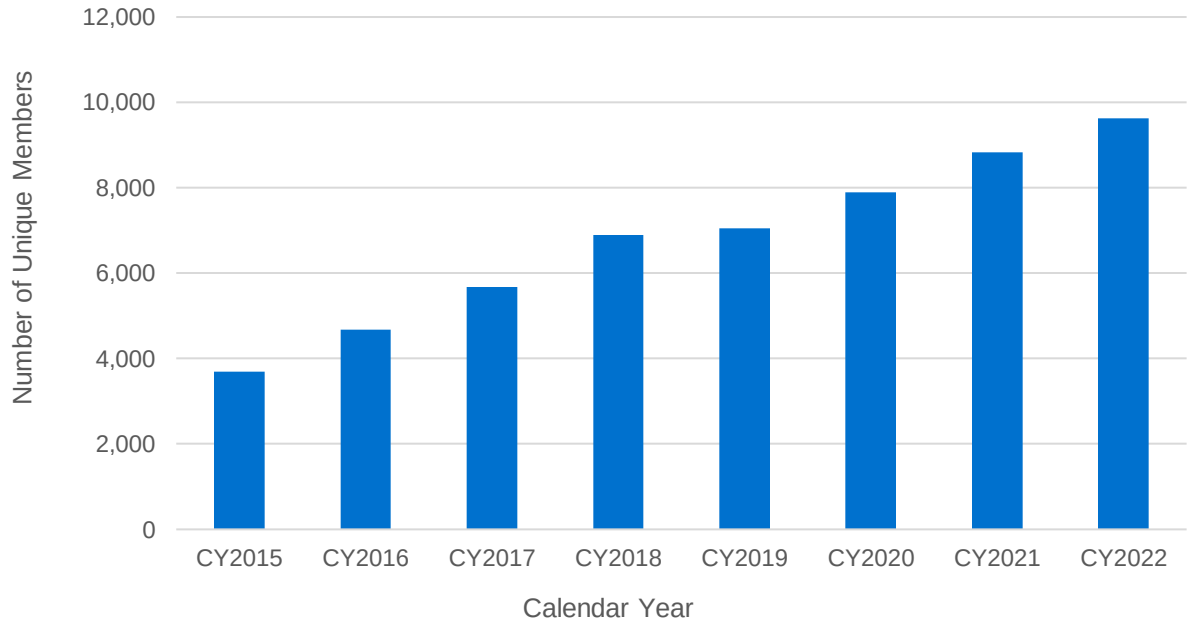


Source: MassHealth Program Data

CommonHealth 65+

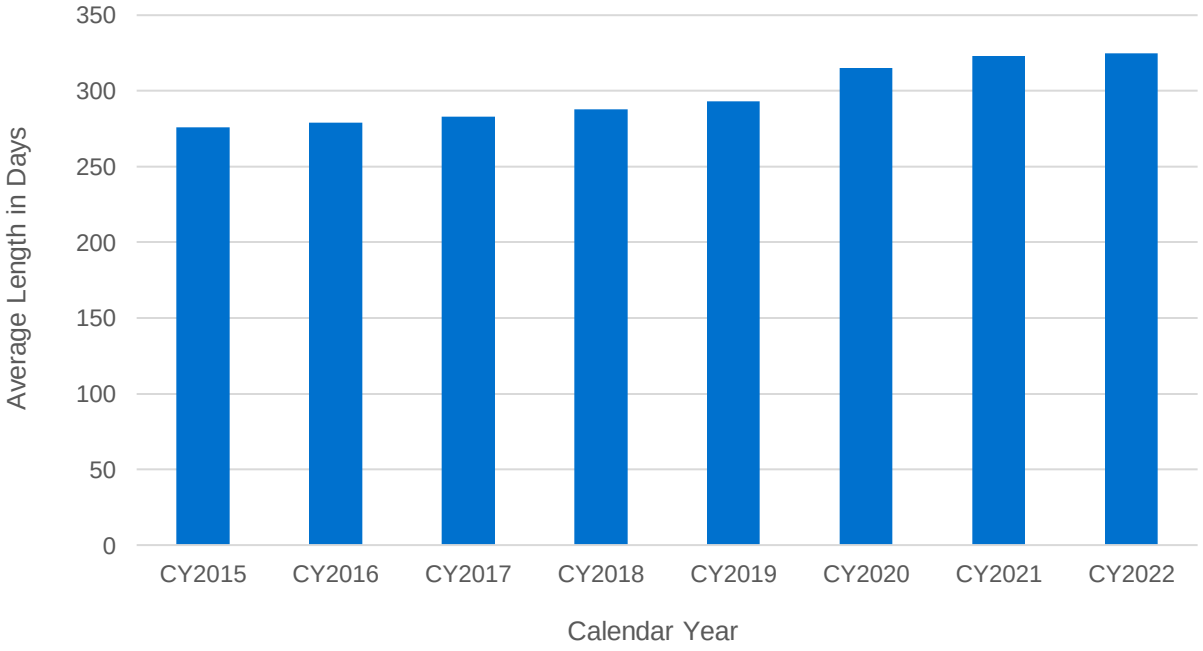
The number of eligible individuals enrolled in CommonHealth 65+ has increased year over year from CY2015 to CY2022, with no change to that trend since the start of the 2017–2022 Demonstration study period (see **Figure 3.3-9**). In CY2015, there were under 4,000 unique members enrolled in CommonHealth 65+; by CY2018, there were about 7,000 unique members enrolled; and by CY2022, there were just under 10,000 members. Similar to the number enrolled, the overall average enrollment length remained stable, approximately 297 days prior to and during the 2017–2022 Demonstration (see **Figure 3.3-10**). The overall average annual enrollment length increased yearly from 276 days in CY2015 to 300 days by CY2020 and remained at 300 days from CY2020–CY2022.

Figure 3.3-9 Number of Individuals Enrolled in CommonHealth 65+, CY2015–CY2022



Source: MassHealth Program Data

Figure 3.3-10 CommonHealth 65+ Member Average Annual Enrollment Length, CY2015–CY2022[a]



Source: MassHealth Program Data

[a] Average enrollment between CY2015 and CY2022 was 298 days.

As part of our evaluation of the CommonHealth 65+ program, we analyzed the utilization of LTSS services to understand these members' service needs. **Table 3.3-2** summarizes CommonHealth 65+ members' LTSS utilization. During CY2015–CY2022, between 6% and 7%

of members used community-based personal care assistant (PCA) services, about 3% used community-based home health agency (HHA) services, and about 2% to 3% used other community-based services (e.g., adult day health, adult foster care, group adult foster care, day habitation, and continuous skilled nursing). Almost no members used facility-based LTSS at any time during their enrollment in CommonHealth 65+. Compared to community-based LTSS services and facility-based LTSS services, more members used other LTSS-covered services (about 11%–12%), including durable medical equipment, non-emergency transportation, oxygen and respiratory therapy and equipment, orthotics, and hospice.

Table 3.3-2 Select LTSS Healthcare Service Utilization Measures Among CommonHealth 65+ Members, CY2015–CY2022

		CY2015 N (%)	CY2016 N (%)	CY2017 N (%)	CY2018 N (%)	CY2019 N (%)	CY2020 N (%)	CY2021 N (%)	CY2022 N (%)
All Members	All	3,628 (100.0)	4,573 (100.0)	5,529 (100.0)	6,674 (100.0)	8,070 (100.0)	8,718 (100.0)	9,712 (100.0)	10,467 (100.0)
Community-based PCA	No	3,407 (93.9)	4,281 (93.6)	5,148 (93.1)	6,229 (93.3)	7,528 (93.3)	8,127 (93.2)	9,052 (93.2)	9743 (93.1)
	Yes	221 (6.1)	292 (6.4)	381 (6.9)	445 (6.7)	542 (6.7)	591 (6.8)	660 (6.8)	724 (6.9)
Community-based HHA Services	No	3,511 (96.8)	4,392 (96.0)	5,333 (96.5)	6,432 (96.4)	7,789 (96.5)	8,439 (96.8)	9,408 (96.9)	10,185 (97.3)
	Yes	117 (3.2)	181 (4.0)	196 (3.5)	242 (3.6)	281 (3.5)	279 (3.2)	304 (3.1)	282 (2.7)
Other community-based Services	No	3,530 (97.3)	4,449 (97.3)	5,365 (97.0)	6,487 (97.2)	7,848 (97.2)	8,479 (97.3)	9,462 (97.4)	10,204 (97.5)
	Yes	98 (2.7)	124 (2.7)	164 (3.0)	187 (2.8)	222 (2.8)	239 (2.7)	250 (2.6)	263 (2.5)
Facility-based LTSS	All	3,617 (99.7)	4,558 (99.7)	5,510 (99.7)	6,649 (99.6)	8,045 (99.7)	8,690 (99.7)	9,665 (99.5)	10,421 (99.6)
	>100 Days	<11[a] (0.0)	<11 (0.0)	<11 (0.0)	<11 (0.0)	<11 (0.0)	<11 (0.0)	<11 (0.0)	<11 (0.0)
	<100 Days	<11 (0.3)	14 (0.3)	18 (0.3)	23 (0.3)	22 (0.3)	24 (0.3)	44 (0.5)	43 (0.4)
Other LTSS-Covered Services	No	3,182 (87.7)	3,993 (87.3)	4,863 (87.5)	5,834 (87.4)	7,083 (87.8)	7,693 (88.2)	8,591 (88.5)	9,303 (99.9)
	Yes	446 (12.3)	580 (12.7)	693 (12.5)	840 (12.6)	987 (12.2)	1,025 (11.8)	1,121 (11.5)	1,164 (11.1)

Source: Medicaid enrollment, claims, and encounter data.

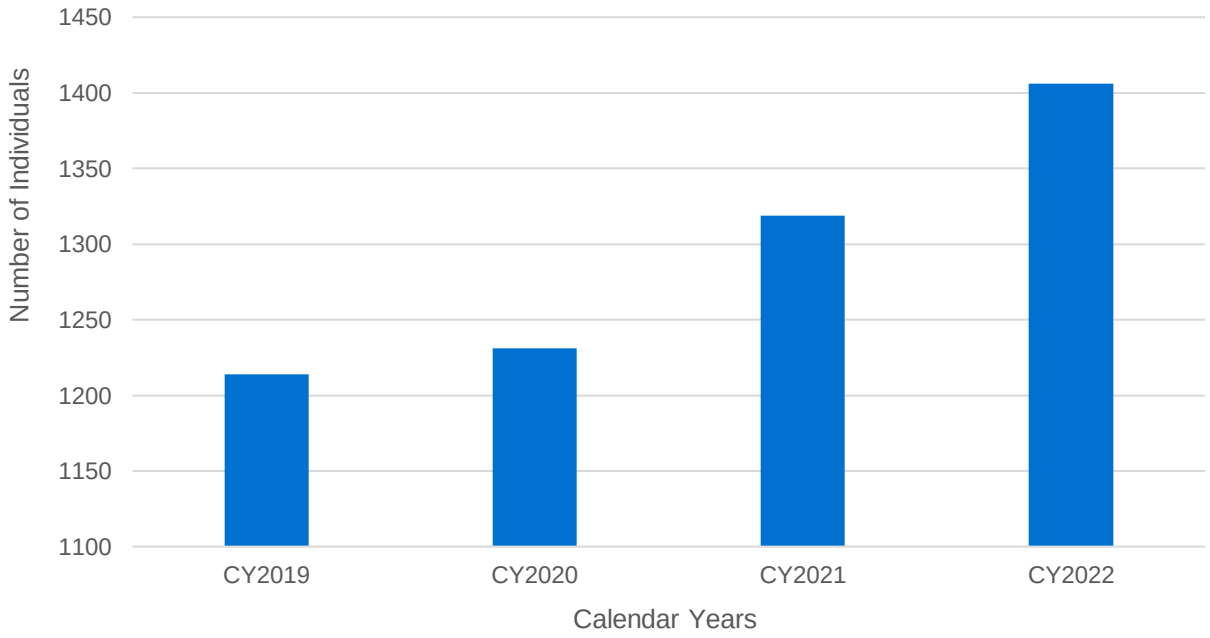
Note: The sample comprises only fee-for-service CommonHealth 65+ members. With any CommonHealth 65+ enrollment during a calendar year, a member may have other Medicaid coverage (e.g., managed care) during the entire calendar year. Service utilization is determined for the entire calendar year as long as the member was ever in the program. Thus, the utilization measure is based on encounter, UB92, and physician data.

[a] Numbers less than 11 (indicated by <11) are not reported per HIPAA guidelines regarding cell size suppression.

State Gold Star Veteran Annuity Payment Disregard

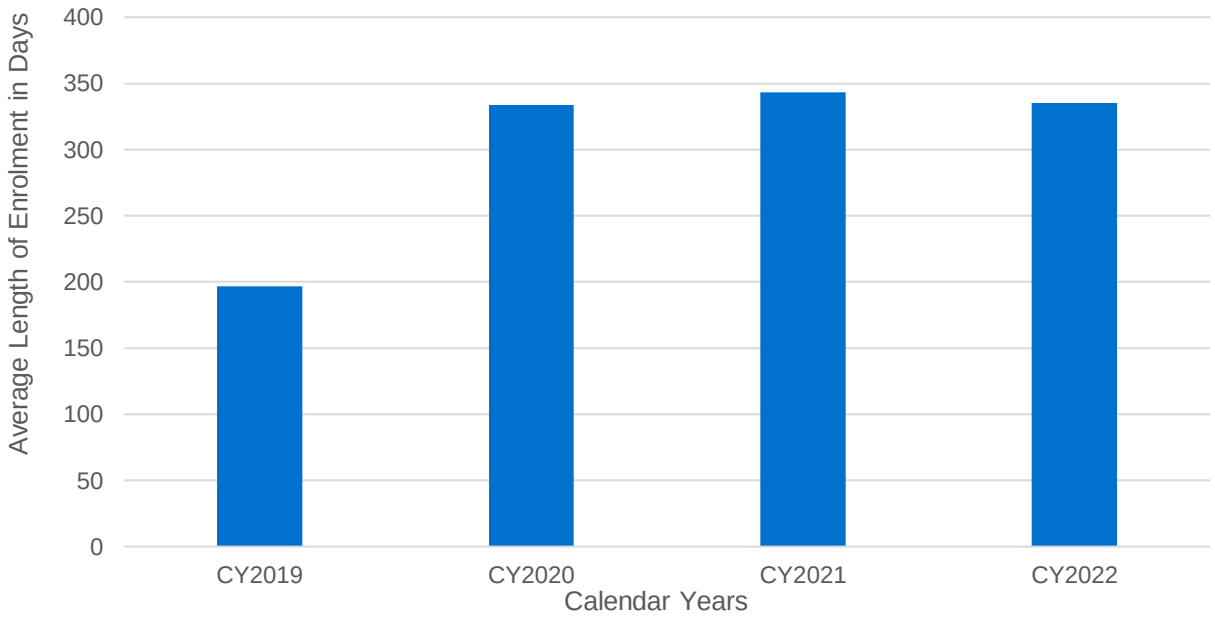
The number of individuals who had a GSVA payment disregarded for the purposes of MassHealth eligibility and PETI increased annually from 1,214 in CY2019, when the policy first took effect in the 2017–2022 Demonstration, to nearly 1,406 individuals in CY2022 (see **Figure 3.3-11).** The average length of enrollment of individuals who had had a GSVA payment disregarded for the purposes of determining MassHealth eligibility and PETI ranged from 334 days in CY2020 to 343 days in CY2021 (see **Figure 3.3-12**). The low average in CY2019 was due to the program not being in place for a full calendar year. When the enrollment was analyzed by days in the study year, the length of enrollment was 88.6% of CY2019 study year days, 91.2% in CY2020, 94.0% in CY2021, and 94.4% in CY2022.

Figure 3.3-11 Number of Individuals who had a GSVA Payment Disregarded for MassHealth Eligibility and Post-Eligibility Treatment of Income, CY2015–CY2022



Source: Medicaid eligibility and enrollment data.

Figure 3.3-12 Average Length of Enrollment of Individuals who had a GSVA Payment Disregarded for MassHealth Eligibility and Post-Eligibility Treatment of Income, CY2015–CY2022



Source: Medicaid eligibility and enrollment data.

3.4. Summary and Discussion of Key Findings

RQ1: Has near-universal coverage in Massachusetts been maintained after the implementation of Demonstration investments?

H1 evaluated whether Massachusetts maintained near-universal coverage over the Demonstration. Massachusetts maintained near-universal health insurance coverage during the 2017–2022 Demonstration, ending the Demonstration with a 2.8% uninsurance rate.

H2 examined whether the percentage of MassHealth members with a coverage gap of 45 days or more in a 1-year period did not increase over the study period (i.e., stable churn). After an initial rise, the rates of MassHealth members with a coverage gap (i.e., churn) trended downward, ending the 2017–2022 Demonstration period at nearly 0%.

H3 evaluated whether Massachusetts maintained higher coverage, overall and among populations eligible for exchange subsidies, than states without premium and cost-sharing subsidies. Massachusetts' uninsurance rate was the lowest among the 23 comparison states throughout the 2017–2022 Demonstration.

H4 examined whether enrollment in new and select ongoing programs financially with Demonstration investments supported near-universal coverage in Massachusetts. Near-universal health insurance coverage in Massachusetts was supported by new and ongoing programs and policies jointly, including Health Connector premium and cost-sharing subsidies, ESI PA and SHIP PA, services paid through the HSN Trust Fund, CommonHealth 65+, and the GSVA payment disregard. The use of ESI PA decreased during the Demonstration but that of other programs remained overall stable and higher.

3.4.1. Interpretation/Discussion

With respect to MassHealth's goal of maintaining near-universal health insurance coverage (**H1**), Massachusetts maintained a stable low uninsurance rate below 3.5% throughout the 2017–2022 Demonstration. Of note, the percentage of uninsured residents fell slightly from CY2020 to CY2022, when there was enormous economic instability and required actions related to maintaining health insurance for individuals due to the COVID-19 pandemic. Our review of the enrollment trends of programs and policies implemented to support access to insurance coverage indicates that Massachusetts has maintained near-universal health insurance coverage for its residents during the 2017–2022 Demonstration. It is worthwhile to note is that the change of uninsurance rate mirrors the national trend and is likely associated with underlying economic conditions.[190]

Similarly, the rate of churn (**H2**) was very low, generally below 3%, throughout the 2017–2022 Demonstration. After an initial rise in churn during early CY2017, the rate showed a downward trend during the 2017–2022 Demonstration, which aligns with the hypothesis. The C&E programs have at least partially contributed to the lower churn rate. As might be expected, the rate of churn among new members is much higher than that of existing members; however, it does not influence the overall rate. The PHE continuous enrollment rules in place during the pandemic seem to have directly contributed to keeping individuals insured during the COVID-19 pandemic, as is evident in the lower rates of churn — close to zero — seen in CY2020–CY2022.

Examination of the Commonwealth's uninsurance rates versus select comparison states, the focus of **H3**, shows that the state continues to lead the nation in maintaining near-universal health insurance coverage. The state's uninsurance rate was lower, significantly so in some cases, than those of the comparison states that were similar to Massachusetts in many respects (at the time of our evaluation design) but did not offer premium and cost-sharing subsidies comparable to those offered by the Health Connector. Even with less use of ESI PA, the programs that offer increased access to health insurance through premium and cost-sharing subsidies and other payments to healthcare services (e.g., ConnectorCare premium assistance and cost-sharing subsidies, HSN Trust Fund, SHIP PA) served to make coverage accessible for MassHealth members and other individuals. In contrast, among the comparison states that do not offer such subsidies, only Rhode Island was able to decrease the percentage of uninsured residents to below 5% at any time during the 2017–2022 Demonstration. Uninsurance rates for Alabama, Arizona, Nevada, and New Mexico were higher than 10% over the entire period; however, these states typically have high uninsurance rates. It is important to note that Massachusetts and the comparison states likely differ in ways not included in the selection criteria in our original EDD. For example, states made changes in CY2014–CY2015 in response to ACA requirements that influenced eligibility requirements. Despite such changes in other states, Massachusetts still had the lowest uninsurance rate across the entire country in CY2022.[191] Given the comparatively greater number of policies in the Commonwealth that support health insurance access, it would be interesting to compare the relative uptake rates of marketplace and ConnectorCare coverage among individuals with incomes between 138-300% FPL in Massachusetts relative to the same population in states that don't offer enhanced subsidies and cost-sharing assistance.

[190] Kaiser Family Foundation. 2023. Key Facts about the Uninsured Population | KFF

[191] Kaiser Family Foundation. 2022. Health Insurance Coverage of the Total Population, Multiple Sources of Coverage | KFF

Several programs under the 2017–2022 Demonstration supported near-universal healthcare coverage rates, as examined for **H4**. MassHealth expanded access to health insurance by offering premium assistance and/or cost-sharing subsidies through the Health Connector and SHIP PA. The uptake of QHPs with Health Connector premium assistance and cost-sharing subsidies similarly increased access; however, the COVID-19 pandemic flexibilities may have pushed individuals away from this coverage towards MassHealth coverage. Even if the ESI PA trended downwards over the evaluation period, other programs (e.g., SHIP PA, HSN Trust Fund, CommonHealth 65+, etc.) have maintained individuals' coverage and use of services. It is important to note that, during the PHE, MassHealth did not process redeterminations or terminate individuals for not meeting eligibility; thus, fewer people needed to find alternative sources of insurance, which likely contributed to the downward ESI PA enrollment trend seen during this period but also overall stable insurance coverage. It will be useful to examine the impact of these programs on universal coverage after the pandemic period.

Access to services paid for through the HSN Trust Fund also showed a downward trend early, possibly due to increased access through other Medicaid coverage types, before usage started to increase during the COVID-19 pandemic. Access to services paid for through the HSN Trust Fund by some subgroups (i.e., MassHealth Limited members) increased, reflecting the continued need and value for this support. For the HSN Full group, the decrease of service use may reflect an increase in insurance coverage, while the decreased use of services by the HSN Partial group might mean they are maintaining (or increasing) a coverage type for which the HSN is the secondary payer.

The GSVA payment disregard for eligibility and PETI, which was newly offered in the 2017–2022 Demonstration to increase access to MassHealth coverage for veterans, was utilized by over a thousand veterans or their family members.

Finally, MassHealth offered coverage to college students through the SHIP PA program and to certain eligible members aged 65 and over enrolled in CommonHealth 65+ during the 2017–2022 Demonstration to ensure continued health insurance access. Enrollment in both programs grew over time, highlighting the utility of and need for such options.

Regarding LTSS usage, CommonHealth 65+ members primarily used community-based PCA and other LTSS-covered services (e.g., durable medical equipment, non-emergency transport, oxygen and respiratory therapy equipment, orthotics, hospice, and therapy). The use of facility-based LTSS has been rather limited. Since the CommonHealth 65+ members tend to be working, these members may be healthier compared to other elderly and not need this service as much.

Table 3.3-3 summarizes the programs and policies (i.e., premium assistance, cost-sharing, public-private partnership) that MassHealth implemented before and during the 2017–2022 Demonstration to facilitate access to health insurance by more eligible populations. The availability of several program types provides options that are responsive to individual situations; as such, a decrease in the utilization of one program may indicate movement to another program more appropriate for members' current circumstances. Of these tools or policy levers, premium assistance appears to be the most frequently used policy lever before and during the

2017–2022 Demonstration. Continued use of premium assistance could be a cost-effective tool for MassHealth to protect coverage and reduce costs, which needs further research.

Table 3.3-3 Summary of Programs, Policy Levers, and Results

Program	Premium Assistance Policy Lever	Cost Sharing Policy Lever	Public-Private Partnership Policy Lever	Other Policy Lever	Trend of Use
Health Connector Premium and Cost-Sharing Subsidies	Yes	Yes	Yes	No	Downward
ESI Premium Assistance	Yes	No	Yes	No	Downward
Services paid for through the HSN Trust Fund	No	No	No	Yes	Downward
SHIP Premium Assistance[a]	Yes	No	Yes	No	Upward[a]
CommonHealth 65+	No	No	No	Yes	Upward

[a] Program ended in 2020.

3.4.2. Study Limitations

The analysis was subject to limitations. First, given the varied and multiple Medicaid programs that were implemented in other states, it was not feasible to identify perfect comparison group states to fully isolate the effect of the other specific Massachusetts programs (e.g., ESI PA, SHIP PA, CommonHealth 65+, and state GSVA payment disregard) by identifying states that were similar to the state in all aspects except for the presence of these programs. Also, as each coverage program was implemented state-wide, it was not feasible to identify within-state comparison groups for whom the programs were not available to understand what would have happened to these populations in Massachusetts in the absence of Demonstration activities.

Second, each coverage program did not start on the same date, with some starting before the Demonstration and others starting at various times during the 2017–2022 Demonstration. In addition, the SHIP PA program ended during the 2017–2022 Demonstration. As new programs launched, initial periods of engagement, enrollment, and initiation of coverage and services delayed the evidence of program impact. Therefore, it is hard to fully attribute the impact of the 2017–2022 Demonstration to these coverage programs. The effect of the Demonstration on coverage may also have been biased for any program that started before the 2017–2022 Demonstration.

Third, not all analytical models proposed in the EDD were fully used. For example, regarding the churn analysis, in the EDD, we suggested a segmented regression analysis to evaluate trends in the percentage with a gap before and after the 2017–2022 Demonstration. Instead, we included the direct churn status in the IESR, as it appeared to be the most straightforward approach to providing helpful information on the actual occurrences. We could not analyze the GSVA payment disregard separately for eligibility and PETI, as we could not identify individual PETI status on the data.

3.4.3. Policy Implications and Interactions with Other State Initiatives

The state maintained near-universal healthcare coverage during the 2017–2022 Demonstration and, during that period, led the nation in the percentage of residents with healthcare coverage. The Commonwealth exercised various policy options under the 2017–2022 Demonstration to allow for easier healthcare coverage access and continuity for various populations of residents (e.g., individuals with a low-income or a disability, individuals over 65 years of age, and students) to obtain and maintain insurance coverage. With its uninsurance rate the lowest in the U.S., the Commonwealth's 2017–2022 Demonstration focused on using premium assistance to promote a public-private partnership and cost-sharing subsidies through the Health Connector to increase members' post-eligibility access to healthcare services. Our findings suggested mixed outcomes of the premium assistance policies to improve coverage and access and emerging evidence of effective cost-sharing assistance mechanisms. The American Rescue Plan Act's COVID-19 federal legislation significantly increased subsidies in insurance marketplaces at the national level.[192] Our findings relative to the effectiveness of subsidies could lend support for extending federal subsidies. In addition, although ESI PA utilization had not increased as expected, it remains a valuable policy lever for health insurance access. A decrease in utilization in one program may reflect the appropriate movement to other MassHealth programs – or to private insurance or Medicare.

It is important to note that the findings in this IESR include data from CY2020 when the COVID-19 pandemic began and the U.S. and the Commonwealth declared a PHE (see **Section 1.1.3**). MassHealth's implementation of the federal requirement to maintain coverage and access regardless of changes in most eligibility circumstances was critical to a healthy population during this time.[193] Surprisingly, data for programs potentially more likely to be impacted by the PHE, such as ESI PA and the HSN Trust Fund, showed only minor impacts. The counterintuitive results for ESI PA may be due to the business slowdowns during the COVID-19 pandemic as well as MassHealth's inability to enforce enrollment in ESI during the PHE. With regard to the HSN Trust Fund, state policy choices during the COVID-19 pandemic may have limited the impact on services paid for by the Trust Fund. Other programs were less likely to be influenced due to specific participation requirements (e.g., SHIP PA) or intrinsic programmatic aspects (e.g., GSVA payment disregard).

The PHE amplified the important role of the 2017–2022 Demonstration in continuing to promote healthcare insurance coverage and access effectively, thus ensuring that coverage disruption was minimized due to flexibilities provided by CMS during the COVID-19 pandemic. As noted earlier, MassHealth's temporary changes in response to the COVID-19 pandemic may have contributed to the increase in MassHealth enrollment. The continuous coverage protections that MassHealth had implemented ended on April 1, 2023, and as required by CMS, MassHealth began a year-long process to redetermine all members' eligibility.

3.4.4. Lessons Learned and Recommendations

Our evaluation of this Demonstration shows that the programs that MassHealth has put in place, including premium assistance or cost sharing subsidies, allow for greater access to and uptake

[192] American Rescue Plan. (n.d.). "The White House". American Rescue Plan | The White House

[193] Mass.Gov (2023, December). "Update on MassHealth Redetermination". Update on MassHealth Redetermination

of health insurance and are supportive of continued low uninsurance in the Commonwealth. Several programs, such as ESI PA, the HSN Trust Fund, and Heath Connector subsidies to support QHP take-up, have been in place and under Demonstration authority for many years and will remain unchanged. Over the course of several previous Demonstration evaluations, these programs have been shown to be of continued value in supporting near-universal coverage for the state's residents. Thus, we have no recommendations to make for these programs.

With Massachusetts' uninsurance rate already so low as to be nearly universal, it is challenging for the state to reduce it further. The continued value of current programs towards this is readily apparent. However, there are opportunities and benefits to explore policies that increase post-eligibility review coverage and access to basic services. The evaluation of utilization of ESI PA, which was trending downward prior to CY2020, and the use of services paid for through the HSN Trust Fund during the COVID-19 pandemic period helped demonstrate how these programs support healthcare access when the demand for coverage was particularly high. It would be useful to examine the transfer of members from one program to the other; information about the members' experiences between programs will be valuable about whether insurance is obtained and whether and how their use of services has been impacted. In addition, reexamining churn rates, which were artificially low during the PHE, after the post-PHE unwinding may illustrate areas where MassHealth can focus future efforts to improve insurance access.

MassHealth decided to end the SHIP PA program primarily due to rising premium costs for commercial payers and non-MassHealth students for schools participating in the SHIP PA program. The sustainability of the policy implementation to promote public and private partnerships, such as through SHIP PA, requires MassHealth to investigate the advantages of the policy not only to MassHealth and its members but also to the private sector in this partnership. Collecting richer qualitative information to understand how public and private partnerships can be better designed to foster better coverage and access to services will be useful.

4. Demonstration Goal 4: Sustainably Support Safety Net Providers to Ensure Continued Access to Care for MassHealth and Low-Income Uninsured Individuals

4.1. Background

Sustainably supporting safety net providers has been a vital part of the Commonwealth of Massachusetts' (Commonwealth) Demonstration efforts in Massachusetts since the Commonwealth's Safety Net Care Pool (SNCP) was created in July 2005. The Commonwealth uses SNCP authorities to provide financial support to MassHealth safety net providers to fund specific state health programs; to pay hospitals and community health centers for care provided to certain low income uninsured and underinsured patients; to pay institutions for mental diseases (IMDs) for certain care provided to MassHealth members; and to support delivery system transformation and infrastructure and capacity building for safety net providers. The full SNCP expenditure authority was $7.9 billion over the five-year 2017–2022 Demonstration, with $1.87 billion authorized in the first year of the 2017–2022 Demonstration (representing a $0.6 billion increase compared to the prior year), which then decreased annually over the five-year period of the 2017–2022 Demonstration.[194]

The SNCP consisted of eight payment streams:

- The Delivery System Reform Incentive Payment (DSRIP) program for participating Accountable Care Organizations (ACOs), Community Partners (CPs), and Statewide Investments (SWIs) and other payment and delivery system reform uses ($1.8 billion over five years);
- The Health Safety Net Trust Fund Safety Net Care Payments for all acute hospitals and community health centers ($1.44 billion over five years);
- Public Hospital Supports for hospitals operated by the Department of Public Health or the Department of Mental Health (DMH) ($702 million over five years);
- ConnectorCare Subsidies for low-income individuals insured throughout the Massachusetts State Health Connector ($1.25 billion over five years);
- Safety Net Provider Payments (SNPP) for safety net hospitals ($973 million over five years);
- Public Hospital Transformation and Incentive Initiatives (PHTII) for Cambridge Health Alliance (CHA) ($872 million over five years);
- IMD Payments for psychiatric inpatient hospitals and community-based detoxification centers ($160 million over five years); and
- The Public Service Hospital Safety Net Care Payments for Boston Medical Center ($100 million over five years).

Compared to past Demonstrations, more of the Commonwealth's SNCP was shifted to incentive-based payments to promote delivery system transformation in the 2017–2022

[194] Centers for Medicare & Medicaid Services. (March 24, 2021). *Attachment E of the MassHealth Demonstration Terms and Conditions*. Medicaid.gov. MA Attachment E Approval Letter 03-24-2021.pdf (medicaid.gov). Note: Authorized spending can be found in Attachment E. Actual payment amounts may have varied.

Demonstration. Along with DSRIP, the PHTII and SNPP programs, both of which fall under SNCP, were impacted by this shift and were the focus of evaluation for this goal. Payments for PHTII activities were intended to support improvements to delivery systems and payment models to promote enhancements to care while reducing healthcare costs. In Massachusetts, CHA was the sole eligible recipient of PHTII payments. CHA is Massachusetts' only non-state, non-federal public acute hospital and participates in delivery system transformation. Before the 2017–2022 Demonstration, up to 30% of PHTII payments were tied to performance on quality improvement measures. In this Demonstration, an increasing portion of PHTII funding was at risk based on two activities:

- Participation in the MassHealth ACO model and demonstrated success on corresponding ACO performance, outcome, and improvement measures established under DSRIP; and
- Continuation and strengthening of initiatives approved for the 2014–2017 Demonstration, including initiatives focused on behavioral health (BH) integration and demonstrated achievement on corresponding performance measures.

The SNPP program was a new component of SNCP within the SNCP's Disproportionate Share Hospital-like (DSH-like) pool. The DSH-like pool authorized payments for uncompensated care provided to Medicaid and low-income uninsured individuals. SNPP was intended to provide ongoing financial support to fourteen safety net hospitals (not including CHA) in the Commonwealth that served a disproportionately high number of Medicaid and uninsured individuals and had budget shortfalls related to providing large volumes of care that was uncompensated. The SNPP program provides payments to eligible safety net hospitals that have high ratios of uninsured and underinsured patients and low commercial relative price, and are not a MassHealth Essential Hospital. Under the SNPP program in the 2017–2022 Demonstration, Massachusetts made payments to eligible hospitals that served a large proportion of Medicaid and uninsured individuals and had a demonstrated need for financial assistance to address uncompensated care costs and to sustain ongoing and necessary operational supports. An increasing portion of these payments, from 5% in Year 1 of the 2017–2022 Demonstration to 20% in Year 5, were at risk, and hospitals' payments were tied to the partnered ACOs' performance on the same performance goals established for DSRIP.

The 2017–2022 Demonstration examined the impact of changes to the SNCP on healthcare quality measures, financial sustainability, and uncompensated care costs at safety net hospitals.

4.2. Research Question and Study Design

Demonstration Goal 4 examines one research question (RQ) with two hypotheses (H), as described below.

RQ1: What is the impact of safety net funding investments on safety net hospitals' quality performance and financial sustainability?

H1. Increasing the portion of at-risk funding for safety net hospitals under the PHTII and SNPP will be associated with improved care quality at these sites.

H2. Despite a reduction in total supplemental payments provided through the SNCP over time, the amount of uncompensated care costs will not increase relative to trends prior to the 2017–2022 Demonstration.

4.2.1. Study Design

To evaluate **H1** for the PHTII, we conducted descriptive analyses to assess whether CHA met or exceeded annual hospital performance targets measured during the 2017–2022 Demonstration and whether the performance improved over time. We measured performance improvement based on the number and percentage of measures for which CHA was meeting the target against the four groupings of measures, referred to as "measure slates."

To evaluate **H1** for the 15 safety net hospitals receiving SNPP or PHTII, we conducted a pre- and post-comparison of performance for three hospital groups (overall, those receiving SNPP, and the one hospital receiving PHTII) based on select measures in the following areas: hospitalization, emergency department (ED) visits, access to primary care, BH services, and total cost of care (TCOC).

To evaluate **H2**, we conducted descriptive analyses for the 14 safety net hospitals that received SNPP to examine trends in uncompensated care costs and supplemental payments before and during the 2017–2022 Demonstration.

4.2.2. Study Period

The evaluation period for the PHTII-related quality measures for **H1** was state fiscal years (SFYs) 2018–2022 because measures were being reported by fiscal year.[195] The initial year of data (SFY2017) comprised a different measurement format, so it was not included in our analysis. To evaluate whether at-risk funding was associated with improved care quality (**H1**), pooled data from CY2015–CY2017 were used as the baseline, and data from CY2018–CY2022 were used as the Demonstration study period. Data from SFY2016–SFY2022 were used to evaluate **H2**. Separate estimates for each year of the Demonstration period facilitated the interpretation of variation in safety net hospital performance over time in the context of confounding effects of the COVID-19 pandemic, which were absent in CY2018–CY2019 and largest in CY2020–CY2021. Because it can take considerable time to finalize the reports, the Uncompensated Care Cost and Charge Reports (UCCR) data consisted of a mix of final and interim reports, as follows: FY2016–FY2018 were from final reports; one to three reports in FY2019–FY2021 were considered final, the rest were interim reports; and FY2022 were from interim reports.

4.2.3. Data Sources[196]

PHTII Quality Measure Reports

CHA provided tri-annual Reports for Payment to MassHealth, detailing key accomplishments in the reporting period towards associated metrics. PHTII quality measure performance was reported annually in July for each fiscal year and was measured on four slates totaling 50

[195] The State Fiscal Year for the Commonwealth of Massachusetts runs from July 1–June 30.

[196] The evaluation design document (EDD) mentioned the use of Safety Net Hospital reports to measure hospital performance and sustainability. We have used the combination of the PHTII report and administrative data to identify the quality of these hospitals as described on page 95 of the EDD. For instance, the claims data were used to create select Healthcare Effectiveness Data and Information Set (HEDIS) measures such as Initiation and Engagement of Alcohol and Other Drug Dependence Treatment and Adults' Access to Preventive/ Ambulatory Health Services. HEDIS is a tool used to measure performance on important aspects of care and service. We also used hospital-reported UCCR to determine the cost. The safety net hospital annual reports only include aggregate-level information about utilization related to the health safety net. We think PHTII and claims-based measures provide us with complete information about hospital quality related to the Medicaid population.

outcome and improvement measures. CHA was required to meet reporting or performance benchmarks on a specific number of measures on each slate in order to receive full payment. Additional information about these measures and CHA's performance can be found in **Appendix N.**

The four quality measure slates used for determining CHA's PHTII accountability payments included:

- Behavioral Health and Primary Care Integration (N=11 Measures)
- Comprehensive Systems for Treating Mental Health and Substance Use Conditions (N=13 Measures)
- Referral Management and Integrated Care Management (N=13 Measures)
- Evidence-Based Practices for Medical Management of Chronic Conditions (N=13 Measures)

About 40% of the performance measure specifications were drawn from the National Quality Forum (NQF). Other sources of measures included the Centers for Medicare and Medicaid Services (CMS Inpatient Psychiatric Facility Quality Reporting (IPFQR), the National Committee for Quality Assurance's (NCQA) Patient-Centered Medical Home Recognition program, and Meaningful Use measures (federal incentives to promote certified Electronic Health Record (EHR) technology use). CHA utilized benchmarks as available with these measures to set achievement targets. In the absence of available benchmarks, CHA developed its own achievement targets based on internal data for measures. Initiative plans were developed following the Standard Terms and conditions provided by CMS and were reviewed and approved by MassHealth.

Medicaid Administrative Data

MassHealth enrollment, medical claims/encounter files, and pharmacy claims files were used to calculate quality measures for the 15 safety net hospitals.

Uncompensated Care Cost and Charge Report

The Massachusetts Executive Office of Health and Human Services (EOHHS) Office of Medicaid required hospitals to submit cost, charge, and patient day data via the UCCR, reported by fiscal year. These data were used to ensure compliance with the Uncompensated Care Cost Limit Protocol developed by EOHHS and approved by CMS on December 11, 2013. In addition, EOHHS used the data to calculate the preliminary payment amounts for certain supplemental payments. These reports contained Medicaid and uninsured cost, charge, and revenue data reported by the hospitals. The UCCR is structured based on Medicare cost-reporting principles.[197]

4.2.4. Study Population

The primary study population for the analyses was MassHealth managed care eligible members (i.e., those enrolled in an ACO, Managed Care Organization (MCO), or Primary Care Clinician (PCC) plan, referenced as MCE) served in the inpatient or outpatient setting within one or more

[197] Details about the content of these reports can be found at: https://www.mass.gov/lists/cost-limit-protocol

measurement periods (i.e., an individual could provide multiple records to the analysis, one for each calendar year measurement period during which they met inclusion criteria) by 15 Massachusetts safety net hospitals eligible for PHTII or SNPP, as listed below. The MCE population has MassHealth as their primary insurance coverage source; therefore, all of their covered services should be recorded in MassHealth's administrative data. The analysis does not include fee-for-service (FFS) population to avoid misclassifying individuals when calculating quality measures due to missing data where MassHealth is not the primary payer.[198]

Hospitals Eligible for PHTII

CHA

Hospitals Eligible for SNPP

Baystate Medical Center

Berkshire Medical Center

Boston Medical Center

Franklin Medical Center

Good Samaritan Hospital

Holyoke Medical Center

Lawrence General Hospital

Mercy Medical Center

Morton Hospital

North Shore Medical Center

Signature Healthcare Brockton Hospital

Southcoast Hospital Group

Steward Carney Hospital

Tufts Medical Center

4.2.5. Comparison Group

A clear comparison group, one that will estimate measure outcomes in the absence of the 2017–2022 Demonstration activities, does not exist because the risk-based payments are applicable for all safety net hospitals in Massachusetts. In lieu of a traditional comparison group approach, we used multivariable regression modeling to compare quality performance during the 2017–2022 Demonstration to baseline (CY2015–CY2017) performance.

[198] For many FFS members, MassHealth is a secondary source of insurance coverage (i.e., they have another primary source of coverage such as Medicare, another government source, or a commercial plan). In some cases, such third-party liability insurance may cover the entire cost of healthcare services, in which case there would be no record in the MassHealth administrative data. Therefore, analysis on the FFS population will lead to biased estimate and not conducted. We validated our decisions by performing tests of estimates for the MCE and FFS (with and without third-party liability insurance or TPL) on three measures (i.e., adult access to preventive care, all-cause ED visits, and acute unplanned hospital admission). We found that the all-cause ED visit rates were substantially (i.e., 38.3 to 55.3 ED visits per 100 members) lower for the FFS population with TPL, compared with the FFS population without TPL, across 2015 to 2022. Differences were also observed for the other two measures.

4.2.6. Measures

Measures are defined as follows:

To evaluate **H1:**

- For the PHTII: participation in the MassHealth ACO program and the measure slates outlined in the PHTII protocol (CHA only, as detailed above) (see **Appendix N** for the measure slate contents).
- For the 15 safety net hospitals overall (i.e., CHA receiving PHTII and the 14 safety net hospitals receiving SNPP): ACO quality performance measures were defined for DSRIP and applicable to the 15 safety net hospitals. These measures are described in Appendix B of the EDD.[199] Evaluation results of the selected measures below are reported in **Section 4.3**.

Hospitalization Measures

- Acute Unplanned Hospitalization Admissions (Overall)
- Acute Unplanned Hospitalization Admissions (Adults)
- Pediatric Hospitalizations (All-Cause)

Emergency Department Visit Measures

- All-Cause ED Visits (Overall)
- Primary Care Sensitive ED Use/Visits (Adults and Children)
- Pediatric ED Visits (All-Cause)

Access to Primary Care Measures

- Annual Primary Care Visit Rate (Overall)
- Annual Primary Care Visit Rate (Adults)
- Annual Primary Care Visit Rate (Children)
- Adults' Access to Preventive/Ambulatory Health Services
- Children and Adolescents' Access to Primary Care Practitioners
- Adolescent Well Care

Behavioral Health Quality Measures

- ED Visits for Adults with Mental Illness and/or Substance Use Addiction
- Follow-up after ED Visit for Mental Illness (seven days) (Overall)
- Follow-up after Hospitalization for Mental Illness (seven days) (Overall)
- Initiation and Engagement of Alcohol and Other Drug Dependence Treatment (Adults)
- Antidepressant Medication Management, Acute and Continuation (Adults)

Total Cost of Care Measure

- TCOC for All Covered Services (Overall)

[199] Appendix B located in: MassHealth. (2018, December). Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017–2022. Mass.gov. Independent Evaluation Design Document.

To evaluate **H2**:

- Uncompensated care cost (UCC) for the 14 safety net hospitals receiving SNPP.

4.2.7. Data Analysis

For the first part of **H1**, descriptive statistics are reported for the PHTII measure slates. We have presented CHA's performance using a summary measure, the percentage of measures meeting the target over time for each of the four PHTII measure sets.[200]

To examine whether SNPP and PHTII payments were associated with improvements in care quality, we conducted multivariable regression to compare 2017–2022 Demonstration performance with pooled CY2015–CY2017 baseline performance while adjusting for potential confounding due to changes in member characteristics (age, gender, DxCG (a diagnosis-based relative risk score), RxCG (a medication-based relative risk score), indicator of a client of the Massachusetts DMH, indicator of a client of the Department of Developmental Services (DDS), homeless/unstable housing status, COVID-19 pandemic, and year). Negative binomial, Poisson, logistic, or linear regression models were selected based on the distributional properties of the quality/outcome measures; these models estimated adjusted incidence rate ratios (aIRRs), adjusted odds ratios (aORs), and differences comparing each Demonstration year separately with the pooled baseline period. Because one safety net hospital (CHA) receives PHTII payments while the other 14 safety net hospitals receive SNPP payments, the analyses were conducted for three groupings of hospitals: all 15 safety net hospitals (referenced as Group 1), 14 safety net hospitals not including CHA (referenced as Group 2), and CHA only (referenced as Group 3).

To address **H2**, we present uncompensated care costs for the 14 safety net hospitals receiving annual SNCP funding adjusted for inflation (CY2022 dollars). Hospitals subject to the cost limit protocol (e.g., those that receive SNCP funding) submit the UCCR and CMS 2552-10 forms.[201] After comparing the UCCR (developed by the Massachusetts EOHHS) to a similar data source, the federal CMS 2552-10 form, we learned that the UCCR collected data more relevant to the Commonwealth and the 2017–2022 Demonstration. Per the Uncompensated Care Cost Limit Protocol, the UCCR allows reporting for costs related to services provided to Medicaid-eligible or uninsured populations not captured in the CMS 2552-10 form. While the UCCR has consistent definitions for each variable, hospitals rely on their own definition of charity care when reporting on these costs on the CMS 2552-10. The definition is derived from each hospital's own charity care or financial assistance policies, which can be modified over time. Given the limited number of data points available, we present and describe the changes in uncompensated care costs before (i.e., CY2016 and CY2017) and during the 2017–2022 Demonstration (i.e., CY2018–CY2022). Still, we could not statistically test the hypothesis that uncompensated care costs did not increase.

[200] The EDD indicated the use of interrupted time series (ITS) analysis for PHTII measure analysis. However, we learned that the measures are only reported on an annual rather than tri-annual basis, which does not provide enough data points to allow for the ITS analysis.

[201] Details about the CMS 2552-10 form can be found at https://www.cms.gov/regulations-and-guidancelegislationpaperworkreductionactof1995pra-listing/cms-2552-10

4.3. Summative Findings

4.3.1. Hypothesis 1: Increasing the portion of at-risk funding for safety net hospitals under the PHTII and SNPP will be associated with improved care quality at these sites

CHA PHTII Measure Slate Performance

CHA met all benchmarks on all reporting and performance measures for which they claimed full payment (see **Table 4.3-1**). Their performance improved in SFY2022 compared to SFY2019, despite fluctuations in SFY2020 and SFY2021 that were impacted by the COVID-19 pandemic. When examining performance on the broader set of all reported measures, CHA showed mixed performance on the four PHTII measure slates completed through CY2022, based on the percentage of measures within a slate for which performance targets were met or achieved (see **Table 4.3-1**). However, the COVID-19 pandemic influenced SFY2020 and SFY2021 reporting for the full measure slates in two ways. First, EOHHS, with approval from CMS, instructed CHA to report SFY2020 data in SFY2021 (referenced as SFY2020/SFY2021). Secondly, performance was reported on only 9 out of 11 measures in SFY2020.These changes were in response to CHA's resources being focused on responding to COVID-19 needs, which meant that they were not able to track and monitor these data.

CHA met or exceeded performance targets on over 50% of reported measures for each slate annually, but it could not sustain improvements from year to year on three of the measure slates. Performance on Measure Slates 1, 3, and 4 decreased from SFY2019 to SFY2020/SFY2021, then increased in SFY2022. For these slates, achievement in SFY2022 was the same or higher than in SFY2019, with an additional measure being achieved in SFY2022.

Achievement of performance targets for Measure Slate 2 (i.e., Comprehensive Systems for Treating Mental Health and Substance Use Conditions) improved annually between SFY2019 and SFY2020/SFY2021, the only measure slate to exhibit this trend. CHA’s performance on this slate rose by 15 percentage points (two additional measures achieved) from SFY2019 to SFY2020/SFY2021, from 54% to 69%, then fell in SFY2022 by about half the percentage points gained (7 percentage points), which represented one measure that was not achieved in SFY2022 to 62%.

Table 4.3-1 CHA PHTII Measure Slate Achievement (SFY2019–SFY2022)

Measure Slate	Measure Achievement Status	SFY2019	SFY2020[a]	SFY2021[b]	SFY2022
Measures for Which CHA Received Full Payment, by Measure Slate					
1. Behavioral Health and Primary Care Integration	Achieved	4/4 (100%)	5/5 (100%)	5/5 (100%)	5/5 (100%)
2. Comprehensive Systems for Treating Mental Health and Substance Use Conditions	Achieved	5/5 (100%)	7/7 (100%)	7/7 (100%)	7/7 (100%)

Measure Slate	Measure Achievement Status	SFY2019	SFY2020[a]	SFY2021[b]	SFY2022
3. Referral Management and Integrated Care Management	Achieved	4/4 (100%)	7/7 (100%)	7/7 (100%)	7/7 (100%)
4. Evidence-Based Practices for Medical Management of Chronic Conditions	Achieved	4/4 (100%)	7/7 (100%)	7/7 (100%)	7/7 (100%)
Reported Measures, by Measure Slate					
1. Behavioral Health and Primary Care Integration (N=11 Measures)	Achieved	7/11 (64%)	5/9[a] (56%)	5/9[a,b] (56%)	8/11 (73%)
2. Comprehensive Systems for Treating Mental Health and Substance Use Conditions (N=13 Measures)	Achieved	7/13 (54%)	9/13 (69%)	9/13 (69%)	8/13 (62%)
3. Referral Management and Integrated Care Management (N=13 Measures)	Achieved	9/13 (69%)	7/13 (54%)	7/13 (54%)	10/13 (77%)
4. Evidence-Based Practices for Medical Management of Chronic Conditions (N=13 Measures)	Achieved	8/13 (62%)	7/13 (54%)	7/13 (54%)	8/13 (62%)

Source: PHTII annual reports submitted to MassHealth

[a] Two Slate 1 measures could not be reported in SFY2020 due to the COVID-19 pandemic.

[b] EOHHS instructed CHA to use SFY2020 data in SFY2021 reporting due to the COVID-19 pandemic.

Safety Net Hospital Quality Measure Results

Table 4.3-2 describes the population characteristics of the MCE population for the 15 safety net hospitals. The baseline (CY2015–CY2017) and Demonstration periods (CY2018–CY2022) comprised 55%–58% women, with a mean age of 29 (34%–37% below 18 years of age in each analysis period), 15%–16% unstably housed or experiencing homelessness, and 15%–21% with any disability. The population had DxCG and RxCG scores (summary measures of medical morbidity) ranging from 1.71–1.95, and a Neighborhood Stress Score (NSS) ranging from 1.10–1.34. CHA and the other 14 hospitals have similar patterns; however, on average, CHA's patients are younger, less likely to be female, homeless, and have disabilities, and have lower risk scores and NSS compared to the populations at the other 14 hospitals.

Table 4.3-2 Characteristics of Safety Net Hospital MCE Members (CY2015–CY2022)

Measure and Population	CY2015–CY2017 (Baseline)	CY2018	CY2019	CY2020	CY2021	CY2022
Group 1 (15 Safety Net Hospitals) – n (%)						
Female	405,045 (57.6)	134,628 (56.9)	133,766 (56.6)	145,931 (55.1)	195,913 (56.2)	199,836 (56.8)
Age <18 years old	257,617 (36.6)	83,651 (35.4)	87,225 (36.9)	93,614 (35.3)	119,919 (34.4)	119,609 (34.0)

Measure and Population	CY2015–CY2017 (Baseline)	CY2018	CY2019	CY2020	CY2021	CY2022
Homeless/Unstable Housing	106,843 (15.2)	38,450 (16.3)	36,038 (15.3)	43,664 (16.5)	42,334 (15.2)	41,314 (14.7)
Any Disability	148,962 (21.2)	49,691 (21.0)	49,759 (21.1)	55,332 (20.9)	53,100 (15.2)	51,655 (14.7)
Mean (SD[a])						
Age in Years	28.8 (18.7)	29.8 (18.8)	29.5 (19.2)	29.4 (18.7)	28.9 (18.2)	29.0 (18.3)
DxCG[b]	1.91 (3.2)	1.95 (3.2)	1.94 (3.1)	1.95 (3.2)	1.71 (2.9)	1.78 (3.0)
RxCG[b]	1.33 (3.1)	1.27 (3.0)	1.56 (3.2)	1.35 (3.0)	1.17 (2.9)	1.18 (3.0)
NSS[c]	1.31 (1.0)	1.33 (1.0)	1.33 (1.0)	1.34 (1.0)	1.10 (1.1)	1.33 (1.0)
Group 2 (14 Safety Net Hospitals) – n (%)						
Female	365,174 (57.9%)	122,952 (57.2%)	122,236 (56.9%)	132,777 (55.4%)	178,910 (56.4%)	181,074 (57.0%)
Age <18 years old	224,429 (35.6%)	74,083 (34.5%)	77,086 (35.9%)	82,174 (34.3%)	106,843 (33.7%)	105,771 (33.3%)
Homeless/Unstable Housing	97,977 (15.5%)	35,791 (16.7%)	33,318 (15.5%)	30,780 (12.8%)	36,617 (11.6%)	35,544 (11.2%)
Any Disability	139,478 (22.1%)	46,776 (21.8%)	46,719 (21.7%)	42,171 (17.6%)	47,275 (14.9%)	45,935 (14.4%)
Mean (SD[a])						
Age in Years	29.2 (18.7)	30.1 (18.8)	29.8 (19.2)	29.8 (18.7)	29.1 (18.2)	29.3 (18.3)
DxCG[b]	1.58 (2.8)	1.62 (2.9)	1.80 (3.1)	1.88 (3.2)	1.58 (3.1)	1.74 (3.2)
RxCG[b]	1.34 (3.1)	1.31 (3.0)	1.62 (3.2)	1.41 (3.1)	1.21 (3.0)	1.23 (3.1)
NSS[c]	1.36 (1.1)	1.36 (1.0)	1.37 (1.0)	1.38 (1.1)	1.17 (1.1)	1.37 (1.0)
Group 3 (CHA) – n (%)						
Female	39,871 (44.8%)	11,676 (54.0%)	11,530 (54.0%)	13,154 (52.3%)	17,003 (54.2%)	18,762 (55.2%)
Age <18 years old	33,188 (45.9%)	9,568 (44.2%)	10,139 (47.5%)	11,440 (45.5%)	13,076 (41.6%)	13,838 (40.7%)
Homeless/Unstable Housing	8,866 (12.3%)	2,659 (12.3%)	2,456 (11.5%)	2,262 (9.0%)	2,684 (8.5%)	2,805 (8.2%)
Any Disability	9,484	2,901	2,776	2,539	2,792	2,755

Measure and Population	CY2015–CY2017 (Baseline)	CY2018	CY2019	CY2020	CY2021	CY2022
	(13.1%)	(13.4%)	(13.0%)	(10.1%)	(8.9%)	(8.1%)
Mean (SD[a])						
Age in Years	25.9 (18.8)	27.3 (18.8)	26.4 (19.2)	26.4 (18.9)	26.6 (18.1)	26.7 (18.0)
DxCG[b]	1.14 (2.3)	1.19 (2.4)	1.35 (2.6)	1.34 (2.6)	1.16 (2.8)	1.22 (2.7)
RxCG[b]	1.00 (2.5)	0.94 (2.5)	0.99 (2.4)	0.76 (2.0)	0.70 (2.2)	0.73 (2.3)
NSS[c]	0.93 (0.7)	0.99 (0.6)	0.98 (0.6)	0.96 (0.6)	0.4 (0.6)	1.00 (0.6)

Source: MassHealth administrative data.

Note: Each year includes members who are MCE for at least 320 days that year.

[a] Standard Deviation

[b] The DxCG and RxCG are summary measures of medical morbidity with the mean set to 1 in the MassHealth MCE baseline (CY2015–CY2017) population.

[c] NSS is the Neighborhood Stress Score, standardized to have mean = 0 and SD = 1 in the same population.

Hospitalization Measures

Table 4.3-3 below presents results for hospitalization measures where performance was compared over time for the three groupings of the hospitals between the baseline period and individual years in CY2018–CY2022. The lower the measure values for all hospitalization measures, the more desirable the performance. Therefore, an aIRR lower than 1.00 indicates improved quality. Overall, groups 1 and 2 performed better than the baseline for the hospitalization measures during the Demonstration years.

For Group 1, the crude incidence rate for acute unplanned hospital admissions overall in the baseline period was 21.4 admissions per 100 members. Compared with the baseline period, the CY2018 rate was lower (aIRR = 0.89; 95% Confidence Interval (CI): 0.88, 0.90). The admission rates for CY2019–CY2022 declined gradually, with the largest reduction from baseline occurring in CY2021 (aIRR = 0.68; 95% CI: 0.67, 0.69). The aIRR in CY2022 was of a similar magnitude to CY2021. The other two groups of hospitals followed a similar pattern of performance change. These results suggest that all-cause inpatient admission rates declined over time, including during the COVID-19 pandemic.

In the baseline period, the crude incidence rate for acute unplanned hospital admissions for adults in Group 1 was 28.5 admissions per 100 members. Compared with the baseline period, the CY2018 rate was lower (aIRR = 0.89; 95% CI: 0.87, 0.92). The rates continued to decline through CY2022 for all three groups.

The incidence rate of pediatric All-Cause hospital admissions in the baseline period for Group 1 was 5.9 per 100 members. The rate in CY2018 was lower than baseline (aIRR = 0.83; 95% CI: 0.79, 0.87), as was CY2019 (aIRR = 0.85; 95% CI: 0.81,0.89). The rate dropped in CY2020 (aIRR = 0.69; 95% CI: 0.66, 0.73). The rates were still below baseline in CY2021 and CY2022.

Group 2 performed similarly to Group 1, but Group 3 had higher rates of pediatric hospital admissions for CY2019, CY2021, and CY2022, although only the CY2019 rate was statistically significant.

Table 4.3-3 Incidence Rate Ratios of Hospitalization Measures Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015-CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Group 1 (15 Safety Net Hospitals)						
Overall						
Acute unplanned hospitalization admissions	1.00 (21.4)	0.89*** (0.88, 0.90)	0.85*** (0.84, 0.86)	0.81*** (0.80, 0.82)	0.68*** (0.67, 0.69)	0.70*** (0.69, 0.71)
Adult Population						
Acute unplanned hospital admissions (adult)	1.00 (28.5)	0.89*** (0.87, 0.92)	0.85*** (0.83, 0.86)	0.82*** (0.81, 0.84)	0.69*** (0.67, 0.70)	0.69*** (0.67, 0.70)
Pediatric Population						
Pediatric hospitalizations (All-Cause)	1.00 (5.9)	0.83*** (0.79, 0.87)	0.85*** (0.81, 0.89)	0.69*** (0.66, 0.73)	0.65*** (0.62, 0.69)	0.70*** (0.67, 0.74)
Group 2 (14 Safety Net Hospitals)						
Overall						
Acute unplanned hospitalization admissions	1.00 (22.0)	0.88*** (0.87, 0.90)	0.84*** (0.83, 0.85)	0.80*** (0.79, 0.81)	0.67*** (0.66, 0.68)	0.69*** (0.68, 0.70)
Adult Population						
Acute unplanned hospital admissions (adult)	1.00 (28.8)	0.88*** (0.87, 0.90)	0.84*** (0.82, 0.85)	0.82*** (0.81, 0.83)	0.68*** (0.66, 0.69)	0.68*** (0.67, 0.70)
Pediatric Population						
Pediatric hospitalizations (All-Cause)	1.00 (6.3)	0.81*** (0.77, 0.86)	0.82*** (0.78, 0.86)	0.67*** (0.63, 0.71)	0.63*** (0.59, 0.66)	0.68*** (0.64, 0.71)
Group 3 (CHA)						
Overall						
Acute unplanned hospitalization admissions	1.00 (16.4)	0.96 (0.90, 1.01)	0.99 (0.94, 1.05)	0.88*** (0.83, 0.93)	0.82*** (0.77, 0.88)	0.75*** (0.71, 0.79)
Adult Population						
Acute unplanned hospital admissions (adult)	1.00 (24.9)	0.94 (0.89, 1.00)	0.94 (0.89, 1.00)	0.87*** (0.82, 0.92)	0.79*** (0.74, 0.85)	0.69*** (0.66, 0.73)
Pediatric Population						

Measure and Population	CY2015-CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Pediatric hospitalizations (All-Cause)	1.00 (3.3)	0.97 (0.80, 1.18)	1.28** (1.09, 1.50)	0.99 (0.82, 1.20)	1.03 (0.87, 1.21)	1.03 (0.83, 1.27)

Source: MassHealth administrative data.

Note: P-value: **P <0.01, *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The measure values vary around 1. A measure value less than 1 suggests a more desirable performance.

[a] The crude rate is per 100 members.

[b] aIRRs are from logistic regression models.

Emergency Department Visit Measures

Table 4.3-4 below presents ED visit measure results for the three hospital groups during the baseline period compared to individual years (CY2018–CY2022). Like the hospitalization measures above, the lower the measure values, the more desirable the performance. Therefore, an aIRR lower than 1.00 indicates improved quality.

During the baseline period, the crude rate of All-Cause ED visits among adults and children for Group 1 was 134.3 admissions per 100 members. Compared with the baseline period, the aIRR for CY2018 was 1.05 (95% CI: 1.03, 1.05), but the rates started declining from CY2019 (pre-COVID) and continued declining during CY2020–CY2022 (during the COVID-19 pandemic). Groups 2 and 3 had a similar performance trend for this measure, except for CY2018, where the rate was the same as the baseline in Group 3.

The ED visits for Primary Care Sensitive ED visits and for the pediatric populations had a similar pattern as All-Cause ED visits. Primary Care Sensitive ED visits for adults and children were slightly higher than the baseline in CY2018 for all three groups; however, similar to All-Cause ED visits, a rate reduction was observed in CY2019–CY2022. The incidence rate of Pediatric ED visits during the baseline period was 106.2 visits per 100 members for Group 1. Compared with the baseline period, the rates in CY2018 (aIRR = 1.10; 95% CI: 1.09, 1.11) and CY2019 (aIRR = 1.03; 95% CI: 1.02, 1.04) were higher, with some fluctuation until CY2022, but the incidence rates for CY2020–CY2022 remained below baseline, indicating improved performance. All the improvements compared to the baseline were statistically significant. Results for Groups 2 and 3 followed a similar pattern, except for CY2019, where the Group 3 rate dropped below baseline.

Table 4.3-4 Incidence Rate Ratios of ED Visit Measures Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Group 1 (15 Safety Net Hospitals)						

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Overall						
All-Cause ED visits, overall	1.00 (134.3)	1.05*** (1.03, 1.05)	0.98*** (0.98, 0.99)	0.77*** (0.77, 0.78)	0.77*** (0.76, 0.78)	0.75*** (0.75, 0.76)
Primary care sensitive ED visits, overall	1.00 (104.2)	1.01 (1.00, 1.01)	0.98*** (0.97, 0.98)	0.81*** (0.80, 0.81)	0.82*** (0.81, 0.83)	0.80*** (0.79, 0.80)
Pediatric Population						
Pediatric ED visits (All-Cause)	1.00 (106.2)	1.10*** (1.09, 1.11)	1.03*** (1.02, 1.04)	0.67*** (0.66, 0.68)	0.69*** (0.68, 0.70)	0.83*** (0.83, 0.84)
Group 2 (14 Safety Net Hospitals)						
Overall						
All-Cause ED visits, overall	1.00 (136.1)	1.04*** (1.04, 1.05)	0.99*** (0.98, 0.99)	0.78*** (0.77, 0.78)	0.76*** (0.76, 0.77)	0.75*** (0.74, 0.75)
Primary care sensitive ED visits, overall	1.00 (104.3)	1.01 (1.00, 1.01)	0.98*** (0.97, 0.98)	0.80*** (0.80, 0.81)	0.82*** (0.81, 0.82)	0.79*** (0.78, 0.80)
Pediatric Population						
Pediatric ED Visits (All-Cause)	1.00 (108.9)	1.10*** (1.09, 1.11)	1.03*** (1.02, 1.04)	0.68*** (0.67, 0.69)	0.68*** (0.67, 0.69)	0.82*** (0.82, 0.84)
Group 3 (CHA)						
Overall						
All-Cause ED visits, overall	1.00 (118.8)	1.00 (0.98, 1.02)	0.95*** (0.93, 0.97)	0.71*** (0.69, 0.73)	0.84*** (0.82, 0.87)	0.81*** (0.79, 0.83)
Primary care sensitive ED visits, overall	1.00 (104.0)	1.01 (0.98, 1.03)	0.98 (0.96, 1.00)	0.82*** (0.79, 0.84)	0.90*** (0.87, 0.92)	0.84*** (0.82, 0.86)
Pediatric Population						
Pediatric ED visits (All-Cause)	1.00 (87.6)	1.03* (1.01, 1.06)	0.98 (0.95, 1.01)	0.56*** (0.54, 0.58)	0.77*** (0.74, 0.80)	0.87*** (0.85, 0.90)

Source: MassHealth administrative data.

Note: P-value: *P <0.05, *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The measure values vary around 1. A measure value less than 1 suggests a more desirable performance.

[a] The crude rate is per 100 members.

[b] aIRRs are from logistic regression models.

Access to Primary Care Measures

Table 4.3-5 below presents results for annual primary care visit rate measures comparing performance over time for the three hospital groups during baseline and Demonstration individual years CY2018–CY2022. For these measures, a higher measure value suggests a more desirable performance. Therefore, an aIRR higher than 1.00 indicates improved quality.

For Group 1, on average, members ages 2 to 64 visited their primary care provider 6.5 times per member per year at baseline (CY2015–CY2017), with the same rate in CY2018 (aIRR = 1.00; 95% CI: 0.99, 1.00). Primary care visit rates declined slightly in CY2019 and even further in CY2020, the first year of the COVID-19 pandemic. The rates remained below baseline through CY2022 (aIRR = 0.84; 95% CI: 0.83, 0.84). Groups 2 and 3 had similar results, with a rate in CY2018 that was slightly below baseline.

Adults ages 18 to 64 visited their primary care provider 7.3 times on average per year at baseline for Group 1, with slight decreases in CY2018 and CY2019 and then a steeper decline through CY2022 (aIRR = 0.85; 95% CI: 0.84, 0.85). The annual primary care visit rate for children ages 2 to 17 fluctuated over time in Group 1. At baseline, the rate was 5.1 visits per year. Primary care visit rates rose slightly in CY2018 (aIRR = 1.02; 95% CI: 1.02, 1.03), declined in CY2019 and CY2020, and increased slightly in CY2021 and CY2022, although it remained below the baseline. The trend for annual primary care visit rates for adults and children was similar for Groups 2 and 3. The decline in rates corresponded to the COVID-19 pandemic period when a universal decline in in-person outpatient healthcare use was observed.

Table 4.3-5 Incidence Rate Ratios of Primary Care Visit Measures Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Group 1 (15 Safety Net Hospitals)						
Overall						
Annual primary care visit rate	1.00 (6.5)	1.00* (0.99, 1.00)	0.95*** (0.95, 0.96)	0.87*** (0.87, 0.88)	0.87*** (0.87, 0.87)	0.84*** (0.83, 0.84)
Adults						
Annual primary care visit rate	1.00 (7.3)	0.99*** (0.98, 0.99)	0.97*** (0.96, 0.97)	0.93*** (0.92, 0.93)	0.93*** (0.92, 0.93)	0.85*** (0.84, 0.85)
Pediatric Population						
Annual primary care visit rate	1.00 (5.1)	1.02*** (1.02, 1.03)	0.94*** (0.93, 0.94)	0.76*** (0.75, 0.76)	0.77*** (0.76, 0.77)	0.82*** (0.82, 0.83)
Group 2 (14 Safety Net Hospitals)						
Overall						
Annual primary care visit rate	1.00 (6.7)	0.99** (0.99, 1.00)	0.95*** (0.95, 0.96)	0.87*** (0.87, 0.88)	0.87*** (0.86, 0.87)	0.84*** (0.83, 0.84)
Adults						
Annual primary care visit rate	1.00 (7.5)	0.99*** (0.98, 0.99)	0.97*** (0.96, 0.97)	0.93*** (0.92, 0.93)	0.92*** (0.92, 0.93)	0.85*** (0.85, 0.86)
Pediatric Population						

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Annual primary care visit rate	1.00 (5.3)	1.02*** (1.01, 1.02)	0.93*** (0.92, 0.94)	0.75*** (0.75, 0.76)	0.75*** (0.75, 0.76)	0.82*** (0.81, 0.82)
Group 3 (CHA)						
Overall						
Annual primary care visit rate	1.00 (5.0)	0.99 (0.98, 1.01)	0.95*** (0.93, 0.96)	0.86*** (0.85, 0.88)	0.88*** (0.86, 0.89)	0.83*** (0.82, 0.84)
Adults						
Annual primary care visit rate	1.00 (6.1)	0.97** (0.95, 0.99)	0.93*** (0.91, 0.95)	0.92*** (0.9, 0.93)	0.91*** (0.89, 0.93)	0.83*** (0.81, 0.84)
Pediatric Population						
Annual primary care visit rate	1.00 (3.7)	1.03** (1.01, 1.04)	0.97*** (0.95, 0.99)	0.77*** (0.75, 0.78)	0.80*** (0.78, 0.82)	0.81*** (0.80, 0.83)

Source: MassHealth administrative data.

Note: P-value: *P <0.05, **P <0.01, *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The measure values vary around 1. A measure value greater than 1 suggests a more desirable performance.

[a] The crude rate is the number of visits per member per year.

[b] aIRRs are from logistic regression models.

Table 4.3-6 below shows results for access to care for adults, adolescents, and children, and adolescent well-care visits. Performance was compared over time for the three hospital groups during the baseline and Demonstration individual calendar years CY2018–CY2022. Higher measure values suggest better performance for all measures in this table. Therefore, an aIRR higher than 1.00 indicates improved quality relative to baseline.

For the Adult Access to Preventive/Ambulatory Health Services measure, the percentage of members 20 years and older who had an ambulatory or preventive visit during the baseline period for Group 1 was 94.2%. Compared to the baseline, the rate in CY2018 dropped slightly but insignificantly, followed by an increase in CY2019 (aOR = 1.03; 95% CI: 1.01, 1.06). The rate dropped in CY2020 (aOR = 0.89; 95% CI: 0.86, 0.91) and began increasing in CY2021 and CY2022, reaching rates similar to baseline in CY2022. There was less variation in the trends for Groups 2 and 3, where rates were the same as or slightly below the baseline.

For the Children and Adolescents' Access to Primary Care Practitioners measure, the percentage of younger children aged 1 to 6 years old who had a visit with a primary care provider during the baseline period was 98.1%. There was no change in CY2018 compared to the baseline (aIRR = 1.00; 95% CI: 1.00, 1.00). The aIRRs for CY2019–CY2020 were slightly lower than the baseline, then the largest reduction versus the baseline was in CY2021 (aIRR = 0.85; 95% CI: 0.84, 0.85). The rate began increasing in CY2022 to only slightly lower than the baseline. The percentage of older children, 7 to 19 years old, who had an ambulatory or preventive visit during the baseline period was 98.3%. There was no change in CY2018

compared to baseline (aIRR = 1.00 (95% CI: 1.00, 1.00). Like the younger group, the aIRRs for CY2019–CY2020 were only slightly lower than the baseline, with a more substantial drop in CY2021 and subsequent increase in CY2022. Groups 2 and 3 had similar trends for both age groups. The decline coincided with the early years of the COVID-19 pandemic.

For the Adolescent Well-Care Visits measure, 68.4% of adolescents ages 12 to 21 had at least one comprehensive well-care visit with a PCP or OB/GYN practitioner during the baseline period (CY2015–CY2017). Compared to the baseline, the aIRR for CY2018 was lower at 0.71 (95% CI: 0.68, 0.73). The rates in CY2019–CY2022 were also lower than the baseline, with the lowest results in CY2022 (aIRR = 0.43; 95% CI: 0.42, 0.44). Trends for Groups 2 and 3 were consistent with Group 1. However, Group 3 had much lower rates compared to the baseline across all calendar years.

Table 4.3-6 Odds Ratios and Incidence Rate Ratios of Primary Care Visit and Access Measures Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aOR[b] (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)
Group 1 (15 Safety Net Hospitals)						
Adults						
Adult access to preventive/ ambulatory health services	1.00 (94.2%)	0.99 (0.97, 1.02)	1.03* (1.01, 1.06)	0.89*** (0.86, 0.91)	0.93*** (0.91, 0.96)	0.98* (0.95, 1.00)
Pediatric Population						
Children and adolescents' access to primary care practitioners (ages 1-6)	1.00 (98.1%)	1.00 (1.00, 1.00)	0.99*** (0.99, 0.99)	0.97*** (0.96, 0.97)	0.85*** (0.84, 0.85)	0.96*** (0.96, 0.96)
Children and adolescents' access to primary care practitioners (ages 7-19)	1.00 (98.3%)	1.00c (1.00, 1.00)	0.99*** (0.99, 0.99)	0.99*** (0.98, 0.99)	0.78*** (0.78, 0.79)	0.91*** (0.91, 0.92)
Adolescent well care	1.00 (68.4%)	0.71*** (0.68, 0.73)	0.63*** (0.62, 0.65)	0.45*** (0.44, 0.46)	0.50*** (0.48, 0.51)	0.43*** (0.42, 0.44)
Group 2 (14 Safety Net Hospitals)						
Adults						
Adult access to preventive/ ambulatory health services	1.00 (94.1%)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	0.99*** (0.99, 1.00)	0.99*** (0.99, 1.00)	1.00** (1.00, 1.00)
Pediatric Population						
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aOR[b] (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)
Children and adolescents' access to primary care practitioners (ages 1-6)	1.00 (98.0%)	1.00 (1.00, 1.00)	0.99*** (0.99, 0.99)	0.97*** (0.97, 0.97)	0.85*** (0.85, 0.86)	0.96*** (0.96, 0.96)
Children and adolescents' access to primary care practitioners (ages 7-19)	1.00 (98.3%)	1.00 (1.00, 1.00)	0.99*** (0.99, 0.99)	0.99*** (0.98, 0.99)	0.79*** (0.79, 0.80)	0.91*** (0.91, 0.92)
Adolescent well care	1.00 (69.7%)	0.75*** (0.73, 0.78)	0.68*** (0.66, 0.70)	0.48*** (0.47, 0.49)	0.51*** (0.49, 0.52)	0.44*** (0.43, 0.46)
Group 3 (CHA)						
Adults						
Adult access to preventive/ambulatory health services	1.00 (95.0%)	0.99*** (0.99, 1.00)	1.00 (0.99, 100)	0.98*** (0.98, 0.99)	0.97*** (0.97, 0.98)	0.98*** (0.98, 0.99)
Pediatric Population						
Children and adolescents' access to primary care practitioners (ages 1-6)	1.00 (98.1%)	1.00 (0.99, 1.01)	0.99* (0.99, 1.00)	0.95*** (0.95, 0.96)	0.80*** (0.78, 0.82)	0.97*** (0.96, 0.97)
Children and adolescents' access to primary care practitioners (ages 7-19)	1.00 (98.6%)	1.01** (1.00, 1.01)	1.00 (0.99, 1.00)	0.99*** (0.98, 0.99)	0.70*** (0.69, 0.71)	0.91*** (0.90, 0.92)
Adolescent well care	1.00 (59.2%)	0.46*** (0.42, 0.50)	0.37*** (0.35, 0.41)	0.29*** (0.26, 0.31)	0.34*** (0.31, 0.38)	0.35*** (0.32, 0.37)

Source: MassHealth administrative data.

Note: P-value: *P <0.05, **P <0.01, *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The measure values vary around 1. A measure value greater than 1 suggests a more desirable performance.

[a] The crude rate is the % of members with preventive/ambulatory care or primary care visits.

[b] aORs and aIRRs are from logistic regression models

BH Quality Measures

Table 4.3-7 below shows results for three BH measures between baseline and Demonstration years: ED visits for adults with mental illness and/or substance use addictions, seven-day follow-up after ED visit for mental illness, and seven-day follow-up after hospitalization for mental illness. For ED visits for mental illness and/or substance use addictions, as with other ED visit measures, the lower the measure values, the more desirable the performance. For follow-up care after an ED visit and after a hospitalization, higher measure values indicate more desirable performance.

During the baseline period, the incidence rate of ED visits for adults with mental illness and/or substance use was 210.6 admissions per 100 members. Compared with the baseline period, the aIRR for CY2018 was 1.01 (95% CI: 1.00, 1.03). The aIRRs for CY2020–CY2022 rates were

all lower than baseline, with the lowest rates in CY2022 (aIRR = 0.73; 95% CI: 0.72, 0.74). Group 2 had similar performance, whereas rates for Group 3 were below baseline for all calendar years.

During the baseline period, the incidence rate of seven-day follow-up after an ED visit for mental illness for Group 1 was 102.0 per 100 members. Compared with the baseline period, the aIRR for CY2018 was consistent at 1.00 (95% CI: 0.99, 1.02). The aIRRs for CY2019–CY2022 rates were all slightly lower than baseline, with the largest statistically significant reduction versus baseline in CY2022 (aIRR = 0.93; 95% CI: 0.91, 0.95), indicating less desirable performance over time. Group 2 followed a similar pattern. The rates for Group 3 fluctuated over time but were not significantly different from baseline.

For Group 1, the incidence rate of seven-day follow-up after hospitalization for mental illness was 84.8 per 100 members. Compared with the baseline period, the aIRR for CY2018 was slightly lower at 0.97 (95% CI: 0.94, 0.99). The aIRRS for CY2019–CY2021 were also slightly lower than baseline, with the largest decrease in CY2022 (aIRR = 0.78; 95% CI: 0.76, 0.81). Group 2 performed similarly. For Group 3, the rates remained close to baseline in CY2018–CY2021, before decreasing in CY2022 (aIRR = 0.86; 95% CI: 0.79, 0.93), similar to the other two groups.

Table 4.3-7 Incident Rate Ratios for BH Measures Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
Group 1 (15 Safety Net Hospitals)						
Adults						
ED visits for mental illness and/or substance use addiction	1.00 (210.6)	1.01* (1.00, 1.03)	0.95*** (0.94, 0.96)	0.84*** (0.83, 0.85)	0.83*** (0.82, 0.85)	0.73*** (0.72, 0.74)
Overall						
7-day follow-up after ED visit for mental illness	1.00 (102.0)	1.00 (0.99, 1.02)	0.99 (0.97, 1.01)	0.97** (0.95, 0.99)	0.98 (0.97, 1.00)	0.93*** (0.91, 0.95)
7-day follow-up after hospitalization for mental illness	1.00 (84.8)	0.97* (0.94, 0.99)	0.93*** (0.90, 0.96)	0.94*** (0.91, 0.97)	0.91*** (0.88, 0.94)	0.78*** (0.76, 0.81)
Group 2 (14 Safety Net Hospitals)						
Adults						
ED visits for adults with mental illness and/or substance use addiction	1.00 (209.6)	1.02** (1.01, 1.03)	0.96*** (0.95, 0.97)	0.85*** (0.84, 0.86)	0.83*** (0.82, 0.84)	0.73*** (0.72, 0.74)
Overall						

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aIRR[b] (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)	aIRR (95%CI)
7-day follow-up after ED visit for mental illness	1.00 (101.9)	1.01 (0.99, 1.03)	0.99 (0.97, 1.00)	0.97* (0.95, 0.99)	0.99 (0.97, 1.00)	0.93*** (0.91, 0.95)
7-day follow-up after hospitalization for mental illness	1.00 (84.5)	0.96* (0.93, 0.99)	0.92*** (0.89, 0.95)	0.93*** (0.90, 0.96)	0.89*** (0.86, 0.92)	0.78*** (0.75, 0.80)
Group 3 (CHA)						
Adults						
ED visits for adults with mental illness and/or substance use addiction	1.00 (221.5)	0.95* (0.91, 1.00)	0.86*** (0.82, 0.90)	0.78*** (0.74, 0.83)	0.88*** (0.83, 0.93)	0.75*** (0.72, 0.79)
Overall						
7-day follow-up after ED visit for mental illness	1.00 (103.6)	0.92 (0.85, 1.01)	1.01 (0.95, 1.08)	0.92 (0.86, 1.00)	0.97 (0.91, 1.03)	0.94 (0.88, 1.00)
7-day follow-up after hospitalization for mental illness	1.00 (87.3)	1.01 (0.94, 1.09)	0.99 (0.93, 1.06)	0.99 (0.91, 1.08)	1.03 (0.96, 1.11)	0.86*** (0.79, 0.93)

Source: MassHealth administrative data.

Note: P-value: *P <0.05, **P <0.01, *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The measure values vary around 1. A measure value less than 1 for ED and higher than 1 for 7-day follow-up visits suggests a more desirable performance.

[a] The crude rate is the number of ED visits or 7-day follow-ups per 100 members.

[b] aORs are from logistic regression models; Abbreviations: aOR (adjusted odds ratio); CI (confidence interval).

Table 4.3-8 shows the results over time for four measures: Initiation and Engagement of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment measures, and Antidepressant Medication Management, Acute and Continuation. These measures assess timely treatment for substance abuse disorder and dependence for improved outcomes, with a higher measure value suggesting better performance. Performance was compared over time for the three safety net hospital groups during baseline (CY2015–CY2017) and the individual years CY2018–CY2022.

Overall, results from the three groups were mixed, though performance improved in a few areas over time. For Group 1, the percentage of members with a new substance use disorder (SUD) diagnosis who initiated alcohol and other drug dependence treatment in the baseline period was 51.5%. Compared to the baseline period, the aOR for CY2018 was 0.85 (95% CI: 0.82, 0.88). The aORs for CY2019–CY2022 fluctuated, showing some years of improvement, but were all lower than the baseline. All Group 2 rates were also below the baseline but slightly higher than Group 1 rates. Rates for Group 3 fluctuated, with rates lower than the baseline for all years except CY2020 and CY2021, where rates were at baseline.

The percentage of members who initiated treatment and engaged in two or more additional alcohol, opioid, and other drug services or medication-assisted treatment within 34 days of the

initiation visit at baseline for Group 1 was 11.4%. Compared to the baseline period, the aOR for CY2018 was higher than the baseline at 1.09 (95% CI: 1.03, 1.15). The aOR remained higher than the baseline from CY2019–CY2022, with the highest increase in CY2022 (aOR = 1.28; 95% CI: 1.22, 1.35). All rates for Groups 2 and 3 were also at or above the baseline for each calendar year, except CY2018 for Group 3. These results suggest improved performance over time compared to the baseline.

The two antidepressant medication management measures assess the length of time newly treated members remained on antidepressant medication. Effective medication treatment for major depression can improve daily functioning and well-being and reduce suicide risk. Therefore, higher measure values for antidepression medication management suggest better performance.

For Group 1, results showed that half (50%) of members in the baseline period remained on antidepressant treatment for at least 12 weeks during the acute phase of treatment. Except for CY2018, where the aOR was 0.93 (95% CI: 0.89, 0.98), the rates were all higher than the baseline, with the biggest increase in CY2022 (aOR = 1.92; 95% CI: 1.83, 2.02). About 30% of members in the baseline period continued antidepressant treatment for at least six months during the continuation phase of treatment. Similar to the acute phase, except for CY2018, where the aOR was 0.94 (95% CI: 0.89, 0.99), the rates for the continuation phase were all above the baseline, with the highest in CY2022 (aOR = 1.66; 95% CI: 1.58, 1.75). Groups 2 and 3 had similar performance as Group 1, but for Group 3, all rates for acute antidepressant management were above the baseline, and the CY2018 below-baseline rate for continuation was lower than both Groups 1 and 2.

Table 4.3-8 Odds Ratios for BH Measures Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aOR[b] (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)
Group 1 (15 Safety Net Hospitals)						
Adults						
Initiation of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment	1.00 (51.5%)	0.85*** (0.82, 0.88)	0.82*** (0.79, 0.85)	0.88*** (0.85, 0.91)	0.83*** (0.8, 0.86)	0.90*** (0.87, 0.93)
Engagement of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment	1.00 (11.4%)	1.09** (1.03, 1.15)	1.09** (1.03, 1.14)	1.08*** (1.02, 1.13)	1.15*** (1.09, 1.22)	1.28*** (1.22, 1.35)
Antidepressant medication management (acute)	1.00 (50.0%)	0.93 (0.89, 0.98)	1.10*** (1.05, 1.16)	1.21*** (1.15, 1.27)	1.52*** (1.44, 1.61)	1.92*** (1.83, 2.02)
Antidepressant medication management (continuation)	1.00 (30.0%)	0.94 (0.89, 0.99)	1.07 (1.01, 1.12)	1.12*** (1.07, 1.18)	1.24*** (1.17, 1.31)	1.66*** (1.58, 1.75)
Group 2 (14 Safety Net Hospitals)						
Adults						
Initiation of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment	1.00 (52.2%)	0.92*** (0.91, 0.94)	0.91*** (0.89, 0.92)	0.93*** (0.92, 0.95)	0.90*** (0.89, 0.92)	0.95*** (0.93, 0.96)
Engagement of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment	1.00 (11.7%)	1.09*** (1.04, 1.14)	1.08** (0.89, 0.92)	1.06* (1.01, 1.1)	1.11*** (1.06, 1.17)	1.23*** (1.18, 1.29)
Antidepressant medication management (acute)	1.00 (50.2%)	0.96** (0.94, 0.99)	1.04*** (1.02, 1.07)	1.09*** (1.07, 1.11)	1.20*** (1.17, 1.23)	1.31*** (1.28, 1.34)
Antidepressant medication management (continuation)	1.00 (30.1%)	0.96 (0.93, 1.00)	1.05* (1.01, 1.08)	1.08*** (1.04, 1.11)	1.15*** (1.11, 1.20)	1.37*** (1.33, 1.42)
Group 3 (CHA)						
Adults						
Initiation of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment	1.00 (43.9%)	0.87*** (0.81, 0.93)	0.89*** (0.83, 0.95)	1.00 (0.93, 1.06)	1.00 (0.93, 1.08)	0.93* (0.87, 0.99)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Crude Rate[a])	aOR[b] (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)
Engagement of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment	1.00 (9.3%)	0.83 (0.68, 1.01)	1.00 (0.84, 1.18)	1.15 (0.97, 1.36)	1.29** (1.08, 1.54)	1.10 (0.93, 1.3)
Antidepressant medication management (acute)	1.00 (48.2%)	1.01 (0.92, 1.10)	1.11* (1.02, 1.20)	1.13** (1.04, 1.22)	1.32*** (1.21, 1.43)	1.43*** (1.33, 1.52)
Antidepressant medication management (continuation)	1.00 (30.0%)	0.87 (0.76, 1.01)	1.02 (0.90, 1.16)	1.16* (1.03, 1.31)	1.16* (1.00, 1.34)	1.52*** (1.37, 1.69)

Source: MassHealth administrative data.

Note: P-value: *P <0.05, **P <0.01, *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The measure values vary around 1. A measure value greater than 1 suggests a more desirable performance.

[a] The crude rate is the % of members with services.

[b] aORs are from logistic regression models.

Total Cost of Care

Table 4.3-9 shows TCOC data per member per year for all covered services for MCE members 0 to 64 years of age. Performance was compared over time for the three safety net hospital groups during baseline (CY2015–CY2017) and the individual years (CY2018–CY2022).

Compared to the baseline, for Group 1, the average per member per year cost was $931 more in CY2018. The amount difference between any year during the CY2019-CY2022 period and the baseline year was even higher, except the lowest difference in CY2020 when the per member per year cost was only $538 higher than the baseline. This cost was associated with a significant decline in healthcare utilization in CY2020 (the beginning year of the COVID-19 pandemic). The cost started increasing more from the baseline in CY2021. The same trend of relative cost increase was observed for Group 2 and Group 3 hospitals.

When we adjusted for inflation (in the example of Group 1 hospitals), the total cost of care in each demonstration year increased from the baseline, and the increase was smaller in CY2020 and CY2022. If the cost increases were simply at the rate of inflation (estimated at U.S. general inflation level for medical care), the cost increase from the baseline at the value of the demonstration year would have been $194 in CY2018, $603 in CY2019, $993 in CY2020, $1,116 in CY2021, and $1,691 in CY2022, compared to the non-inflation adjusted increases (i.e., $931 in CY2018, $1,053 in CY2019, $538 in CY2020, $1,467 in CY2021, and $1,115 in CY2022).[202] Although the estimated level of cost increases was higher than that of inflation-

[202] The inflation rate was based on medical care in U.S> city average, all urban consumers, not seasonally adjusted. Bureau of Labor Statistics Data (bls.gov). We also referenced the inflation rates based on the U.S. inflation calculator Current U.S. Inflation Rates: 2000-2024 (usinflationcalculator.com). The results have been similar.

adjusted only increases in CY2018, CY2019, and CY2021, it was lower than those at inflation level in CY2020 and CY2022 (i.e., $993 increase with inflation only but $538 as estimated in CY2020; and $1,691 increase with inflation only but $1,115 as estimated in CY2022).[203]

Table 4.3-9 Total Costs of Care Among MCE Members in Safety Net Hospitals (CY2015–CY2022)

Measure and Population	CY2015–CY2017	CY2018	CY2019	CY2020	CY2021	CY2022
	Baseline (Cost, $)	Coefficient (95%CI)	Coefficient (95%CI)	Coefficient (95%CI)	Coefficient (95%CI)	Coefficient (95%CI)
Group 1 (15 Safety Net Hospitals)						
Overall						
TCOC for all covered services (not-inflation adjusted)	Reference ($10,671)	$931*** (828, 1,034)	$1,053*** (942, 1,164)	$538*** (430, 646)	$1467*** (1,368, 1,566)	$1,115 *** (1,016, 1,214)
TCOC for all covered services (inflation-adjusted) a	Reference ($10,671)	$194	$603	$993	$1,116	$1,691
Group 2 (14 Safety Net Hospitals)						
Overall						
TCOC for all covered services (not-inflation adjusted)	Reference ($11,157)	$941*** (831, 1,050)	$1,047*** (928, 1,165)	$524*** (408, 639)	$1,429*** (1,323, 1,535)	$1,103*** (997, 1,210)
Group 3 (CHA)						
Overall						
TCOC for all covered services (not-inflation adjusted)	Reference ($10,381)	$728*** (416, 1,039)	$1,027*** (717, 1,336)	$609*** (315, 904)	$1,724*** (1,467, 1,982)	$1,166*** (912, 1,421)

Note: P-value: *** P <0.001; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The numbers in CY2018-2019 indicate the level of changes in cost from the baseline.

[a] The cost difference was not generated by a model. It was calculated by multiplying the baseline cost (assumed to be in CY2017-dollar values) and (1 plus the inflation rate), and then the difference in dollars was between the comparison year's cost and the baseline cost. We included the calculations for Group 1 hospitals as an example to illustrate how the inflation-adjusted cost difference would look like.

[203] We also conducted a sensitivity analysis. If we converted all years' total cost of care to the 2022-dollar values, the total cost decreased from the baseline in CY2020 and CY2022.

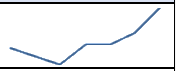
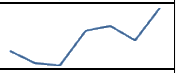
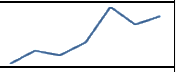
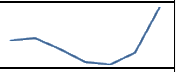
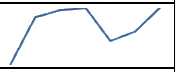
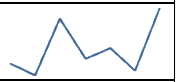
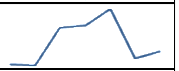
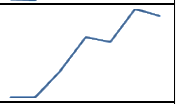
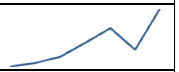
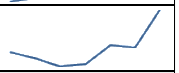
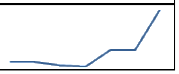
4.3.2. Hypothesis 2: Despite a reduction in total supplemental payments provided through the SNCP over time, the amount of uncompensated care costs will not increase relative to trends prior to the 2017–2022 Demonstration

Table 4.3-10 describes the "Available Room under Cost Limit" (i.e., the difference between Medicaid and Uninsured costs and revenue, including Medicaid shortfall) or UCC from Schedule H of the UCCR reports of the 14 safety net hospitals that received SNPP, adjusted for inflation (CY2022 dollars). Per federal requirements, payments for uncompensated care from the DSH-like pool component of the SNCP must not exceed the amount of uncompensated Medicaid and uninsured costs. The last column of the table is a visual representation of the direction of the UCC prior to and during the 2017–2022 Demonstration. **Table 4.3-11** details the annual change between two adjacent years prior to and during the 2017–2022 Demonstration for each safety net hospital.

After an initial decrease in uncompensated costs from FY2016–FY2019, the collective total UCC for the 14 safety net hospitals increased annually from FY2020–FY2022, with each safety net hospital showing higher amounts in FY2022 compared to FY2016 (see **Table 4.3-10**). The total UCC for the 14 safety nets hospitals during the 2017–2022 Demonstration ranged from a low of approximately $537 million in FY2019 to a high of just over $1.2 billion in FY2022. In terms of sustained year-to-year changes, Baystate Franklin Medical Center and North Shore Medical Center had consistent increases in UCC from FY2019 to FY2022, while Boston Medical Center decreased their UCC from FY2017 through FY2020. The UCC amount for the remaining 12 hospitals fluctuated from year to year. Holyoke Medical Center showed the smallest total increase, $2,351,585 (=$13,504,034 minus -$1,234,017), from FY2017–FY2022, and Tufts Medical Center had the largest increase, $197,263,446 (=$249,578,631 minus $100,128,271) in absolute dollars, during that period.

As shown in **Table 4.3-11**, the number of safety net hospitals that had an increase in annual UCC over the prior year ranged from seven in FY2018 (over FY2017) and FY2021 (over FY2020) to 11 in FY2022 (over FY2021). In FY2017, FY2018 and FY2021, seven hospitals had reduced the amount from the prior year, the only three years more hospitals showed decreased versus increased UCC compared to the prior year. Most hospitals had a fluctuation of UCC over the years.

Table 4.3-10 Total Uncompensated Care Available Room Under Cost Limit[a] (FY2016–FY2022)

Hospital	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	Trend
Baystate Franklin Medical Center	$9,824,435	$9,258,705	$8,659,934	$10,129,387	$10,076,283	$11,012,928	$12,827,223	
Baystate Medical Center	$66,549,953	$43,623,386	$38,978,617	$104,849,488	$114,853,004	$87,240,104	$148,584,501	
Berkshire Medical Center	$23,963,070	$32,498,848	$28,800,582	$37,849,945	$61,340,961	$49,227,904	$54,766,737	
Boston Medical Center	$220,022,049	$233,608,918	$189,759,792	$134,344,177	$129,458,934	$176,171,243	$354,519,224	
Holyoke Medical Center	-$1,234,017	$11,152,448	$13,001,531	$13,639,028	$5,047,115	$7,336,445	$13,504,034	
Lawrence General Hospital	$25,305,473	$18,120,700	$12,905,704	$33,460,101	$33,365,430	$47,864,199	$41,857,071	
Mercy Medical Center	$20,902,342	$13,400,758	$49,639,369	$23,991,220	$30,688,850	$16,981,760	$56,259,773	
North Shore Medical Center	$49,481,096	$65,070,037	$46,453,675	$28,386,014	$41,346,629	$57,386,709	$69,810,783	
Signature Healthcare-Brockton	$29,624,294	$25,714,074	$39,796,907	$38,365,183	$53,547,200	$55,231,741	$55,070,122	
Southcoast Hospital Group	$16,280,127	$20,244,509	$24,346,370	$8,976,491	$57,125,927	$54,670,509	$61,623,287	
Steward Carney Hospital	$20,608,681	$20,569,048	$25,414,048	$25,607,225	$27,775,753	$21,450,080	$22,364,313	
Steward Good Samaritan Medical Center	$5,201,616	$5,239,443	$8,677,983	$13,001,036	$12,497,083	$16,737,548	$15,815,376	
Steward Morton Hospital	$3,103,974	$3,774,018	$4,823,427	$7,816,536	$10,857,840	$6,409,500	$14,613,784	
Tufts Medical Center	$100,128,271	$77,868,603	$50,861,032	$56,525,703	$124,447,128	$114,273,469	$249,578,631	
Total Among 14 Hospitals	**$589,761,365**	**$580,143,495**	**$542,118,971**	**$536,941,533**	**$712,428,136**	**$721,994,138**	**$1,171,194,860**	

Source: UCCR Reports (Schedule H)

Note: All dollar amounts have been adjusted for inflation at CY2022 dollars using U.S. Bureau of Labor Statistics data (Medical care in U.S. city average, all urban consumers, not seasonally adjusted). A limitation is that the UCCR cost data are presented in fiscal year, but we applied the calendar year's inflation rate.

[a] The "Available Room under Cost Limit" is defined as the difference between Medicaid and Uninsured costs and revenue, including Medicaid shortfall.

Table 4.3-11 Annual Change in Total Uncompensated Care Available Room Under Cost Limit between Two Adjacent Years, FY2016–FY2022

Hospital	FY2017 vs. FY2016	FY2018 vs. FY2017	FY2019 vs. FY2018	FY2020 vs. FY2019	FY2021 vs. FY2020	FY2022 vs. FY2021	FY2022 vs. FY2017
Baystate Franklin Medical Center	Decrease	Decrease	Increase	Decrease	Increase	Increase	Increase
Baystate Medical Center	Decrease	Decrease	Increase	Increase	Decrease	Increase	Increase
Berkshire Medical Center	Increase	Decrease	Increase	Increase	Decrease	Increase	Increase
Boston Medical Center	Increase	Decrease	Decrease	Decrease	Increase	Increase	Increase
Holyoke Medical Center	Increase	Increase	Increase	Decrease	Increase	Increase	Increase
Lawrence General Hospital	Decrease	Decrease	Increase	Decrease	Increase	Decrease	Increase
Mercy Medical Center	Decrease	Increase	Decrease	Increase	Decrease	Increase	Increase
North Shore Medical Center	Increase	Decrease	Decrease	Increase	Increase	Increase	Increase
Signature Healthcare-Brockton Hospital	Decrease	Increase	Decrease	Increase	Increase	Decrease	Increase
Southcoast Hospital Group	Increase	Increase	Decrease	Increase	Decrease	Increase	Increase
Steward Carney Hospital	Decrease	Increase	Increase	Increase	Decrease	Increase	Increase
Steward Good Samaritan Medical Center	Increase	Increase	Increase	Decrease	Increase	Decrease	Increase
Steward Morton Hospital	Increase	Increase	Increase	Increase	Decrease	Increase	Increase
Tufts Medical Center	Decrease	Decrease	Increase	Increase	Decrease	Increase	Increase

Hospital	FY2017 vs. FY2016	FY2018 vs. FY2017	FY2019 vs. FY2018	FY2020 vs. FY2019	FY2021 vs. FY2020	FY2022 vs. FY2021	FY2022 vs. FY2017
Total Among 14 Hospitals	Decrease	Decrease	Decrease	Increase	Increase	Increase	Increase
Count of Hospitals with a Decrease	7	7	5	5	7	3	0
Count of Hospitals with an Increase	7	7	9	9	7	11	14

Source: UCCR Reports (Schedule H).

4.4. Summary and Discussion of Findings

RQ1: What is the impact of safety net funding investments on safety net hospitals' quality performance and financial sustainability?

H1 evaluated whether increasing the portion of at-risk funding for safety net hospitals was associated with improved care quality. The PHTII and SNPP funding incentivized safety net hospitals to improve performance in several areas. CHA met or exceeded performance targets on over 50% of all reported measures (inclusive of those for which CHA requested and received payment) for each slate annually. With regard to SNPP, a comparison of each Demonstration year's performance with that of the baseline year show that the impact of safety net funding investments on Massachusetts safety net hospitals' quality performance and financial sustainability was mixed but there were some encouraging findings. The total cost of care increased from the baseline over time, but the increase started to trend downward in recent years. The results were largely consistent for analyses of the 15 safety net hospitals together, and in stratified analyses examining the 14 safety net hospitals receiving SNPP and separately for CHA receiving PHTII.

H2 assessed whether the amount of uncompensated care costs did not increase during the 2017-2022 Demonstration despite reduced supplemental payments. Despite the initial decline from the baseline to FY2019, the total uncompensated care costs for the 14 safety net hospitals increased annually from FY2020–FY2022 after inflation adjustment, with each safety net hospital showing higher costs in FY2022 compared to FY2017. Compared to the immediate previous year, most of the hospitals' uncompensated care costs did not decline as expected.

4.4.1. Interpretation

With an increasing proportion of SNCP payments at risk for safety net hospitals, progress on some of the evaluated quality and utilization measures suggests providers and their ACO partners were making efforts to improve their performance. For **H1** (PHTII), CHA met all performance targets for measures for which their payment was tied to quality performance from FY2019 to FY2022. With regard to performance on all reported PHTII measures across the four slates, CHA showed some quality improvement, reaching or exceeding performance benchmarks for more than half of the 50 reported metrics in all four measurement slate areas in all FYs, though it was not required for CHA to meet or exceed benchmarks on all reported measures. Changes that require significant organizational resources and long-term investment to attain may show little improvement in the near term, especially compared to efforts that are much easier to implement. Beyond this, other factors, such as workforce or organizational fiscal conditions, wider healthcare concerns, or unknown aspects may have influenced the progress and success of quality and utilization initiatives.

The COVID-19 pandemic likely also played a role in CHA's overall performance on the measure slates. The organizational and clinical changes necessitated by the pandemic may have negatively influenced CHA's ability to put significant resources into quality improvement in FY2020–FY2022. At the height of the pandemic, hospitals needed to redirect staff and resources to the emergent needs of patients and many typical patient-focused services were not available. Even as the pandemic became less intensive, hospitals continued to address

workforce shortages, the need to continue redeployment of existing staff, the inability to reopen some services, and adequate efforts to satisfy current patient needs and pre-COVID activities.

CMS guidance allowed CHA to report FY2020 results in 2021, thereby reducing the number of data points and making interpretation of performance trends based on PHTII report difficult. We did not have a suitable comparison group to compare CHA's performance against, therefore we cannot estimate whether and to what extent performance changed because of the COVID-19 pandemic or the Demonstration. Further analyses with additional data post-pandemic are needed to evaluate longer-term changes in quality and utilization. This is especially needed for measures that required significant organizational changes (e.g., coordination between complex healthcare systems) which may show sustained incremental achievement over time, that may not be evident in the few data points available for this analysis.

For **H1** (SNPP), the impact of the risk-bearing payments on safety net hospital performance appeared mixed but was generally positive. Compared to the baseline period (CY2015–CY2017), there was an improvement in reducing inpatient services. Group 1 (the 15 hospitals overall) and separately Group 2 (the 14 SNPP hospitals) had lower inpatient admission rates compared to the baseline. Although the decline occurred during the COVID-19 pandemic and it was hard to isolate the COVID-19 and SNPP effect, the decline started prior to 2020, and the inpatient admission rate was stable toward the end of the Demonstration, suggesting some improved performance. Group 3 (CHA) performed better for the overall and adult inpatient admission measures, but the pediatric hospitalizations were close to the baseline rate for all calendar years except a higher-than-baseline rate in CY2019. Similar trends of declining hospitalization rates were also observed among ACO eligible and enrolled members, of which our study population is a subset, so declining hospitalization rates among MassHealth members served by safety net hospitals was also influenced by the payment and delivery system reforms (e.g., ACO, CP, and FS Program implementation) that were supported by the DSRIP Program.

ED visit rates fell after CY2020; this was true for both All-Cause ED visits and primary care-sensitive ED visits for all three groups. The reduced utilization started in CY2019; however, the reduction accelerated during the COVID-19 pandemic, a trend consistent with the literature on ED utilization. For example, a Centers for Disease Control and Prevention (CDC) report indicated a substantial decline in ED visits during the early COVID-19 pandemic.[204] The rate of ED visits decreased by approximately 25% during the pandemic compared with non-pandemic years among high users.[205] In Massachusetts, overall ED visits also declined substantially during CY2020 and started increasing again from CY2021; however, the level did not rise to the level of the pre-COVID period.[206] Aside from the reduction of ED visits due to the COVID-19 pandemic, the SNPP and other 1115 Demonstration policies and programs may still have played a role in this reduction because the decline started before CY2020, and the rate remained lower than baseline even in CY2022.

[204] Centers for Disease Control and Prevention. (n.d.). *Impact of the COVID-19 Pandemic on Emergency Department Visits*. Retrieved July 8, 2024, from Impact of the COVID-19 Pandemic on Emergency Department Visits — United States, January 1, 2019–May 30, 2020 | MMWR (cdc.gov).

[205] Molina M, Evans J, Montoy JC, et al. Analysis of Emergency Department Encounters Among High Users of Health Care and Social Service Systems Before and During the COVID-19 Pandemic. JAMA Netw Open. 2022;5(10):e2239076. doi:10.1001/jamanetworkopen.2022.39076

[206] The Center for Health Information and Analysis. (n.d.).Emergency Department Database (EDD). Retrieved July 8, 2024, from Emergency Department Database (EDD) Reporting (chiamass.gov).

For outpatient care, the annual primary care visit rates across all ages gradually decreased compared to the baseline for all groups starting in CY2018. Adult access to preventive/ambulatory health services also increased in CY2018 and CY2019 but reversed its direction starting in CY2020, likely driven by the COVID-19 pandemic when outpatient care was limited due to workforce shortages and members were delaying non-urgent and non-significant healthcare until absolutely necessary. Access to preventive/ambulatory health services had almost returned to the baseline level by the end of the Demonstration, suggesting improved access to healthcare after the trough seen at the peak of the COVID-19 pandemic. Access to primary care for both younger and older children had a similar pattern, declining at the beginning of the COVID-19 pandemic but increasing almost to baseline levels by the end of the Demonstration. These results were consistent across all three groups. Adolescent well-care visit rates were well below baseline in CY2018–CY2022. Trends were similar across all groups, however, Group 3 had a much lower rate compared to the baseline across all calendar years than Groups 1 and 2.

Compared to the baseline, the BH-related quality measures showed mixed but overall positive results. The ED visits for adults with mental illness and SUD declined from baseline. This could be a combined result of SNPP payments, other 1115 Demonstration policies and programs, and the COVID-19 pandemic. However, the occurrence of seven-day follow-up visits after an ED visit and after hospitalization for mental illness also declined since CY2020. Group 3 had the best performance on the seven-day follow-up after hospitalization for mental illness among the three groups. The initiation of alcohol, opioid, or other drug abuse or dependence treatment declined across the three groups, with the exception of Group 3 where performance was close to baseline for CY2020 and CY2021. This may indicate less need for initiating treatment among members with new diagnoses or may indicate poorer BH treatment access. On the positive side, the engagement rate increased above baseline across all groups with only one exception (Group 3 in CY2018). Also, antidepressant medication management for both acute and continuation phases of treatment improved steadily from the baseline after CY2018. The improvement in certain BH quality measures may be related to enhanced integration of primary and BH care as required and supported by the DSRIP Program.

The non-inflation-adjusted TCOC increased from the baseline during the 2017–2022 Demonstration, with the smallest increase in CY2020 and CY2021, which may be due to the lower utilization of primary and outpatient services and hospitalizations during the first two years of the COVID-19 pandemic. Otherwise, the CY2022 TCOC returned to CY2019 levels.

Although efforts to improve the quality of care consistent with the design of the SNPP and PHTII payments were disrupted by the onset of the COVID-19 pandemic and its lingering impact, improvements in healthcare utilization were still evident in a few areas. When there are many measures used to monitor performance, safety net hospitals may not have sufficient resources to address all measures and may prioritize some measures over others. This appears to have been the case with higher performance on measures used for accountability than for measures that were reporting only. This may point to a need to reduce the overall number of measures and to prioritize the use of outcome measures where improved performance reflects underlying improvement on a number of process measures, granting safety net hospitals autonomy to focus their activities in a more targeted fashion on what they deem to be most important for their organization to improve outcomes for patients.

For **H2**, after an initial decrease in uncompensated costs from FY2017 to FY2019, total aggregate uncompensated care costs for the 14 safety net hospitals increased annually from FY2020 to FY2022. There was, however, much variation from year to year among the 14 safety net hospitals, with the majority of hospitals reporting costs that fluctuated from year to year and only one hospital was able to reduce costs for more than two consecutive years during the 2017–2022 Demonstration. A decrease in the dollar amount from one year to the next may signal that hospitals are being adequately compensated for the care they deliver; however, an increased year-to-year amount may reflect a reduction in funding or the volume of patients receiving care. While Massachusetts has the lowest uninsurance rate in the U.S., it is evident that there are a proportion of people that remain uninsured and in need of care. For instance, immigrants might still have a coverage gap. More people remain uninsured over the course of a year than is evident in a point-in-time estimate. Changes in uncompensated care costs for the 14 safety net hospitals may be related to factors such as patient volume and complexity, vendor contracts, inflation, and/or populations served and their associated healthcare risks, especially as a result of the COVID-19 pandemic. The uninsured or underinsured population may delay seeking care due to out-of-pocket costs in the outpatient setting, leading to the use of costly services to address more complex needs for which hospitals may not receive adequate reimbursement. The service demands of caring for the uninsured may force hospitals with large uncompensated care costs to focus organizational efforts in certain service areas at the expense of others (e.g., seeking to augment service lines that generate larger profits instead of those of greatest value to patients) or may not allow for significant investments in infrastructure. Further qualitative evaluation of hospital decision-making will be important to better understand how hospitals may be affected and respond to the financial strain from uncompensated care costs.

4.4.2. Study Limitations

The current analyses have several limitations. First, the analyses do not have a comparison group since the risk-based payments are applicable for all safety net hospitals in Massachusetts. Therefore, we cannot rule out the potential bias of these findings due to other confounders not adjusted for in the analysis, such as time and secular trends of the results stemming from unmeasured changes in patient populations, patterns of health care utilization, competing or reinforcing initiatives affecting performance, and other factors. We also cannot fully adjust for other competing or reinforcing initiatives that may impact safety net hospital performance, such as the DSRIP Program. However, for the safety net hospital analyses, we adjusted for COVID-19 diagnoses and included multiple potential confounders in our regression model that are considered to be associated with outcomes. We also compared the results of each Demonstration year with the baseline period to capture the dynamics of changes over time. The performance measures were calculated for all MassHealth members receiving services at safety net hospitals. Due to the heterogeneous population that safety net hospitals serve, quality improvement may be seen only within certain populations.

With regard to the PHTII analysis, as indicated in the EDD, we had planned to use an interrupted time series (ITS) design to estimate what PHTII measure achievement would have been in the absence of the Demonstration based on trends during the period before the 2017–2022 Demonstration. The design is widely used and considered one of the strongest quasi-experimental designs as it compares trends over time rather than data from single time points.

However, CHA formally reports on their metric achievement only once annually to fulfill programmatic requirements; tri-annual data points were not available as we described in the EDD. Thus, we do not have multiple data points per year necessary to conduct ITS for CHA, which impacted our ability to draw stronger conclusions regarding the effect of PHTII's investment on quality improvement. We did not have individual-level data to determine whether the characteristics of each measure's denominator population, which vary due to the different data sources, have changed over time. In addition, per the EDD, the evaluation team only summarized overall measure site performance. The evaluation team did not summarize performance based on the number of measures for which CHA achieved benchmarks and the results don't include absolute changes in performance.

Lastly, some data for the UCCR analyses was derived from reports that were not considered final. The actual dollar amounts for safety net hospitals that submitted only interim reports at the time of our analyses may be different.

4.4.3. Policy Implications and Interactions with Other State Initiatives

Our findings provide preliminary evidence that the risk-based payment method for Massachusetts safety net hospitals is a viable method for incentivizing providers to advance the quality of care, especially in reducing hospitalization and ED visits, as well as improving the process of care in BH areas. However, the anticipated improvements in quality have not been steady over time, with disruption due to the COVID-19 pandemic. Desired quality improvement may require additional time and resources for new quality improvement initiatives to be developed, implemented, and to subsequently change care processes, utilization patterns, and member outcomes.

The decline in performance in a few areas (e.g., Adult Access to Preventive/Ambulatory Health Services, Initiation Rates of Alcohol and Other Drug Treatment), although not substantial, may indicate the challenges the safety net hospitals were experiencing with the at-risk payment model for some performance areas or particularly in the first few years of implementation. Safety net hospitals, like other providers, are facing an increasing demand for care for mental health and SUD conditions and in care coordination associated with Medicaid populations, where reimbursement is lower than for Medicare and commercial insurers. Even with more payment and resources available under the 2017–2022 Demonstration, safety net providers might have been addressing many competing priorities, including responding to the COVID-19 pandemic. If quality performance consistently declines in those areas in the future years, there may be advantages to testing an approach of stabilized risk-based payment for a period until quality improvement is more strongly demonstrated. That is, instead of a consistent reduction in risk-based payments every year, the proportion of funds at risk remained stable for several years until a provider shows steady achievements in targets. If there is evidence of sustained success, the payment reduction can be restarted. Some of the SNCP funding (e.g., SNPP) is continuing in Massachusetts' 2022–2027 Demonstration which will allow continued evaluation of the impact of the at-risk payment model after the COVID-19 pandemic.

It is notable that there are other initiatives of risk-based payments for safety net hospitals. For example, these hospitals are also paid by MassHealth ACOs and by commercial payers which are subject to other risk-based payment models. Some also participate in Medicare alternative payment models such as the Shared Savings Program. These payment models may have

spillover effects on safety net hospitals' quality performance, or if different measures are targeted by different payer initiatives, may disperse attention and resources.

4.4.4. Lessons Learned and Recommendations

As Massachusetts and other states continue to move towards incentive or risk-based payments, it will be important to ensure that safety net hospitals have the resources they need to maintain their ability to improve care provided for their patients. Although the overall SNCP expenditure amount decreased annually over the 2017–2022 Demonstration period, we observed potential positive impacts of the incentive payment structure on safety net hospital's quality improvement, yet not in all areas. Continued investment in support of quality improvement for these hospitals, especially preventative and post-discharge care, may lead to further reductions in the use of inpatient care. In the meantime, safety net hospitals face added complexity in quality improvement efforts amid constant delivery system and payment reforms from multiple payers with competing priorities, complicated by the COVID-19 pandemic. The uninsured and underinsured populations, especially the adult population, often have economic hardship and are people of color. They may have complex medical conditions and HRSNs, which are associated with a higher need for resources and support. Direct communication with safety net hospitals to better understand how best to promote sustained quality improvement and in more areas, from hospitals' perspective, will be informative to better interpret our findings. We plan to pursue these activities in the evaluation of Massachusetts' 2022–2027 Demonstration.

5. Demonstration Goal 5: Address the Opioid Addiction Crisis by Expanding Access to a Broad Spectrum of Recovery-Oriented Substance Use Disorder Services

5.1. Background

The toll of opioid use disorder (OUD) on people and communities in the U.S. reached epidemic proportions by 2015, the beginning of the baseline evaluation period for the 2017–2022 Demonstration. In 2015 alone, there were over 33,000 opioid overdose deaths in the country.[207] In addition to the loss of life, the toll of OUD on the quality of life and the economy has been enormous. The Council of Economic Advisors estimates that the opioid crisis cost over $500 billion in 2015.[208] The Medicaid population has been disproportionately affected by the opioid epidemic, with studies citing over a 4-fold increased risk of OUD in the Medicaid-insured population relative to the commercially insured population.[209]

Massachusetts has been deeply affected by the crisis, with over 1,700 opioid overdose deaths in the state in 2015, rising to over 2,000 annually in more recent years. The Massachusetts Department of Public Health (DPH) reports that an estimated 2,347 deaths were reported for 2022, higher than the peak of 2,210 in 2021.[210] Individual treatments for OUD, including medications, behavioral counseling, case management, and peer support, have demonstrated effectiveness in reducing overdoses.[211] Studies have shown that state-based initiatives have promising results for addressing the opioid epidemic. For example, one study illustrated that states with Medicaid expansion, Section 1115 Demonstration waivers, and a state-targeted response to the opioid crisis had significant leverage in expanding access to and financing of medication-assisted treatment.[212] Massachusetts has addressed the opioid crisis on multiple fronts. Federal and state opioid response funding helped to expand SUD prevention and treatment services and implement a Post-Overdose Follow Up program [213] while increasing access to all FDA approved medications to treat opioid use disorders. Additionally, regulations were promulgated requiring participation in the state's Prescription Monitoring Program.[214] The ACO transformation and other DSRIP activities were also expected to improve care in the SUD population, particularly with respect to improved care coordination and linkage to supportive services through the community partners program. Within this landscape, Massachusetts' 2017–2022 Demonstration implemented activities aimed at addressing the opioid crisis by expanding access to recovery-oriented substance use disorder (SUD) services in the Massachusetts MassHealth population.

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[213] https://www.mass.gov/files/documents/2017/11/15/2017-annual-update-action-items-gov-working-group.pdf

[214] Ibid.

Approval of the 2017–2022 1115 Demonstration granted MassHealth new expenditure authority to expand services for members across the SUD continuum of care. MassHealth successfully added the following as covered benefits during the Demonstration period:

Residential Rehabilitation Services (RRS) American Society of Addiction Medicine (ASAM) Level 3.1 provided clinically managed low-intensity residential rehabilitation services including clinical programming, a therapeutic milieu, and opportunities to reintegrate into the community in a 24-hour treatment setting. The Massachusetts DPH Bureau of Substance Addiction Services (BSAS) previously reimbursed this service at state cost.
Transitional Support Services (TSS) (ASAM Level 3.1) provided clinical programming, four hours of nursing, a therapeutic milieu, and opportunities to reintegrate into the community in a 24-hour treatment setting. This service was previously reimbursed at state cost by the BSAS.
Co-occurring Enhanced RRS (ASAM Level 3.1) provided treatment for members with more complex behavioral health needs within an RRS setting. Expanded expenditure authority provided Massachusetts with the opportunity to implement this new service.
Recovery support navigation services (RSN) and recovery coaching (RCo) were also implemented as new MassHealth benefits. RSN services provided an individual with SUD with a navigator to develop and monitor a recovery plan in conjunction with the member. RCo services provided an individual with SUD with a person with SUD-lived experience to serve as a recovery guide and role model, providing nonjudgmental problem-solving and advocacy to help members meet their recovery goals. RRS (ASAM Level 3.3), clinically managed population-specific high-intensity residential services, was not implemented during this Demonstration period.

MassHealth implemented coverage of RRS ASAM Level 3.1 services, and introduced new RSN, and RCo services in a phased approach starting in March 2018. At all times, members continued to have access to the services provided through BSAS. Details of the implementation phases are presented below:

- RRS ASAM 3.1 Phase 1 (March 1, 2018) implemented coverage for Fee-for-Service (FFS), members enrolled in MassHealth's behavioral health vendor, and SCO plans.
- RSN/RC Phase 1 (July 1, 2018) was implemented for members enrolled in MassHealth's behavioral health vendor (including Primary Care Clinician (PCC) Plan and Primary Care Accountable Care Organization (PCACO) Members) and managed care organizations (MCOs) (including Accountable Care Partnership Plan (ACPP) Members).
- RRS ASAM 3.1 Phase 2 (January 1, 2019) was implemented for members enrolled in all other MCOs, ACCPs, and One Care. New 3.1 co-occurring enhanced beds started being made available. Expansion of beds continued through 2022.
- RSN/RCo Phase 2 (January 1, 2019) was implemented for One Care and MassHealth FFS members.

5.2. Research Question and Evaluation Design

Under Goal 5, we examined one research question (RQ) and seven hypotheses (H):

RQ1: What is the impact of expanding MassHealth coverage to include residential services and recovery support services on care quality, costs, and outcomes for members with SUD?

H1. The Demonstration will increase rates of identification, initiation, and engagement in treatment among individuals with SUD relative to trends prior to the 2017–2022 Demonstration.

H2. The Demonstration will improve adherence to treatment among individuals with any SUD diagnosis (including, in particular, OUD diagnosis) relative to trends prior to the current Demonstration period.

H3. The Demonstration will reduce nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period.

H4. The Demonstration will reduce the utilization of emergency department and inpatient hospital settings and overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis.

H5. The Demonstration will result in fewer readmissions to the same or higher level of care relative to trends prior to the current Demonstration period.

H6. The Demonstration will result in improved access to care for comorbid physical and mental health conditions among individuals with any SUD diagnosis, including OUD diagnoses, relative to trends prior to the current Demonstration period.

H7. The Return on Investment (ROI) will support the continuation of SUD Demonstration activities.

5.2.1. Study Design

We employed a quasi-experimental interrupted time series (ITS) approach to compare trends in care quality measures, healthcare utilization, costs, and outcomes by calendar quarter pre- to post-implementation of expanded SUD services. We also used a repeated cross-sectional design to compare trends in opioid overdoses and opioid deaths in Massachusetts to the rest of the nation and conducted a return on investment (ROI) analysis.

5.2.2. Study Period

The baseline period was calendar quarter 1 (Q1) of the Calendar Year (CY) 2015 through Q4 CY2017. Two time periods were identified for analysis: Q1 CY2018 was designated as the beginning of Phase 1, the quarter during which RRS ASAM 3.1 Phase 1 was implemented. Phase 1 continues through Q4 2018, which includes the Q2 2018 Phase 1 RSN/RCo implementation. Q1 CY2019 was designated as the beginning of Phase 2, the quarter during which Phase 2 RRS and RSN/RCo were implemented. Phase 2 continues through Q4 2022.

5.2.3. Data Sources

MassHealth administrative data

The primary data source to address hypotheses is the MassHealth Medicaid Management Information Systems (MMIS) enrollment, medical claims/encounter files, and pharmacy claims files.

Massachusetts death records

To evaluate hypothesis **H3** (the Demonstration will reduce overdose deaths), MMIS enrollment data were linked to Massachusetts Death Records[215] held by the Massachusetts Registry of Vital Records and Statistics, CY2015–CY2022.

CDC Wide-ranging Online Data for Epidemiologic Research (WONDER)

This database was used to compare trends in fatal overdoses in Massachusetts to the rest of the nation. Details about these data sets are available in the Evaluation Design Document.[216]

5.2.4. Study Population

The study population consisted of MassHealth members ages 13 to 64 (excluding MassHealth Limited members) with a SUD diagnosis, including alcohol or other drugs, but excluding tobacco as services evaluated were not necessarily clinically appropriate for tobacco use disorder. Members were identified as having a SUD if they have an International Classification of Diseases (ICD)-9/ICD-10 SUD diagnosis code on two or more medical claims/encounters in any position on the claim, excluding lab services, from one calendar year prior to and one calendar year post the evaluation quarter or year (see **Appendix P**, **Table P-1** and **Table P-2** for codes). For selected measures, the study population consisted of members with an OUD diagnosis or all MassHealth members, in accordance with measure specifications and is specified in the detailed results section.

5.2.5. Comparison Group

Because the expansion of services was implemented statewide for all MassHealth members, a clear comparison group that estimates evaluation measures in the absence of the Demonstration activities did not exist. Instead, we used an ITS approach to compare trends in outcomes during the calendar quarters prior to the implementation periods (baseline period) to trends in outcomes observed during the implementation periods (Phase 1 and Phase 2). The ITS design is widely used and is considered one of the strongest quasi-experimental designs. Estimates of what the evaluation measures would have been in the absence of the Demonstration can be projected based on trends during the period prior to the 2017–2022 Demonstration. We acknowledge limitations to this approach—specifically, that we cannot adequately account for external factors at the local, state, and national levels, as discussed in more detail in **Section 5.4**. To partially address this concern, we compared Massachusetts trends in the quarterly number of fatal overdoses per resident to trends in the

[215] Details about these data sets are available: MassHealth. (2018, December). *Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017–2022*. Mass.gov. Independent Evaluation Design Document.

[216] MassHealth. (2018, December). Independent Evaluation Design Document Massachusetts 1115 Demonstration Extension 2017–2022. Mass.gov. Independent Evaluation Design Document

quarterly number of overdoses per resident of the other 49 states combined. These analyses will help our understanding of the effect of Massachusetts-specific Demonstration initiatives in reducing overdoses. We discuss these limitations in more detail in **Section 5.4.2**. We also acknowledge that SUD service expansion was implemented concurrently to ACO transformation, and the effects of the ACO transformation cannot be separated from the effects of SUD service expansion.

5.2.6. Measures

Outcome measures were identified in the MassHealth claims/encounter data along with Massachusetts death records, using ICD-9/10, Current Procedural Terminology, revenue, and National Drug Codes, as appropriate. Measures align with those listed in the November 2017 State Medicaid Director's letter SMD#17–003.[217] Measures were calculated for each calendar quarter during the evaluation period where possible. Some National Quality Forum (NQF) measures were calculated annually to align with NQF measure specifications. Details of measures are provided in **Table 5.2-1**. CPT and revenue codes used to identify SUD-related services are presented in **Appendix P, Table P-1**. The measure ASAM level 3.3 was not calculated, as this service had not been implemented as of the end of the evaluation period.

5.2.7. Data Analysis

Member characteristics and clinical and demographic characteristics during the baseline period are described. To evaluate hypotheses, we calculated measures among members each calendar quarter or year, as available, from CY2015 to CY2022.

Descriptive statistics for each quarter, including counts, percentages, means, or medians, as appropriate, are presented. For measures for which quarterly estimates are available through CY2022, an ITS approach was used to evaluate changes in evaluation measures over time. Segmented regression analysis on individual-level data was conducted using generalized estimating equations assuming a Poisson or binomial distribution as appropriate, adjusting for age, sex, and Diagnostic Cost Group (DxCG) risk score. In the base case analysis, models evaluated level changes at the start of Phase 1 and Phase 2, along with trend changes before and after Phase 1 and Phase 2. Main effects models were also run to identify overall changes in quarterly estimates in the baseline, Phase 1, and Phase 2 periods. Two sensitivity analyses were conducted: 1) exclusion of the COVID-19 pandemic period, defined as the quarters during which the public health emergency was declared (Q2 CY2020–Q2 CY2021), and 2) for measures other than those estimating utilization of services that were expanded with the Demonstration, the Phase 1 period was expanded two additional quarters, to allow time for the impact of expanded services to fully take effect.

In addition, we conducted analyses of measures stratified by geographic region and plan type (e.g., ACOA, ACOB, MCO PCC). We present the results for all measures related to MassHealth members who utilized newly added services (RRS, RCo, RSN) during the baseline, Phase 1, and Phase 2 periods. Because there were no notable differences in the

[217] SMD #17-003 RE: Strategies to Address the Opioid Epidemic, November 2017. Available at: https://www.medicaid.gov/federal-policy-guidance/downloads/smd17003.pdf

changes in trends by these stratifying factors for other measures, these results are not presented in the IESR.

Results are presented as Risk Ratios (RR) for unadjusted models or adjusted Risk Ratios (aRR) for models adjusting for demographic and clinical characteristics, with the following model specifications:

Unadjusted:

*Y = B0 +B1*Time + B2*Phase 1 + B3* Time*Phase 1+ B4*Phase 2 + B5*Time*Phase 2*

Adjusted:

*Y = B0 +B1*Time + B2*Phase 1 + B3*Time*Phase 1 + B4*Phase 2 + B5*Time*Phase 2 +B6*Age + B7*Sex + B8*DxCG*

The estimate for the parameter time represents the quarterly trend during the baseline period. The estimate for the parameter Phase 1 represents the change in the estimate in the first quarter of Phase 1 relative to the previous period. The estimate for the parameter Time* Phase 1 represents the change in the quarterly trend in Phase 1 relative to the baseline period. The estimate for the parameter Phase 2 represents the change in the estimate in the first quarter of Phase 2 relative to the previous period, and the estimate for the parameter Time*Phase 2 represents the change in the quarterly trend in Phase 2 relative to Phase 1. Model results for each measure are presented in **Appendix O**. The trend during Phase 2 relative to baseline was calculated as a sum of estimates of Time after Phase 1 and Time after Phase 2. In addition, average quarterly values over baseline, Phase 1, and Phase 2 were compared with a main effects-only model.

The ROI of SUD-treatment expansion over a five-year horizon was calculated from a MassHealth perspective. The goal was to isolate the ROI of SUD treatment expansion from other 2017–2022 Demonstration activities (e.g., Accountable Care Organization (ACO) implementation). In other words, we compared program costs and healthcare costs of SUD members during the 2017–2022 Demonstration period, that is, in a scenario in which both SUD treatment expansion and ACO implementation have occurred, to estimated healthcare costs of SUD members in a scenario in which there is no expansion of SUD treatment services but there are Delivery System Reform Incentive Payment (DSRIP) financially supported initiatives (e.g., ACOs, Community Partners, Flexible Services) supporting delivery system transformation.

We used the formula:

$$ROI = \frac{(Net\ Healthcare\ Cost\ Savings\ -\ Program\ Costs)}{Program\ Costs}$$

Where:

Net Healthcare Cost Savings was calculated as the difference between:

- Healthcare costs with SUD treatment expansion: Total cost of care (TCOC) to MassHealth, including pharmacy, inpatient, outpatient, and residential care, and other healthcare costs over the five-year Demonstration period for members with SUD. Observed healthcare costs, measured from the claims and encounter data, were used; and
- Healthcare costs without SUD treatment expansion: Estimated TCOC to MassHealth for members with SUD in the absence of expansion of SUD treatment services, but assuming other Demonstration activities (e.g., ACO implementation) have still occurred.

To estimate these healthcare costs, we assumed that in the presence of ACO implementation but in the absence of SUD service expansion, costs among members with SUD would have changed during 2018–2022 at the same rate as TCOC among members without SUD changed after ACO transformation. We fit a generalized estimating equations model to estimate the change in healthcare costs from 2018–2022 (e.g., among MH members without SUD, adjusting for age, sex, and DxCG score). We also explored several alternative scenarios. In the first alternative scenario, we estimated the TCOC assuming members as above, but assuming that members without SUD had the same distribution of DxCG as members with SUD. In the second, we assumed healthcare costs in the absence of SUD expansion remained flat. In the third, we assumed that in the absence of service expansion, costs would increase at the same rate as the increase in costs in the SUD population during the baseline period.

All cost measures were reported in CY2022 dollars, adjusted using the medical care services component of the Consumer Price Index. Measures, data sources, and analytic approaches used to address each evaluation hypothesis are presented below in **Table 5.2.1.**

Table 5.2-1 Goal 5 Summary of Hypotheses, Measures, Data Source, and Analytic Approach

Evaluation Hypothesis	Measure (Reported for each Demonstration quarter or year)	Data Source	Analytic Approach – IESR
H1. The Demonstration increases rates of identification, initiation, and engagement in treatment among individuals with SUD.	NQF #0004: Initiation and engagement of alcohol and other drug dependence treatment/members with SUD Note: yearly estimates calculated	MMIS claims/ encounter data	Descriptive statistics; comparison of annual regression-adjusted Phase 1 and Phase 2 estimates to baseline
H2. The Demonstration improves adherence to treatment among individuals with any SUD diagnosis and with OUD diagnosis.	NQF #3175: Continuity of Pharmacotherapy for OUD/ members receiving Medication for Addiction Treatment (MAT) Note: yearly estimates calculated	MMIS claims/ encounter data	Descriptive statistics; comparison of annual regression-adjusted Phase 1 and Phase 2 estimates to baseline
H2. The Demonstration improves adherence to treatment among individuals	NQF #2605: Follow-up after Discharge from the Emergency Department (ED) for Mental	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series

with any SUD diagnosis and with OUD diagnosis.	Health or Alcohol or Other Drug Use Dependence/members with SUD		approach - segmented regression
H2. The Demonstration improves adherence to treatment among individuals with any SUD diagnosis and with OUD diagnosis.	Percentage of members with any SUD/OUD diagnosis who used the following per quarter: • Outpatient SUD services • Structured Outpatient Addiction Program (SOAP) ASAM level 2.1) • Medication for OUD • RRS (ASAM Level 3.1) • Clinical stabilization services (ASAM Level 3.5) • Acute Treatment Services (ASAM Level 3.7) • Inpatient Withdrawal Management (ASAM 4.0) • Outpatient withdrawal management • RC • RSN	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series approach - segmented regression
H3. The Demonstration reduces nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period.	NQF #2940: Use of opioids at high dosage in persons without cancer/MassHealth members (Note: yearly estimates calculated)	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series approach - segmented regression
H3. The Demonstration reduces nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period.	Non-fatal overdoses, overall and opioid-related/MassHealth members	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series approach - segmented regression
H3. The Demonstration reduces nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period.	OD deaths, overall and opioid-related/MassHealth members	MMIS claims/ encounter data; Massachusetts death records	Descriptive statistics; Interrupted time series approach - segmented regression
H4. The Demonstration reduces utilization of ED and inpatient hospital settings and overall healthcare costs among individuals with any	ED use/1,000 member-quarters for members diagnosed with SUD/OUD	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series approach - segmented regression

SUD-related diagnosis and with OUD diagnosis.			
H4. The Demonstration reduces utilization of ED and inpatient hospital settings and overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis.	Inpatient admissions /1,000 member-quarter for members diagnosed with SUD/OUD	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series approach - segmented regression
H4. The Demonstration reduces utilization of ED and inpatient hospital settings and overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis.	Healthcare costs/member per month for members diagnosed with SUD/OUD overall and by component: • Inpatient • ED • Ambulatory care • Pharmacy • Long-term care • SUD-other costs • Non-SUD costs	MMIS claims/ encounter data	Interrupted time series approach - segmented regression
H5. The Demonstration results in fewer readmissions to the same or higher level of care.	30-day and 90-day readmission rates to the same level of care or higher following admission to inpatient hospitalization or 24-hour diversionary services for any SUD diagnosis and OUD diagnosis/members with SUD admitted inpatient hospitalization or 24-hour diversionary services	MMIS claims/ encounter data	Descriptive statistics; Interrupted time series approach – segmented regression
H6. The Demonstration results in improved access to care, including for comorbid physical health conditions among individuals with any SUD diagnosis and OUD diagnoses, relative to trends prior to the current Demonstration period.	Medications for Opioid Use Disorder (MOUD) Prescribers/ MassHealth members diagnosed with SUD and MassHealth members diagnosed with OUD Healthcare Utilization: • Outpatient SUD Professional visits /1,000 member-quarters • Inpatient admissions/1,000 member-quarters • Ambulatory care visits/1,000 member-quarters	MMIS claims/ encounter/ provider data	Descriptive statistics; Interrupted time series approach - segmented regression
H7. The Return on Investment (ROI) will support the continuation of SUD Demonstration activities	Program costs; healthcare costs	MMIS claims/ encounter data	ROI

5.3. Summative Findings

This section presents analysis results that respond to the seven hypotheses.

5.3.1. Demographic Characteristics of MassHealth Members with SUD and OUD

In the first quarter of CY2015, there were 166,357 MassHealth members ages 13 to 64 years with any SUD diagnosis and 109,429 with an OUD diagnosis. The number with any SUD diagnosis rose to 175,187 in the first quarter of CY2022, while the number with an OUD diagnosis dropped to 80,577. The mean age among members with any SUD diagnosis rose slightly from 39.4 years to 41.4 years over this period and rose from 39.7 years to 42.2 years among members with an OUD diagnosis. **Table 5.3-1** presents the sex and race distribution of MassHealth members with any SUD diagnosis and an OUD diagnosis in the first quarters of CY2015 to CY2022. The percentage of males was near 60%, both among members with any SUD and OUD in all years of the evaluation period. Approximately 15% to 18% of members with any SUD diagnosis and 11% to 14% of members with an OUD diagnosis had non-white race documented across the evaluation period. However, caution should be exercised when interpreting race distribution, given that race data for approximately 30% of the population is unknown.

Table 5.3-1 Demographic Characteristics of MassHealth Population with SUD and OUD, CY2015–CY2022

	Q1 CY2015	Q1 CY2016	Q1 CY2017	Q1 CY2018	Q1 CY2019	Q1 CY2020	Q1 CY2021	Q1 CY2022
SUD Population								
Female	41.3%	41.1%	41.4%	41.6%	41.7%	42.0%	42.2%	42.2%
Male	58.7%	58.9%	58.6%	58.4%	58.3%	58.0%	57.8%	57.8%
White	53.4%	52.9%	52.1%	51.6%	50.9%	50.6%	50.6%	51.2%
Black	7.0%	6.9%	7.1%	7.4%	7.5%	7.8%	8.0%	7.7%
Other	8.3%	8.5%	8.7%	8.7%	8.6%	8.5%	10.7%	10.8%
Unknown	31.3%	31.7%	32.1%	32.3%	33.0%	33.1%	30.7%	30.3%
OUD Population								
Female	40.6%	42.5%	42.8%	42.7%	42.7%	42.5%	42.2%	42.2%
Male	59.4%	57.5%	57.2%	57.3%	57.3%	57.4%	57.8%	57.8%
White	57.1%	60.6%	59.4%	59.2%	58.6%	58.3%	58.1%	58.4%
Black	5.4%	3.9%	4.0%	4.1%	4.2%	4.3%	4.3%	4.3%
Other[a]	7.6%	7.3%	7.7%	7.9%	8.1%	8.0%	10%	10.1%
Unknown	29.9%	28.2%	28.9%	28.8%	29.1%	29.4%	27.6%	27.2%

Source: MassHealth administrative data

[a] Asian, Native American, multiple

5.3.2. Hypothesis 1: The Demonstration will increase rates of identification, initiation, and engagement in treatment among individuals with SUD relative to trends prior to the current Demonstration period.

Overview

- Treatment initiation among members with a new diagnosis of SUD increased slightly each year during Phase 2 of SUD service expansion, averaging nearly 53% each year compared with an average of 52% each year during the baseline period. In CY2022, initiation reached 54.5%.
- Engagement in treatment also increased each year during Phase 2 of SUD service expansion, averaging nearly 15% each year compared with an average of 12% each year during the baseline period. In CY2022, engagement reached nearly 17%.

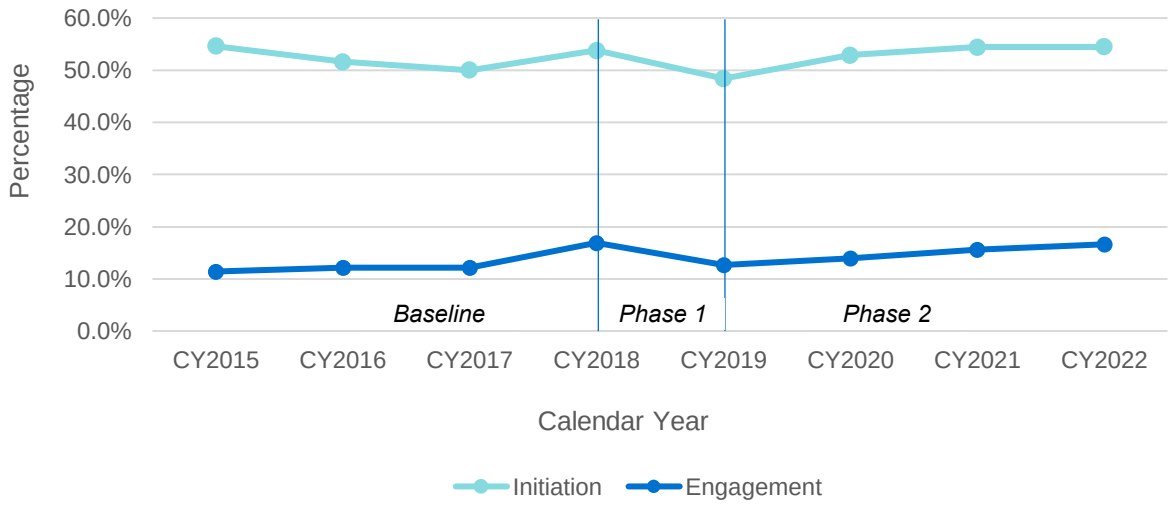
Detailed Results

Figure 5.3-1 presents the annual percentage of MassHealth members with a new SUD diagnosis who initiated and engaged in alcohol and other drug dependence treatment (NQF #0004) by CY2015–CY2022. This measure was calculated annually rather than quarterly. The denominator of the NQF #0004 measure identifies a new episode of alcohol or drug dependency during a visit in the first 11 months of the measurement period. As such, it was determined that identifying the first episode of SUD each quarter would capture many episodes that were not "new." Interrupted time series was not conducted for this measure. Instead, the average annual estimates were compared in the baseline, Phase 1, and Phase 2 periods, controlling for demographic and clinical characteristics of the population each year.

Initiation decreased from 54.6% in 2015 to 50% in CY2017 among MassHealth members with a new SUD diagnosis, averaging 52.1% each year during the baseline period. Initiation increased during Phase 1 to 53.8%. During the first year of Phase 2, initiation fell to 48.4% and rose to 54.5% by CY2022, averaging 52.6% each year during Phase 2. In adjusted analysis, initiation was higher in the implementation phase (aRR = 1.04; 95% Confidence Interval (CI): 1.03, 1.05) compared to baseline, and in Phase 2 compared to Phase 1 (aRR = 1.03; 95% CI: 1.0, 1.05) and compared to the baseline period (aRR = 1.07; 95% CI: 1.04, 1.10). In sensitivity analysis excluding the COVID-19 pandemic period, initiation during Phase 1 was slightly higher relative to baseline than in the base case analysis (aRR = 1.10; 95% CI: 1.09, 1.12).

Engagement increased slightly during the baseline period, from 11.4% in CY2015 to 12.1% in CY2017, averaging 11.9% per year in the baseline period. Engagement increased in Phase 1 to 16.9% in 2018. During the first year of Phase 2, initiation fell to 12.7% in 2020, then increased to 16.6% in CY2022, averaging 14.7% during Phase 2. In adjusted analysis, engagement was higher during Phase 1 (aRR = 1.38; 95% CI: 1.34, 1.43) than baseline. Engagement during Phase 2 was lower relative to Phase 1 (RR = 0.86; 95% CI: 0.83, 0.89) but higher relative to the baseline period (aRR = 1.19; 95% CI: 1.14, 1.24). In sensitivity analysis excluding the COVID-19 pandemic period, engagement in Phase 2 was slightly higher relative to baseline than in the base case analysis (aRR= 1.27; 95% CI: 1.22, 1.32).

Figure 5.3-1 Initiation and Engagement in Alcohol and Other Drug Dependence Treatment, MassHealth Members with a New SUD Diagnosis, CY2015–CY2022



Source: MassHealth administrative data

5.3.3. Hypothesis 2: The Demonstration will improve adherence to treatment among individuals with any SUD diagnosis (including, in particular, OUD diagnosis) relative to trends prior to the current Demonstration period.

Overview

- Continuity of pharmacotherapy for OUD was higher during Phase 2 of SUD service expansion, averaging 41% of members receiving pharmacotherapy for OUD, compared with 38% during the baseline period.
- Follow-up within 7 days after an ED visit for SUD fluctuated over the evaluation period but did not substantially change from the average of 20% per calendar quarter during the baseline period. Similarly, follow-up within 30 days averaged 27% throughout the baseline, Phase 1, and Phase 2 periods.
- The percentage of members with SUD receiving an outpatient visit for SUD increased sharply during the first quarter of Phase 1 to greater than 36%, from an average of 28% each quarter over the baseline period. The percentage with a visit declined slightly throughout the rest of Phase 1 and 2, with 33% receiving a visit during Q4 CY2022. A similar pattern was observed among members with OUD, with 35% receiving a visit during the baseline period, increasing to 47% in the first quarter of Phase 1 and decreasing to 40% by Q4 CY2022.
- The percentage of members with SUD utilizing SOAP decreased each quarter during Phase 1 and Phase 2, from an average of 1% during the baseline period to 0.5% by the end of 2022. A similar pattern was observed among members with OUD.
- MOUD utilization among MassHealth members with an OUD diagnosis increased over the evaluation period, from an average of 32% each quarter during the baseline period to 43% by Q4 CY2022.

- The percentage of members with any SUD diagnosis who utilized RRS increased in Phase 1 from 0.05% in the first quarter of 2018 to 0.1% by the last quarter of 2018. During Phase 2, utilization rose to 0.5% by the last quarter of CY2022. Among members with OUD, utilization was higher, increasing from less than 0.1% in the first quarter of Phase 1 to nearly 1% by the last quarter of 2022.
- The percentage of members with any SUD diagnosis who utilized Clinical Stabilization Services (CSS) services remained largely flat throughout the evaluation period, averaging approximately 3% per quarter. Among members with an OUD, utilization of CSS services fluctuated over the period but remained at approximately 5% during baseline, Phase 1, and Phase 2.
- Among members with SUD, the percentage utilizing Acute Treatment Services (ATS) services each quarter increased from a baseline average of 3.7% to a high of 4.6% in Phase 2. Although utilization decreased each quarter during Phase 2, the average quarterly utilization during Phase 2 (4.0%) was higher than during the baseline period. ATS utilization among members with OUD followed a similar pattern, increasing from a baseline average of 5.9% each quarter to a high of 7.8% during Phase 2 and averaging 6.8% each quarter during Phase 2.
- Approximately 2% of members with SUD and 1% of members with OUD utilized inpatient withdrawal services (ASAM 4.0) each quarter during the baseline period. During Phase 2, utilization declined by 2% each calendar quarter in both groups relative to the baseline trend. In Q4 CY2022, 1.6% of members with SUD and 0.6% of members with OUD utilized inpatient withdrawal services.
- Utilization of outpatient withdrawal management services was quite low throughout the evaluation period. Fewer than 0.01% of members with any SUD and with OUD utilized these services on average each quarter throughout the evaluation period.
- Utilization of RCo services increased each calendar quarter after their introduction in July 2018. Services were utilized by 1.5% of members with any SUD diagnosis and 2.3% of members with an OUD diagnosis during Q4 CY2022.
- During Phase 1, 1% of members with SUD utilized RNS each quarter. During Phase 2, utilization fluctuated, rising from 1.2% in Q1 CY2019 to 2.2% in Q2 CY2020 but declining to 1% by Q4 CY2022. A similar pattern was observed among members with OUD, rising to 4.1% in Q2 CY2020 but declining to 1.7% by Q4 CY2022.

Detailed Results by Measure

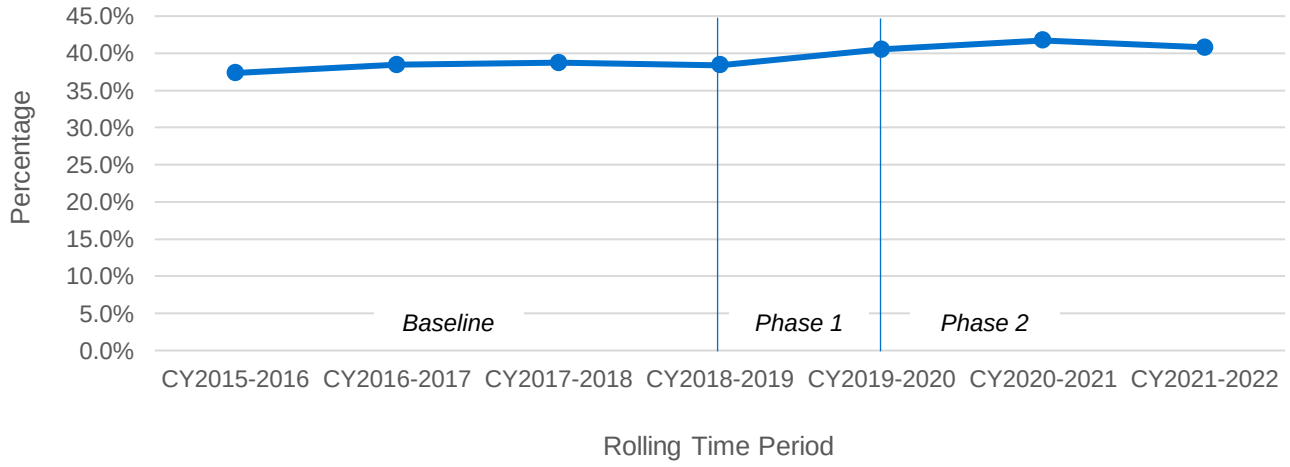
<u>180+ Days of Continuous Treatment Among MassHealth Members Receiving Pharmacotherapy for OUD</u>

Figure 5.3-2 presents the percentage of adults aged 18–64 years who received pharmacotherapy for OUD with at least 180 days of continuous treatment (NQF#3175) between CY2015–CY2022. This measure was not calculated on a quarterly basis because the measure requires 180 days of follow-up, longer than the 90- to 92-day calendar quarter. It was determined that calculating this measure on a quarterly basis would not properly capture episodes of treatment that spanned multiple calendar quarters. Interrupted time series was not conducted for this measure. Instead, the average annual estimates were compared in the

baseline, Phase 1, and Phase 2 periods, controlling for demographic and clinical characteristics of the population each year.

The percentage maintained on pharmacotherapy for 180 days increased slightly from 37.3% in CY2015–CY2016 to 38.7% in CY2017–CY2018, averaging 38.1% during the baseline period. In Phase 1, CY2018–CY2019, 38.4% were maintained on pharmacotherapy, and during Phase 2, continuity of pharmacotherapy rose from 40.5% in CY2019–CY2020 to 40.8% in CY2021–CY2022, averaging 41% during the period. Continuity of pharmacotherapy in Phase 1 was similar to the baseline period (RR = 1.01; 95% CI: 0.99, 1.02) but 7% higher in Phase 2 relative to baseline (RR = 1.07; 95% CI: 1.06, 1.08). In sensitivity analyses, excluding the 2-year COVID-19 pandemic period (CY2020–CY2021), data did not change model results.

Figure 5.3-2 180+ Days of Continuous Treatment Among MassHealth Members Receiving Pharmacotherapy for OUD, CY2015–CY2022



Source: MassHealth administrative data

Follow-Up Within Seven Days and Within 30 Days After Discharge from the ED for Alcohol or Other Drug Use Dependence (AOD)

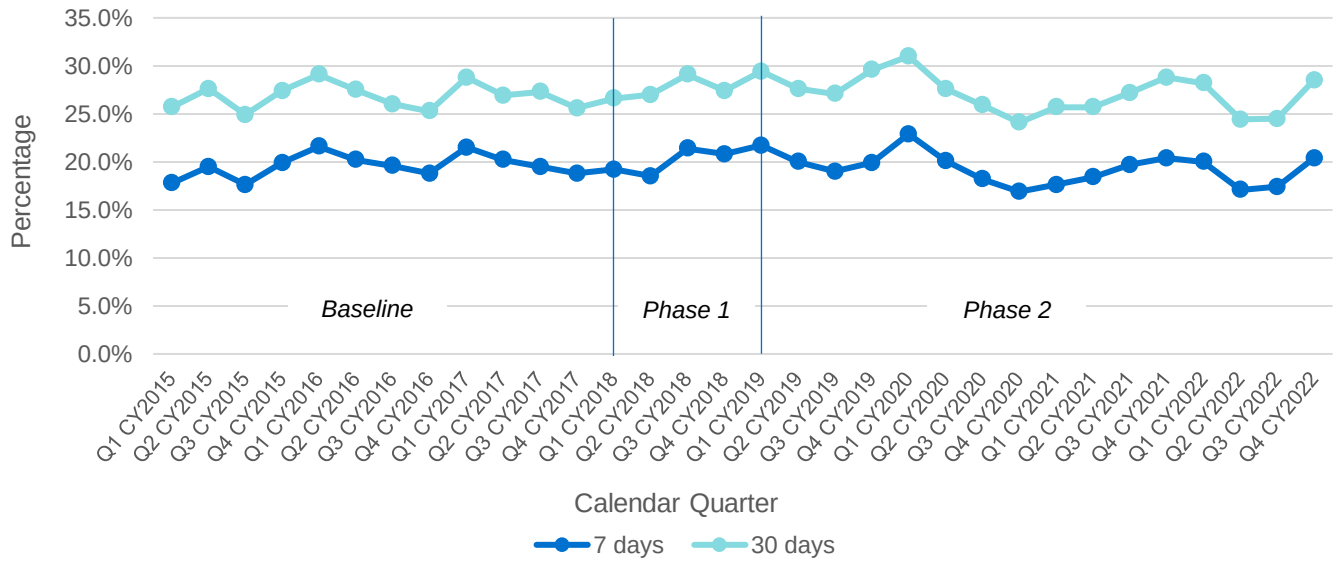
Figure 5.3-3 presents the percentage of MassHealth members who have follow-up within seven days and within 30 days after discharge from the ED for AOD by calendar quarter, CY2015–CY2022 (NQF #2605). The percentage of members discharged from the ED for AOD who received follow-up within seven days fluctuated from quarter to quarter but increased from 17.8% in Q1 CY2015 to 18.8% in Q4 CY2017, averaging 19.6% each quarter over the baseline period. During Phase 1, follow-up averaged 20.0% each quarter during the period. During Phase 2, follow-up within 7 days decreased slightly from 21.7% in Q1 CY2019 to 20.4% in Q4 CY2022, averaging 19.4% during the period.

In adjusted analyses, follow-up within 7 days remained flat during the baseline period, increased each quarter during Phase 1 relative to the baseline trend (aRR = 1.06; 95% CI: 1.01, 1.11), decreased slightly each quarter in Phase 2 relative to the Phase 1 trend (aRR = 0.92; 95% CI: 0.88, 0.97) (see **Appendix O, Table O-1**) and decreased during Phase 2 relative to baseline (aRR = 0.98; 95% CI: 0.97, 0.99). The average 7-day follow-up per

quarter during Phase 2 did not differ from the baseline period. In sensitivity analyses, neither excluding the COVID-19 pandemic period nor extending the Phase 1 period substantially changed model results.

The percentage of MassHealth members who received follow-up within 30 days after discharge from the ED for AOD demonstrated a similar pattern as follow-up within 7 days, averaging 26.8% per quarter over the baseline period, 27.5% per quarter during Phase 1, and 27.2% per quarter during Phase 2. In adjusted analyses, the percentage of MassHealth members with follow-up within 30 days after discharge from the ED for AOD remained flat during the baseline period and increased slightly each quarter relative to the baseline trend (aRR = 1.05; 95% CI: 1.01, 1.10). Follow-up decreased slightly each quarter in Phase 2 compared to the Phase 1 trend (aRR = 0.94; 95% CI: 0.90, 0.98) (see **Appendix O, Table O-2**) and compared to baseline (aRR = 0.99; 95% CI: 0.98, 1.00). Overall, the average 30-day follow-up each quarter during Phase 1 was higher than during the baseline (aRR = 1.07; 95% CI: 1.02, 1.13), but the average follow-up during Phase 2 was similar to the baseline period. In sensitivity analyses, neither excluding the COVID-19 pandemic period nor extending the Phase 1 period substantially changed model results.

Figure 5.3-3 Follow-up within Seven Days and within 30 Days After Discharge From the ED for AOD by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

SUD Outpatient Visits Among MassHealth Members with Any SUD and OUD Diagnoses

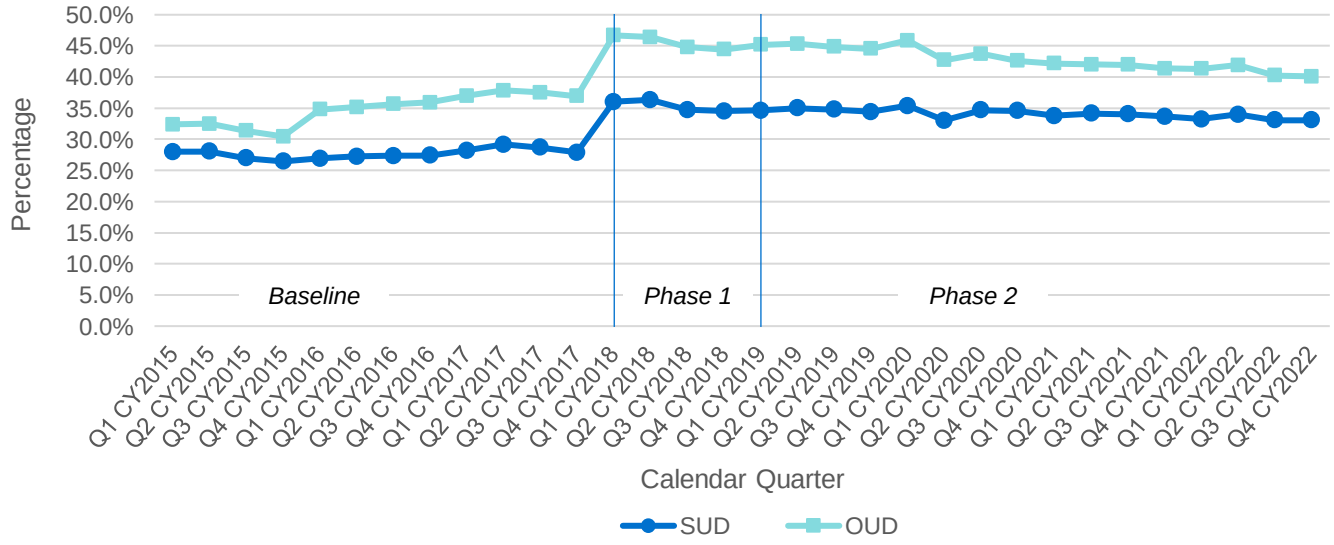
Figure 5.3-4 presents the percentages of members with any SUD diagnosis and with an OUD diagnosis who attended an outpatient visit for SUD by calendar quarter, CY2015–CY2022. The percentage of members with any SUD diagnosis who received a SUD outpatient visit remained steady from Q1 CY2015 through Q4 CY2017, averaging 27.9% each quarter. The percentage who received a visit averaged 35.4% each quarter over Phase 1 and decreased slightly from 34.6% in Q1 CY2019 to 33% in Q4 CY2022, averaging 34.1% each quarter during Phase 2.

In adjusted analyses, the percentage receiving a visit remained flat during the baseline period and increased sharply in the first quarter of Phase 1 (aRR = 1.42; 95% CI: 1.40, 1.43). Utilization during Phase 1 decreased each quarter relative to baseline (aRR = 0.98; 95% CI: 0.97, 0.98) and increased slightly in Phase 2 relative to Phase 1 (aRR = 1.02; 95% CI: 1.02, 1.03) (see **Appendix O**, **Table O-2**), with a flat trend over the Phase 2 period relative to baseline (aRR = 1.00; 95% CI: 1.00, 1.00). Overall, average utilization each quarter was higher both during Phase 1 (aRR = 1.51; 95% CI: 1.50, 1.53) and Phase 2 (aRR = 1.42; 95% CI: 1.40, 1.43) relative to baseline. In sensitivity analysis, neither the exclusion of COVID-19 pandemic period nor the extension of the Phase 1 period resulted in any substantive changes from the base case.

The percentage of members with an OUD diagnosis who received a SUD outpatient visit increased from 32.4% in Q1 CY2015 to 36.9% in Q4 CY2017, averaging 34.8% over the baseline period. The percentage of those who received a visit averaged 45.6% each quarter during Phase 1. Utilization decreased slightly from 45.2% in Q1 CY2019 to 40.1% in Q4 CY2022, averaging 42.9% each quarter during Phase 2.

In adjusted analyses, the percentage with a visit increased slightly each quarter during the baseline period (aRR = 1.01; 95% CI: 1.01, 1.01). Utilization increased sharply in the first quarter of Phase 1 (aRR = 1.37; 95% CI: 1.36, 1.38) but decreased each quarter during Phase 1 relative to baseline (aRR = 0.97; 95% CI: 0.97, 0.97) and increased each quarter in Phase 2 relative to Phase 1 (aRR = 1.02; 95% CI: 1.02, 1.02) (see **Appendix O**, **Table O-2**), with a slight decrease each quarter in Phase 2 relative to baseline (aRR = 0.99; 95% CI: 0.99, 0.99). Overall, average utilization per quarter in Phase 1 was 34% higher (aRR = 1.34; 95% CI: 1.33, 1.36), and in Phase 2, 29% higher (aRR = 1.29; 95% CI: 1.28, 1.30) than during the baseline period. In sensitivity analysis, neither the exclusion of the COVID-19 pandemic period nor the extension of the Phase 1 period resulted in any substantive changes in model results.

Figure 5.3-4 SUD Outpatient Visits Among MassHealth Members With Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

SOAP Utilization Among MassHealth Members with Any SUD and OUD Diagnoses

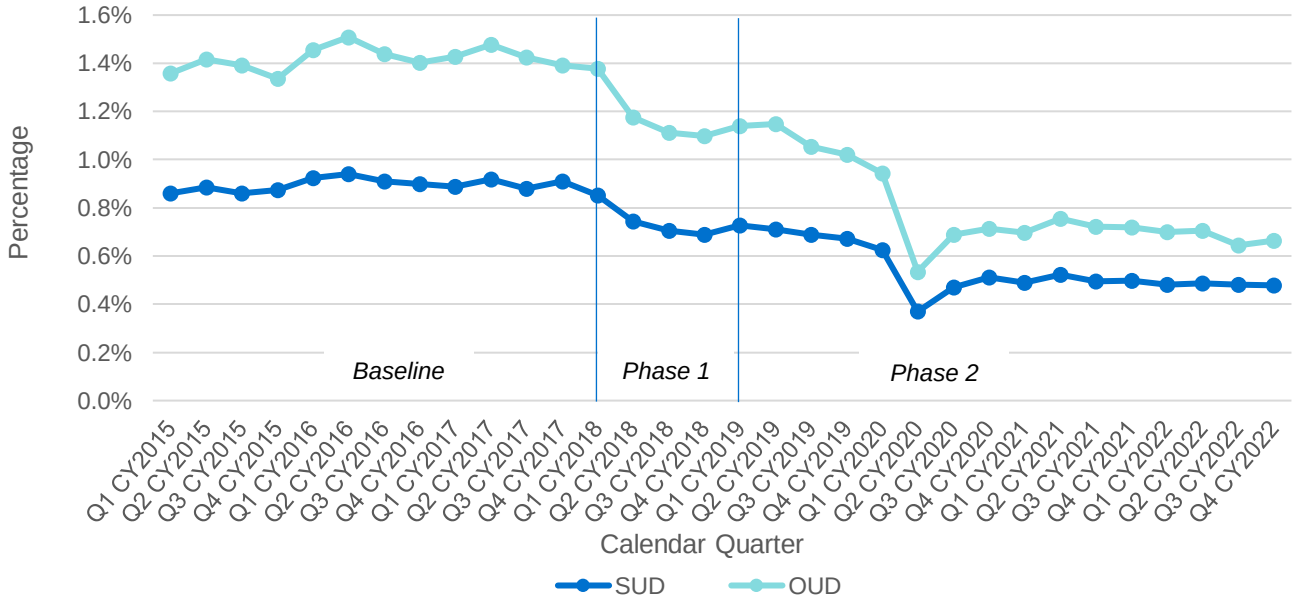
SOAP are clinically intensive, structured day and evening substance use disorder services. **Figure 5.3-5** presents the percentages of members with any SUD diagnosis and with an OUD diagnosis who utilized SOAP by calendar quarter, CY2015–CY2022. The percentage utilizing SOAP remained steady at 0.9% each quarter during the baseline period. During Phase 1, utilization averaged 0.7% each quarter of the period. Utilization dropped during Phase 2 from 0.7% in Q1 CY2019 to 0.5% in Q4 CY2022, averaging 0.5% each quarter through the period.

In adjusted analyses, the trend of utilization in each quarter during the baseline period was flat. Utilization each quarter in Phase 1 decreased relative to baseline (aRR = 0.92; 95% CI: 0.89, 0.95) and increased slightly in Phase 2 relative to Phase 1 (aRR = 1.05; 95% CI: 1.02, 1.09) (see **Appendix O, Table O-3**) but decreased each quarter during Phase 2 relative to baseline (aRR = 0.97; 95% CI: 0.96, 0.98). Overall, average utilization each quarter was lower both during Phase 1 (aRR = 0.78; 95% CI: 0.75, 0.81) and Phase 2 (aRR 0.53; 95% CI: 0.51, 0.55) relative to baseline. In sensitivity analysis, the exclusion of the COVID-19 pandemic period resulted in a statistically flat trend in Phase 2 relative to baseline (aRR = 0.99; 95% CI: 0.99, 1.00) and slightly higher average quarterly utilization during Phase 2 (average utilization = 0.6%, aRR = 0.56; 95% CI: 0.54, 0.58) relative to baseline. Extending Phase 1 did not substantially change model results.

Among members with an OUD diagnosis, the percentage utilizing SOAP increased from 1.1% in Q1 CY2015 to 1.3% in Q4 CY2017, averaging 1.3% during the baseline period. During Phase 1, utilization averaged 1.1% over the period. During Phase 2, utilization dropped from 1% in Q1 CY2019 to 0.6% in Q4 CY2022, with a dip to 0.5% in April–June CY2020 and averaging 0.8% each quarter over the period.

In adjusted analyses, the baseline trend in utilization was flat. The trend during Phase 1 decreased relative to baseline (aRR = 0.91; 95% CI: 0.88, 0.94) and increased slightly in the post-implementation period relative to Phase 1 (aRR = 1.05; 95% CI: 1.02, 1.09) (see **Appendix O, Table O-3**), with utilization decreasing each quarter during Phase 2 relative to baseline (aRR = 0.96; 95% CI: 0.95, 0.96). The average utilization per quarter was lower both during Phase 1 (aRR = 0.84; 95% CI: 0.81, 0.88) and Phase 2 (aRR = 0.60; 95% CI: 0.58, 0.62) relative to baseline. In sensitivity analysis, excluding the COVID-19 pandemic period resulted in a slightly less steep trend in Phase 2 relative to baseline (aRR = 0.97; 99% CI: 0.96, 0.99) compared with results from the base case analysis. Extension of Phase 1 did not substantially change model results.

Figure 5.3-5 SOAP Utilization Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



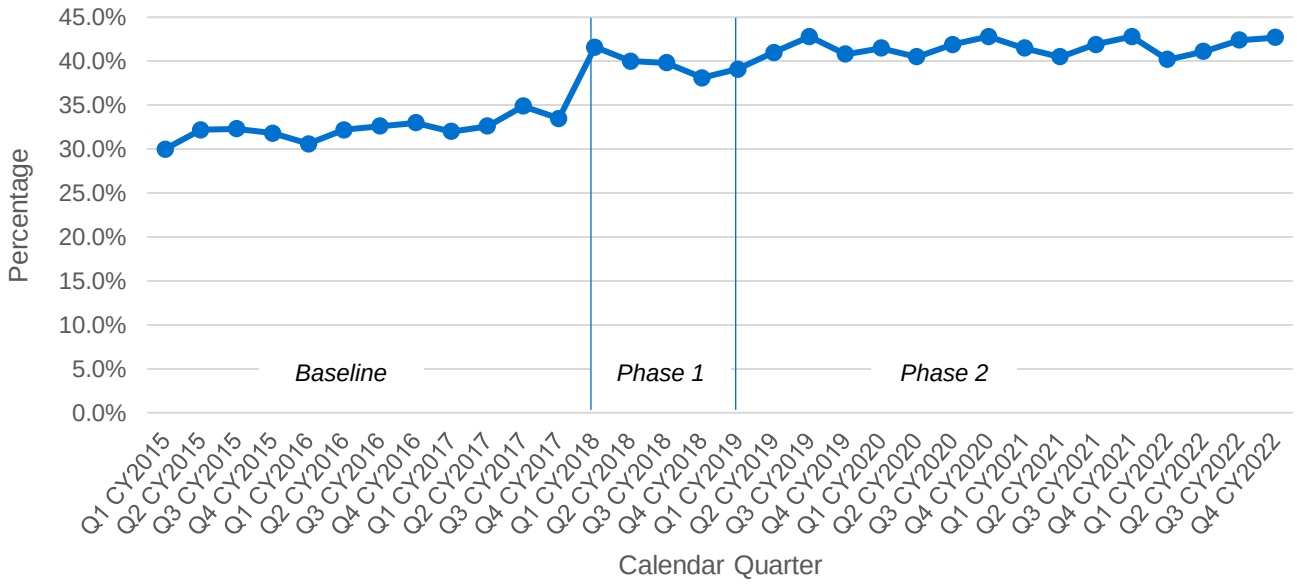
Source: MassHealth administrative data

MOUD Utilization Among MassHealth Members with an OUD Diagnosis

Figure 5.3-6 presents the percentages of MassHealth members with an OUD diagnosis who received MOUD (buprenorphine, methadone, naltrexone) by calendar quarter, CY2015–CY2022. MOUD. The percentage who received MOUD increased from 30% in Q1 CY2015 to 33.5% in Q4 CY2017, averaging 32.3% over the baseline period. MOUD utilization averaged 39.9% each quarter during Phase 1 and increased from 39.1% in Q1 2019 to 42.7% in Q4 2022, averaging 41.5% each quarter over Phase 2.

In adjusted analyses, MOUD utilization increased 1% per quarter over the baseline period (aRR = 1.01; 95% CI: 1.01, 1.01) and increased 48% in the first quarter of Phase 1 (aRR = 1.48; 95% CI: 1.46, 1.50). The trend in quarterly utilization decreased slightly in Phase 1 relative to baseline (aRR = 0.93; 95% CI: 0.93, 0.93), increased 14% in the first quarter of Phase 2 (aRR = 1.14; 95% CI: 1.13, 1.15), and increased quarterly relative to Phase 1 (aRR = 1.07; 95% CI: 1.07, 1.07) (see **Appendix O, Table O-4**). Utilization remained essentially flat over Phase 2 relative to baseline. Overall, MOUD utilization was 30% higher in Phase 1 (aRR = 1.30; 95% CI: 1.29, 1.32) and 37% higher in Phase 2 (aRR = 1.37; 95% CI: 1.35, 1.38) relative to baseline. In sensitivity analysis, excluding the COVID-19 pandemic period resulted in a slight increase in the quarterly trend in Phase 2 relative to baseline (aRR = 1.01; 95% CI: 1.01, 1.01).

Figure 5.3-6 MOUD Utilization Among MassHealth Members with an OUD Diagnosis by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

RRS Among MassHealth Members with Any SUD and OUD Diagnoses

RRS, ASAM level 3.1 services, are clinically managed low-intensity residential support and transitional support services provided to an individual with a substance use disorder in a 24-hour setting. It is not possible to evaluate the change in trends from pre- to post-implementation of services, as records from BSAS, the payer during the pre-implementation period, were not available. ITS was conducted comparing Phase 1 utilization to Phase 2 utilization. ASAM 3.3 services were not evaluated as a separate measure, as ASAM 3.3 services had not yet been implemented.

Figure 5.3-7 presents the percentages of MassHealth members with any SUD diagnosis and with an OUD diagnosis who utilized RRS by calendar quarter from Q1 CY2018 when MassHealth began covering these services through Q4 CY2022.

The percentage of members with any SUD diagnosis who utilized RRS during Phase 1 increased from 0.05% in Q1 CY2018 to 0.1% by Q4 CY2018, averaging 0.06% over the period. During Phase 2, utilization rose from 0.18% in Q1 CY2019 to 0.50% by Q4 CY2022.

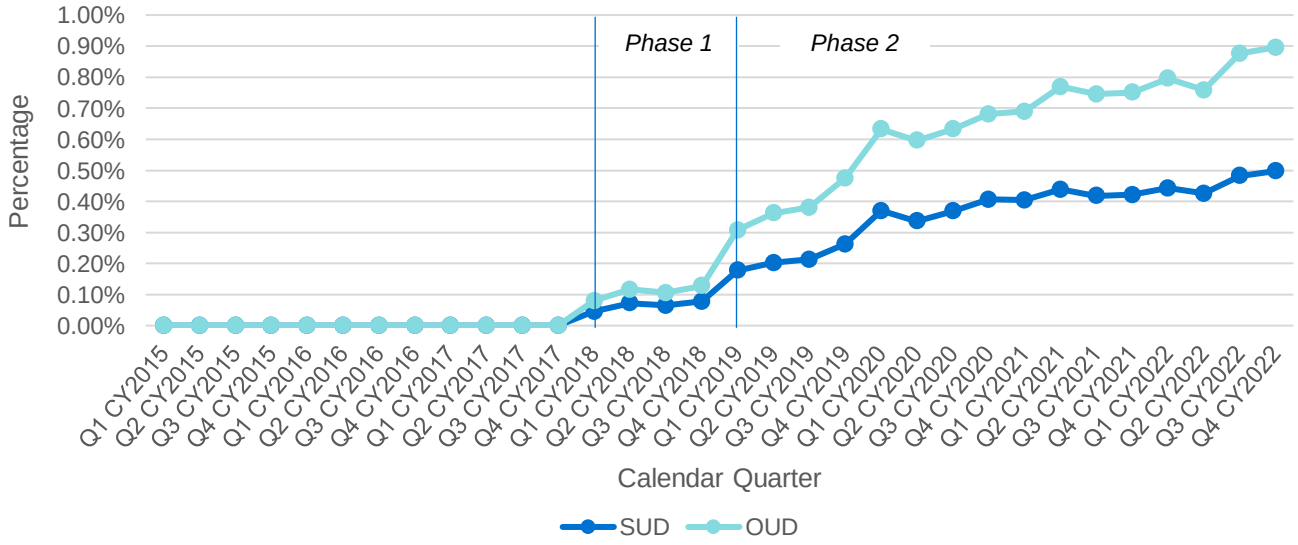
In the adjusted model, utilization rose 21% each quarter during Phase 1 (aRR = 1.21; 95% CI: 1.02, 1.44) and increased almost four-fold in Q1 CY2019 (aRR = 3.78; 95% CI: 2.71, 5.29). During Phase 2, utilization rose at a slower pace (aRR = 0.88 per; 95% CI: 0.74, 1.05) relative to Phase 1 (see **Appendix O, Table O-4**) but continued to increase 7% each calendar quarter (aRR = 1.07; 95% CI: 1.06, 1.08) during the period. Overall, utilization was, on average, 8.3 times higher during each calendar quarter during the Phase 2 period compared to Phase 1 (aRR = 8.32; 95% CI: 6.34, 10.92). Exclusion of the COVID-19 pandemic period did not change model results.

In subgroup analysis, utilization was highest during Phase 2 among members in the highest quartile of risk score (0.9% each quarter, vs. 0.2% in the lowest quartile), ages 18 to 29 (0.6% each quarter vs. 0.1% each quarter among adults ages 50 to 64), among members in MCO plans (0.68 each quarter vs 0.43 among members in PCC plan) and in central Massachusetts (0.5% per quarter vs. 0.2% each quarter in southern Massachusetts).

Similarly, the percentage with OUD increased from 0.08% to 0.13% during Phase 1, averaging 0.11% over the period. In Phase 2, utilization rose from 0.31% in Q1 CY2019 to 0.90% in Q4 CY2022, averaging 0.63% during this period. In the adjusted model, utilization rose 17% each quarter during phase 1 (aRR = 1.17; 95% CI: 1.06, 1.29) and increased nearly 3-fold% in Q1 CY2019 (aRR = 2.96; 95% CI: 2.41, 3.63). During Phase 2, utilization rose each quarter at a slightly slower pace (aRR = 0.91 per 95% CI: 0.83, 1.01) relative to Phase 1 but continued to increase 7% each quarter (aRR = 1.07; 95% CI: 1.06, 1.08) during the period (see **Appendix O, Table O-5**). Overall, utilization was, on average, over 8 times higher in each quarter during the Phase 2 period compared with Phase 1 (aRR = 8.32; 95% CI: 6.34, 10.92). Exclusion of the COVID-19 pandemic period did not change model results.

In subgroup analysis, utilization was highest during Phase 2 among members in the highest quartile of risk score (1.5% each quarter vs. 0.3% in the lowest quartile), ages 18 to 29 (1.5% each quarter vs. 0.3% each quarter among adults ages 50 to 64), among members in MCO plans (0.96 each quarter vs 0.76 among members in PCC plan) and in Greater Boston (0.7% per quarter vs. 0.4% each quarter in southern Massachusetts).

Figure 5.3-7 Residential Rehabilitation Services (ASAM 3.1) Among MassHealth Members with any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

CSS Utilization Among MassHealth Members with Any SUD and OUD Diagnoses

CSS, ASAM level 3.5, are 24-hour services that can be accessed as a transition from higher levels of care or directly from the community. This is a clinically focused service with daily

programming and nursing services, community-based therapeutic environments, and continuous 24-hour observation.

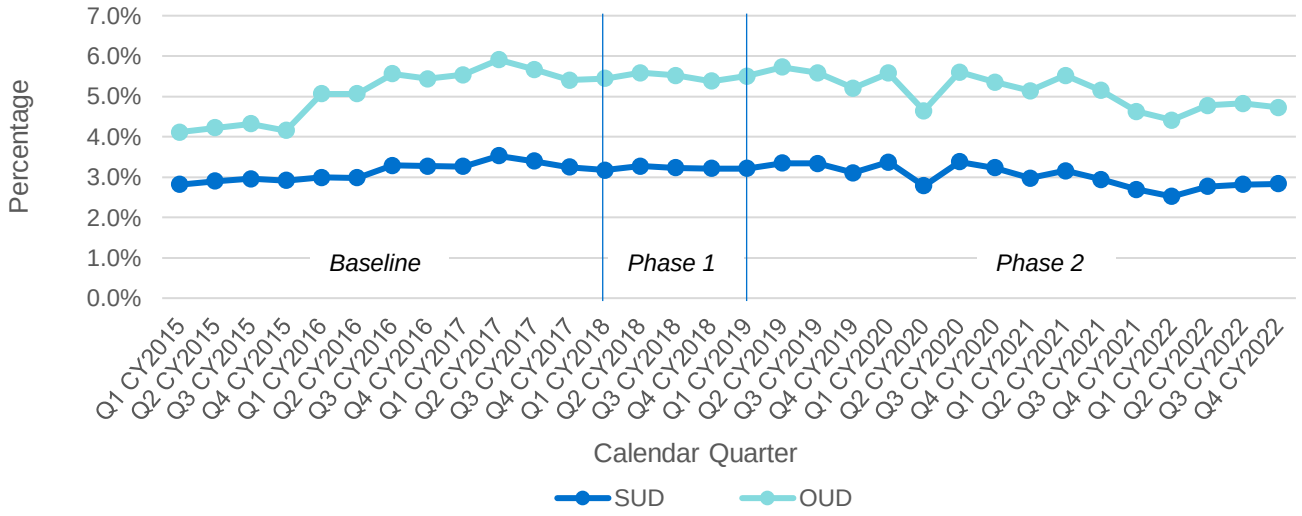
Figure 5.3-8 presents the percentages of MassHealth members with any SUD diagnosis and with an OUD diagnosis who utilized CSS by calendar quarter CY2015–CY2022. The percentage of members with any SUD diagnosis utilizing CSS increased from 2.8% in Q1 CY2015 to 3.2% in Q4 CY2017, averaging 3.1% per quarter during the baseline period. During Phase 1, utilization remained steady at 3.2%. During Phase 2, utilization dropped slightly from 3.2% in Q1 CY2019 to 2.8% in Q4 CY2022, averaging 3% through the period.

In adjusted analyses, utilization rose slightly each quarter during the baseline period (aRR = 1.01; 95% CI: 1.01, 1.02), fell slightly in Phase 1 relative to baseline (aRR = 0.98; 95% CI: 0.97, 0.99), and remained at a similar trend during Phase 2 (see **Appendix O, Table O-6**), decreasing each quarter in Phase 2 relative to baseline (aRR = 0.97; 95% CI: 0.97, 0.98). Overall, average utilization per quarter remained the same during Phase 1 and was 5% lower during Phase 2 (aRR = 0.93; 95% CI: 0.91, 0.95) compared with baseline. While utilization dipped in the first quarter of the COVID-19 pandemic, excluding the COVID-19 pandemic period did not substantially change results, nor did the extension of the Phase 1 period.

Among members with OUD, the percentage utilizing CSS increased from 4.1% in Q1 CY2015 to 5.4% in Q4 CY2017, averaging 5% during the baseline period. During Phase 1, utilization remained relatively steady, averaging 5.5% per quarter. During Phase 2, utilization dropped slightly from 5.5% in Q1 2019 to 4.7% in Q4 CY2022, averaging 5.1% through the period.

In adjusted analyses, utilization rose 3% per quarter during the baseline period (aRR = 1.03; 95% CI: 1.02, 1.03), fell slightly in Phase 1 relative to baseline (aRR = 0.97; 95% CI: 0.95, 0.98) and remained at a similar trend during Phase 2 (see **Appendix O**, **Table O-6**), decreasing each calendar quarter relative to baseline (aRR = 0.96; 95% CI: 0.96, 0.97). Overall, average utilization per quarter was 7% higher during Phase 1 and 3% higher during Phase 2 compared to baseline (aRR 1.07; 95% CI: 1.05, 1.10, and 1.03; 95% CI: 1.01, 1.05, respectively). While utilization dipped in the first quarter of the COVID-19 pandemic, excluding the COVID-19 pandemic period did not substantially change results, nor did the extension of the Phase 1 period.

Figure 5.3-8 CSS Utilization Among MassHealth Members with any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

ATS Utilization Among MassHealth Members with Any SUD and OUD Diagnoses

ATS, ASAM level 3.7, are 24-hour, 7 days a week, medically monitored addiction treatment services that provide evaluation and withdrawal management. This includes enhanced ATS for individuals requiring withdrawal management for SUD.

Figure 5.3-9 presents the percentages of MassHealth members with any SUD diagnosis and with an OUD diagnosis who utilized ATS by calendar quarter, CY2015–CY2022. The percentage of members with any SUD diagnosis who utilized ATS remained steady from Q1 CY2015 through Q4 CY2017, averaging 3.7% per quarter through the period. During Phase 1, utilization averaged 4.3% each quarter during the period. During Phase 2, utilization decreased from 4.4% in Q1 CY2019 to 3.4% in Q4 CY2022, averaging 4% per quarter over the period.

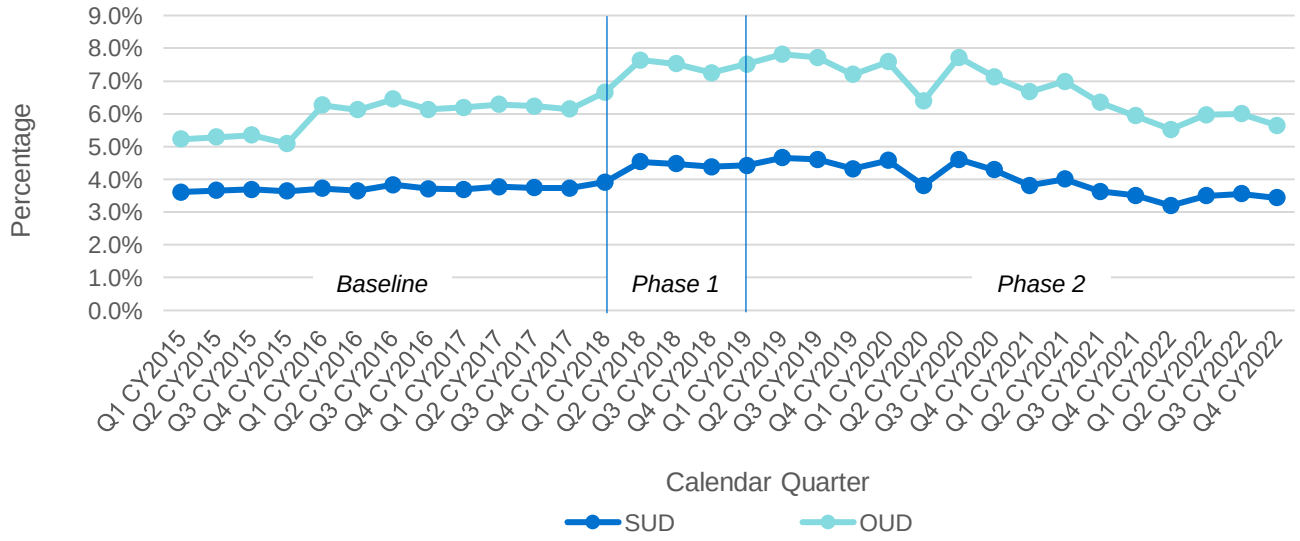
In adjusted analysis, utilization remained flat during the baseline period, increased 16% in the first quarter of Phase 1 (aRR = 1.16; 95% CI: 1.11, 1.21), increased each quarter during Phase 1 relative to baseline (aRR = 1.04; 95% CI: 1.02, 1.05), and decreased each quarter in Phase 2 relative to Phase 1 (aRR = 0.94; 95% CI: 0.93, 0.96) (see **Appendix O, Table O-7**). Utilization decreased each quarter during Phase 2 relative to baseline (aRR = 0.97; 95% CI: 0.97, 0.98). Overall, average quarterly utilization was 17% higher in Phase 1 than during baseline (aRR = 1.17; 95% CI: 1.15, 1.19) and 8% higher in Phase 2 than during baseline (aRR = 1.08; 95% CI: 1.07, 1.09). Although utilization decreased in the first quarter of the COVID-19 pandemic period, the exclusion of the COVID-19 pandemic period did not substantially change model results, nor did the extension of the Phase 1 period.

Among members with an OUD diagnosis, utilization increased from 5.2% in Q1 CY2015 to 6.1% in Q4 CY2018, averaging 5.9% over the baseline period. Utilization averaged 7.3% per

quarter during Phase 1. During Phase 2, utilization decreased from 7.5% in Q1 CY2019 to 5.6% in Q4 CY2022, averaging 6.8% each quarter during the period.

In adjusted analysis, utilization remained essentially flat during the baseline period, increased 12% in the first quarter of Phase 1 (aRR = 1.12; 95% CI: 1.08, 1.16), and increased each quarter during Phase 1 relative to baseline (aRR = 1.02; 95% CI: 1.01, 1.03) (see **Appendix O, Table O-7**). Although utilization increased by 7% in the first quarter of Phase 2, utilization decreased each quarter during Phase 2 relative to Phase 1 (aRR = 0.95; 95% CI: 0.94, 0.96) (see **Appendix O, Table O-7**) and decreased each quarter during Phase 2 (aRR = 0.97; 95% CI: 0.96, 0.97) relative to baseline. Overall, average quarterly utilization was 20% higher during Phase 1 than during baseline (aRR = 1.20; 95% CI: 1.17, 1.22) and 6% higher during Phase 2 than during baseline (aRR = 1.06; 95% CI: 1.04, 1.08). Although utilization decreased in the first quarter of the COVID-19 pandemic, excluding the COVID-19 pandemic period did not substantially change model results, nor did the extension of the Phase 1 period.

Figure 5.3-9 ATS Utilization Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

<u>Medically Managed Intensive Inpatient Withdrawal Management Utilization Among MassHealth Members with Any SUD and OUD Diagnoses</u>

Medically managed intensive inpatient withdrawal management, ASAM level 4, is delivered in an acute inpatient setting, with 24-hour treatment and high-level medical and clinical monitoring.

Figure 5.3-10 presents the percentages of MassHealth members with any SUD diagnosis and with an OUD diagnosis who utilized inpatient withdrawal management by calendar quarter, CY2015–CY2022.

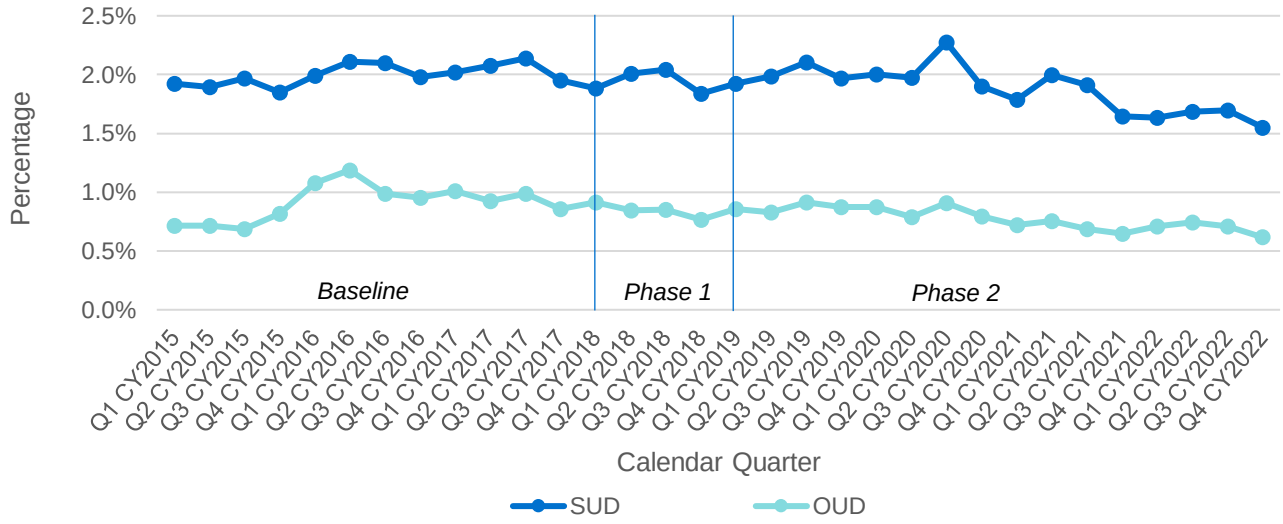
Among members with a SUD diagnosis, utilization fluctuated quarterly from Q1 CY2015 through Q4 CY2017, averaging 2% each quarter during the baseline period. In Phase 1, utilization averaged 1.9% each quarter. Phase 2 utilization dropped from 1.8% in Q1 CY2019 to 1.6% in Q2 CY2022, averaging 1.9% each quarter.

In adjusted analyses, utilization increased 2% per quarter during the baseline period (aRR = 1.02; 95% CI: 1.01, 1.02), increased 16% in the first quarter of Phase 1 (aRR = 1.16; 95% CI: 1.12, 1.20), and decreased each quarter relative to baseline (aRR = 0.96; 95% CI: 0.95, 0.97). Utilization increased 21% in the first quarter of Phase 2 (aRR = 1.21; 95% CI: 1.18, 1.24) and remained flat each quarter in Phase 2 relative to Phase 1 (see **Appendix O, Table O-8**), decreasing each quarter during Phase 2 relative to baseline (aRR = 0.97; 95% CI: 0.97, 0.98). On average, utilization was 19% higher each quarter in Phase 2 compared with baseline (aRR = 1.19; 95% CI: 1.17, 1.21) and 18% higher each quarter in Phase 2 compared with baseline (aRR = 1.18; 95% CI: 1.16, 1.20). Although utilization increased during the COVID-19 pandemic period, excluding the COVID-19 pandemic period did not substantially change model results, nor did extending the Phase 1 period.

Among members with an OUD diagnosis, utilization rose from 0.71% in Q1 CY2015 to 0.86% in Q4 CY2017, averaging 0.91% each quarter during the baseline period. During Phase 1 utilization averaged 0.87%. In Phase 2, utilization decreased from 0.85% in Q1 CY2019 to 0.62% in the last quarter of CY2022, averaging 0.78% each quarter during the period.

In adjusted analyses, utilization increased 6% per quarter during the baseline period (aRR = 1.06; 95% CI: 1.05, 1.07), decreased in the first quarter of Phase 1 relative to baseline (aRR = 0.85; 96% CI: 0.75, 0.97) and decreased each quarter relative to baseline (aRR = 0.91; 95% CI: 0.87, 0.95). Utilization increased 30% in the first quarter of Phase 2 (aRR = 1.30; 95% CI: 1.15, 1.24) and remained flat each quarter in Phase 2 relative to Phase 1 (see **Appendix O, Table O-8**), decreasing each quarter during Phase 2 relative to baseline (aRR = 0.93; 95% CI: 0.92, 0.94). On average, utilization was 6% lower each quarter in Phase 1 compared with baseline (aRR = 0.94; 95% CI: 0.91, 0.98) and 13% lower each quarter in Phase 2 compared with baseline (aRR = 0.87; 95% CI: 0.84, 0.89). The exclusion of the COVID-19 pandemic period resulted in a slightly less steep decrease during Phase 2 relative to baseline (aRR = 0.96; 95% CI: 0.95, 0.98) than in the base case analysis. However, the extension of the Phase 1 period did not substantially change model results.

Figure 5.3-10 Inpatient Withdrawal Management Utilization Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth Administrative data

<u>Outpatient Withdrawal Management Utilization Among MassHealth Members with Any SUD and OUD Diagnoses</u>

Outpatient withdrawal management is detoxification services provided under the direction of a physician and is designed to stabilize the member's medical condition under circumstances where neither life nor significant bodily functions are threatened.

Figure 5.3-11 presents the percentages of MassHealth members with any SUD diagnosis and with an OUD diagnosis who utilized outpatient withdrawal management by calendar quarter, CY2015-CY2022. The percentage of members with any SUD diagnosis who utilized outpatient withdrawal management services was very low throughout the evaluation period. Utilization per quarter ranged from 1 to 25 members, averaging 0% throughout the baseline period. Utilization averaged 0.01% during Phase 1 and 0.007% during Phase 2.

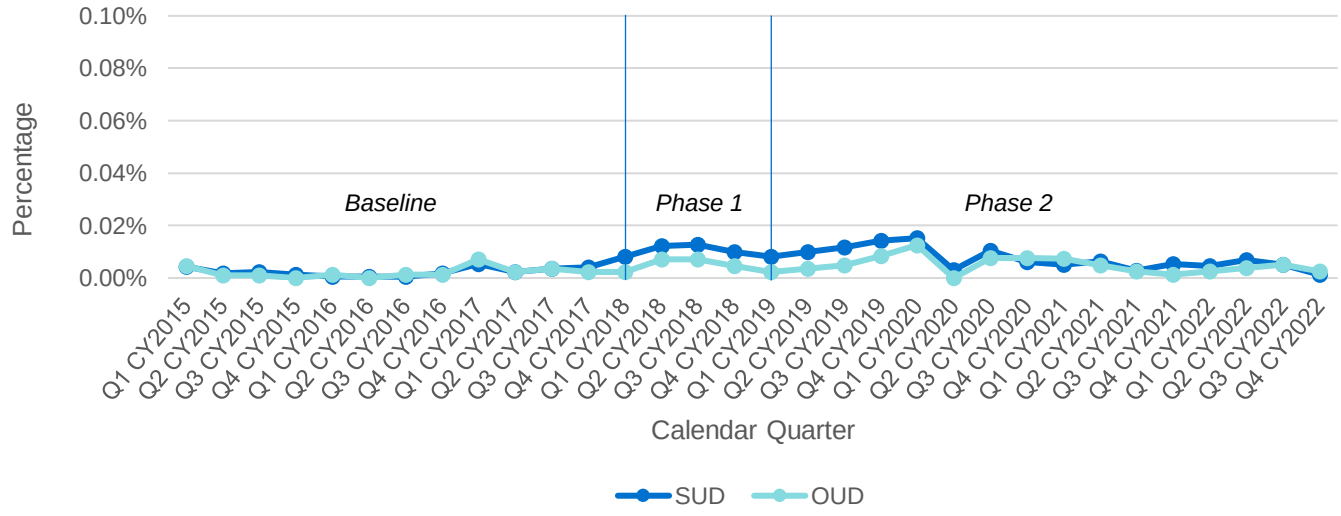
While utilization did increase in the first quarter of Phase 1 (aRR =2.69; 95% CI: 1.03, 7.43), in adjusted analyses, there were no other statistically significant changes in the quarterly trend from Phase 1 to baseline or Phase 2 to Phase 1 (see **Appendix O, Table O-9**), but utilization decreased each quarter relative to baseline (aRR = 0.85; 95% CI: 0.73, 1.00). Overall, average quarterly utilization was over 4 times higher in Phase 1 relative to baseline (aRR = 4.16; 95% CI: 2.38, 7.28) and 2.5 times higher in Phase 2 relative to baseline (aRR = 2.53; 95% CI: 1.48, 4.31), but utilization in any single quarter never rose above 0.015%. In sensitivity analysis, excluding the COVID-19 pandemic period resulted in a flat trend in Phase 2 relative to baseline (aRR = 0.92; 95% CI: 0.76, 1.11). Extension of the Phase 1 period did not substantially change model results.

A similar trend was seen for members with an OUD diagnosis. Between 0 and 10 members with OUD utilized outpatient detoxification each calendar quarter. The percentage of members with an OUD diagnosis who utilized outpatient withdrawal management services

was very low throughout the evaluation period, nearly 0% throughout the baseline period. During Phase 1 and Phase 2, utilization averaged 0.005%.

In adjusted analyses, there were no statistically significant level or trend changes in utilization over the evaluation period. Overall average utilization per quarter was over 2.6 times higher in Phase 1 relative to baseline (aRR = 2.62; 95% CI: 1.40, 4.66) (see **Appendix O, Table O-9**) and 2.1 times higher in Phase 2 relative to baseline (aRR = 2.09; 95% CI: 1.20, 3.65), but utilization in any one quarter never rose above 0.013%. Exclusion of the COVID-19 pandemic period did not substantially change model results, nor did the extension of the Phase 1 period.

Figure 5.3-11 Outpatient Withdrawal Management Utilization Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

RCo Services Utilization Among MassHealth Members with Any SUD and OUD Diagnoses

RCo services provide an individual with SUD with a person with SUD-lived experience to serve as a recovery guide and role model, providing nonjudgmental problem-solving and advocacy to help members meet their recovery goals. RCo services were implemented for most MassHealth members in July 2018. The ITS model was fit comparing modified Phase 1 (Q3 CY2018–Q4 CY2018, M-Phase 1) to Phase 2 (Q1 CY2019–Q4 CY2022).

Figure 5.3-12 presents the percentages of members with any SUD diagnosis and with an OUD diagnosis who utilized RCo services by calendar quarter, CY2015–CY2022. The percentage of members with any SUD diagnosis who utilized these services increased during Phase 1 to 0.4% in Q4 CY2018, averaging 0.2% over the period. During Phase 2, utilization rose from 0.7% in Q1 CY2019 to 1.5% in Q4 CY2022, averaging 1% over the period.

In the adjusted model, utilization rose steeply each quarter during Phase 1 (aRR = 3.4; 95% CI: 3.1, 3.73) and increased 29% in Q1 CY2019 (aRR = 1.29; 95% CI: 1.16, 1.44). During Phase 2, utilization rose each quarter relative to Phase 1 at a slower pace (aRR = 0.31; 95% CI: 0.28, 0.34) (see **Appendix O, Table O-10**), but utilization continued to increase 6% each

calendar quarter during the period (aRR = 1.06; 95% CI: 1.05, 1.06). Overall, utilization was, on average, 4.5 times higher in each quarter during the Phase 2 period compared to Phase 1 (aRR = 4.55; 95% CI: 4.06, 5.08). Exclusion of the COVID-19 pandemic period resulted in a slightly less steep increase in utilization during Phase 1 (aRR = 1.04; 95% CI: 1.04, 1.05).

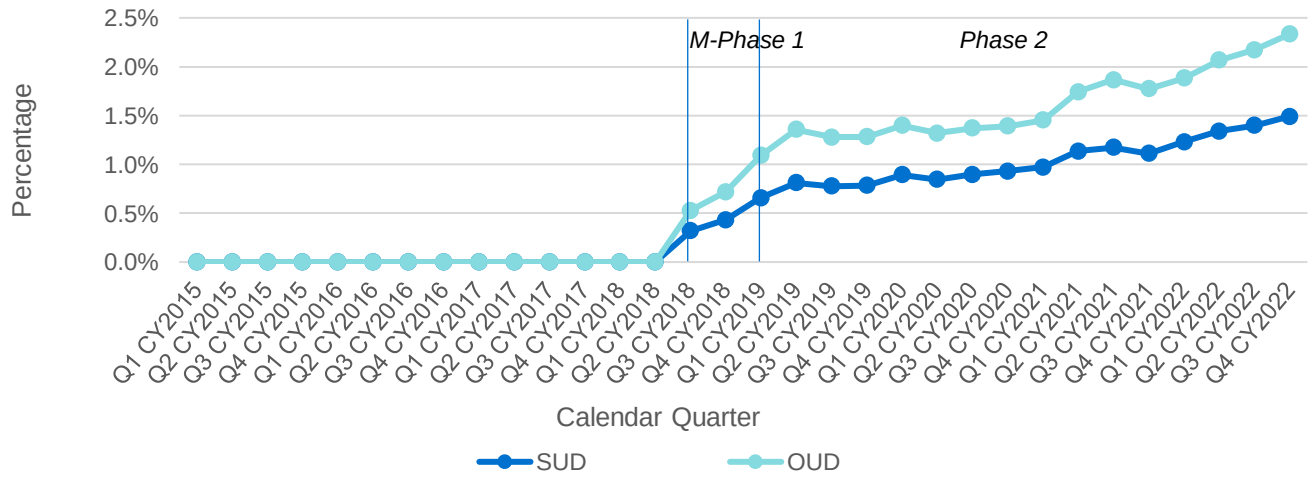
In subgroup analysis, utilization was highest during Phase 2 among members in the highest quartile of risk score (2% each quarter vs. 0.5% in the lowest quartile), ages 30 to 49 (1.2% each quarter vs. 0.7% each quarter among adults ages 50 to 64), among members in an ACO-A plan (1.4% each quarter vs. 1.1% among members in the PCC plan), and in western Massachusetts (1.7% per quarter vs. 0.6% each quarter in northern Massachusetts).

The percentage of members with any OUD diagnosis who utilized these services increased during the implementation phase to 0.7% in Q4 2018. During Phase 2, utilization rose from 1.1% in Q1 CY2019 to 2.3% by Q4 CY2022, averaging 1.6% each quarter over the period. A higher percentage of members with OUD, 1.3%, utilized RCo services by Q4 CY2019.

In adjusted analysis, utilization rose steeply each quarter during Phase 1 (aRR = 1.36; 95% CI: 1.25, 1.48) and increased 16% in Q1 CY2019 (aRR = 1.38; 95% CI: 1.26, 1.5). During Phase 2, utilization rose at a slower pace each quarter (aRR = 0.77; 95% CI: 0.71, 0.84) relative to Phase 1, but utilization continued to increase 5% each quarter (aRR = 1.05; 95% CI: 1.04, 1.05) during the period. Overall, utilization was, on average, 4.3 times higher each quarter during the Phase 2 period compared to Phase 1 (aRR = 2.30; 95% CI: 2.13, 2.48) (see **Appendix O, Table O-10**). Exclusion of the COVID-19 pandemic period resulted in a flat slope during Phase 2 relative to Phase 1 (aRR = 1.01; 95% CI: 0.99, 1.05).

In subgroup analysis, utilization was highest during Phase 2 among members in the highest quartile of risk score (2.9% each quarter vs. 0.9% in the lowest quartile), ages 13 to 29 (2% each quarter vs. 1.3% each quarter among adults ages 50 to 64), among members in an ACO-A plan (2.3% each quarter vs. 1.5% among members in the PCC plan), and in western Massachusetts (2.5% per quarter vs. 0.9% each quarter in northern Massachusetts).

Figure 5.3-12 RCo Utilization Among MassHealth Members with any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

RSN Utilization Among MassHealth Members with Any SUD and OUD Diagnoses

RSN services provide an individual with SUD with a navigator to develop and monitor a recovery plan in conjunction with the member. Prior to July 2018, a pilot program was in place in select MassHealth plans, with full implementation beginning in July 2018. As such, the ITS evaluated utilization only during modified Phase 1 (Q3 CY2018–Q4 CY2018, M-Phase 1) and Phase 2 and did not consider utilization during the pilot phase during the baseline period.

Figure 5.3-13 presents the percentage of members with any SUD and an OUD diagnosis who utilized RSN services by calendar quarter CY2015-CY2022. Among members with SUD, utilization during Phase 1 averaged 1% over this period. Utilization in Phase 2 fluctuated, rising from 1.2% in Q1 CY2019 to 2.2% in Q2 CY2020 but declining to 1% by Q4 CY2022, averaging 1.2% each quarter over the period.

In the adjusted model, utilization rose each quarter during Phase 1 (aRR = 1.46; 95% CI: 1.36, 1.56) and increased 28% in Q1 CY2019 (aRR = 1.28; 95% CI: 1.20, 1.36). During Phase 2, utilization changed at a slower pace each quarter (aRR = 0.66; 95% CI: 0.62, 0.71) relative to Phase 1 (see **Appendix O**, **Table O-11**) and decreased by 3% each quarter (aRR = 0.97; 95% CI: 0.96, 0.97) during the period. Overall, utilization was still, on average, 1.17 times higher each quarter during Phase 2 compared to Phase 1 (aRR = 1.17; 95% CI: 1.11, 1.24). We note that modeling a linear trend during Phase 2 does not properly fit the observed data. Exclusion of the COVID-19 pandemic period resulted in a slightly less steep decline each quarter during Phase 2 (aRR = 0.98; 95% CI: 0.97, 0.98) compared with the base case.

In subgroup analysis, utilization was highest during Phase 2 among members in the highest quartile of risk score (2.4% each quarter vs. 0.9% in the lowest quartile), ages 30 to 49 (1.5% each quarter versus 0.8% each quarter among adults ages 50 to 64), among members in an ACO-A plan (1.9% each quarter vs. 0.9% among members in the PCC plan), and in southern Massachusetts (2.7% per quarter vs. 0.7% each quarter in southern Massachusetts).

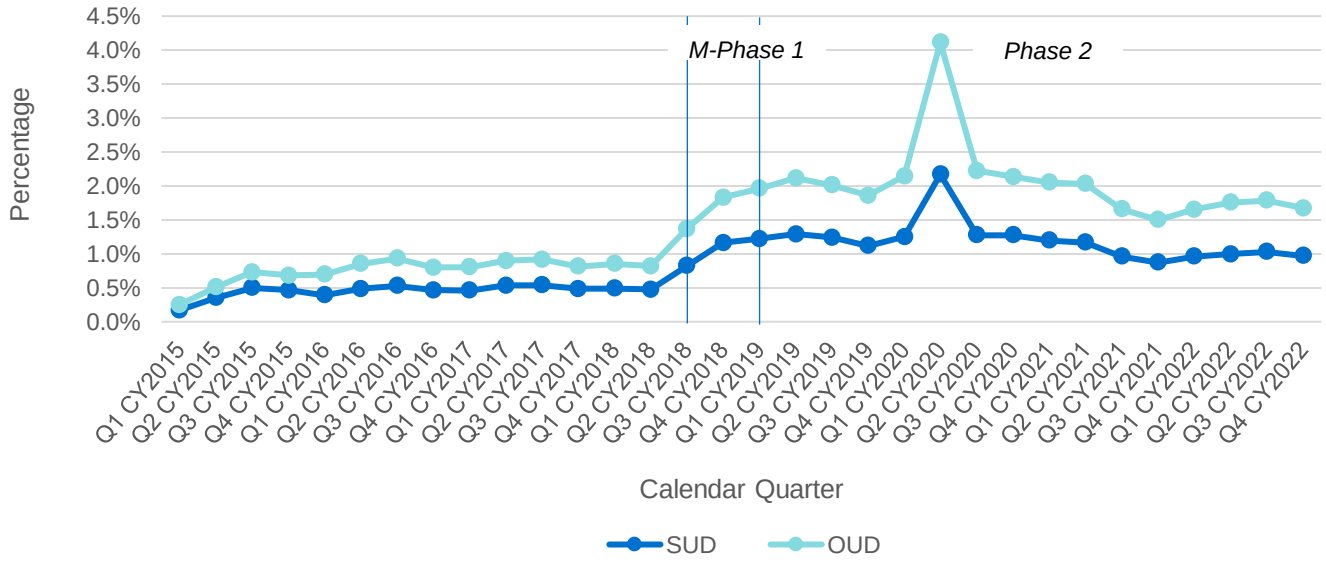
Among members with OUD, utilization during Phase 1 rose from 1.4% in Q3 CY2018 to 1.8% in Q4 CY2018, averaging 1.6% over this period. In Phase 2, utilization fluctuated, rising from 2% to 4.1% in Q2 CY2020 but declining to 1.7% by Q4 CY2022, averaging 2% over the period.

In the adjusted model, utilization rose each quarter during Phase 1 (aRR = 1.35; 95% CI: 1.27, 1.43) and increased 32% in Q1 CY2019 (aRR = 1.32; 95% CI: 1.25, 1.39) (see **Appendix O, Table O-11**). Overall, utilization was still, on average, 25% higher during each calendar quarter during the Phase 2 period compared to Phase 1 (aRR = 1.25; 95% CI: 1.19, 1.31). We note that modeling a linear trend during Phase 2 does not properly fit the observed data. The exclusion of the COVID-19 pandemic period resulted in a flat trend of utilization over Phase 2 (aRR = 0.99; 95% CI: 0.98, 1.00) compared to results from the base case analysis.

In subgroup analysis, utilization was highest during Phase 2 among members in the highest quartile of risk score (2.9% each quarter vs. 0.9% in the lowest quartile), ages 13 to 29 (2.1% each quarter versus 1% each quarter among adults ages 50 to 64), among members in an

ACO-A plan (3.2% each quarter vs. 1.6% among members in the PCC plan), and in western Massachusetts (2.5% per quarter vs. 0.9% each quarter in northern Massachusetts).

Figure 5.3-13 RSN Utilization Among MassHealth Members with any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

5.3.4. Hypothesis 3: The Demonstration will reduce nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period.

Overview

- The percentage of members without cancer and prescribed opioids who received a high dose (average daily dosage of ≥90 morphine milligram equivalent over a period of ≥90 days) each calendar quarter declined over the evaluation period, from an average of 1% during the baseline period to 0.8% in the last quarter of CY2022.
- Overdoses increased slightly each quarter during the baseline period, averaging 5.1/1,000 members each quarter. Overdoses decreased during Phase 2, from a high of 7.4/1,000 members in Q3 CY2020 to a low of 3.6/1,000 members in Q4 CY2022. Opioid overdoses followed a similar pattern, with an average of 3.2/1,000 members each quarter in the baseline period and falling from a high of 4.4/1,000 members in Q2 CY2020 to 1.7/1,000 members in Q4 CY2022.
- Virtually all fatal overdoses were opioid overdoses. During the baseline period, opioid deaths rose from 0.31/1,000 members in Q1 CY2015 to 0.39/1,000 members in Q4 CY2017. During Phase 2, fatal overdoses fluctuated quarter to quarter and decreased slightly each quarter relative to the baseline trend, with 0.33 deaths/1,000 members in Q4 CY2022.

- While the overall opioid fatality rate was higher in Massachusetts compared with the 49 other states throughout the evaluation period, the difference between Massachusetts and other states narrowed during Phase 2.

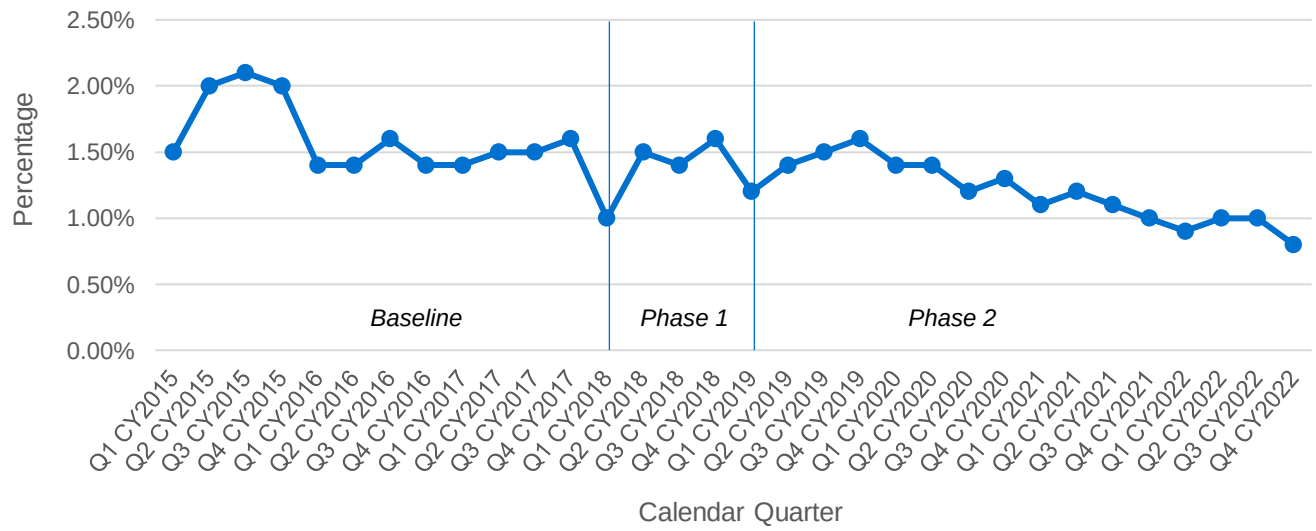
Detailed results

High-Dose Opioid Use Among MassHealth Members without Cancer Who Were Prescribed Opioids

Figure 5.3-14 presents the percentage of MassHealth members without cancer who received a high opioid dose, (average daily dosage of ≥90 morphine milligram equivalent over a period of ≥90 days) among those prescribed opioids (NQF #2940), per calendar quarter, CY2015 - CY2022. The percentage receiving a high opioid dose each quarter fluctuated from Q1 CY2015 to Q4 CY2017, averaging 1.6% each quarter during the period. During Phase 1 of service expansion, the percentage receiving a high dose averaged 1.4% each quarter over the period. During Phase 2, the percentage receiving a high dose fell from 1.2% in Q1 CY2019 to 0.8% in Q4 CY2022, averaging 1.2% each quarter over the period.

In adjusted analysis, the percentage receiving a high dosage of opioids decreased 3% each quarter during the baseline period (aRR = 0.97; 95% CI: 0.94, 0.99), decreased 38% in the first quarter of Phase 1 (aRR = 0.62; 95% CI: 0.41, 0.95), and increased each quarter during Phase 1 relative to baseline (aRR = 1.23; 95% CI: 1.06, 1.42). During Phase 2, utilization fell relative to Phase 1 (aRR = 0.81; 95% CI: 0.70, 0.93) (see **Appendix O, Table O-12**), with utilization declining 4% each quarter over the period (aRR = 0.96; 95% CI: 0.94, 0.98). Overall, average quarterly utilization was not statistically lower in Phase 1 than during baseline (aRR = 0.79; 95% CI: 0.61, 1.02) and was 35% lower in Phase 2 than during baseline (aRR = 0.65; 95% CI: 0.55, 0.77). Neither excluding the COVID-19 pandemic period nor the extension of Phase 1 substantially changed model results.

Figure 5.3-14 High Dose Opioid Use Among MassHealth Members Without Cancer Who Were Prescribed Opioids by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

Overdose and Opioid Overdose Among MassHealth Members

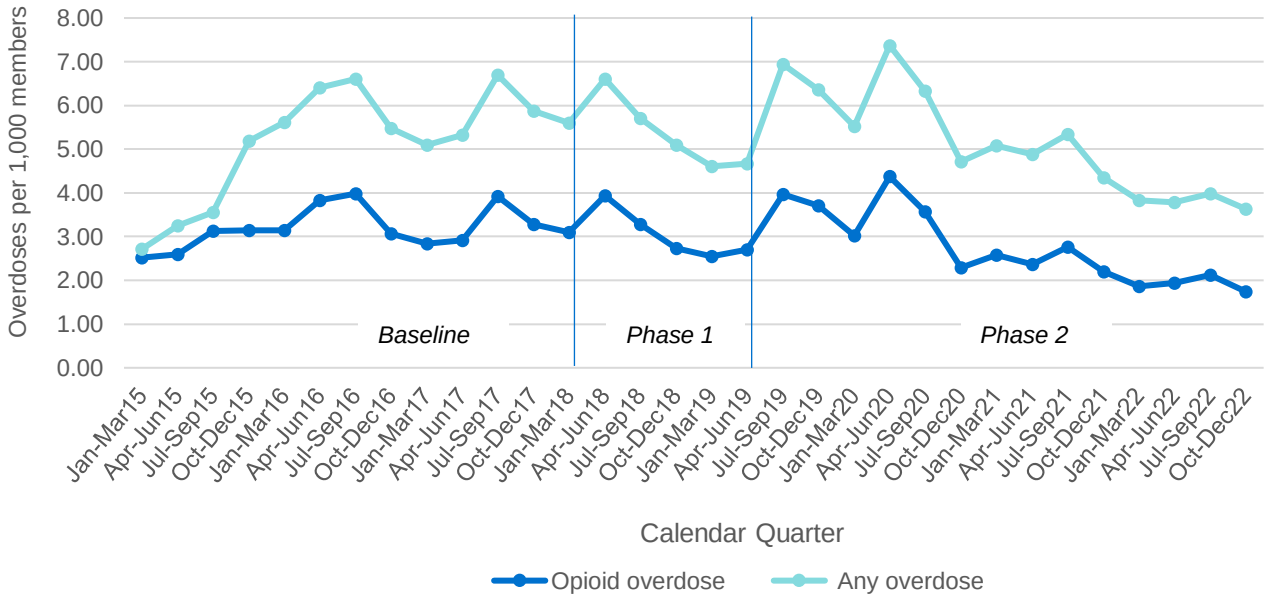
Figure 5.3-15 presents the number of overdoses and opioid overdoses recorded in the claims data per 1,000 members per calendar quarter, CY2015 to CY2022. The percentage who had any overdose increased from 2.7/1,000 members in Q1 CY2015 to 5.9/1,000 members in Q4 CY2017, averaging 5.2/1,000 members each quarter over the baseline period. Overdoses fluctuated over Phase 1, averaging 5.8/1,000 members over the period. Overdoses fluctuated over Phase 2 but decreased overall from 4.6/1,000 members in Q1 CY2019 to 3.6/1,000 in Q4 CY2022, averaging 5.1/1,000 members per quarter over Phase 2.

In adjusted analyses, overdoses increased 6% each quarter over the baseline period (aRR = 1.06; 95% CI: 1.06, 1.07). Overdoses decreased in Phase 1 relative to baseline (RR = 0.90; 95% CI: 0.88, 0.92) and increased 17% in the first quarter of Phase 2 (aRR = 1.17; 95% CI: 1.10, 1.25). Overdoses increased each quarter during Phase 2 relative to Phase 1 (aRR = 1.02; 95% CI: 1.00, 1.05) (see **Appendix O, Table O-13**) and decreased each quarter during Phase 2 relative to baseline (aRR = 0.92; 95% CI: 0.91, 0.92). Overall, average overdoses each quarter in Phase 1 were similar to baseline, and overdoses in Phase 2 were 1% lower than in the baseline period (aRR = 0.99; 95% CI: 0.99 - 0.99). Exclusion of the COVID-19 pandemic period resulted in a slightly less steep slope during Phase 2 relative to baseline (aRR = 0.93; 95% CI: 0.92, 0.94). The extension of the Phase 1 period did not substantially change model results.

The percentage of MassHealth members who had an opioid overdose increased from 2.5/1,000 members in Q1 CY2015 to 3.3/1,000 members in Q4 CY2017, averaging 3.2/1,000 members each quarter over the baseline period. Opioid overdoses averaged 3.2/1,000 members each quarter during Phase 1. Opioid overdoses fluctuated during Phase 2 but decreased overall from 2.6/1,000 members in Q1 CY2019 to 1.7/1,000 members in Q4 CY2022, averaging 3.2/1,000 members each quarter over the period.

In adjusted analyses, overdoses increased 2% each calendar quarter over baseline (aRR = 1.02; 95% CI: 1.01, 1.02). Overdoses decreased each quarter in Phase 1 relative to baseline (aRR = 0.93; 95% CI: 0.90, 0.96) and increased 21% in the first quarter of Phase 2 (aRR = 1.21; 95% CI: 1.13, 1.31). Overdoses remained flat in Phase 2 relative to Phase 1 (aRR = 1.02; 95% CI: 0.99, 1.05) (see **Appendix O, Table O-13**) but decreased each quarter over the period relative to baseline (aRR = 0.95; 95% CI: 0.94, 0.96). Overall, overdoses in Phase 2 were 13% lower than baseline (aRR = 0.87; 95% CI: 0.84, 0.90). The extension of the Phase 1 period resulted in a steeper slope in Phase 2 than the results from the base case analysis (aRR = 0.94; 95% CI: 0.94, 0.95).

Figure 5.3-15 Any Overdose and Opioid Overdose Among MassHealth Members, by Calendar Quarter, CY2015–CY2022



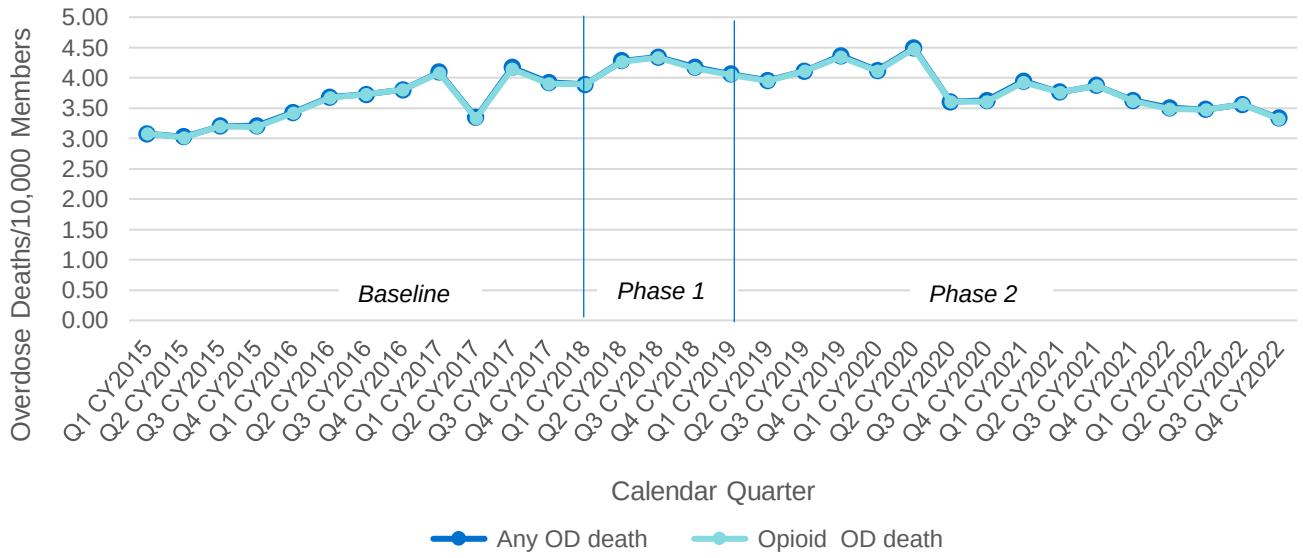
Source: MassHealth administrative data and Massachusetts death records

Fatal Overdose and Fatal Opioid Overdose Among MassHealth Members

Figure 5.3-16 presents the percentages of MassHealth members who had any fatal overdose and a fatal opioid overdose, identified by linkage between the MassHealth claims and death records, by calendar quarter, CY2015–CY2022. Virtually all overdose deaths over this period were opioid overdoses. The percentage of MassHealth members who had any fatal overdose identified by linkage increased from 3.08./10,000 members in Q1 CY2015 to 3.91/10,000 members in Q4 CY2017, averaging 3.55/10,000 members over the baseline period. Fatal overdoses averaged 4.16/1,0,000 members each quarter during Phase 1. Fatal overdoses decreased from 4.05/10,000 members in Q1 2019 to 3.32/10,000 members in Q4 CY2022.

In adjusted analyses, fatal overdoses increased 2% each quarter during baseline (aRR = 1.02; 95% CI: 1.01, 1.03) and decreased each quarter during Phase 1 relative to baseline (aRR = 0.93; 95% CI: 0.88, 0.99). Fatal overdoses increased each quarter during Phase 2 relative to Phase 1 (aRR = 1.06; 95% CI: 1.00, 1.11) (see **Table 5.3-15**) and decreased each quarter during Phase 2 relative to baseline (aRR = 0.99; 95% CI: 0.98, 1.00). Overall overdose deaths were similar during Phase 1 and Phase 2 relative to baseline. In sensitivity analyses excluding the COVID-19 pandemic period, overdose deaths did not decrease each quarter in Phase 2 relative to baseline; extending Phase 1 did not substantially change model results.

Figure 5.3-16 Fatal Overdose and Fatal Opioid Overdose Among MassHealth Members, by Calendar Quarter, CY2015 - CY2022

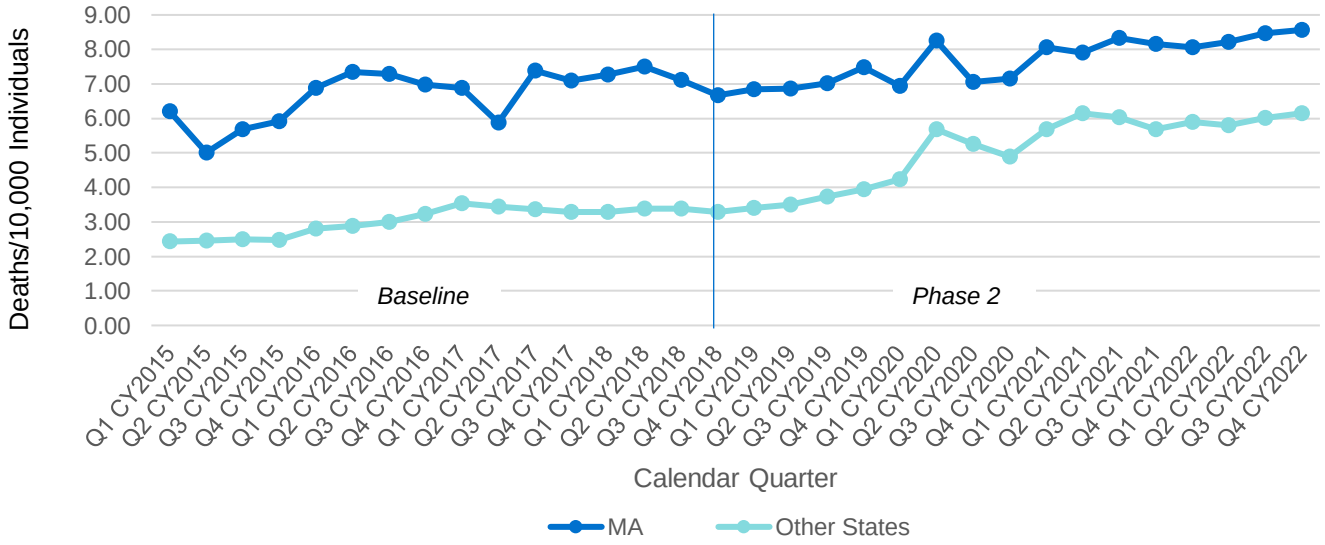


Source: MassHealth administrative data and Massachusetts death records

Opioid Fatality Rate in Massachusetts and 49 Other States

The overall fatality from an opioid overdose in the overall Massachusetts population, including the individuals with commercial, Medicare, other, and no insurance, was compared to the other 49 states using data from CDC WONDER (see **Figure 5.3-17**). To simplify the comparisons and allow for the full effect of the implementation of Goal 5 activities to occur, the trend and rate of overdoses between Massachusetts and the combined rate of overdoses of the other 49 states were compared pre- and post-Phase 2. The state's rate of opioid overdoses rose from 6.20/10,000 population in Q1 CY2015 to 6.67/10,000 in Q4 CY2018, averaging 6.69/10,000 per quarter over the period. The rate in the other 49 states rose from 2.43/10,000 in Q1 CY2015 to 3.28/10,000 in Q4 CY2018, averaging 3.05/10,000 per quarter. While the Massachusetts rate was higher during this period (beta = 3.46 $p < 0.0001$), the rate of increase did not differ between the two groups (beta = 0.02, $p = 0.49$). In the post-implementation period, the state's opioid overdoses rose from 6.84/10,000 in Q1 2019 to 8.56/10,000 in Q4 CY2022, averaging 7.71/10,000 over the period, and in other states, rose from 3.41/10,000 to 6.15/10,000 over this time averaging 5.12/10,000 over the period. The difference in quarterly rate was modeled in an ITS model. While there was no difference in trend between Massachusetts and other states during baseline (beta = 0.022; 95% CI: - 0.03, 0.07), the difference between Massachusetts and other states decreased each quarter during Phase 2 relative to other states (beta = - 0.10, $p = 0.007$) (see **Appendix O, Table O-15**).

Figure 5.3-17 Opioid Fatality Rate in Massachusetts and 49 Other States, CY2015–CY2022



Source: CDC WONDER data

5.3.5. Hypothesis 4: The Demonstration reduces utilization of ED and inpatient hospital settings and overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis.

Overview

- Utilization of emergency department and inpatient hospital settings among members with SUD and with OUD is presented in detail in section **H6**. In short, both emergency department and inpatient visits decreased over the evaluation period.
- Total per member per month (PMPM) cost of care to MassHealth among members with any SUD and with an OUD diagnosis remained essentially flat over the evaluation period, averaging approximately $1,850 PMPM per quarter and $2,070 PMPM per quarter, respectively, over the evaluation period.
- SUD-related costs increased over the evaluation period, rising from an average of $274 PMPM each quarter during the baseline period to $365 PMPM in Q4 CY2022 among members with SUD and averaging $280 PMPM each quarter during baseline to $393 PMPM in Q4 CY2022 among members with OUD. Nevertheless, the trend decreased each quarter during Phase 2 relative to the baseline.
- The trend in non-SUD-related PMPM costs among members with SUD decreased slightly during Phase 2 relative to the baseline trend. The average PMPM cost in Phase 2 was $1,500 PMPM, which was $100 lower than the average of $1600 PMPM each quarter during the baseline period. Among members with OUD, the PMPM costs remained approximately $1,750 each quarter throughout the evaluation period. However, relative to baseline trends, PMPM costs did decrease steadily during most of the Phase 2 period, reaching nearly $1,700 by Q4 CY2022.
- Ambulatory services comprised 65% of costs among members with SUD and 94% of costs among members with OUD.

Detailed Results

Total MassHealth and Federal Cost of Care Among MassHealth Members with SUD and OUD Diagnoses

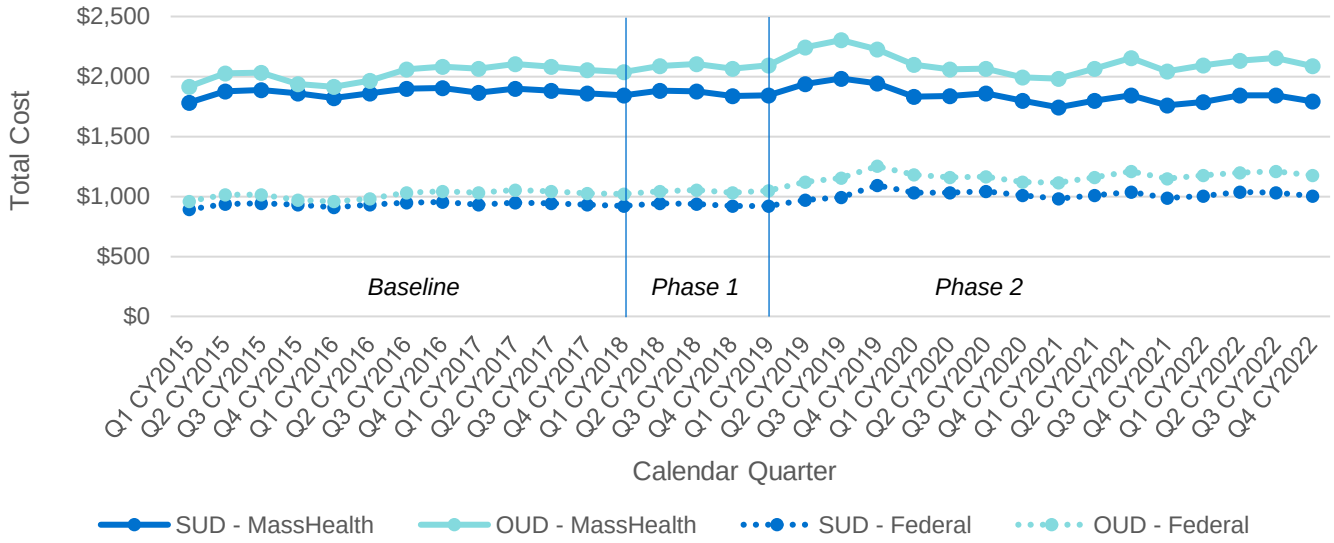
Figure 5.3-18 presents the total PMPM MassHealth and federal cost of care, in CY2022 dollars, among members with any SUD diagnosis and with an OUD diagnosis, by calendar quarter CY2015–CY2022. Among members with any SUD diagnoses, the PMPM total cost of care to MassHealth rose slightly from $1,781 in Q1 CY2015 to $1,862 in Q4 CY2017, averaging $1,866 during the baseline period. During Phase 1, total costs remained fairly steady, averaging $1,859 PMPM over the period. In Phase 2, total costs increased in the first few quarters but overall decreased slightly from $1,840 PMPM in Q1 CY2019 to $1,791 PMPM by the end of CY2022, averaging $1,840 PMPM over the period.

In adjusted analysis, costs remained essentially flat through baseline and decreased slightly in Phase 1 relative to baseline (aRR = 0.99; 95% CI: 0.99, 0.99). Costs increased slightly in the first quarter of Phase 2 (aRR = 1.02; 95% CI: 1.01, 1.03) and remained at a similar trend during Phase 2 compared with Phase 1 (see **Appendix O, Table O-16**) and compared with baseline (aRR = 1.00; 95% CI: 1.00 1.00). Overall, PMPM total costs, on average, were 3% lower in Phase 1 compared with baseline (aRR = 0.97; 95% CI: 0.96, 1.00) and similar in Phase 2 compared with baseline. Excluding the COVID-19 pandemic period and extending Phase 1 did not substantially change model results.

Among members with an OUD diagnosis, the PMPM total cost of care to MassHealth rose slightly from $1,916 in Q1 CY2015 to $2,052 in Q4 CY2017, averaging $2,020 each quarter during the baseline period. During Phase 1, total costs remained fairly steady, averaging $2,073 PMPM each quarter. In Phase 2, costs increased in the first few quarters but remained steady overall, averaging $2,113 PMPM each quarter.

In adjusted analyses, costs increased slightly each quarter during the baseline period (aRR = 1.01; 95% CI: 1.01, 1.01) and decreased 4% in the first quarter of Phase 1 (aRR = 0.96; 95% CI: 0.95, 0.98). Costs remained at the same trend during Phase 1 as baseline, increased slightly in the first quarter of Phase 2 (aRR = 1.01; 95% CI: 1.00, 1.03), and then decreased slightly each quarter through Phase 2 relative to Phase 1 (aRR = 0.99; 95% CI: 0.98, 0.99) (see **Appendix O, Table O-16**), and relative to baseline (aRR = 0.99; 95% CI: 0.98, 0.99). Overall, the average cost each quarter during Phase 1 was slightly higher than baseline (aRR = 1.01; 95% CI: 1.00, 1.03) and similar in Phase 2 to baseline. Excluding the COVID-19 pandemic period and extending Phase 1 did not substantially change model results.

Figure 5.3-18 Total MassHealth and Federal Cost of Care Among MassHealth Members with SUD and OUD Diagnoses, by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

SUD-Related MassHealth and Federal Cost of Care Among MassHealth Members with SUD and OUD Diagnoses

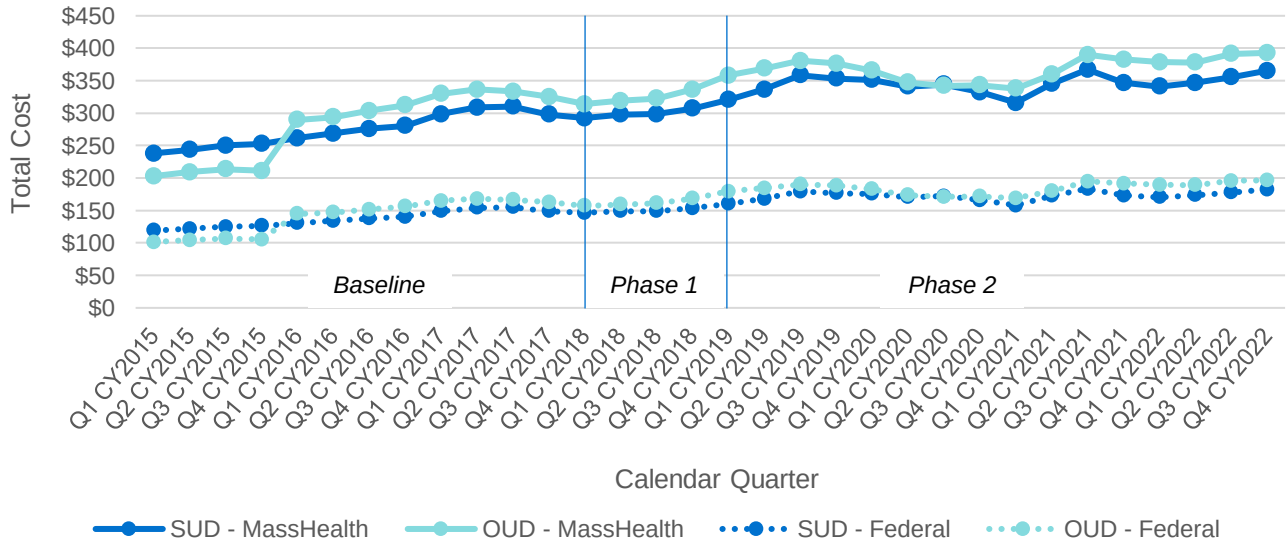
Figure 5.3-19 presents the SUD-related PMPM MassHealth and federal cost of care, in CY2022 dollars, among members with any SUD diagnosis and with an OUD diagnosis by calendar quarter CY2015–CY2022. Among members with any SUD diagnoses, the PMPM cost of care to MassHealth rose slightly from $238 in Q1 CY2015 to $298 in Q4 CY2017, averaging $274 each quarter during the baseline period. During Phase 1, costs remained fairly steady, averaging $299 PMPM over the period. In Phase 2, costs increased slightly from $321 PMPM in Q1 CY2019 to $365 PMPM by Q4 CY2022, averaging $345 PMPM each quarter over the period.

In adjusted analysis, SUD-related costs increased slightly each quarter over the baseline period (aRR = 1.02; 95% CI: 1.02, 1.03). In Phases 1 and 2, the quarterly trends in PMPM SUD-related costs did not change relative to baseline and Phase 1, respectively, although costs did increase 10% in the first quarter of Phase 2 (aRR = 1.10; 95% CI: 1.07, 1.14) (see **Appendix O, Table O-17**). Costs decreased each quarter during Phase 2 relative to baseline (aRR = 0.98; 95% CI: 0.98, 0.98). Overall, costs were 12% higher during Phase 1 compared to baseline (aRR = 1.12; 95% CI: 1.10, 1.14) and 17% higher in Phase 2 than baseline (aRR = 1.17; 95% CI: 1.15, 1.20). In sensitivity analyses, excluding the COVID-19 pandemic period resulted in a slightly less steep decline each quarter relative to baseline (aRR = 0.98; 95% CI: 0.98, 0.98). Extending Phase 1 did not substantially change model results.

Among members with any OUD diagnoses, the PMPM SUD-related cost of care to MassHealth rose slightly from $203 in Q1 CY2015 to $325 in Q4 CY2017, averaging $280 each quarter during the baseline period. During Phase 1, SUD-related costs remained fairly steady, averaging $323 PMPM in each quarter over the period. In Phase 2, costs increased slightly from $358 PMPM in Q1 CY2019 to $393 PMPM in Q4 2022, averaging $368 PMPM each quarter over the period.

In adjusted analysis, SUD-related costs among members with any OUD diagnosis increased by 4% each quarter over the baseline period (aRR = 1.04; 95% CI: 1.02, 1.03). Costs decreased 11% in the first quarter of Phase 1 (aRR = 0.89; 95% CI: 0.87, 0.91), decreased slightly each quarter over Phase 1 relative to baseline (aRR = 0.99; 95% CI: 0.98, 1.0), and increased 3% in the first quarter of Phase 2 (aRR = 1.03; 95% CI: 1.01, 1.05). Costs decreased slightly each quarter over Phase 2 relative to Phase 1 (aRR = 0.99; 95% CI: 0.98, 0.99) (see **Appendix O, Table O-17**), increasing 1% each quarter over the period relative to baseline (aRR = 1.01; 95% CI: 1.01, 1.01). Overall, costs were 14% higher during Phase 1 compared with baseline (aRR = 1.14; 95% CI: 1.13, 1.15) and 17% higher in Phase 2 relative to baseline (aRR = 1.17; 95% CI: 1.16, 1.19). In sensitivity analyses, neither excluding the COVID-19 pandemic period nor extending Phase 1 substantially changed model results.

Figure 5.3-19 SUD-Related MassHealth and Federal Cost of Care Among MassHealth Members, by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

<u>Non-SUD-Related MassHealth and Federal Cost of Care Among MassHealth Members with SUD and OUD Diagnoses</u>

Figure 5.3-20 presents the non-SUD-related PMPM MassHealth and federal cost of care, in CY2022$, among members with any SUD diagnosis and with an OUD diagnosis, by calendar quarter CY2015 - CY2022. Among members with any SUD diagnoses, the PMPM TCOC to MassHealth rose slightly from $1,543 in Q1 CY2015 to $1,564 in Q4 CY2017, averaging $1,593 each quarter during the baseline period. During Phase 1, total costs fluctuated, averaging $1,560 PMPM each quarter. In Phase 2, costs increased in the first few quarters but fell overall from $1,520 PMPM in Q1 CY2019 to $1,425 PMPM in Q4 CY2022, averaging $1,495 PMPM each quarter over the period.

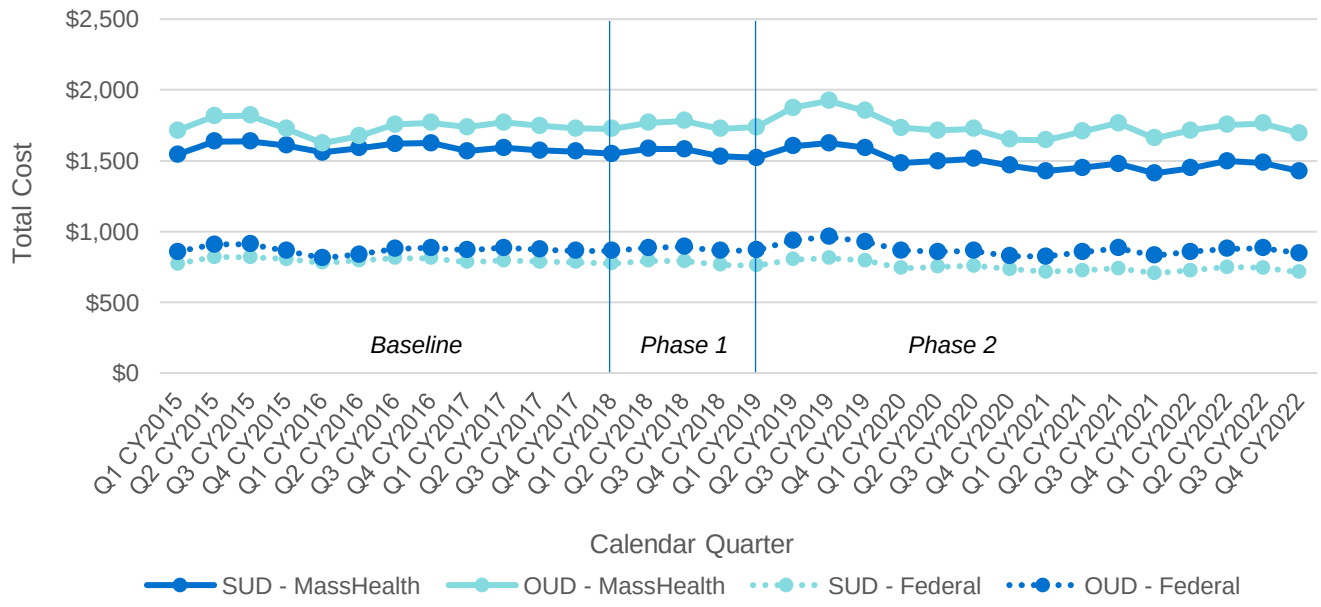
In adjusted analysis, there were essentially no changes in the quarterly trend through the end of Phase 2 (see **Appendix O, Table O-18**), but costs in Phase 2 did slightly decrease each quarter relative to baseline (aRR = 0.99; 95% CI: 0.99, 0.99). Overall average quarterly costs

were 5% lower in Phase 2 than baseline (aRR = 0.95; 95% CI: 0.95, 0.96). Excluding the COVID-19 pandemic period resulted in a flat slope in Phase 2 compared with the baseline (aRR = 1.00; 95% CI: 1.00, 1.00). Extending Phase 1 did not substantively change model results.

Among members with any OUD diagnoses, the non-SUD-related PMPM TCOC to MassHealth fluctuated over the baseline period, averaging $1,739 each quarter. Phase 1 total costs also fluctuated, averaging $1,750 PMPM each quarter. During Phase 2, costs increased in the first few quarters but fell overall from $1,737 PMPM in Q1 CY2019 to $1,695 PMPM in Q4 CY2022, averaging $1,744 PMPM each quarter over the period.

In adjusted analysis, costs increased slightly each quarter over the baseline period (aRR = 1.01; 95% CI: 1.01, 1.01), decreased 3% during the first quarter of Phase 1 (aRR = 0.97; 95% CI: 0.94, 0.99), and remained flat during Phase 1 relative to baseline. Costs decreased slightly during Phase 2 relative to Phase 1 (aRR = 0.99; 95% CI: 0.99, 0.99) and decreased slightly each quarter during Phase 2 relative to baseline (aRR = 0.98; 95% CI: 0.98, 0.99). Overall average quarterly costs were 5% lower in Phase 1 relative to baseline (aRR = 1.05; 95% CI: 1.03, 1.06), and 3% higher in Phase 2 relative to baseline (aRR = 0.97; 95% CI: 0.96, 0.99). In sensitivity analysis, excluding the COVID-19 pandemic period resulted in a slightly less steep decline each quarter in Phase 2 relative to baseline (aRR = 0.99; 95% CI: 0.99, 1.00) than results from the base case analysis. Extending the Phase 1 period did not substantively change model results.

Figure 5.3-20 Non-SUD-Related MassHealth and Federal Cost of Care Among MassHealth Members, by Calendar Quarter, CY2015–CY2022



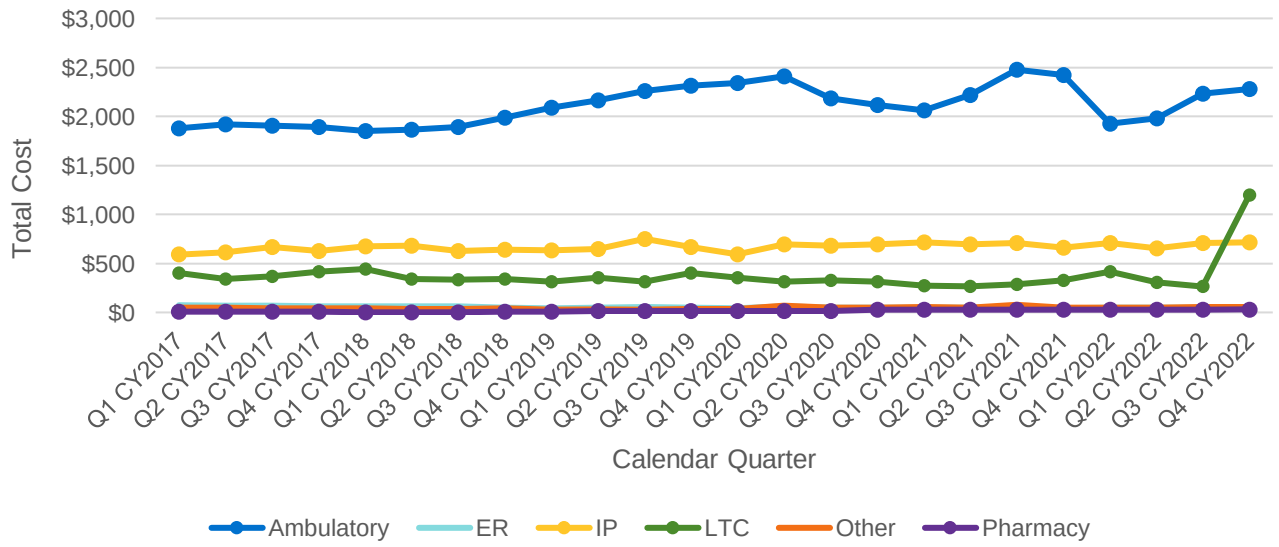
Source: MassHealth administrative data

Category of Service Costs Among MassHealth Members with SUD and OUD Diagnoses

Category of service costs (i.e., ambulatory, ED, Inpatient, Long Term Care (LTC), Pharmacy, and Other) were available in the MassHealth claims data beginning in CY2017. ITS models were not fit for each category; a descriptive summary is presented.

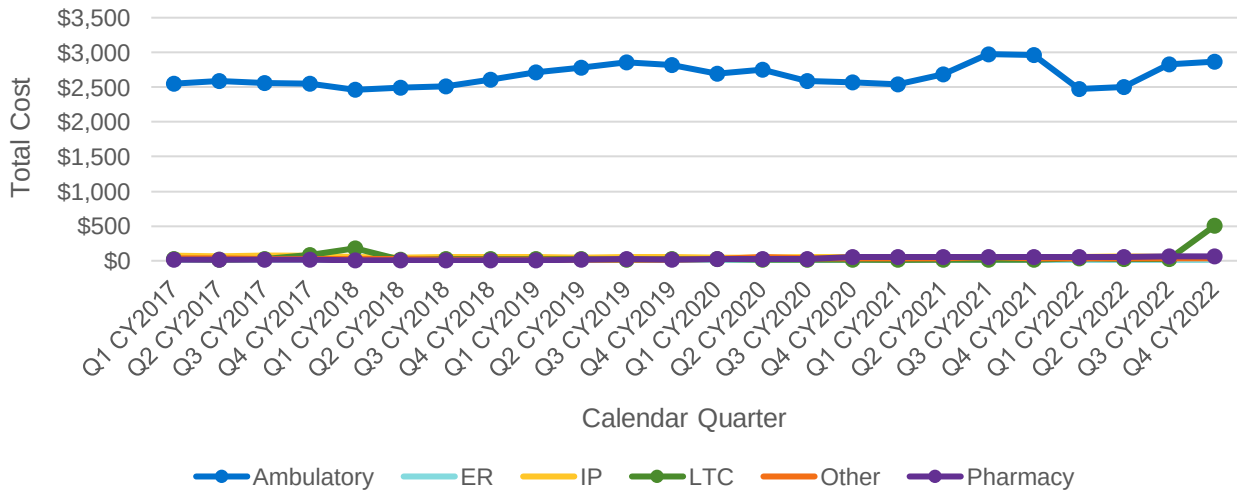
Figures 5.3-21 and **Figure 5.3-22** present the category of service costs among members with SUD and OUD. In both groups, ambulatory care costs comprised the highest proportion of costs, averaging 65% and 94%, respectively, over the evaluation period. Of note, LTC costs increased in Q4 CY2022 among members with any SUD and those with OUD.

Figure 5.3-21 Category of Service Costs Among MassHealth Members with SUD, CY2017–CY2022



Source: MassHealth administrative data

Figure 5.3-22 Category of Service Costs Among MassHealth Members with OUD, CY2017–CY2022



Source: MassHealth administrative data

5.3.6. Hypothesis 5: The Demonstration results in fewer readmissions to the same or higher level of care.

Overview

- The percentage of members with SUD with an inpatient hospitalization for withdrawal management (ASAM Level 4.0) or Acute Treatment Services (ASAM Level 3.7) visit who were readmitted to the same level of care or higher within 30 days of discharge increased during baseline and Phase 1 from a low of 11.4% in Q1 CY2015 to over 14% in Q4 CY2018. Although the percentage with a 30-day readmission decreased each quarter during Phase 2, the percentage readmitted by the end of CY2022 was 14.6%, which was higher than baseline. Members with OUD had a similar pattern of 30-day readmissions.
- The percentage of members with SUD readmitted within 90 days of discharge followed a similar pattern to 30-day readmission, increasing from a low of 17.8% in Q1 and Q2 CY2015 and increasing throughout baseline and Phase 1 and the beginning of Phase 2. While the trend in readmissions decreased during Phase 2 relative to baseline, by Q3 and Q4 CY2022, readmissions were 20%, higher than at the beginning of the baseline period. Members with OUD followed a similar pattern, with readmissions increasing from 20% in Q1 and Q2 CY2015, increasing over baseline and Phase 1, and decreasing during Phase 2 to 23.7% by the end of the evaluation period.

Detailed results

<u>30-Day Readmission Among MassHealth Members with Any SUD and OUD Diagnoses</u>

Figure 5.3-23 presents the percentage of members with SUD admitted to inpatient hospitalization for withdrawal management (ASAM Level 4.0) or Acute Treatment Services (ASAM Level 3.7) who were readmitted to the same level of care or higher within 30 days of discharge. The denominator of this measure consists of members whose index admission was in the first 2 months of each calendar quarter to allow follow-up over 30 days in each calendar quarter.

Among members with an SUD diagnosis, 30-day readmission increased from 11.4% in Q1 CY2017 to 14.1% in Q4 CY2017, averaging 13.3% over the baseline period. During Phase 1, 30-day readmission rose from 12.7% to 16.2%, averaging 14.6% over the period. During Phase 2, 30-day readmission dropped from 15.0% in Q1 CY2019 to 14.6% by the last quarter of CY2022, averaging 14.8% over the period.

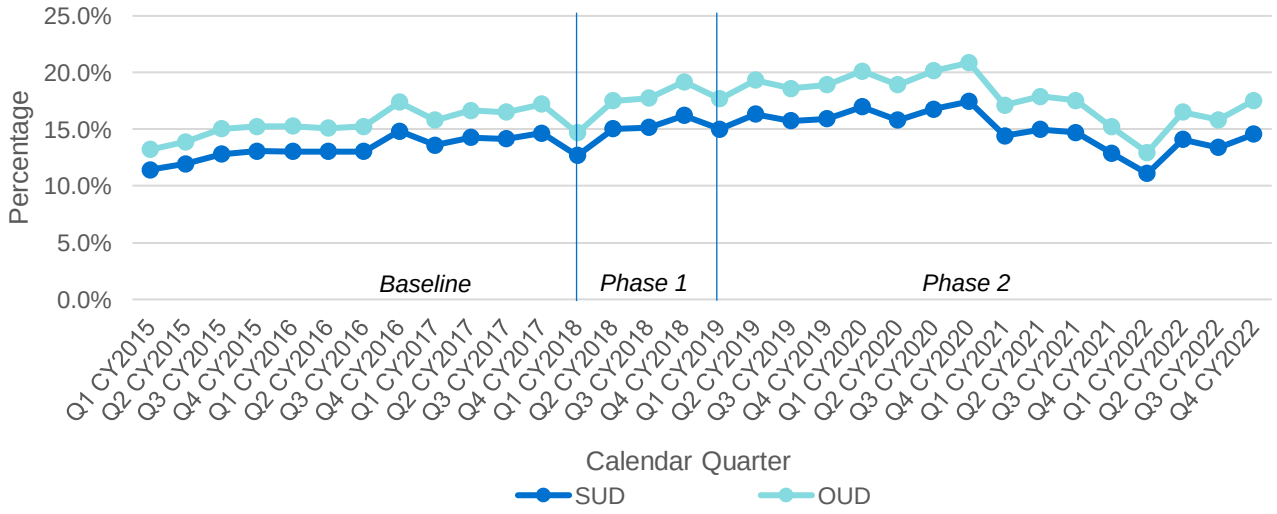
In adjusted analysis, readmissions increased 2% each quarter over the baseline period (aRR = 1.02; 95% CI: 1.01, 1.03) and decreased 21% in the first quarter of Phase 1 (aRR = 0.79; 95% CI: 0.72, 0.87). Readmissions increased each quarter during Phase 1 relative to baseline (aRR = 1.08; 95% CI: 1.05, 1.12) and decreased each quarter in Phase 2 relative to Phase 1 (aRR = 0.9; 95% CI: 0.87, 0.93) (see **Appendix O, Table O-19**) and relative to baseline (aRR = 0.99; 95% CI: 0.99, 0.99). Overall, 30-day readmissions each quarter were, on average, 9% higher in Phase 1 compared with baseline (aRR = 1.09; 95% CI: 1.05, 1.14) and 12% higher during Phase 2 (aRR = 1.17; 95% CI: 1.13, 1.20) compared with baseline.

Neither excluding the COVID-19 pandemic period nor the extension of Phase 2 substantially changed model results.

Among members with an OUD diagnosis, 30-day readmission increased from 13.2% in Q1 2017 to 17.2% in Q4 CY2017, averaging 15.6% each quarter over the baseline period. During Phase 1, 30-day readmission increased from 14.7% to 17.8% averaging 16.6% each quarter over the period. During Phase 2, 30-day readmission dropped from 19.2% in Q1 CY2019 to 17.5% by the last quarter of 2022, averaging 17.5% each quarter over the period.

In adjusted analysis, readmissions increased 2% each quarter over the baseline period (aRR = 1.02; 95% CI: 1.01, 1.03) and decreased 25% in the first quarter of Phase 1 (aRR = 0.75; 95% CI: 0.68, 0.83). Readmissions increased each quarter during Phase 1 relative to baseline (aRR = 1.09; 95% CI: 1.06, 1.124) and decreased each quarter in Phase 2 relative to Phase 1 (aRR = 0.89; 95% CI: 0.86, 0.92) (see **Appendix O, Table O-19**) and relative to baseline (aRR = 0.97; 95% CI: 0.96, 0.98). Overall, the average percentage with 30-day readmissions each quarter was 9% higher in Phase 1 compared with baseline (aRR = 1.09; 95% CI: 1.04, 1.13) and 7% higher during Phase 2 (aRR = 1.07; 95% CI: 1.02, 1.11) compared with baseline. In sensitivity analysis, excluding the COVID-19 pandemic period resulted in a steeper decline during Phase 2 relative to baseline (0.96; 95% CI: 0.96, 0.97) than in the base case analysis. The extension of Phase 2 did not substantially change model results.

Figure 5.3-23 30-Day Readmission Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

90-Day Readmission Among MassHealth Members with Any SUD and OUD Diagnoses

Figure 5.3-24 presents the percentage of members with SUD admitted to inpatient hospitalization for withdrawal management (ASAM Level 4.0) or Acute Treatment Services (ASAM Level 3.7) who were readmitted to the same level of care or higher within 90 days of discharge. This measure was calculated on a biannual basis. The denominator of this

measure consists of members whose index admission was in the first 3 months of each 6-month period to allow follow-up over 90 days in each 6-month period. The ITS model did not include Phase 1, as there were only 2 time points during the period.

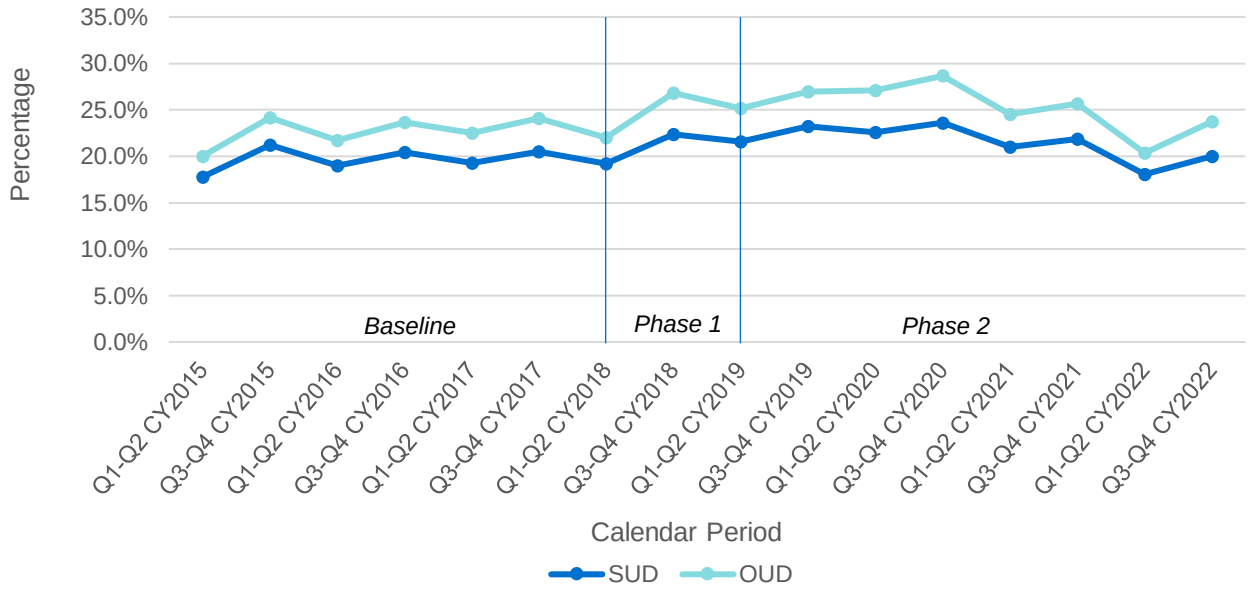
Among members with SUD, 90-day readmission increased from 17.8% in Q1 and Q2 CY2015 to 20.5% in Q3 and Q4 CY2017, averaging 19.6% over the baseline period. 90-day readmission rose to 22.4% during Phase 1 and decreased from 21.5% in Q1 and Q2 CY2019 to 20% in Q3 and Q4 CY2022, averaging 21.5% over Phase 2.

In adjusted analysis, readmission increased by 1% each 6-month period over baseline (aRR = 1.01; 95% CI: 1.00, 1.01), increased by 16% in the first 6-month period of Phase 2 (aRR = 1.16; 95% CI: 1.11, 1.21) (see **Appendix O, Table O-20**) and decreased each 6-month period during Phase 2 relative to baseline (aRR = 0.98; 95% CI: 0.97, 0.99). Overall readmission was 17% higher during Phase 2 than baseline (aRR = 1.17; 95% CI: 1.14, 1.20). In sensitivity analysis, neither excluding the COVID-19 pandemic period nor extending the Phase 1 period substantially changed model results.

Among members with OUD, 90-day readmission followed the same pattern, increasing from 20% in Q1 and Q2 CY2015 to 24.1% in July - December CY2017, increasing to 26.8% during Phase 1 and decreasing from 25.2% in January - June CY2019 to 23.7% in Q3 and Q4 CY2022, averaging 25.3% during Phase 2.

In adjusted analysis, readmission increased by 1% each 6-month period over baseline (aRR = 1.01; 95% CI: 1.00, 1.01) and increased by 13% in the first 6-month period of Phase 2 (aRR = 1.16; 95% CI: 1.11, 1.21) and decreased each 6-month period during Phase 2 relative to baseline (aRR = 0.98; 95% CI: 0.97, 0.99). Overall readmission was, on average, 17% higher during Phase 2 relative to baseline (aRR = 1.15; 95% CI: 1.11, 1.18). In sensitivity analysis, neither excluding the COVID-19 pandemic period nor extending Phase 1 substantially changed model results.

Figure 5.3-24 90-Day Readmission Among MassHealth Members with Any SUD and OUD Diagnoses by 6-Month Period, CY2015–CY2022



Source: MassHealth administrative data

5.3.7. Hypothesis 6: The Demonstration will result in improved access to care for comorbid physical and mental health conditions among individuals with any SUD diagnosis, including OUD diagnoses, relative to trends prior to the 2017–2022 Demonstration.

Overview

- The number of MOUD providers/100 members with SUD rose during the evaluation period from 1.4 providers/100 members in Q1 CY2015 to 3.0/100 during Q4 CY2022. Among members with OUD, MOUD providers rose from 2.1 providers/100 members in Q1 CY2015 to 6.5/100 in Q4 CY2022. The quarterly provider increase was similar in the baseline, Phase 1, and Phase 2 periods.
- The number of inpatient stays among both members with any SUD and with an OUD diagnosis decreased over the evaluation period. During the baseline period, members with SUD had approximately 122 inpatient stays/1,000 member-quarters (m-q), while members with OUD had approximately 126 stays/1,000 m-q. During Phase 2, inpatient stays dropped from approximately 120 stays/1,000 m-q to 96/1,000 m-q in both groups.
- The number of ED visits among both members with any SUD and with an OUD diagnosis decreased over the evaluation period. Members with SUD had an average of 563 visits/1,000 m-q each quarter during the baseline period, falling to 434 visits/1,000 m-q by Q4 2022. Similarly, ED visits among members with OUD fell from an average of 595 visits/1,000 m-q during the baseline period to 434 visits/1,000 m-q by Q4 CY2022.
- The number of outpatient visits among both members with any SUD and with an OUD diagnosis increased during the baseline period and Phase 1 but decreased during Phase 2 to nearly baseline levels. During Q1 CY2015, members with SUD had approximately 2,234 visits/1,000 m-q, while members with OUD had 2,441 visits/m-q,

and during Q4 2022, members with SUD had 2,268 visits/1,000 m-q, while members with OUD had 2789 visits/m-q.

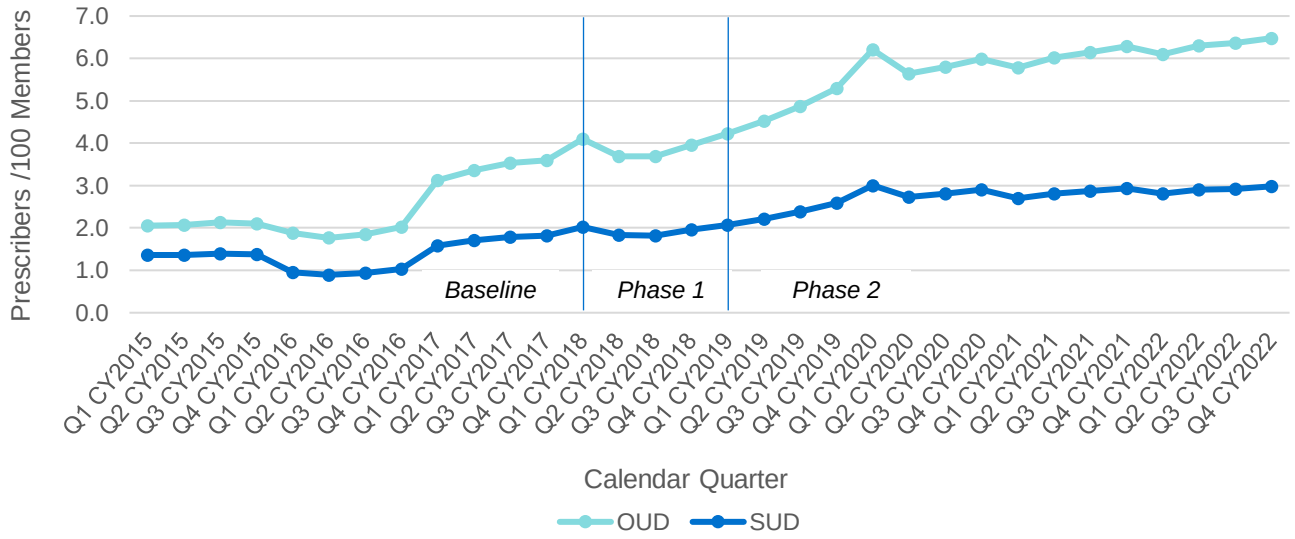
Detailed results

MOUD Prescribers per 100 MassHealth Members with Any SUD and OUD Diagnoses

Figure 5.3-25 presents the number of MOUD prescribers/100 members diagnosed with any SUD diagnosis and with an OUD diagnosis by calendar quarter CY2015 - CY2022. The number of prescribers rose from 1.4 prescribers/100 members with any SUD diagnosis and 2.1 prescribers/100 members with an OUD diagnosis in Q1 CY2015 to 1.8 and 3.6 prescribers/100 members in Q4 CY2017, averaging 1.4 and 2.5 prescribers/100 members each quarter, respectively. During Phase 1, the number of prescribers averaged 1.9 and 3.9 prescribers/100 members each quarter for those with SUD and OUD diagnoses, respectively. In Phase 2, prescribers increased from 2.1 prescribers/100 members with SUD in Q1 CY2019 to 3.0 prescribers/100 members with SUD in Q4 CY2022, averaging 2.7 prescribers/100 members each quarter over the period, and rose from 4.2 prescribers/100 members to 6.5 prescribers/100 members among those with OUD, averaging 5.8 prescribers/100 members with OUD over the period.

In ITS modeling, the number of prescribers per 100 members with SUD rose by 0.04% each quarter (95% CI: 0.01, 0.08) during the baseline period, rose by 0.46% in the first quarter of Phase 2 (95% CI: 0.05, 0.88) and rose at a similar rate during Phase 1 and Phase 2 (see **Appendix O, Table O-21**). The number of prescribers per 100 members with OUD rose 0.15% during the baseline period (95% CI: 0.01, 0.21) and 0.91% during the first quarter of Phase 2 (95% CI: 0.22, 1.60). The average number of prescribers/100 members with SUD was 0.56% higher in Phase 1 (95% CI: 0.25, 0.87) and 1.38% higher in Phase 2 (95% CI: 1.17, 1.58) relative to baseline, and the average number of prescribers/100 members with OUD was 1.4% higher in Phase 1 (95% CI: 0.69, 2.11) and 3.3% higher in Phase 2 (95% CI: 2.82, 3.76) compared to baseline. In sensitivity analysis, neither excluding the COVID-19 pandemic period nor the extension of Phase 1 substantially changed model results.

Figure 5.3-25 MOUD Prescribers per 100 MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

Inpatient Visits per 1,000 m-q Among MassHealth Members with Any SUD and OUD Diagnoses

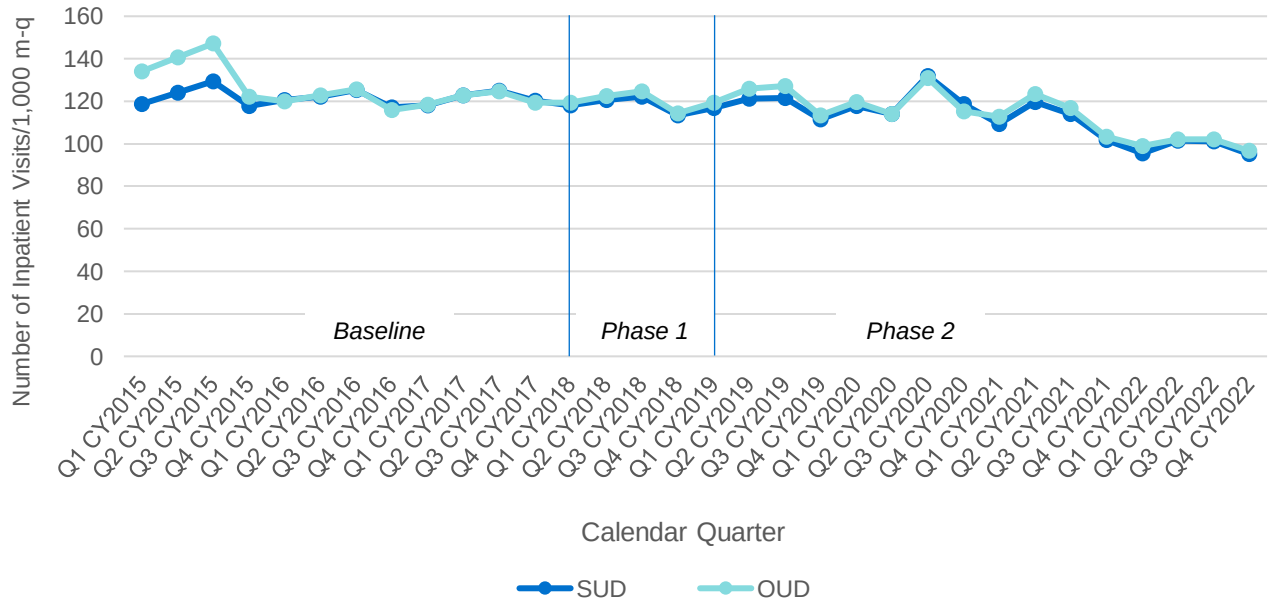
Figure 5.3-26 presents the number of inpatient visits per member with any SUD diagnosis and with an OUD diagnosis/1,000 m-q by calendar quarter, CY2015 - CY2022. Among members with any SUD diagnosis, inpatient visits remained relatively steady from Q1 CY2015 through Q4 CY2017, averaging 121.8 visits/1,000 m-q. During Phase 1, inpatient visits averaged 118.2 visits/1,000 m-q. During Phase 2, utilization fell from 116.7 visits /1,000 m-q in Q1 CY2019 to 95.1 visits /1,000 m-q in Q4 CY2022, averaging 112.0 visits /1,000 m-q.

In adjusted analyses, inpatient visits increased slightly each quarter during the baseline period (aRR = 1.01; 95% CI: 1.00, 1.01). Although visits increased by 3% in the first quarter of Phase 1 (aRR = 1.03; 95% CI: 1.00, 1.06), the trend in Phase 1 decreased each quarter relative to baseline (aRR = 0.98; 95% CI: 0.97, 0.99). Utilization increased 14% in the first quarter of Phase 2 (aRR = 1.14; 95% CI: 1.11, 1.17), and the trend remained flat in Phase 2 relative to Phase 1 (see **Appendix O**, **Table O-22**), decreasing each quarter relative to baseline (aRR = 0.98; 95% CI: 0.98, 0.99). Overall, there were no statistically significant differences in average quarterly inpatient visits in Phase 1 or Phase 2 relative to baseline. In sensitivity analyses, there were no substantive changes in model results, excluding the COVID-19 pandemic period or the extension of Phase 1.

Among members with OUD, inpatient visits decreased from 134.1/1,000 m-q in Q1 CY2015 to 119.2/1,000 m-q in Q4 CY2017, averaging 126.1 visits/1,000 m-q each quarter during the baseline period. During Phase 1, inpatient utilization averaged 118.2 visits /1,000 m-q. During Phase 2, utilization fell from 119.5 visits /1,000 m-q in Q1 CY2019 to 96.7 visits /1,000 m-q in Q4 CY2022, averaging 113.9 visits /1,000 m-q during the period.

In the adjusted analysis, inpatient visits each quarter remained flat during the baseline period. However, visits increased by five % in the first quarter of Phase 1 (aRR = 1.05; 95% CI: 1.01, 1.09) and 11% in the first quarter of Phase 2 (aRR = 1.11; 95% CI: 1.07, 1.16). There were no statistically significant changes in the quarterly trend in Phase 1 relative to baseline or Phase 2 relative to Phase 1, but inpatient visits decreased slightly during Phase 2 relative to baseline (aRR = 0.98; 95% CI: 0.98, 0.99) and overall, inpatient visits in Phase 2 were 2% lower than in baseline period (aRR = 0.98; 95% CI: 0.98, 0.99). In sensitivity analyses, there were no substantive changes in model results after excluding the pandemic period or extension of Phase 1.

Figure 5.3-26 Inpatient Visits per 1,000 m-q Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

ED Visits per 1,000 m-q Among MassHealth Members with Any SUD and OUD Diagnoses

Figure 5.3-27 presents the number of ED visits per member with any SUD diagnosis and with an OUD diagnosis/1,000 m-q by calendar quarter, CY2015 - CY2022. Among members with SUD diagnoses, ED visits fluctuated from quarter to quarter but decreased from approximately 541 ED visits/1,000 m-q in Q1 CY2015 to 526 ED visits/1,000 m-q in Q4 CY2017, averaging 562.9 ED visits/1,000 m-q during the baseline period. During Phase 1, utilization fluctuated as well, averaging 540.0 ED visits/1,000 m-q. In Phase 2, utilization decreased from 511 ED visits/1,000 m-q in Q1 CY2019 to 434 ED visits/1,000 m-q in Q4 CY2022, averaging 489 ED visits/1,000 m-q over the period.

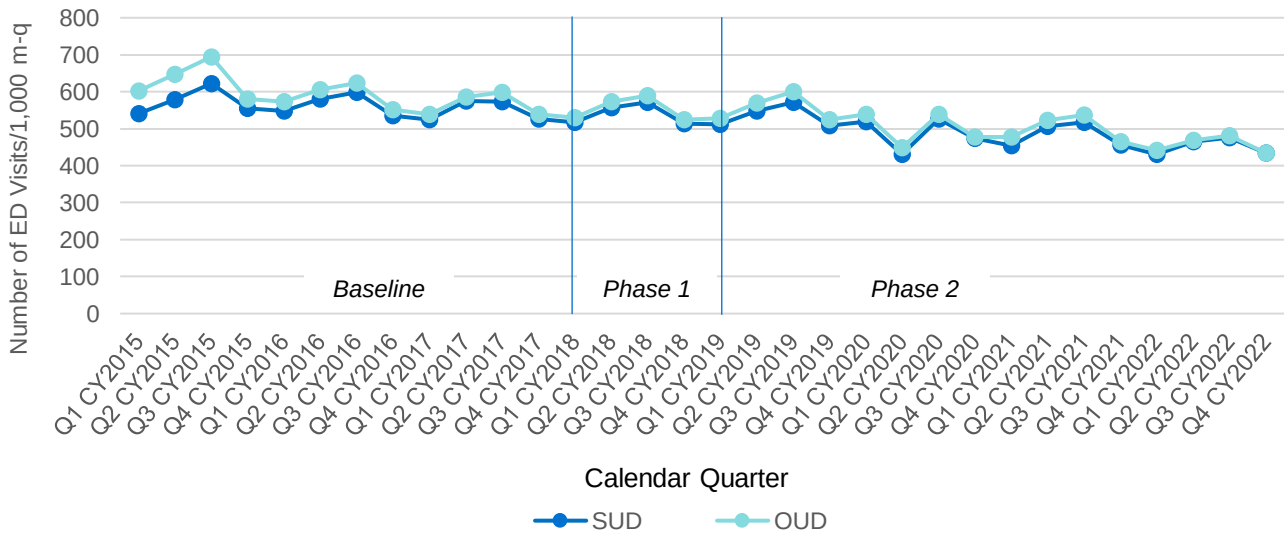
In adjusted analyses, ED visits each quarter decreased slightly during the baseline period (aRR = 0.99; 95% CI: 0.99, 0.99) and remained flat during Phase 1 relative to baseline. In Phase 2, the trend decreased relative to Phase 1 (aRR = 0.99; 95% CI: 0.98, 1.00) (see **Appendix O, Table O-23**) and decreased each quarter relative to baseline (aRR = 0.99; 95% CI: 0.98, 0.99). Overall, average utilization each quarter was 3% lower in Phase 1 (aRR = 0.97; 95% CI: 0.96, 0.98) and 8% lower in Phase 2 (aRR = 0.92; 95% CI: 0.91, 0.93) relative

to baseline. In sensitivity analyses, neither excluding the COVID-19 pandemic period nor the extension of Phase 1 substantially changed model results.

Among members with OUD, ED visits decreased from 601 ED visits/1,000 m-q in Q1 CY2015 to 538 ED visits/1,000 m-q in Q4 CY2018, averaging 595 ED visits /1,000 m-q over the baseline period. During Phase 1, ED visits fluctuated each quarter and averaged 554 ED visits/1,000 m-q. In Phase 2, utilization decreased from 528 ED visits/1,000 m-q in Q1 CY2018 to 434 ED visits/1,000 m-q in the last quarter of CY2022, averaging 503 ED visits/1,000 m-q over the period.

In adjusted analyses, ED visits each quarter decreased slightly during the baseline period (aRR = 0.99; 95% CI: 0.99, 1.00). The trend during Phase 1 did not change relative to the baseline and decreased slightly in Phase 2 relative to Phase 1 (aRR = 0.98; 95% CI: 0.98, 0.99) (see **Appendix O**, **Table O-23**) decreasing each quarter in Phase 2 relative to baseline (aRR = 0.99; 95% CI: 0.99, 0.99). Overall, the average quarterly utilization was 4% lower in Phase 1 compared with baseline (aRR = 0.96; 95% CI: 0.95, 0.98) and 10% lower in Phase 2 compared with baseline (aRR = 0.90; 95% CI: 0.89, 0.91). In sensitivity analyses, neither excluding the COVID-19 pandemic period nor the extension of Phase 1 substantially changed model results.

Figure 5.3-27 ED Visits per 1,000 m-q among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

Outpatient Visits per 1,000 m-q Among MassHealth Members with Any SUD and OUD Diagnoses

Figure 5.3-28 presents the numbers of outpatient visits per 1,000 m-q with any SUD diagnoses and with an OUD diagnosis, CY2015–CY2022. Among members with any SUD diagnoses, outpatient visits rose from approximately 2,234 outpatient visits/1,000 m-q in Q1 CY2015 to 2,414 outpatient visits/1,000 m-q in Q4 CY2017, averaging 2,428 outpatient visits /1,000 m-q during the baseline period. During Phase 1, utilization averaged 2,450 outpatient visits/1,000 m-q. In Phase 2, utilization decreased from 2,467 outpatient visits/1,000 m-q in

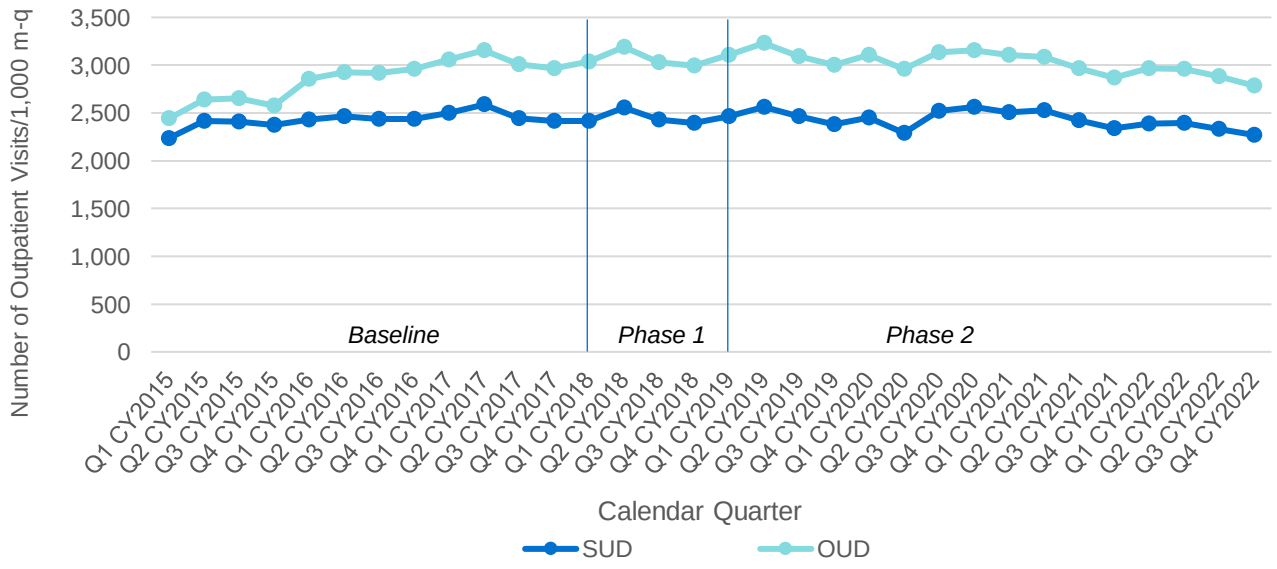
Q1 CY2019 to 2,268 outpatient visits/1,000 m-q in Q4 CY2022, averaging 2,434 outpatient visits/1,000 m-q over the period.

In adjusted analysis, outpatient visits remained flat over the baseline period and decreased each quarter in Phase 1 relative to baseline (aRR = 0.98; 95% CI: 0.98, 0.99). Utilization increased by 4% in the first quarter of Phase 2 (aRR = 1.04; 95% CI: 1.03, 1.04) and increased slightly throughout Phase 2 relative to Phase 1 (aRR = 1.01; 95% CI: 1.00, 1.01) (see **Table 5.26**), with utilization decreasing slightly each quarter in Phase 2 relative to Phase 1 (aRR = 0.99; 95% CI: 0.99, 0.99) (see **Appendix O, Table O-24**). Overall, average quarterly utilization was slightly lower in Phase 1 (aRR = 0.99; 95% CI: 0.98, 0.99) and in Phase 2 (0.98; 95% CI: 0.97, 0.99) relative to baseline. In sensitivity analyses, neither excluding the COVID-19 pandemic period nor extending Phase 1 substantially changed model results.

Among members with OUD, outpatient visits increased from 2,441 outpatient visits/1,000 m-q in Q1 CY2015 to 2,970 outpatient visits/1,000 m-q in Q4 CY2017, averaging 2,846 outpatient visits /1,000 m-q over the baseline period. During Phase 1, visits averaged 3,061 outpatient visits/1,000 m-q. In Phase 2, utilization decreased from 3,108 outpatient visits/1,000 m-q in Q1 2018 to 2,789 outpatient visits/1,000 m-q in Q4 CY2022, averaging 3,027 outpatient visits/1,000 m-q over the period.

In adjusted analysis, the trend in outpatient visits among members with OUD over the evaluation period was similar to the trend among members with SUD. Overall, quarterly utilization was higher during Phase 1 (aRR = 1.02; 95% CI: 1.02, 1.03) and lower in Phase 2 (0.95; 97% CI: 0.96, 0.98) relative to baseline. As with the overall SUD population, in sensitivity analyses, neither excluding the COVID-19 pandemic period nor extending Phase 1 substantially changed model results.

Figure 5.3-28 Outpatient Visits/1,000 m-q Among MassHealth Members with Any SUD and OUD Diagnoses by Calendar Quarter, CY2015–CY2022



Source: MassHealth administrative data

5.3.8. Hypothesis 7: The Return on Investment (ROI) will support the continuation of SUD Demonstration activities.

Overview

With the assumption that, in the absence of SUD expansion, TCOC for members with SUD would change at the same rate as members without SUD during CY2018-CY2022, the ROI for MassHealth spending on RRS, RCo, and RSN services was -1.37, meaning MassHealth spent $1.37 for each dollar invested in SUD services over five years. ROIs in alternative scenarios range from -4.76 to 0.30.

Detailed Results

ROI for MassHealth spending on RRS, RCo, and RSN services was calculated over a five-year horizon, considering: 1) program costs, that is, the cost to MassHealth in implementing RRS, RCo, and RSN services; 2) healthcare costs among members with SUD after the expanded services; and 3) estimated healthcare costs in the absence of the expanded services. Details are provided below.

Program costs

MassHealth provided program costs by fiscal year and consisted of the amount MassHealth paid providers for RRS, RCo, and RSN services. Fiscal year costs were converted to calendar year costs, assuming one-half of the costs spent in each fiscal year were spent during the preceding calendar year and one-half in the concurrent calendar year, adjusted to CY2022 dollars. Costs by calendar year and service are presented below (see **Table 5.3-2).**

Table 5.3-2 Cost to MassHealth for RCo, RSN, and RRS Services, CY2018–CY2022

	RCo/RSN		RRS		Total	
	Total cost ($Million)	Cost per member with SUD ($)	Total cost ($Million)	Cost per member with SUD ($)	Total cost ($Million)	Cost per member with SUD ($)
CY2018	2.71	15.69	24.58	142.54	27.28	158.23
CY2019	7.29	42.74	62.71	367.65	70.00	410.40
CY2020	11.42	68.87	99.93	602.82	111.35	671.69
CY2021	15.41	89.06	130.95	757.04	146.36	846.10
CY2022	9.00	51.65	72.60	416.64	81.60	468.29
Total	45.82	268.27	390.76	2,287.95	436.58	2,556.23

Source: MassHealth administrative data.

Healthcare Costs

The TCOC among members with SUD, excluding costs associated with RCo/RSN and RRS, was obtained from MassHealth claims and is presented in **Table 5.3-3.**

TCOC among members without the expansion of SUD services was estimated from MassHealth claims data and calculated under four scenarios based on what the change in

healthcare costs among members with SUD would be in the absence of SUD service expansion (see **Table 5.3-3**).

Base case: In the absence of service expansion, costs among members with SUD would decrease at the same rate as members without SUD ages 13–64, adjusting for age, risk score, and sex, after ACO implementation (CY2018–CY2022). Estimated decrease of $6.85 per member each calendar quarter.

Alternative scenario 1: In the absence of service expansion, costs among members with SUD would decrease as in the base case but taking into account the different risk profiles of members with and without SUD, calculated as a weighted average of the decrease in costs among members in the non-SUD population in each quartile of DXCG score in the SUD population. Estimated decrease of $15.94 per member each calendar quarter.

Alternative scenario 2: In the absence of service expansion, costs would remain flat.

Alternative Scenario 3. In the absence of service expansion, costs would increase at the same rate as the increase in costs in the SUD population during the baseline period, increasing by $13.88 per member each quarter.

Table 5.3-3 TCOC per MassHealth Member, with and without Expanded SUD Services, CY2018–CY2022

	Costs per member, with expanded SUD services	Cost per member, without expanded SUD services			
		Base case	Alternative Scenario 1	Alternative Scenario 2	Alternative Scenario 3
CY2018	20,271	19,637	19,690	19,775	20,271
CY2019	19,823	3,354	3,392	3,207	19,823
CY2020	20,091	20,007	20,241	20,608	20,091
CY2021	19,570	18,624	18,930	19,409	19,570
CY2022	19,984	18,164	18,555	19,165	19,984
Total	99,739	79,786	80,809	82,164	99,739

Source: MassHealth administrative data.

ROI over five years was calculated as:

$$ROI = \frac{(Net\ Healthcare\ Cost\ Savings\ -\ Program\ Costs)}{Program\ Costs}$$

Results are presented in Table 5.3-4. In the base case, ROI = -1.37, meaning MassHealth spent $1.37 for each dollar invested in SUD services over 5 years. ROIs in alternative scenarios range from -4.76 to 0.30.

Table 5.3-4 Return on Investment of Expansion of SUD Services

Scenario	Healthcare savings, five years	Program costs, five years	ROI, five years
Base Case	-160.40	436.58	-1.37
Alternative Scenario 1	-1,641.05	436.58	-4.76
Alternative Scenario 2	70.04	436.58	-0.84
Alternative Scenario 3	566.69	436.58	0.30

Source: MassHealth administrative data

5.4. Summary and Discussion of Key Findings

ITS analysis examined trends in claims-based measures for those measures with quarterly data from CY2015–CY2022, adjusting for changes in the demographic and clinical characteristics of the population over time. Because new services were identified in a phased approach, changes and trends from baseline were evaluated during two periods: Phase 1 (Q1 CY2018–Q4 2018) and Phase 2 (Q1 CY2019–Q4 CY2022). Results by hypothesis are presented below and summarized in **Table 5.4-1**.

H1 evaluated whether the Demonstration increased rates of identification, initiation, and engagement in treatment among individuals with SUD. Both initiation and engagement in treatment improved during Phase 2 relative to the baseline period.

H2 examined whether the Demonstration improved adherence to treatment. Results were mixed with regard to treatment adherence as summarized in **Table 5.4-1**.

H3 examined the degree to which the Demonstration reduced nonfatal overdoses and overdose deaths, particularly those due to opioids. The trend in high-dose opioid use among MassHealth members without cancer declined relative to the baseline trend, as did overdoses and fatal overdoses.

H4 evaluated overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis. Results were mixed, with overall costs and non-SUD-related costs declining relative to baseline among members with OUD, while SUD-related costs increased.

H5 examined whether the Demonstration reduced readmission to the same or a higher level of SUD-related care. Both 30- and 90-day readmissions decreased during Phase 2 relative to the baseline trend.

H6 examined whether the Demonstration improved care for comorbid conditions. The trend in both inpatient and ED visits decreased relative to baseline, as did the trend in outpatient visits.

H7 evaluated whether ROI will support the continuation of SUD Demonstration activities. Several scenarios for the change in healthcare costs attributable to the expansion of SUD services were evaluated. In the base case, the ROI over five years

was -1.37, meaning MassHealth spent $1.37 for each dollar invested in SUD services over five years. ROIs in alternative scenarios range from -4.76 to 0.30, with some scenarios resulting in a positive ROI for the expansion of SUD services.

Table 5.4-1 Summary of Results

Measure	Change in trend relative to baseline period			
	Any SUD		OUD	
	Phase 1	Phase 2	Phase 1	Phase 2
H1. The Demonstration will increase rates of identification, initiation, and engagement in treatment among individuals with SUD relative to trends prior to the 2017–2022 Demonstration period.				
Initiation of alcohol and other drug dependence treatment	Decrease	Increase	N/A[a]	N/A
Engagement in alcohol and other drug dependence treatment	Decrease	Increase	N/A	N/A
H2: The Demonstration will improve adherence to treatment among individuals with any SUD diagnosis (including, in particular, OUD diagnosis) relative to trends prior to the 2017–2022 Demonstration period.				
Continuity of pharmacotherapy	N/A	N/A	N/A	Increase
NQF #2605: Follow-up after Discharge from the ED for Mental Health or Alcohol or Other Drug Use Dependence/members with SUD	No change	Decrease	No change	Decrease
Percentage of members with any SUD /OUD diagnosis who used service per quarter:				
Outpatient SUD services	Increase	No Change	Decrease	Decrease
SOAP services	Decrease	Decrease	Decrease	Decrease
MOUD	N/A	N/A	Decrease	No Change
CSS (ASAM Level 3.5)	Decrease	Decrease	Decrease	Decrease
ATS (ASAM Level 3.7)	Increase	Decrease	Increase	Decrease
Outpatient withdrawal management	No change	Decrease	No change	No Change
Inpatient withdrawal management	No change	Decrease	No change	Decrease
H3. The Demonstration will reduce nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period.				
High Dose opioids	N/A	N/A	N/A	N/A
Overdoses overall and opioid-related / MassHealth members	Decrease	Decrease	Decrease	Decrease
Overdose deaths, overall and opioid-related opioid-related/MassHealth members	Decrease	Decrease	Decrease	Decrease
H4. The Demonstration reduces utilization of emergency department and inpatient hospital settings and overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis.				
Total PMPM cost of care to MassHealth	No change	No Change	No Change	Decrease

Measure	Change in trend relative to baseline period			
	Any SUD		OUD	
	Phase 1	Phase 2	Phase 1	Phase 2
SUD-related PMPM cost of care to MassHealth	No Change	Decrease	Decrease	Increase
Non-SUD-related PMPM costs	No Change	Decrease	No Change	Decrease
H5. The Demonstration results in fewer readmissions to the same or higher level of care.				
30-day readmission	Increase	Decrease	Increase	Decrease
90-day readmission	N/A	Decrease	N/A	Decrease
H6. The Demonstration will result in improved access to care for comorbid physical and mental health conditions among individuals with any SUD diagnosis, including OUD diagnoses, relative to trends prior to the current Demonstration period.				
MOUD Prescribers / MH members diagnosed with SUD and MH members diagnosed with OUD	No Change	No Change	No Change	No Change
Inpatient admissions /1,000 – member-quarters	Decrease	Decrease	No Change	Decrease
ED visits 1,000 - member months	No change	Decrease	No Change	Decrease
Ambulatory care visits/1,000 – member-quarters	Increase	Decrease	Increase	Decrease

[a] N/A - not applicable – Analysis not completed, as described in the Results section

5.4.1. Interpretation/Discussion

Utilization of the services newly covered by MassHealth as part of the Demonstration, RRS, RSN and RCo, increased through the calendar quarters after implementation. Utilization of RRS peaked at 0.9% Q4 CY2022, while utilization of RCo peaked at 2.3% in Q4 CY2022 and RSN peaked at 4% in Q2 CY2020 although it declined in subsequent months. It is unclear why RSN utilization declined over Phase 2, although anecdotal evidence suggests that the reimbursement rate may have been inadequate to sustain the service. The rate was increased in CY2023; evaluation of the 2022–2027 Demonstration will provide information on utilization after the rate increase.

Both initiation and engagement in treatment for AOD treatment improved during Phase 2 relative to the baseline period, suggesting Demonstration activities contributed to the improvement in SUD care in the MassHealth population. For the most part, the trend in the utilization of SUD-specific services, including inpatient withdrawal management, outpatient withdrawal management, ATS, CSS, SOAP, and SUD-related outpatient visits, decreased slightly during both Phase 1 and Phase 2 relative to baseline trends. Reduction in the need for acute service utilization such as withdrawal management, ATS, and CSS may indicate improved SUD care resulting from expanding SUD services and other Demonstration activities. Nevertheless, the decrease in the utilization of these ATS and CSS, as well as the decrease in other SUD-related outpatient visits, merits further evaluation. It should be noted that the coding of SUD-specific services in the claims data, including SUD-related outpatient

visits, differed by health plans, and plans may not have consistently used plan-specific codes over time.

The finding that high-dose opioid use, as well as overdoses and fatal overdoses, decreased in Phase 2 relative to baseline is encouraging. While expansion of SUD services may have contributed to these declines, they are likely in part attributable to the large number of initiatives across the state and nation to address the opioid crisis. The finding that the decline in fatal overdoses in Massachusetts was larger than the decline in the 49 other states indicates that Massachusetts-specific initiatives are demonstrating success in addressing the opioid crisis.

Among all members with SUD, SUD-related and non-SUD-related costs decreased during Phase 2 relative to baseline trends. The increase in SUD-related costs among members with OUD may indicate more intensive care for this population during the Demonstration period. The finding that both 30- and 90-day readmissions decreased during Phase 2 relative to the baseline trend suggests improved care coordination after discharge during the Demonstration period. Demonstration activities as a whole likely played a large role in this finding, as well as the decreased acute healthcare utilization for comorbid conditions in this population.

While positive trends were identified for many measures, it should be noted that many of the changes were small. We also recognize that the ITS approach does not adequately account for concurrent Demonstration activities nor external factors, including exacerbations of the opioid epidemic or multiple concurrent initiatives conducted at the state, local, and national levels during the Demonstration period to address the opioid crisis. Conversely, external factors may contribute to the absence of positive trends for other measures. It should also be noted that the expansion of ASAM 3.1 beds continued throughout Phase 2, and continued monitoring of these outcome measures throughout the 2022–2027 Demonstration will allow for the full effect of the SUD service expansion to be observed.

Our analysis attempted to evaluate the ROI of SUD expansion. It is difficult to separate the change in healthcare costs attributable to the expansion of SUD services from the costs attributable to other Demonstration activities. We evaluated multiple scenarios, with some scenarios resulting in a positive ROI for the expansion of SUD services. A positive ROI, however, is not the primary goal of the Demonstration.

As discussed in Chapter 1, COVID-19 had a broad impact on access and utilization of health services, including SUD-related services. Sensitivity analyses were conducted excluding five calendar quarters of the COVID-19 pandemic period, Q2 CY2020–Q2 CY2021. In general, although service utilization declined for many SUD-related services during this period, particularly during Q2 CY2020, excluding the COVID-19 pandemic period had small, if any, effects on the trends in evaluation measures during Phase 2 of the evaluation period.

5.4.2. Study Limitations

As discussed, we recognize that our ITS approach did not adequately account for external factors, including exacerbations of the opioid epidemic or multiple concurrent initiatives conducted at the state, local, and national levels during the Demonstration period to address the opioid crisis. To partially address this concern, we compared Massachusetts trends in

overdoses per resident to trends in the other 49 states. While there are limitations, these analyses help our understanding of the effect of Massachusetts-specific initiatives over the Demonstration period in reducing overdoses.

We also recognize that not all measures listed in the letter to the State Medicaid Directors (SMD#17–003)[218]**Error! Bookmark not defined.** may be expected to be affected by D emonstration activities. For example, any changes to the measure "Use of opioids at high dosage in persons without cancer" may likely be attributable to external factors such as a change in dose limits implemented by MassHealth. Below, we describe external policy initiatives and other activities occurring during the Demonstration period that may have affected measures evaluated in this report (see **Table 5.4-2**).

A large majority of the population of MassHealth members with a SUD diagnosis had an OUD diagnosis, and therefore the findings for the overall SUD population largely mirror the findings in the OUD subgroup. Service use, clinical approach, and general healthcare are all likely to be different for someone with non-OUD SUD. Findings presented in this report may therefore not apply to the non-OUD SUD population. Moreover, the percentage with OUD changed over the evaluation years, suggesting that the later years of the evaluation may be comprised of fewer members with longer histories of use than baseline years. Members with longer histories may have differing patterns of service use and overdose reporting than those newly diagnosed and may be an unmeasured contributing factor in the results presented in this report.

The measures in this analysis were calculated from medical claims and encounter data and are subject to the limitations of claims analysis. Coding for SUD utilization measures may not have been consistent and complete throughout the evaluation period.

5.4.3. Policy Implications and Interactions with Other State Initiatives

Examining the impact of expanding recovery-oriented SUD services in isolation is challenging. Other significant activities implemented in this Demonstration, such as the transition to ACOs and implementation of the Community Partners program, may have affected outcomes in the SUD/OUD population. In addition to Demonstration activities, countless initiatives have been implemented in the State. **Table 5.4-2** below presents a sample of significant initiatives implemented statewide during the evaluation period.

Table 5.4-2 Selected Massachusetts Initiatives to Address the Opioid Epidemic, CY2015–CY2019

Initiative	Agency	Initiation date
Prevention and Management of Prescription Drug Misuse • Establishes core competencies for providers and prescribers	DPH	May 2017
Core Principles for the Prevention and Management of Substance Misuse	Governor's Workgroup	Fall 2017

[218] SMD #17-003 RE: Strategies to Address the Opioid Epidemic, November 2017. Available at: https://www.medicaid.gov/federal-policy-guidance/downloads/smd17003.pdf

Initiative	Agency	Initiation date
• For all Schools of Social Work in Massachusetts		
Increasing Naloxone Access • Supporting the Overdose Education and Naloxone Distribution program • Supporting the First Responder Grant Program • Supporting Naloxone for Community Health Centers • Supporting state naloxone purchases through the bulk purchasing program	DPH	July 2017
SUSTAIN - Substance Use Support and Technical Assistance in Communities (Substance Abuse and Mental Health Services Administration (SAMHSA) Award)	Mass League of Community Health Centers	2018
Prescription Monitoring Program (PMP) • National tool (Massachusetts Prescription Awareness Tool) across 29 states and DC	Statewide	October 2017
Post-Overdose Follow-up Program • Program partners addiction specialists with first responders to provide outreach, support, and education to individuals following overdose treatment	DPH	November 2017
HOC/DOC Medication • Assisted Treatment Re-Entry Initiative (MATRI) • Access to Medication Assisted Treatment (MAT) • Case management services • Linkages to community-based treatment and recovery support services	HOC/DOC	August 2017
SAMHSA Policy Academy • 6 months of technical assistance and the opportunity to work with other states and national expert	Intra-Agency	2017

State Government Funding
• FY 2015: (agency(ies) not specified)
• FY 2016-18: SUD treatment, prevention, intervention, and recovery efforts
• FY 2018:
  ○ Criminalizing Fentanyl Trafficking
  ○ STEP Act: Limits first-time opioid prescription to seven days; practitioners to check PMP before prescribing; additional training required for patients
	(agency(ies) not specified)	2015

Limits on High Dose Opioids	MassHealth	March 2017

In addition to statewide initiatives, numerous programs have been implemented at the local and county level. These programs may have impacted one or more measured outcomes.

5.4.4. Lessons Learned and Recommendations

Interviews with behavioral health providers may provide additional insight into findings and will be conducted in the 2022–2027 Demonstration evaluation. Examining the length of

members' SUD diagnosis may provide additional insight into the MassHealth SUD population. Consistency among health plans in coding SUD-related services will also improve the monitoring of service utilization using claims data.

The national and state context continues to change, including the continued expansion in access to MOUD nationwide, new and evolving programs to address the opioid crisis, and the redesign of behavioral health services in Massachusetts. These contextual factors will be monitored in the 2022–2027 Demonstration evaluation.

6. Demonstration Goal 6: Continuing to Provide Coverage to Former Foster Care Youth

6.1. Background

In the Commonwealth of Massachusetts (Commonwealth), the Medicaid and Children's Health Insurance Program (MassHealth) provides coverage for youth and young adults in and aging out of foster care. The 2017–2022 Demonstration sought to provide full Medicaid State Plan benefits (regardless of income or assets) to out-of-state former foster care (FFC) youth and young adults under age 26 (referred to as 'FFC youth' in this report) who were in foster care but "aged out" in another state prior to becoming a MassHealth member. This was intended to bring equity to the coverage of foster care youth as a population, irrespective of where the foster care took place. In addition, it provided an additional pathway for FFC youth to access Medicaid healthcare benefits.

Per CMS request, as of December 14, 2017, the Commonwealth shifted authority from the State Plan to the 2017–2022 Demonstration to continue existing coverage of FFC youth who aged out of the foster care system in another state. MassHealth proactively worked throughout this Demonstration to maintain healthcare coverage and access to health services and improve health outcomes for this population.

6.2. Research Questions and Study Design

There are three research questions (RQs) for this policy goal, each with one hypothesis (H).

RQ1: Does the Demonstration provide continuous health insurance coverage for FFC youth meeting specified eligibility criteria?

H1. Eligible FFC youth will be enrolled continuously for 12 months.

RQ2: How did FFC youth utilize health services?

H2. FFC youth will access health services at rates comparable to other Medicaid members with similar characteristics.

RQ3: How do health outcomes for FFC youth compare to similar Medicaid members?

H3. FFC youth will have positive health outcomes as defined by National Quality Forum (NQF) measures, comparable to other Medicaid members with similar characteristics.

6.2.1. Study Design

The evaluation used a post-only assessment (e.g., evaluated after the program to measure effectiveness and outcomes) to track enrollment, healthcare utilization, and outcomes of the study population on an annual basis. Findings were benchmarked relative to a comparison group of MassHealth members with similar demographic and clinical characteristics (see **Table 6.2-1**).

6.2.2. Study Period

Our analyses are based on the calendar year, so the post-only analysis period began in January 2018, following the actual date of federal authority change on December 14, 2017, and ended on December 31, 2022. While the results in the Independent Evaluation Interim Report (IEIR) were reported by state fiscal year (SFY) (i.e., July 1–June 30), reporting by calendar year is a better fit for this analysis and consistent with the evaluation of other policy goals.

6.2.3. Data Source

MassHealth Administrative Data

The primary data sources were the MassHealth Medicaid Management Information System (MMIS) enrollment, medical claims/encounter files, and pharmacy claims files.

Program Enrollment Data

We received key parameters to determine FFC youth members covered by Medicaid annually from MassHealth. We linked this data with MMIS administrative data to finalize the population of FFC youth.

6.2.4. Study Population

The study population was youth and young adults who were:

- Under age 26; and
- In foster care under the responsibility of a state other than Massachusetts or a Tribe in such a state when they turned 18 or a higher age at which the state's or Tribe's foster care assistance ends; and
- Enrolled in Medicaid under that state's Medicaid State Plan or Section 1115 Demonstration at any time during the foster care period; and
- Living in Massachusetts during the 2017–2022 Demonstration[219]

While the sample size was estimated at 75 members per year in the Evaluation Design Document (EDD), we identified and validated, in consultation with MassHealth, over 200 FFC youth members per year. Thus, the size of our study population exceeds the estimate in the EDD.[220]

6.2.5. Comparison Group

An existing comparison group, which would allow the evaluation team to estimate the outcomes of the study population in the absence of the 2017–2022 Demonstration activities, does not exist because the program is state-wide. However, we identified a group of MassHealth members that matched with FFC youth by age, gender, MassHealth coverage type, and clinical comorbidity (referred to as 'non-FFC youth' in this report) to compare with

[219] Members were included if they moved to Massachusetts at any time during the 2017–2022 Demonstration.

[220] The Evaluation Design Document is available at https://www.mass.gov/service-details/1115-masshealth-demonstration-waiver.

the FFC youth. A two-step matching process was used. First, the FFC and non-FFC youth were sorted by MassHealth coverage type (i.e., managed care organization (MCO), Primary Care Clinician (PCC), or Accountable Care Organization (ACO)). Second, within each coverage type, a propensity score was calculated based on members' demographic and clinical characteristics likely related to outcomes (e.g., age, gender, asthma, obesity, and behavioral health and substance use disorder conditions).[221, 222] The propensity score was subsequently used to identify a comparison group using a 1:1 matching method.

Table 6.2-1 below summarizes the resulting demographic and clinical characteristics of both FFC and non-FFC group members, confirming the comparability of FFC and non-FFC youth in our analysis. The 1:1 matching procedure yielded the same number of comparison group members each calendar year. While most were enrolled in an MCO or the PCC plan in 2018, those enrollments fell in subsequent years. This trend elucidates enrollment movement toward ACOs (i.e., Accountable Care Partnership Plans or Primary Care ACOs), consistent with the overall enrollment change among all MassHealth members. In calendar year (CY) 2019 through CY2022, more than 30% of FFC members were enrolled in MassHealth ACOs. The majority of both groups (above 85%) were between 22 and 26 years old; however, the differences between the groups in CY2020 were statistically significant. Throughout the study period, about 10% to 17% of FFC and non-FFC members were between 18 and 21 years old; the proportion of these younger ages increased slightly over time. Over half of each group were females (53%-65% across the five-year evaluation period). Regarding physical health, asthma and obesity were not rare, ranging from about 6% to 13%, in FFC and non-FFC youth populations. Anxiety disorders, major depression, and post-traumatic stress disorder were present at similar rates between the groups and over time. Differences between the groups for age (CY2020 and CY2022), gender (CY2021), the prevalence of obesity (CY2019 and CY2020), the usage of cocaine (CY2018 and CY2022), and the usage of nicotine (CY2018 and CY2020) were found to be statistically significant.

[221] See Littnerova, S., Jarkovsky, J., Parenica, J., Pavlik, T., Spinar, J., & Dusek, L. (2013). Why to use propensity score in observational studies? Case study based on data from the Czech clinical database AHEAD 2006–09. *Cor et Vasa*, *55*(4), e383-e390.

[222] Disability status was not included as a matching factor because there were too few FFC youth found to have been diagnosed with a disability in our population.

Table 6.2-1 Population Characteristics of Matched FFC and Non-FFC Youths

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Total Population	248 (100)	248 (100)	261 (100)	261 (100)	250 (100)	250 (100)	288 (100)	288 (100)	313 (100)	313 (100)
Managed Care Plan Enrollment										
Accountable Care Partnership Plan ACO	62 (25.0)	62 (25.0)	97 (37.2)	97 (37.2)	85 (34.0)	85 (34.0)	107 (37.2)	107 (37.2)	115 (36.7)	115 (36.7)
Primary Care ACO	49 (19.8)	49 (19.8)	74 (28.4)	74 (28.4)	73 (29.2)	73 (29.2)	83 (28.8)	83 (28.8)	83 (26.5)	83 (26.5)
Fee-For-Service	46 (18.6)	46 (18.6)	48 (18.4)	48 (18.4)	52 (20.8)	52 (20.8)	44 (15.3)	44 (15.3)	63 (20.1)	63 (20.1)
MCO	48 (19.4)	48 (19.4)	25 (9.6)	25 (9.6)	23 (9.2)	23 (9.2)	30 (10.4)	30 (10.4)	34 (10.9)	34 (10.9)
PCC	43 (17.3)	43 (17.3)	17 (6.5)	17 (6.5)	17 (6.8)	17 (6.8)	24 (8.3)	24 (8.3)	18 (5.8)	18 (5.8)
Age										
18-21 Years	21 (8.5)	21 (8.5)	32 (12.3)	41 (15.7)	18* (7.2)	41* (16.4)	32 (11.1)	36 (12.5)	35* (11.2)	61* (19.5)
22 Years	31 (12.5)	31 (12.5)	34 (13.0)	34 (13.0)	35* (14.0)	49* (19.6)	34 (11.8)	31 (10.8)	41* (13.1)	54* (17.3)
23 Years	49 (19.8)	49 (19.8)	44 (16.9)	35 (13.4)	43* (17.2)	40* (16.0)	56 (19.4)	49 (17.0)	43* (13.7)	40* (12.8)
24 Years	44 (17.7)	44 (17.7)	56 (21.5)	67 (25.7)	50* (20.0)	33* (13.2)	50 (17.4)	54 (18.8)	71* (22.7)	55* (17.6)
25 Years	50 (20.2)	50 (20.2)	48 (18.4)	42 (16.1)	54* (21.6)	38* (15.2)	60 (20.8)	69 (24.0)	60* (19.2)	43* (13.7)

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
26 Years	53 (21.4)	53 (21.4)	47 (18.0)	42 (16.1)	50* (20.0)	49* (19.6)	56 (19.4)	49 (17.0)	63* (20.1)	60* (19.2)
Gender										
Female	130 (52.4)	143 (57.7)	143 (54.8)	147 (56.3)	154 (61.6)	149 (59.6)	177** (61.5)	157** (54.5)	202 (64.5)	185 (59.1)
Male	118 (47.6)	105 (42.3)	118 (45.2)	114 (43.7)	96 (38.4)	101 (40.4)	111** (38.5)	131** (45.5)	111 (35.5)	128 (40.9)
Physical Health Diagnoses										
Asthma	23 (9.3)	25 (10.1)	24 (9.2)	23 (8.8)	19 (7.6)	26 (10.4)	28 (9.7)	29 (10.1)	28 (9.0)	30 (9.6)
Obesity	20 (8.1)	30 (12.1)	16* (6.1)	34* (13.0)	12** (4.8)	23** (9.2)	23 (8.0)	24 (8.3)	28 (9.0)	29 (9.3)
Behavioral Health Diagnoses										
Anxiety Disorder	57 (23.0)	49 (19.8)	45 (17.2)	48 (18.4)	55 (22.0)	57 (22.8)	59 (20.5)	66 (22.9)	71 (22.7)	63 (20.1)
Major Depression	23 (9.3)	30 (12.1)	34 (13.0)	35 (13.4)	37 (14.8)	37 (14.8)	37 (12.9)	43 (14.9)	38 (12.1)	46 (14.7)
Post Traumatic Stress Disorder	27 (10.9)	22 (8.9)	31 (11.9)	28 (10.7)	26 (10.4)	24 (9.6)	40 (13.9)	36 (12.5)	43 (13.7)	55 (17.6)
Bipolar Disorder	12 (4.8)	14 (5.7)	19 (7.3)	16 (6.1)	21 (8.4)	19 (7.6)	21 (7.3)	18 (6.3)	17 (5.4)	12 (3.8)
Substance Use Disorder Diagnoses										
Any Drug	36 (14.5)	38 (15.3)	34 (13.0)	41 (15.7)	40 (16.0)	44 (17.6)	45 (15.6)	52 (18.1)	35 (11.2)	33 (10.5)
Nicotine	42* (16.9)	26* (10.5)	37 (14.2)	27 (10.3)	42* (16.8)	81* (32.4)	34 (11.8)	43 (14.9)	36 (11.5)	41 (13.1)

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Cannabis	20 (8.1)	13 (5.2)	21 (8.1)	23 (8.8)	20 (8.0)	19 (7.6)	27 (9.4)	27 (9.4)	18 (5.8)	15 (4.8)
Opioid	14 (5.7)	<11[a]	14 (5.4)	<11	17 (6.8)	13 (5.2)	13 (4.5)	15 (5.2)	<11	<11
Alcohol	15 (6.1)	12	14 (5.4)	15 (5.8)	14 (5.6)	17 (6.8)	17 (5.9)	18 (6.3)	16 (5.1)	11 (3.5)
Cocaine	11** (4.4)	<11**	<11	<11	<11	<11	12 (4.2)	12 (4.2)	<11*	<11*

Source: Program enrollment data and MassHealth administrative data.

Notes: P-value: *P<0.05, **P<0.10; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance.

Chi-square tests were performed to compare the differences between FFC and non-FFC youth.

[a] Numbers less than 11 (indicated by <11) are not reported per Health Insurance Portability and Accountability Act (HIPAA) guidelines regarding cell size suppression.

6.2.6. Measures

The following enrollment, utilization, and outcome measures were identified from claims/encounter data and measured annually by calendar year:

- Number and percentage of the study population and comparison group who were continuously enrolled[223] in MassHealth for one calendar year
- Number and percentage of the study population and comparison group who had at least one ambulatory care visit in one calendar year
- Number and percentage of the study population and comparison group who had at least one emergency department (ED) visit in one calendar year
- Number and percentage of the study population and comparison group who had at least one inpatient stay in one calendar year
- Number and percentage of the study population and comparison group who had at least one behavioral health (BH) encounter in one calendar year
- Number and percentage of the study population and comparison group with at least one annual preventive visit in one calendar year

6.2.7. Data Analysis

For all evaluation questions, we employed descriptive statistics, including frequency and percentages for dichotomous outcomes (i.e., outcomes with two possible responses) during each Demonstration year, specifying and presenting all measures annually by calendar year. Note that no adjustments were made for the differences between the study and comparison groups. Office visits (e.g., ambulatory or preventive care visits), inpatient stays, and ED visits were examined, along with well-care visits for FFC youth under age 22, adults' access to preventive/ambulatory health services for FFC youth aged 22 to 26, and pharmacy use. In addition, chi-square tests were performed to test for statistically significant relationships between variables. Evaluation questions, measures, data sources, and analytic approach are summarized in **Table 6.2-1**.

Table 6.2-1 FFC Youth Evaluation Hypotheses, Measures, Data Source, and Analysis Methodology

Evaluation Question	Evaluation Hypothesis	Measure	Recommended Data Source	Analytic Approach
RQ1. Does the Demonstration provide continuous health insurance coverage?	**H1**. Members will be continuously enrolled for 12 months.	Number of members continuously enrolled / Total number of enrollees	MMIS claims / encounter and enrollment data; program data	Descriptive statistics (frequencies and percentages) after propensity score method

[223] 'Continuously enrolled during the calendar year' is defined as total days on Medicaid greater than or equal to 320 days in a calendar year (or 321 days in a leap year).

Evaluation Question	Evaluation Hypothesis	Measure	Recommended Data Source	Analytic Approach
RQ2. How did members utilize health services?	**H2**. Members will access health services.	• Number of members who had an ambulatory care visit / Total number of members • Number of members who had a pharmacy use / Total number of members • Number of members who had an ED visit / Total number of members • Number of members who had an inpatient stay / Total number of members • Number of members who had an office visit for a BH condition during the year / Total number of members • Number of members who had an office visit for evaluation and management visit for a BH condition during the year / Total number of members • Number of members who had an office visit to a BH specialist during the year / Total number of members • Number of members who used emergency transportation during the year / Total number of members • Number of members who had a pharmacy use for a BH condition during the year / Total number of members	MMIS claims / encounter data; program data	Descriptive statistics (frequencies and percentages) after propensity score method
RQ3. What do health outcomes look like for members?	**H3**. Members will have positive health outcomes (as defined by NQF measures).	Total number of members with an annual preventive visit / Total number of members	MMIS claims/ encounter data; program data	Descriptive statistics (frequencies and percentages) after propensity score method

6.3. Summative Findings

This section presents analysis results that respond to the three hypotheses under Goal 6 in the 2017–2022 Demonstration.

6.3.1. Hypothesis 1: Continuous Enrollment

Overall, FFC and non-FFC enrollment in healthcare coverage steadily increased over the 2017–2022 Demonstration. The percentage of FFC youth continuously enrolled in healthcare coverage (defined as total days enrolled in MassHealth greater than or equal to 320 days in a calendar year or 321 days in a leap year) increased from 60.5% in CY2018 to 85.3% in CY2022; an increase of 24.8 percentage points. Comparatively, continuous enrollment in healthcare for non-FFC youth rose 31.4 percentage points over that same period, from 59.3% in CY2018 to 90.7% in CY2022 (see **Table 6.3-1**). In CY2018 and CY2019, FFC youth were more likely to be continuously enrolled than their non-FFC counterparts. For the remaining CYs (CY2020, CY2021, and CY2022), non-FFC youth were more likely to be continuously enrolled for 12 months; they were also more likely to have a higher number of enrollment days during the year than FFC youth. Of note, the 5.4 percentage point difference in CY2022 was found to be statistically significant.

Similarly, the total number of enrollment days during the calendar year for FFC and non-FFC youth steadily increased over the 2017–2022 Demonstration (see **Table 6.3.1**). Total enrollment days for FFC youth increased from 77.5% in CY2018 to 92.1% in CY2022, an increase of 14.6%. The number of enrollment days of non-FFC youth increased from 78.1% in CY2018 to 94.2% in CY2022, increasing by 16.1 percentage points. Except for CY2019, non-FFC youth had higher numbers of enrollment days.

Table 6.3-1 Number and Percentage of FFC and Non-FFC Youth's Continuous Enrollment in MassHealth[a]

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Total number of youth	248 (100.0)	248 (100.0)	261 (100.0)	261 (100.0)	250 (100.0)	250 (100.0)	288 (100.0)	288 (100.0)	313 (100.0)	313 (100.0)
Total number of youth continuously enrolled during the calendar year	150 (60.5)	147 (59.3)	174 (65.9)	161 (61.7)	189 (75.6)	196 (78.4)	236 (81.9)	250 (86.8)	267* (85.3)	284* (90.7)
Total number of enrollment days during the calendar year	283 (77.5)	285 (78.1)	297 (81.2)	287 (78.6)	311 (85.0)	322 (87.0)	329 (90.1)	337 (92.3)	336 (92.1)	344 (94.2)

Source: Program enrollment data and MassHealth administrative data.

Note: No statistically significant differences were identified except for Continuously enrolled for one year (CY2022), at *P<0.05.

[a] 'Continuously enrolled during the calendar year' is defined as total days on Medicaid greater than or equal to 320 days in a calendar year (or 321 days in a leap year).

6.3.2. Hypotheses 2 and 3: Health Utilization and Outcomes

In this section, we review findings for physical health service utilization and behavioral health service utilization.

Physical Health Utilization

From the results detailed in **Table 6.3-2**, the percentage of FFC youth between 18 and 26 years of age that had an office visit (e.g., ambulatory or preventive care visits), per year each year between CY2018–CY2022 ranged from 51.6% in CY2018 to 47.3% in CY2022, while 34.4% to 38.3% had an ED visit over that time. Well-care visits for this group between CY2018–CY2022 ranged from 20.8% to 26.1% annually. In addition, a small majority of the eligible population had at least one pharmacy usage per calendar year between CY2018–CY2022. The number of inpatient encounters was rather small (both groups contained less than 11 individuals) throughout the 2017–2022 Demonstration; we did not report these numbers in the table due to cell size suppression restrictions.

Comparatively, the FFC youth between 18 and 26 years of age had slightly fewer office, well-care, and adult preventive/ambulatory visits and lower pharmacy use than their non-FFC counterparts in CY2018–CY2022. The percentage of FFC youth with at least one ED visit was higher than that of their non-FFC counterparts in CY2018, CY2019, and CY2022. For well-care visits, the percentage of FFC youth between 18 and 21 years of age receiving at least one well-care visit was slightly less than non-FFC youth in CY2018, CY2021, and CY2022. Conversely, the percentage of FFC youth receiving at least one well-care visit was slightly higher than non-FFC youth in CY2019 and CY2020. Finally, regarding the adult preventive/ambulatory health visits for those 22–26 years old, the percentage of non-FFC youth with a visit was slightly larger in each calendar year than that for FFC youth.

Several statistically significant differences were found when comparing FFC youth to non-FFC youth in the different age groups. For those ages 18–26 years old, FFC youth had fewer office visits in CY2019 and CY2022, fewer well-care visits in CY2021 and CY2022, and fewer adult preventive/ambulatory health visits in CY2019 and CY2020 than non-FFC youth. Conversely, FFC youth ages 18–26 years old had more ED visits in CY2018 and CY2022 than their non-FFC counterparts. Within the population subgroups, statistically significant differences were found in well-care visits for those 18–21 years of age, with FFC youth having much fewer in CY2021. Finally, among those ages 22–26 years old, FFC youth had fewer adult preventive/ambulatory health visits in CY2019 and CY2020 as compared to non-FFC youth.

Table 6.3-2 Number and Percentage of FFC and Non-FFC Youth' Health Service Utilization and Outcomes

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Total population (18-26 years old)	248 (100)	248 (100)	261 (100)	261 (100)	250 (100)	250 (100)	288 (100)	288 (100)	313 (100)	313 (100)
At least one office visit during the year	128 (51.6)	148 (59.7)	135** (51.7)	153** (58.6)	131 (52.4)	159 (63.6)	162 (56.3)	177 (61.5)	148* (47.3)	184* (58.8)
At least one ED visit during the year	95** (38.3)	87** (35.1)	93 (35.6)	84 (32.2)	94 (37.6)	111 (44.4)	99 (34.4)	104 (36.1)	113* (36.1)	99* (31.6)
At least one well-care visit during the year[b]	56 (22.6)	72 (29.0)	68 (26.1)	68 (26.1)	52 (20.8)	49 (19.6)	60* (20.8)	82* (28.5)	68* (21.7)	95* (30.4)
At least one adult preventive/ ambulatory health service during the year[b]	137 (55.2)	151 (60.9)	138** (52.9)	157** (60.2)	137* (54.8)	165* (66.0)	171 (59.4)	185 (64.2)	171 (54.6)	191 (61.0)
At least one pharmacy use	132 (53.2)	150 (60.5)	142 (54.4)	155 (59.4)	133 (53.2)	149 (59.6)	177 (61.5)	189 (65.6)	177 (56.5)	185 (59.1)
Total population (18-21 years old only)	21 (100)	21 (100)	32 (100)	41 (100)	18 (100)	41 (100)	32 (100)	36 (100)	35 (100)	61 (100)
At least one well-care visit during the year[b]	<11[a]	11 (52.4)	<11	11 (26.8)	<11	12 (29.3)	<11**	13** (36.1)	12 (34.3)	27 (44.3)
Total population (22-26 years old only)	227 (100)	227 (100)	229 (100)	220 (100)	232 (100)	209 (100)	256 (100)	252 (100)	278 (100)	252 (100)

	CY2018		CY2019		CY2020		CY2021		CY2022	
At least one adult preventive/ ambulatory health visit during the year[b]	124 (54.6)	135 (59.5)	116* (50.7)	134* (60.9)	126* (54.3)	139* (66.5)	153 (59.8)	162 (64.3)	151 (54.3)	148 (58.7)

Source: Program enrollment data and MassHealth administrative data.

Note: P-value: *P <0.05, **P <0.10; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance.

For both FFC youth and non-FFC youth, the number of inpatient encounters was less than 11, so we did not report these numbers.

[a] Numbers less than 11 (indicated by <11) are not reported per HIPAA guidelines regarding cell size suppression.

[b] The 2022 Healthcare Effectiveness Data and Information Set (HEDIS) value set was used as a resource to calculate the well-care and annual adult preventive care visits.

Behavioral Health Utilization

In reviewing the BH service utilization (see **Table 6.3-3**), the percentage of non-specialist office visits for a BH condition (e.g., at least one office visit for BH condition during the calendar year) was less than 7% annually for both groups during the 2017–2022 Demonstration, while office visits to a BH specialist ranged from 16.9% to 23.4% during that period. FFC youths' annual number of office visits for BH conditions and office visits for evaluation and management of a BH condition[224] were slightly lower than that of non-FFC youths in all years except CY2020. The level of pharmacy use was slightly higher for FFC youth than non-FFC youth in CY2018–CY2022; CY2019 had the same rates (23.8 %) for both groups. The utilization for other types of services (e.g., use of emergency transportation) varied for both groups across the calendar years. Only two statistically significant differences were found when comparing FFC youth to non-FFC youth. FFC youth had fewer office visits in CY2019 with a BH specialist and had higher use of emergency transportation in CY2018 compared to non-FFC youth.

Table 6.3-3 Number and Percentage of FFC and Non-FFC Youth' Behavioral Health Service Utilization

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Total Population	248 (100)	248 (100)	261 (100)	261 (100)	250 (100)	250 (100)	288 (100)	288 (100)	313 (100)	313 (100)
At least one office visit for BH condition during the year	12 (4.8)	13 (5.2)	16 (6.1)	17 (6.5)	16 (6.4)	13 (5.2)	12 (4.2)	16 (5.6)	12 (3.8)	13 (4.2)
At least one office visit for evaluation and management visit for BH condition during the year	32 (12.9)	31 (12.5)	34 (13.0)	41 (15.7)	40 (16.0)	40 (16.0)	48 (16.7)	38 (13.2)	49 (15.7)	56 (17.9)
At least one office visit to a BH specialist during the year	42 (16.9)	47 (19.0)	42* (16.0)	61* (23.4)	44 (17.6)	53 (21.2)	57 (19.8)	51 (17.7)	61 (19.5)	61 (19.5)
At least one use of emergency transportation during the year	32** (12.9)	20** (8.1)	29 (11.1)	30 (11.5)	24 (9.6)	31 (12.4)	33 (11.5)	34 (11.8)	31 (9.9)	34 (10.9)

[224] Evaluation and management visits allow for additional services beyond that of an office visit.

	CY2018		CY2019		CY2020		CY2021		CY2022	
	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC	FFC	Non-FFC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
At least one pharmacy use for BH condition during the year	59 (23.8)	55 (22.2)	62 (23.8)	62 (23.8)	70 (28.0)	59 (23.6)	65 (22.6)	61 (21.2)	70 (22.4)	65 (20.8)

Source: Program enrollment data and MassHealth administrative data.

Notes: P-value: *P <0.05, **P <0.10; note that statistical significance is affected by sample size, and a statistically significant result may not be of clinical or policy significance. The number of youth with inpatient stays for a BH condition, non-emergency transports for a BH condition, and 24-hour or non-24-hour diversionary service use for a BH condition are rather small (all less than 11), so we did not include these variables in this table.

6.4. Summary and Discussion of Key Findings

RQ1: Does the Demonstration provide continuous health insurance coverage for FFC youth meeting specified eligibility criteria?

H1 examined whether eligible FFC youth will be enrolled continuously for 12 months. Most FFC Youth were enrolled continuously, exhibiting a higher level of continuous enrollment than non-FFC youth with similar characteristics.

RQ2: How did FFC youth utilize health services?

H2 examined whether FFC youth will access health services at rates comparable to other Medicaid members with similar characteristics. FFC youth accessed health services at a rate comparable to non-FFC youth with similar characteristics.

RQ3: How do health outcomes for FFC youth compare to similar Medicaid members?

H3 examined whether FFC youth will have positive health outcomes as defined by National Quality Forum (NQF) measures, comparable to other Medicaid members with similar characteristics. FFC youth had comparable health outcomes to non-FFC youth with similar characteristics.

6.4.1. Interpretation/Discussion

For **H1**, we found that approximately 70% of FFC youth were continuously enrolled annually during the evaluation period. It is important to note that this percentage steadily increased for each calendar year. FFC youth exhibited a higher level of continuous enrollment than non-FFC youth in CY2018 and CY2019. In contrast, the opposite occurred in CY2020, CY2021, and CY2022. The differences in the rates of continuous enrollment between the two groups were statistically significant only in CY2022. It is important to note that the Public Health Emergency (PHE)-related continuous enrollment requirement also potentially impacted the FFC and non-FFC youth enrollment rates during and after CY2020.

Results for **H2** and **H3** were fairly consistent as FFC youth had comparable utilization and outcomes to those of non-FFC youth with similar characteristics. However, in some years, FFC youth had lower utilization of annual preventive care visits and higher ED use than non-

FFC youth, a statistically significant difference. These differences in utilization could be due to FFC youth not proactively seeking care or non-FFC youth's medical conditions being more severe, on average, and requiring acute care. Our matching method controlled for diagnostic conditions but not the severity of the conditions, which is not directly available from MassHealth claims data.

The level of BH service utilization among FFC youth compared to non-FFC youth varied without a consistent pattern, although the differences between groups were not statistically significant. It is possible that FFC youth experience more instability in the family/house environment and thus may experience more BH challenges and need more care than non-FFC youth.[225] However, the differences were not statistically significant.

Overall, the COVID-19 pandemic did not significantly impact the trends within or between the two groups over the 2017–2022 Demonstration. Measure performance, including the difference between the FFC and non-FFC groups, appears to have stayed the same across the years.

For the 2017–2022 Demonstration, MassHealth shifted the authority by which healthcare coverage for these FFC youth is reimbursed, moving it from the State Plan to the 1115 Demonstration. Although the payment authority changed, the coverage type did not change and presumably went unnoticed by members. The payment authority, in and of itself, would not necessarily introduce outcome changes for FFC youth.

The results suggest that FFC youths' continuous healthcare coverage has been effectively maintained under the Demonstration authority. In addition, evidence shows that FFC youths' healthcare utilization is generally similar to that of their non-FFC counterparts, with some differences that bear attention. Findings related to FFC youth's continuous healthcare coverage and utilization suggest that FFC youth were more likely to have positive health outcomes. Thus, maintaining the FFC Waiver policy ensures that FFC youth have access to healthcare services comparable to those offered by MassHealth to non-FFC youth.

6.4.2. Study Limitations

These evaluation analyses have several limitations. First, determining the FFC youth population, whether they were in foster care in another state and had coverage through Medicaid while in foster care in another state, would ideally be verified during the application process. This information is self-reported by the individual during the application process and is not verified; thus, there may be some bias in identifying FFC youth. Second, the severity of members' medical conditions could not easily be determined using claims/encounter data. This is an important factor to control when comparing healthcare utilization and outcomes between FFC youth and non-FFC youth. Third, our healthcare and outcome analyses were based on individuals having at least one encounter. The actual level of utilization was not analyzed. Also, the total population is still relatively small, making the measure estimate less reliable.

[225] Engler, A. D., Sarpong, K. O., Van Horne, B. S., Greeley, C. S., & Keefe, R. J. (2022). A systematic review of mental health disorders of children in foster care. Trauma, Violence, & Abuse, 23(1), 255-264. https://doi.org/10.1177/1524838020941197

6.4.3. Policy Implications and Interactions with Other State Initiatives

Healthcare coverage for FFC youth has been an important part of Medicaid throughout the country since the passage of the federal Foster Care Independence Act of 1999 (also known as the Chafee Option).[226] With its passage, the Chafee Option allowed for FFC youth to receive Medicaid coverage until their 21st birthday. The Affordable Care Act (ACA) requires states to offer health insurance to FFC youth until the age of 26, with the intention of creating alignment with the access available to similar-aged youth who are covered under their parents' insurance until the age of 26.[227] However, a federal ruling meant that FFC youth from other states could not be covered under Medicaid State Plan Authority.[228] CMS allowed states wishing to cover this population to request authority for their coverage under their 1115 Demonstration. It is important to note that coverage for this population (individuals who turned 18 on or after January 1, 2023) did not become mandatory until January 1, 2023. By allowing FFC youth to be eligible for health insurance in the state to which they have relocated, this population can maintain access to healthcare services. This benefits these individuals, as FFC youth have been found to have higher rates of health problems than others their age who were not in foster care.[229]

In Massachusetts, youth and young adults may be eligible for a range of services and support provided by MassHealth and other state agencies. For example, two programs target youth and young adults aged 21 and younger. MassHealth's Children's Behavioral Health Initiative (CBHI) offers community-based behavioral health services for youth up to 20 years of age who are diagnosed with serious emotional disturbance. We found that the number of FFC youth receiving CBHI services is very low (less than 10), so exposure to CBHI will have very little impact on the FFC youth population as a whole. FFC youth under the age of 21 are eligible for the Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program, which provides preventive and treatment services that may address and ameliorate medical conditions at an early stage. In addition to these programs, transition-age youth (below and above the age of 21) have access to services offered by the Department of Mental Health and covered by MassHealth. FFC youth may interact with other state agencies to facilitate their relocation to Massachusetts or access additional health services. However, we do not have access to data that allows us to examine the uptake of other state programs for FFC youth or their interactions with other state agencies. Thus, we do not know what, if any, impact these might have on the healthcare utilization and outcomes for utilization for this population.

6.4.4. Lessons Learned and Recommendations

As noted above, the FFC youths' foster care status data are self-reported and not verified as part of the application process. MassHealth may find it beneficial to explore the utility and

[226] U.S. Dept of Health and Human Services/Office of the Assistant Secretary for Planning and Evaluation. Providing Medicaid to Youth Formerly in Foster Care Under the Chafee Option: Informing Implementation of the ACA. Available at: https://aspe.hhs.gov/basic-report/providing-medicaid-youth-formerly-foster-care-under-chafee-option

[227] National Center for Children in Poverty. Fostering Health: The Affordable Care Act, Medicaid, and Youth Transitioning from Foster Care. Available at: https://www.nccp.org/wp-content/uploads/2016/10/text_1165.pdf

[228] Congressional Research Service. Medicaid Coverage for Former Foster Care Youth Up to Age 26. Available at: https://crsreports.congress.gov/product/pdf/IF/IF11010

[229] Youth.gov. Young Adults Formerly in Foster Care: Challenges and Solutions. Available at: https://youth.gov/youth-briefs/foster-care-youth-brief/challenges

cost-effectiveness of verifying member information prior to program enrollment in order to avoid incurring unnecessary utilization and related costs for ineligible individuals. Confirmation of whether these youth are FFC youth from another state may lead to their enrollment in more appropriate benefit categories and potential cost savings due to receiving appropriate MassHealth benefits.

MassHealth may also benefit by understanding the experiences and perspectives of FFC youth and their foster families with regard to healthcare access and utilization. This information could point to ways in which MassHealth can support FFC youth in better understanding and accessing their benefits. Similarly, exploring FFC youth's level of interaction with other Massachusetts state agencies to support their transition and address health and social issues may point to service gaps that can be filled by MassHealth or cross-agency collaborations to maximize the health outcomes of FFC youth.

7. Demonstration Goal 7: Ensure the Long-Term Financial Sustainability of the MassHealth Program

7.1. Background

The Commonwealth of Massachusetts is one of the few states to offer provisional eligibility (PE) in Medicaid. PE provides a temporary eligibility period based on an applicant's unverified, self-attested information for certain eligibility criteria. Before the 2017–2022 Demonstration, PE was available to most MassHealth applicants, even if an individual's eligibility factors (e.g., income, residency) could not be readily verified with federal and state data.[230] Applicants were given a 90-day window during which they would receive the full benefits associated with their category of eligibility based on self-attested information. Verification of the eligibility factors—excluding disability, immigration, and citizenship—needed to be ascertained within the 90-day period, or the individual would either be dis-enrolled from MassHealth or, as applicable, enrolled in a different aid category. With the refinement of PE requirements under this Demonstration, the Commonwealth, as of July 1, 2018, no longer provided PE for adult applicants with unverified income, except for individuals in the categories listed below.

Under 21 years of age

- Pregnant individuals with self-attested income at/below 200% of the Federal Poverty Level (FPL)
- Adults 21 to 64 years of age who are HIV-positive and have attested income at/below 200% FPL
- Individuals with active treatment for breast and cervical cancer who are under the age of 65 and have attested income at or below 250% FPL

MassHealth enacted this change to reduce the number of individuals receiving PE who were ultimately not eligible for MassHealth and, as a result, realize savings from no longer incurring costs associated with the care and coverage of those individuals. PE for items other than income remained unchanged.

It is important to note that the evaluation period of this PE analysis included the onset of the COVID-19 pandemic and the protections put in place during the Public Health Emergency (PHE) enacted in March 2020 (see **Section 1.1.3**). During that time, MassHealth temporarily suspended most ongoing renewals to comply with continuous coverage requirements of the Families First Coronavirus Response Act (FFCRA), where benefits could not be terminated for any members, with certain exceptions. These protections impacted PE enrollment during the measurement period as fewer renewals resulted in reduced usage of PE.

[230] Provisional eligibility (PE) is different from presumptive eligibility. Presumptive eligibility enables qualified entities/providers (e.g., healthcare providers, community-based organizations, and schools) to grant temporary Medicaid coverage to those who are unable to complete full Medicaid application at the time of service.

Another Demonstration provision under this goal, the Student Health Insurance Program Premium Assistance (SHIP PA), provided MassHealth-eligible college students with assistance purchasing health insurance offering a broad network of providers and services in any geographic location.[231] The program was intended to shift MassHealth-eligible students from full MassHealth coverage to Student Health Insurance Program (SHIP) coverage at their educational institution, with equal or better benefits relative to MassHealth, while at the same time generating savings for MassHealth by changing the primary health insurer to a non-MassHealth plan. Out-of-pocket costs to the students through SHIP PAs were typically lower than other health plans, and the student-specific membership provided predictable low-risk costs to the schools that offer them.

Requirements for post-secondary school-sponsored SHIPs in Massachusetts were established in 2014, mandating that students participate in either their school's plan or a health benefit plan offering comparable coverage.[232] Chapter 224 of the Massachusetts Acts of 2012[233] moved responsibility for administering SHIPs for public colleges and universities to the Health Connector. Beginning in 2014, students could waive their school's SHIP if they were enrolled in MassHealth or subsidized health plans through the Health Connector. Subsequent to this change and the implementation of the Affordable Care Act (ACA) in 2014, which expanded Medicaid eligibility, allowing more students to become MassHealth eligible, fewer students enrolled in SHIP.[234] In response, the MassHealth SHIP PA program was launched in 2016 through a partnership between MassHealth, schools, and commercial insurance plans.

Through the Demonstration authority, MassHealth members who were students in the state's public colleges and universities were required to enroll in their school's SHIP as a condition of eligibility. Once enrolled, coverage would be maintained for an academic year or partial year (spring semester only). The state provided premium and cost-sharing assistance and benefit wrap-around coverage to ensure that the out-of-pocket costs and available services from SHIP PA were at the same level as if services were covered directly by MassHealth.[235] The school's commercial insurance product acted as the primary payer of services, and MassHealth was the secondary payer.

As noted above, enrollment of MassHealth-covered students in the SHIP PA provision became mandatory as of the 2017–2018 academic year under the state's 2017–2022 Demonstration. At the same time, MassHealth allowed out-of-pocket expense coverage for visits to any in-network healthcare provider, eliminating the previous requirement that the provider be a MassHealth provider. In CY2019, MassHealth decided to discontinue the SHIP PA waiver authority at the end of the 2019–2020 academic year. Therefore, no additional

[231] American College Health Association. (n.d.). *Do You Know Why Student Health Insurance Matters?* ACHA.org. Retrieved June 24, 2024, from https://portal.acha.org/documents/Networks/Coalitions/Why_SHIPs_Matter.pdf

[232] Mass.gov. (June 28, 2019). *956 CMR 8.00: Student Health Insurance Program Legislation.* https://www.mass.gov/files/documents/2019/07/01/jud-lib-956cmr8.pdf

[233] General Court of the commonwealth of Massachusetts Chapter 224 of the Massachusetts Act of 2012. Session Law - Acts of 2012 Chapter 224 (malegislature.gov)

[234] Massachusetts Health Connector. (December, 2017). *Report to the Massachusetts Legislature Implementation of Health Care Reform. Fiscal Year 2017.* https://betterhealthconnector.com/wp-content/uploads/annual-reports/ConnectorAnnualReport2017.pdf

[235] Changes to the MassHealth SHIP Premium Assistance Program for 2017. Available at: https://www.gallagherstudent.com/miscforms/SHIP%20PA%20For%20Private%20Schools%20-%20March%202017.pdf

analyses were conducted for the Independent Evaluation Summative Report (IESR) after CY2020.

7.2. Research Questions and Study Design

Because this goal addresses sustainability through two separate Demonstration provisions, there are two research questions (RQ) and related hypotheses (H).

The PE hypotheses **H1** and **H2** were revised from the Independent Evaluation Interim Report (IEIR) based on the lack of data availability during the pre-implementation period. We could not conduct a pre-post comparison of the PE policy refinement because a PE indicator was not consistently available in any data system before October 2018. We only reported on the individuals with PE and associated costs for those with unverified information after the PE refinement in July 2018. The revised hypotheses are below; the original hypotheses are found in **Appendix Q**.

RQ1. What is the effect of the 2017–2022 Demonstration's refinement of PE?

H1. The 2017–2022 Demonstration's refinement of PE will decrease the number of individuals deemed provisionally eligible for MassHealth based on self-attestation of eligibility factors but who were not ultimately able to verify MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022.

H2. The 2017–2022 Demonstration's refinement of PE will decrease costs to MassHealth by reducing MassHealth expenditures for individuals who are deemed provisionally eligible for MassHealth during the PE period but cannot verify their MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022.

RQ2. What is the effect of the Demonstration's authorization of SHIP PA on MassHealth expenditures?

H3. The SHIP PA program will result in cost savings for MassHealth.

H4: The SHIP PA program will result in a similar or better member experience compared with the period prior to enrollment.

7.2.1. Study Design

To address **H1** and **H2**, we had intended to compare the trends in the number and percentage of individuals during each calendar quarter (Q) who received PE but were later disenrolled due to unverified eligibility before and after the PE policy refinement, and well as trends in healthcare costs based on the original evaluation design document (EDD). However, because our main data source could not capture the information needed before the policy change to conduct a pre-post analysis—more specifically, it lacked the action reason code put in place in late 2018—we could only report on the time after the implementation of the PE policy refinement in July 2018. Therefore, the hypotheses were updated to assess trends of PE eligibility and cost after July 1, 2018.

After a thorough investigation of comparing different data sources described in **Appendix R**, we concluded that the primary data source for estimating the PE population would be the MassHealth Medicaid Management Information System (MMIS) data. The MMIS data

appeared to be more accurate for capturing the PE population, compared to the Daily Data Extract (DDE) data from the Health Insurance Exchange/Integrated Eligibility System (HIX/IES) system, where historic data are overwritten frequently. We were able to use the MMIS data to estimate the PE population who were not eligible for MassHealth benefits at the end of each quarter. The limitation of MMIS was that no PE indicator was available before late CY2018.

To evaluate **H3**, we conducted a cost savings analysis for State Fiscal Years (SFY) 2017 to 2020 by comparing MassHealth costs for SHIP PA members and their non-SHIP PA counterparts.[236] As MassHealth ended its SHIP PA program during the summer of CY2020, additional analyses were not possible and necessary for the IESR. To evaluate **H4**, we used member experience survey data that MassHealth compiled in May 2019. The planned follow-up survey, which would have allowed for comparisons between the two time points, was not conducted because the SHIP PA program was discontinued.

7.2.2. Study Period

The PE evaluation period began in Q4 CY2018 and extended through Q4 CY2022.[237] For SHIP PA, the evaluation period began in SFY2017, the start of SHIP PA enrollment, and extended through the end of SFY2020 (or summer CY2020), when the program was discontinued.

7.2.3. Data Sources

MassHealth Administrative Data

MassHealth MMIS enrollment, medical claims/encounter files, and pharmacy claims files were used to evaluate MassHealth enrollment and healthcare costs in the study populations.

Health Insurance Exchange/Integrated Eligibility System

DDE data from the HIX/IES.

MassHealth Capitation Rate Data

Capitation rates or per member per month (PMPM) premium rates were obtained from MassHealth.

MassHealth SHIP PA Member Experience Survey

Data about member experiences with the SHIP PA program were collected from college students enrolled in the program.

7.2.4. Study Population

To evaluate **H1** and **H2**, the study population comprised MassHealth members with PE.

[236] The State Fiscal Year for the Commonwealth of Massachusetts runs from July 1–June 30.

[237] While the policy refinement began in July 2018, the PE indicator was not consistently available in any data system before October 2018. Therefore, Q4 2018 was included in the baseline period of the evaluation (baseline period = Q4 CY2018 through CY2019), referred as CY2019.

To evaluate **H3** and **H4**, the study population comprised MassHealth members enrolled in SHIP PA.

7.2.5. Comparison Group

Because the 2017–2022 Demonstration affects MassHealth members statewide, a clear comparison group to evaluate **H1–H4**, which would estimate what would have occurred in the absence of the Demonstration, does not exist. In lieu of a comparison group for **H3**, we calculated the cost to MassHealth of SHIP PA enrollees had they not participated in the program, based on what MassHealth would have paid in capitated PMPM payments.

7.2.6. Measures

To evaluate **H1**, the outcome measure was the number and percentage of individuals who received PE in each quarter and the number and percentage who received PE and whose MassHealth eligibility could not be verified as identified in MMIS data at the end of each quarter.

To evaluate **H2**, the outcome measure was the total MassHealth PMPM expenditures for the PE year, as identified in the MMIS claims/encounter data, for the subgroup of individuals who received PE and whose MassHealth eligibility could not be verified.

To evaluate **H3**, the measure was the healthcare costs that MassHealth would have paid for SHIP PA members if they were directly covered by MassHealth and enrolled in managed care.

To evaluate **H4**, measures included the members' perceptions of their access to care during enrollment into the SHIP PA program, their learned independence in coordinating their benefits and services, and their overall satisfaction with the program.

7.2.7. Data Analysis

Descriptive data are reported for post-demonstration PE enrollment as we could not conduct a pre-post time series analysis as initially intended. Demographic characteristics of individuals receiving PE during each full calendar evaluation year (CY2019–CY2022) were described. Variables included age, gender, race, and disability status.

To evaluate **H1**, we first used the member historical file during each calendar quarter (Q4 CY2018–Q4 CY2022) to calculate the percentage of individuals with PE against the total MassHealth population in the quarter. We counted unique individuals as having PE if they had at least one PE segment in the quarter. The numerator was the number of individuals with PE in the quarter, and the denominator was the total number of MassHealth members in the quarter. We performed a subgroup analysis to estimate the percentage with PE whose MassHealth eligibility could not be verified at the end of the quarter. We used a hierarchical algorithm to identify these members using action reason codes, HIX/IES closing codes, and eligibility start and end dates. In each quarter, a MassHealth member was classified into one of three groups based on the last eligibility record: (1) those who were still on PE (i.e., their last eligibility record did not have a code indicating PE disenrollment); (2) those eligible for

MassHealth; and (3) those whose eligibility could not be verified.[238] There was a very small proportion (<1%) of individuals whose status we could not determine at the end of a quarter; these data are not included in the analyses. Due to low numbers of PE in the early quarters of CY2018, when action codes were implemented, our findings report PE starting in the last quarter of CY2018.

For statistical analyses, we used unadjusted logistic regression to compare the likelihood of individuals being on PE with CY2019 as the baseline year and CY2020–CY2022 as the study years. We further conducted a Cochran-Armitage Trend test[239] to confirm the statistical significance of the observed results. Using the same timeframe, we also performed unadjusted logistic regression to compare the likelihood of individuals having unverified information.

To evaluate **H2**, we estimated the total MassHealth PMPM expenditure during each calendar year (CY2019–CY2022) among the subgroup with PE, whose MassHealth eligibility could not be verified by the end of each quarter. We used the Consumer Price Index (CPI) to measure inflation, with CY2022 as the reference year. To statistically study the trend of PMPM cost for this subgroup, we performed unadjusted regression analysis on individual-level PMPM cost for each calendar year using generalized estimating equations assuming Poisson distribution.[240] The negative binomial distribution model was also run with similar results. For the regression analysis, we used CY2019 as the baseline year and CY2020–CY2022 as the study years. The refinement of PE evaluation questions, measures, data sources, and analytic approach are summarized in **Table 7.2-1**. Limitations of the data analysis are detailed in the Discussion section.

Relative to **H3** and **H4**, using cost data provided by MassHealth, we reported actual program costs between SFY2017 and SFY2020 and calculated the annual cost savings of SHIP PA for that period from a MassHealth perspective.

Cost savings were determined using the formula below:

Cost Savings = MassHealth costs without SHIP - MassHealth costs with SHIP

Where:

MassHealth costs with SHIP: The costs included total observed premiums, cost sharing, and benefit wrap coverage for SHIP PA members paid by MassHealth.

MassHealth healthcare costs without SHIP: Total costs to MassHealth were estimated as the sum of the PMPM cost that would have been paid for SHIP PA enrollees had

[238] Our estimates were based on the last eligibility segment in each quarter, where some individuals were still on PE, and some dropped out of PE to some other status. Individuals could churn on and off PE in the quarter and across quarters, but their status in each quarter was based on their last eligibility segment.

[239] The Cochran-Armitage trend test is used to test if a series of proportions can be considered as varying linearly with an ordinal or continuous score variable.

[240] The Poisson distribution is a probability model used to find the probability of a single event occurring a given number of times in an interval of time.

they been directly covered by MassHealth and enrolled in managed care. This was based on the capitated payment rate from MassHealth, which reflected members' rating categories after inflation was considered. The total costs without SHIP were determined using the formula below:

MassHealth costs without SHIP = Estimated PMPM cost if student members were not enrolled in SHIP PA X total number of member months of school enrollment[241]

We also performed two sensitivity analyses to calculate the total cost for potential SHIP PA enrollees. The first sensitivity analysis related to total cost relative to the length of school enrollment. For full-year students, the length of coverage was 12 months; however, for students enrolled in the Spring semester, the enrollment period could vary, so various assumptions of the length of spring coverage were made. Specifically, we used 7, 7.5, and 8-month timeframes along with the full-year (12-month) timeframe. A second sensitivity analysis was based on different scenarios for the SHIP PA members' total cost-sharing in SFY2017, which was not available. We used a cost-sharing level of $0 PMPM versus an estimated $25 PMPM in cost-sharing payment for that year. In combination, this led to 4 scenarios of cost-saving estimates:

- Assumed 7-month spring semester enrollment and estimated SFY2017 SHIP PA PMPM for cost sharing being $0
- Assumed 8-month spring semester enrollment and estimated SFY2017 SHIP PA PMPM for cost sharing being $0
- Assumed 7-month spring semester enrollment and estimated SFY2017 SHIP PA PMPM for cost sharing being $25
- Assumed 8-month spring semester enrollment and estimated SFY2017 SHIP PA PMPM for cost sharing being $25

For **H4** of the SHIP PA program evaluation, we described member experience during enrollment in the SHIP PA program. While the evaluation team had planned a pre-post survey, MassHealth conducted a member experience survey through its third-party liability (TPL) contractor in CY2019 and determined that the results of the CY2019 survey were sufficient for their programmatic needs, thus canceling plans for an additional survey. The member survey included key questions relevant to our evaluation, including length of time insured through SHIP PA, insurance history, and satisfaction with the program. As the SHIP PA program ended in the summer of 2020, a subsequent survey by MassHealth was not conducted. Thus, we reported only the results of the MassHealth-administered member experience survey in the Findings section below. The survey did not include a direct question about members' ability to independently navigate the healthcare system for the coordination of benefits and services; therefore, we did not analyze this dimension of member experience. The SHIP PA evaluation questions, measures, data sources, and analytic approach are summarized in **Table 7.2-1**. Limitations of the data analysis are detailed in the Discussion section.

[241] The estimated PMPM was based on the SHIP student population who would have been covered by MassHealth directly, not based on all members of those ACO/MCO plans. The PMPM cost was adjusted for MassHealth coverage type (Family Assistance, CarePlus, CommonHealth, or standard), disability status and age.

Table 7.2-1 Overview of Refinement of PE and SHIP PA Analysis Methods

Research Question	Research Hypothesis	Measure (Reported for each PE SHIP PA Evaluation Period)	Recommended Data Source	Analytic Approach
RQ1: What is the effect of the 2017–2022 Demonstration's refinement of PE?	**H1**. The 2017–2022 Demonstration's refinement of PE will decrease the number of individuals deemed provisionally eligible for MassHealth based on self-attestation of eligibility factors but who were not ultimately able to verify MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022	The number and percentage of individuals who received PE in each quarter and the number and percentage who received PE and whose MassHealth eligibility could not be verified at the end of each quarter	MassHealth MMIS member enrollment data and DDE data from the HIX/IES	Trend and descriptive analysis
	H2. The 2017–2022 Demonstration's refinement of PE will decrease costs to MassHealth by reducing MassHealth expenditures for individuals who are deemed provisionally eligible for MassHealth during the PE period but cannot verify their MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022	The total MassHealth PMPM expenditures for the PE year for the subgroup of individuals who received PE and whose MassHealth eligibility could not be verified	MassHealth MMIS medical claims/ encounter data and pharmacy claims	Trend and descriptive analysis
RQ2: What is the effect of the Demonstration's authorization of SHIP PA on MassHealth expenditures?	**H3**.The SHIP PA program will result in cost savings to MassHealth	Healthcare premiums that would have been paid by MassHealth for SHIP PA members if they were directly covered by MassHealth and enrolled in managed care	MassHealth premium cost data	Trend and descriptive analysis

Research Question	Research Hypothesis	Measure (Reported for each PE SHIP PA Evaluation Period)	Recommended Data Source	Analytic Approach
	H3. The SHIP PA program will result in cost savings to MassHealth	SHIP PA program costs	MassHealth cost data	Trend and descriptive analysis
	H4. The SHIP PA program will result in a similar or better member experience compared with the period prior to enrollment	Measures include member's experience with perceived network access, actual care (personal doctor, specialist, and health plan)	SHIP Program Data, Member Experience Survey Data	Descriptive analysis

7.3. Summative Findings

This section presents analysis results that respond to the four hypotheses under Goal 7 in the 2017–2022 Demonstration.

7.3.1. Hypothesis 1: The 2017–2022 Demonstration's refinement of PE will decrease the number of individuals deemed provisionally eligible for MassHealth based on self-attestation of eligibility factors but who were not ultimately able to verify MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022.

The estimated population of individuals with PE ranged from approximately 500,000 to 660,000 each calendar year. The population was 55% female, had a mean age of 27, and 6% to 9% were flagged as having a disability (see **Table 7.3-1**). Approximately 19% to 24% of individuals with PE reported non-white race across the evaluation period, and at least 45% of the population reported unknown race; therefore, the results on race distribution should be interpreted with caution.

Table 7.3-1 Demographic Characteristics of Individuals with PE, by Calendar Year (CY2019-CY2022)

PE Population	CY2019 n (%)	CY2020 n (%)	CY2021 n (%)	CY2022 n (%)
Gender				
Female	362,093 (55%)	272,647 (55%)	365,209 (55%)	305,214 (55%)
Male	297,939 (45%)	221,547 (45%)	297,490 (45%)	252,670 (45%)
Race				
White	200,004 (30%)	150,413 (30%)	202,771 (31%)	154,590 (28%)
Black	62,938 (9%)	48,408 (10%)	62,662 (9%)	52,632 (9%)

PE Population	CY2019 n (%)	CY2020 n (%)	CY2021 n (%)	CY2022 n (%)
Hispanic	32,160 (5%)	23,360 (5%)	28,484 (4%)	21,038 (4%)
Asian	26,275 (4%)	20,806 (4%)	29,496 (4%)	24,739 (4%)
Other	10,165 (2%)	8,335 (2%)	39,815 (6%)	38,289 (7%)
Unknown	328,490 (50%)	242,872 (49%)	299,471 (45%)	266,596 (48%)
Disability				
Yes	61,828 (9%)	33,671 (7%)	55,980 (8%)	32,728 (6%)
Mean (SD)*				
Age in years	27.4 (18.5)	26.6 (18.2)	27.6 (18.6)	27.9 (18.4)

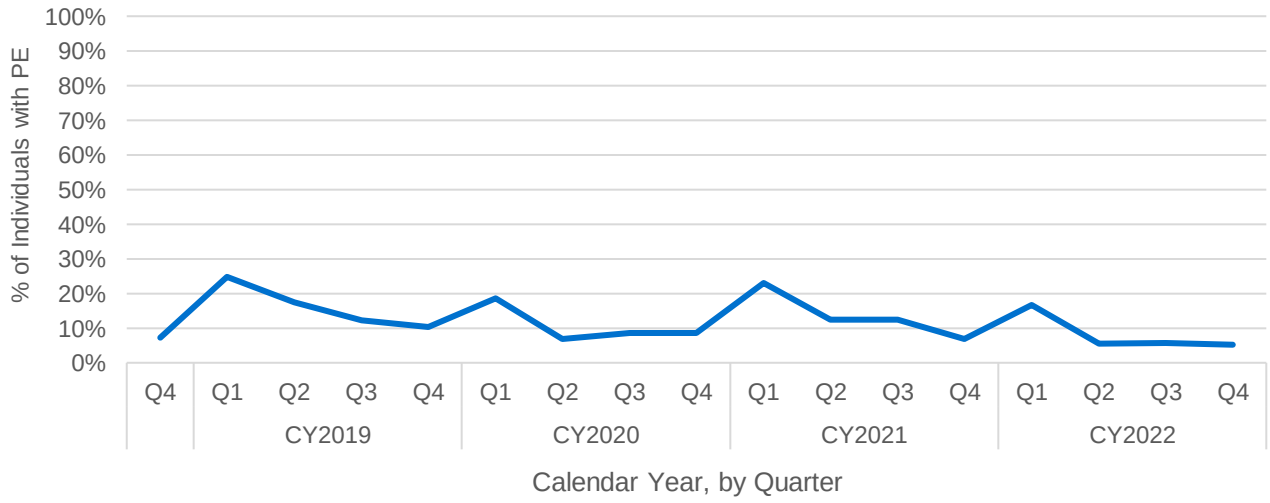
Source: MassHealth administrative data

Note: The Eligibility Historical File was used to identify individuals with PE. A proportion of these members were not found in the data source used to identify demographics and PMPM cost. Therefore, 10-20% of PE individuals were excluded from the demographic and cost analyses.

*SD = Standard Deviation

The estimated percentage of individuals with PE by quarter (Q4 CY2018–Q4 CY2022) fluctuated over time, ranging from 5% to 25% of individuals with PE each quarter (see **Figure 7.3-1).** There was an increase in the percentage of individuals with PE in the first quarter of each year. The average percentage per calendar year (drawn from the quarterly results) of individuals with PE ranged from 16% in CY2019 to 8% in CY2022. The PE proportion decreased relative to baseline in CY2020 (Odds Ratio (OR) = 0.67; 95% Confidence Interval (CI): 0.669, 0.673), was comparable to baseline in CY2021 (OR = 0.96; 95% CI: 0.958, 0.964), and decreased again in CY2022 (OR = 0.60; 95% CI: 0.599, 0.603). The Cochran-Armitage Trend test indicated that the decrease was statistically significant (p <.001). See **Appendix S**, **Table S-1** for more details.

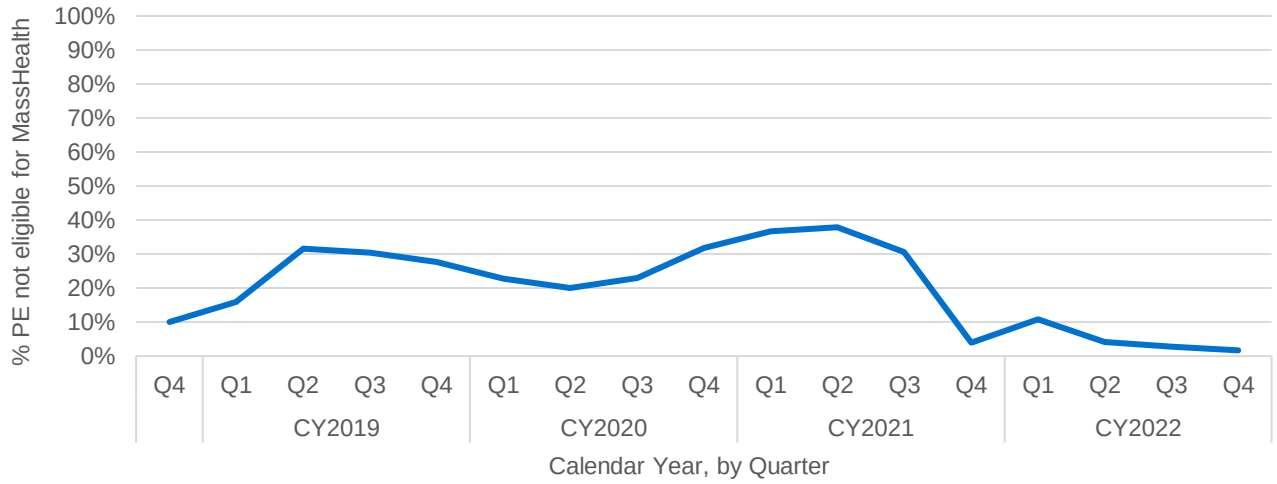
Figure 7.3-1 Percentage of Individuals with PE, by Quarter, Q4 CY2018–Q4 CY2022



Source: MassHealth administrative data

The estimated proportion of individuals who had PE in the quarter whose MassHealth eligibility could not be verified at the end of the quarter (Q4 CY2018–Q4 CY2022) is shown in **Figure 7.3-2** below. The results showed fluctuation over time, with 2% to 38% of individuals deemed ineligible each quarter.[242] The average percentage per calendar year (drawn from the quarterly results) of individuals with PE who had unverified information ranged from 25% in CY2019 to 7% in CY2022. The unadjusted logistic regression model demonstrated a slight decrease in proportion relative to baseline in CY2020 (OR = 0.94; 95% CI: 0.933, 0.944); the proportion increased in CY2021 (OR = 1.32; 95% CI: 1.31, 1.33) and decreased sharply in CY2022 (OR = 0.184; 95% CI: 0.182, 0.187). See **Appendix S, Table S-2** for more details.

Figure 7.3-2 Percentage of Individuals with PE who have Unverified MassHealth Eligibility, by Quarter, Q4 CY2018–Q4 CY2022



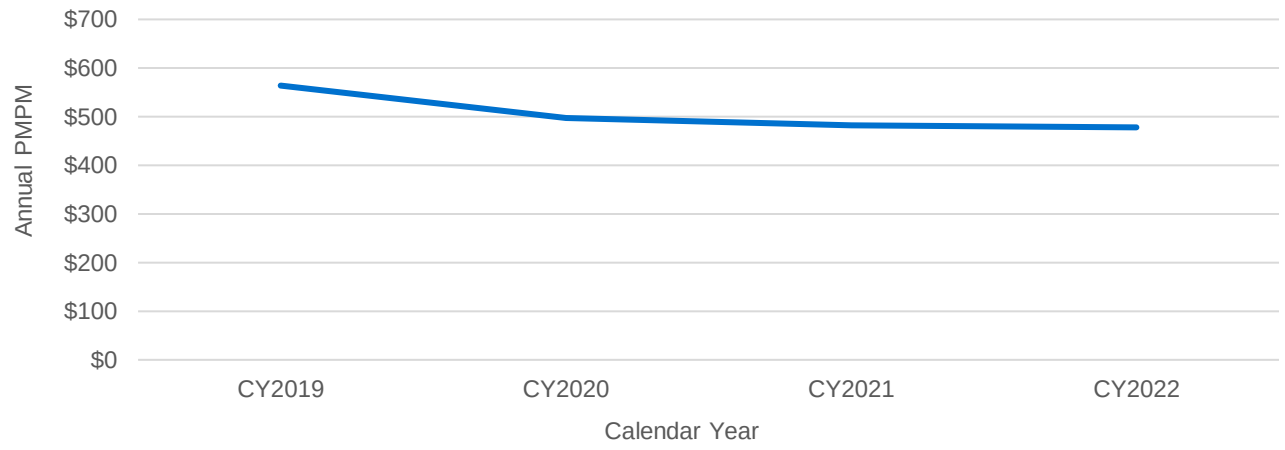
Source: MassHealth administrative data

7.3.2. Hypothesis 2: The 2017–2022 Demonstration's refinement of PE will decrease costs to MassHealth by reducing MassHealth expenditures for individuals who are deemed provisionally eligible for MassHealth during the PE period but cannot verify their MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022

The estimated PMPM cost for each calendar year (CY2019–CY2022) for individuals with PE whose MassHealth eligibility could not be verified is shown in **Figure 7.3-3**. The estimated PMPM cost showed a downward trend across the measurement period. Overall, we observe a decrease in PMPM cost from baseline to CY2022 in this subgroup. Compared to the baseline PMPM cost of $564 in CY2019, the PMPM cost consistently decreased. In CY2020, it was $497 (Risk Ratio (RR)=0.89; 95% CI: 0.88, 0.90); in CY2021, it was $483 (RR=0.93; 95% CI: 0.92, 0.94); and in CY2022 it was $478 (RR=0.84; 95% CI: 0.83, 0.86). See **Appendix S, Table S-3** for more details.

[242] Some individuals with PE could become MassHealth eligible at a future point in time. However, their status at the end of the end of the quarter showed them to be ineligible at that time.

Figure 7.3-3 PMPM Cost for Individuals with PE and Unverified MassHealth Eligibility, by Calendar Year, CY2019–CY2022



Source: MassHealth administrative data

7.3.3. Hypothesis 3: The SHIP PA program will result in cost savings for MassHealth

The total enrollment of students (both full-year and spring semester-only) was around 30,000 annually, except in SFY2017, when program enrollment was beginning and much lower than in subsequent years. Total MassHealth spending on the SHIP PA program increased from year to year: from $66.5 million in SFY2018 to $82.8 million in SFY2020, a $16.3 million or 24% increase, primarily driven by the increase in total premium costs (see **Table 7.3-2**) Between SFY2018 and SFY2020, the total premium payments rose by approximately $13.7 million (from $64.4 to $78 million). The total cost-sharing payments more than doubled, reaching $4.7 million in SFY2020. The total Out-of-Network Reimbursement Wrap cost saw the largest rate of increase, more than tripling from $13,456 in SFY2018 to $46,712 in SFY2019. It then decreased slightly in SFY2020 to $41,265. However, the wrap cost was too small to significantly impact the total cost savings. The estimated cost to MassHealth of members if they were not enrolled in SHIP PA was $385 PMPM, on average, increasing from $357 to $430 over the evaluation period. The estimated PMPM cost to MassHealth of SHIP PA members was much lower, ranging from $164 in SFY2017 to $231 in SFY2020. Other cost results are shown in **Tables 7.3-3–Table 7.3-7**.

Table 7.3-2 SHIP PA Program Enrollment and Spend, SFY2017–SFY2020[a]

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020
Total Enrollment: Full Year/Spring Semester Only (Ratio of Spring to Full Year Enrollment)	4,550/ 486 (10.7%)	28,469/ 3,413 (12.0%)	30,069/ 2,716 (9.0%)	28,251/ 2,589 (9.2%)
Total Premium Payment	$9,522,317	$64,389,344	$72,541,102	$78,083,087
Total Cost Sharing Payments	Not available	$2,144,153	$5,249,081	$4,711,979
Total Out-of-Network Reimbursement Wrap	$1,230	$13,456	$46,712	$41,265
Total Spending	$9,523,547[b]	$66,546,953	$77,836,895	$82,836,331

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020
Calculated PMPM of SHIP Enrollees[c]	$164	$181	$204	$231
Estimated PMPM if Member Not Enrolled in SHIP PA	$400	$357	$368	$430

Source: MassHealth Cost Data

[a] The estimated ACO/MCO rates to compare the SHIP PA costs were based on an analysis done by Mercer and MassHealth. Mercer and MassHealth collaborated to identify members in the SFY2017 base data who had already elected SHIP coverage. In addition, Mercer identified members in the SFY2017 base period that were expected to disenroll from MassHealth by SFY2019 due to mandatory SHIP enrollment. The rate estimates were initially based on the rates that would have been experienced by these members had they remained on their previous MassHealth coverage, with updates for each fiscal year based on the actual rate updates which occurred.

[b] Does not include Total Cost-sharing payments, which were not available.

[c] This was calculated by dividing the total spending by the total number of member months. For the Spring semester, an estimated enrollment of 7.5 months was used in the calculation.

Table 7.3-3 Estimated Cost Saving to MassHealth by Enrolling Members into SHIP PA

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020	Grand Total Enrollment
Total Enrollment: Full Year/Spring Semester Only	4,550/ 486	28,469/ 3,413	30,069/ 2,716	28,251/ 2,589	91,339/ 9,204

Source: MassHealth Enrollment Data

Note: The student attribution rate is unknown. If it is high (least likely), the cost savings presented could be an overestimation.

Table 7.3-4 Scenario 1 – Assumed 7-Month Spring Semester Enrollment

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020	Grand Total Enrollment
Total Cost for Members Without SHIP PA	$23,200,800	$130,380,627	$139,933,056	$153,710,904	$447,225,387
Total SHIP PA Actual Spend	$9,523,547	$66,546,953	$77,836,895	$82,836,331	$236,743,726
Cost Savings	$13,677,253	$63,833,674	$62,096,162	$70,874,573	$210,481,661

Note: The student attribution rate is unknown. If it is high (least likely), the cost savings presented could be an overestimation.

Table 7.3-5 Scenario 2 – Assumed 8-Month Spring Semester Enrollment

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020	Grand Total Enrollment
Total Cost for Members Without SHIP-PA	$23,395,200	$131,598,044	$140,933,630	$154,825,210	$450,752,084
Total SHIP PA Actual Spend	$9,523,547	$66,546,953	$77,836,895	$82,836,331	$236,743,726
Cost Savings	$13,871,653	$65,051,091	$63,096,736	$71,988,878	$214,008,358

Note: The student attribution rate was unknown. If it was high (least likely), the cost savings presented could be an overestimation.

Table 7.3-6 Scenario 3 – Assumed 7-Month Spring Semester Enrollment and Estimated SFY2017 SHIP PA Cost Sharing Estimate being $25

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020	Grand Total Enrollment
Total Cost for Members Without SHIP-PA	$23,200,800	$130,380,627	$139,933,056	$153,710,904	$447,225,387

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020	Grand Total Enrollment
Total SHIP PA Spend	$10,973,597	$66,546,953	$77,836,895	$82,836,331	$238,193,776
Cost Savings	$12,227,203	$63,833,674	$62,096,162	$70,874,573	$209,031,611

Note: The student attribution rate was unknown. If it was high (least likely), the cost savings presented could be an overestimation.

Table 7.3-7 Scenario 4 – Assumed 8-Month Spring Semester Enrollment and Estimated SFY2017 SHIP PA Cost Sharing Estimate being $25

State Fiscal Year	SFY2017	SFY2018	SFY2019	SFY2020	Grand Total Enrollment
Total Cost for Members Without SHIP-PA	$23,395,200	$131,598,044	$140,933,630	$154,825,210	$450,752,084
Total SHIP PA Spend	$10,985,747	$66,546,953	$77,836,895	$82,836,331	$238,205,926
Cost Savings	$12,409,453	$65,051,091	$63,096,736	$71,988,878	$212,546,158

Note: The student attribution rate is unknown. If it is high (least likely), the cost savings presented could be an overestimation.

7.3.4. Hypothesis 4: The SHIP PA program will result in a similar or better member experience compared with the period prior to enrollment.

The survey of students garnered an overall 11% response rate by school, with 3,036 students completing the survey out of approximately 30,000 students enrolled in the MassHealth SHIP PA program per year. Students from community colleges, state colleges and universities, and private colleges and universities all participated in the survey, although we cannot calculate the response rate by these three types of schools. The results are included in **Table 7.3-8– Table 7.3-12**.

Slightly more than half (54%) of respondents were enrolled in SHIP PA for less than one year, and 28% were enrolled for one to two years. In response to the question of how being enrolled in their insurance plan had improved healthcare access, 30% of respondents noted that they have better coverage than they had before, 26% indicated having a larger network than they used to, and 41% had no opinion or had not used their insurance. A majority (64%) had a “very” or “somewhat” clear understanding of the insurance, and nearly one-third indicated they had better access to care via the SHIP PA. While 25% of respondents hadn't used the insurance plan before the survey, two-thirds (63%) used the insurance coverage between one and five times, with responses relatively consistent across school type. When asked if they liked the "Student Health Insurance provided by MassHealth," approximately two-thirds (66%) indicated “yes,” with the remainder split between “no” and “no opinion” (17% each). Most of the responses came from community colleges and state colleges and universities.

Table 7.3-8 How many years have you been enrolled in your Student Health Insurance provided by MassHealth?

Years of Enrollment	Community Colleges	State Colleges & Universities	Private Colleges & Universities	Total Number	Total %
Less Than 1 Year	658	562	417	1,637	54%
1-2 Years	224	422	208	854	28%
2-3 Years	59	211	91	361	12%
I Don't Know	74	67	41	182	6%

Source: MassHealth SHIP PA Experience Survey Results, May 2019

Note: The total number of respondents was 3,036 students from 16 Community Colleges, 13 State Colleges/Universities, and 44 Private Colleges/Universities. For each specific question, the number of respondents may vary.

Table 7.3-9 How has being enrolled in your insurance plan improved your access to healthcare?

Responses[a]	Community Colleges	State Colleges & Universities	Private Colleges & Universities	Total Number	Total %
I have a larger network of providers available than I did before	219	327	249	795	26%
I have better coverage for my medical needs than I did before	266	409	261	936	30%
I have used the plan outside of MA	15	41	42	98	3%
No opinion / I haven't used the plan	497	518	262	1277	41%
Across all response categories	997	1295	565	2857	100%

Source: MassHealth SHIP PA Experience Survey Results, May 2019

Note: The total number of respondents was 3,036 students from 16 Community Colleges, 13 State Colleges/Universities, and 44 Private Colleges/Universities. For each specific question, the number of respondents may vary.

[a] Respondents could select more than one response

Table 7.3-10 How clear is your understanding of your insurance coverage and benefits provided by MassHealth Student Insurance program?

Responses	Community Colleges	State Colleges & Universities	Private Colleges & Universities	Total Number	Total %
Very Clear	177	198	122	497	15%
Somewhat Clear	524	742	380	1646	49%
Unclear	314	315	215	844	25%
Across all response categories	1015	1255	717	2987	89%

Source: MassHealth SHIP PA Experience Survey Results, May 2019

Note: The total number of respondents was 3,036 students from 16 Community Colleges, 13 State Colleges/Universities, and 44 Private Colleges/Universities. For each specific question, the number of respondents may vary.

Table 7.3-11 How many times have you used your health insurance coverage? Please include any doctor appointments, clinic visits, prescription benefits, etc.[a]

Responses	Community Colleges	State Colleges & Universities	Private Colleges & Universities	Total Number	Total %
Never	25%	22%	19%	N/A	25%
1-5 Times	62%	64%	63%	N/A	63%
More than 5 Times	13%	14%	19%	N/A	13%
Across all response categories	100%	100%	100%	N/A	100%

Source: MassHealth SHIP PA Experience Survey Results, May 2019

Note: The total number of respondents is 3,036 students from 16 Community Colleges, 13 State Colleges/Universities, and 44 Private Colleges/Universities. For each specific question, the number of respondents may vary.

[a] Results are reported as shown in the SHIP PA Experience Survey Results; we do not have the numerators and denominators of the percentages for this question.

Table 7.3-12 Do you like your Student Health Insurance provided by MassHealth?

Responses	Community Colleges	State Colleges & Universities	Private Colleges & Universities	Total Number	Total %
Yes	608	855	523	1986	66%
No	211	201	110	522	17%
No Opinion	196	207	125	528	17%
Across all response categories	1015	1263	758	3036	100%

Source: MassHealth SHIP PA Experience Survey Results, May 2019

Note: The total number of respondents was 3,036 students from 16 Community Colleges, 13 State Colleges/Universities, and 44 Private Colleges/Universities. For each specific question, the number of respondents may vary.

7.4. Summary and Discussion of Key Findings

RQ1. What is the effect of the 2017–2022 Demonstration's refinement of PE?

H1 examined whether the refinement of PE decreased the number of people who were ultimately not able to verify eligibility. Based on the MMIS data, there have been fluctuations of PE-eligible individuals from 5% to 25% per quarter among the 500,000 to 660,000 individuals with PE each calendar year. We grossly estimate that, under the refined PE policy, a wide range of 2% to 38% of individuals were deemed ineligible each quarter under the refined PE policy.

H2 examined whether MassHealth's expenditures decreased after refining the eligibility for PE. Overall, we observe a decrease in PMPM cost from baseline to CY2022 in the group of those whose PE eligible was not verified.

RQ2. What is the effect of the Demonstration's authorization of SHIP PA on MassHealth expenditures?

H3 explored whether the SHIP PA program led to cost savings for MassHealth. The total enrollment of students (both full-year and spring semester-only) was around 30,000 annually after the program launch year with annual total MassHealth program spending increasing from $66.5 million in SFY2018 to $82.8 million in SFY2020, primarily driven by the total premium cost increase. The estimated PMPM cost was much lower among MassHealth of SHIP PA members than those not enrolled in SHIP PA.

H4 explored whether the SHIP PA program resulted in similar or improved member experience compared to the period prior to enrollment. About two thirds of enrolled students liked the "Student Health Insurance provided by MassHealth," with the remainder split between “no” and “no opinion” (17% each).

7.4.1. Interpretation/Discussion

PE Policy

Because of the fluctuation in the percentage of PE eligible individuals each quarter, we looked at the average percentage of individuals with PE each year, which ranged from 16% in CY2019 to 8% in CY2022, showing a downward trend. Statistical analysis confirmed that the observed PE proportion decrease from baseline year CY2019 to CY2022 was statistically significant ($p < .001$). Fluctuations in the quarterly estimates of PE were expected since not all MassHealth members were renewed simultaneously. The spikes in the rates of PE seen in the first quarter of each calendar year could be attributed to renewals being finalized at the end of the year for some groups who then went on to PE while verifications were pending.

The COVID-19 pandemic likely contributed to the variation in the quarterly percentage of individuals with PE over time. For example, we saw a decline in the percentage of individuals on PE in Q2–Q4 CY2020, which could be attributed to the discontinuation of renewals being sent out at the beginning of the COVID-19 pandemic and the PHE started in March 2020 (see **Section 1.1.3**). During that time, MassHealth temporarily suspended most ongoing renewals to comply with continuous coverage requirements of the FFCRA, where benefits could not be terminated for members, with certain exceptions. These protections impacted PE enrollment during the measurement period. For example, a Request for Information (RFI) would expire and be recorded as a termination, but applicants were immediately put into an appropriate benefit category to maintain benefits. Of note, MassHealth enrollment numbers increased during this time up to 2.4 million members in CY2022, resulting in a lower proportion of individuals with PE.

With respect to **H1**, MassHealth’s refinement of the PE policy was enacted to reduce the number of individuals receiving PE who were ultimately not eligible for MassHealth and, as a result, to realize savings from no longer incurring costs associated with the care of those individuals. Our analyses also estimated that 2% to 38% of individuals with PE had unverified information at the end of a given quarter, with yearly averages ranging from 25% in CY2019 to 7% in CY2022. The model demonstrated significant fluctuations over the measurement period. This may be attributed to, for example, individuals with certain benefits getting terminated at the end of the calendar year and others throughout the year. The rate of those

with PE enrollment with unverified information at the end of the quarter was highest in mid-CY2021. Beginning in May 2021, following CMS guidance during the COVID-19 pandemic, MassHealth began to process outstanding renewals (and then processed new renewals regularly moving forward), which could have impacted the percentage of individuals with unverified information during this time. Medicaid coverage was still to be maintained, except where coverage ended as allowable under the FFCRA for some individuals whose services were paid for by the Health Safety Net.[243,244]

Related to **H2**, the estimated annual PMPM cost for individuals with PE with unverified information showed a significant downward trend across the measurement period, ranging from $564 to $478. This, again, may have been influenced by the COVID-19 pandemic, during which some service utilization may have been reduced. While results should be interpreted with caution, the downward trend in MassHealth expenditures supports **H2**.

SHIP PA Program

MassHealth's SHIP PA program provided broader access to a network of providers and services while providing premium and cost-sharing assistance so that out-of-pocket costs and available services were at the same level as if the services were received directly from MassHealth. In addition, through the use of SHIP PA, students had an opportunity to use commercial insurance earlier and begin to learn how to navigate insurance independently to facilitate their transition to independently obtaining and using insurance coverage post-graduation.

With respect to **H3**, cost savings analysis revealed tremendous potential savings to MassHealth, ranging from $209,000 to $214,000 across four scenarios. The SHIP PA started as an effective way to leverage a public-private partnership to achieve MassHealth's cost-saving goal while ensuring MassHealth student members have the same or better health benefits as what they would have received from MassHealth directly.

Overall, relative to **H4**, a majority of students expressed satisfaction with the MassHealth SHIP PA. Some students indicated that being insured under SHIP PA improved their access to care, through a larger network or better coverage for medical needs. While these percentages were comparatively low, 26% and 30%, respectively, it is possible other students (who did not respond to the survey) experienced access through SHIP PA that was similar to or better than what they had before being insured through a SHIP PA. In addition, 41% indicated that they hadn't used their plan by the time of the survey, so they may not have had the knowledge or experience to make the comparison.

Despite the estimated cost savings and overall student satisfaction with the program, MassHealth decided, after internal data analysis, to end the program. Although the program was beneficial for MassHealth and MassHealth student members, not all stakeholders

[243] Mass.Gov. (2021, May). *MassHealth Renewals/RFIs and Continuous Coverage During the Federal Public Health Emergency*.

[244] Massachusetts Law Reform Institute. (2021, June 14). "*What changes has the MassHealth agency made to the policy of providing continuous coverage during the COVID-19 public health emergency?".* Microsoft Word - Changes in MassHealth's Continuous Coverage Policies (masslegalservices.org).

received or perceived enough benefits to maintain the program. For the 2020–2021 academic year, Blue Cross Blue Shield of Massachusetts (BCBSMA) indicated that there would be an average SHIP PA premium increase for all students attending public colleges/universities of approximately 47% if MassHealth members remained in the SHIP PA program.245 This increase meant that non-MassHealth students would have paid almost 50% more for their premiums through the SHIP program. A 47% premium increase was considered far too heavy a burden for these students, which is why MassHealth decided to sunset the SHIP PA Program at the conclusion of the 2019–2020 academic year. The commercial payer was also reluctant to keep the program in place.

7.4.2. Study Limitations

The PE analysis for **H1** and **H2** was subject to limitations. These results are reported as estimates, and caution should be exercised when interpreting the results. It was challenging to accurately identify the PE population during the COVID-19 pandemic, as PE data may not have been entered into the system consistently during this time. During the PHE, systems protections were put in place to maintain an individual's MassHealth benefit due to the requirements in the FFCRA. If an individual's PE coverage was downgraded or terminated during the day, the system would reinstate their PE coverage overnight, and they were put back into the same benefit. The system may not have captured this information in an easily analyzable way using the available data source. In addition, the action reason codes that indicated an individual's PE status may not have been consistently reported. Therefore, these estimates reflect our best estimates given the data constraints.

The MMIS system could not capture the information before the policy change. Due to this data limitation, we could not conduct a pre-post analysis as originally intended to assess a change in the number of individuals deemed provisionally eligible and, thus, assess whether there was a reduction in MassHealth expenditures due to the policy change. Therefore, the hypotheses were updated to assess trends after the July 1, 2018, refinement to PE requirements under the 2017–2022 Demonstration.

Due to the complexity of the PE churning, we counted individuals with PE in the numerator if they had any PE in the quarter. We considered them to have unverified information based on their last eligibility segment in the quarter. PMPM costs for the entire quarter were included for these individuals with unverified information, which may have been an overestimation if they churned on and off PE during the quarter.

The estimated cost savings from the SHIP PA program under **H3** are subject to the analyses conducted by Mercer. We had to make various assumptions. To respond to **H4**, we had to rely on the results of the member experience survey conducted in CY2019 to report our findings of member satisfaction. Thus, our interpretation is limited to these findings only. This survey had a low response rate, 11%, without enough information for us to estimate the response bias. There is a risk of precision of the estimates and non-weighted analyses also add another limitation. Because we did not conduct a second survey, we did not examine

[245] Stout, M. (February 6, 2020). *State to end health insurance program it once called a cost-saver. The reason: Costs are too high*. The Boston Globe. https://www.bostonglobe.com/2020/02/06/metro/state-end-masshealth-program-it-once-called-cost-saver-reason-costs-are-too-high/

differences in member experiences between the pre-enrollment and the enrollment period or heterogeneity in member experiences by the length of time in the program. Also, the survey is limited in the types of information collected and does not allow for subgroup analysis.

7.4.3. Policy Implications and Interactions with Other State Initiatives

The PE policy refinement demonstrated the value of tightening up eligibility rules to ensure those truly eligible for Medicaid were enrolled. We estimated a non-negligible proportion of individuals with PE who could not provide income verification but received MassHealth benefits. If they were disenrolled, we estimate that this policy could have saved MassHealth an approximate average of $4,000 to $5,000 per member per year.

From another perspective, the full implementation of the PE policy change means individuals ineligible for MassHealth who previously would have received 90 days of MassHealth coverage must now find other sources of coverage, such as the Health Connector. The PE policy change may also result in some individuals who are eligible for MassHealth losing coverage if they cannot provide income verification in time. So, there is a balance to strike between providing quick access to healthcare while verifications are completed, possibly allowing a large number of ineligible individuals to be covered for 90 days, or excluding too many people who are otherwise eligible. The COVID-19 pandemic delayed the full realization of the coverage and financial impact of this policy, leading to healthcare services being accessed by those in need during this difficult period.

For the SHIP PA program, MassHealth engaged in an important and rewarding public-private partnership program in supporting MassHealth students with adequate healthcare coverage and with an opportunity to practice the independence of navigating commercial plans. The program was found to save MassHealth significant costs and satisfy student members. Even though the SHIP PA program was discontinued, it demonstrated the challenges and opportunities related to collaboration between MassHealth and commercial insurers.

Premium assistance can be a useful lever for MassHealth members to receive competitive healthcare coverage. In the general non-SHIP PA population, premium assistance policies do not cost MassHealth as much as it would cost MassHealth to pay for all healthcare services that these members access. However, with significant year-over-year premium increases for the BCBSMA SHIP, those savings may have been erased, and providing premium assistance for SHIPs in the future may have cost MassHealth more than paying for the healthcare services of this population.

Although the SHIP PA program ended in the summer of 2020, some students did not revert to MassHealth managed care immediately following the end of the program, totaling 4,776 members. These cases are individuals who, during the period they were enrolled in their SHIP, either lost their MassHealth eligibility or had their eligibility downgraded and were no longer eligible for MassHealth managed care. However, due to the COVID-19 pandemic PHE provisions, these individuals remained in SHIP aid categories as a protection to prevent them from losing or downgrading MassHealth benefits during the PHE. They continued to receive full MassHealth Fee-for-Service benefits while in these aid categories.

7.4.4. Lessons Learned and Recommendations

Our analysis identified a significant number of individuals who may not be eligible for MassHealth under the PE refinement policy but who were receiving MassHealth benefits. This was at least in part a result of the COVID-19 pandemic rules. When eligibility determination and redetermination were resumed, the PE refinement policy was expected to identify a sizable proportion of ineligible applicants, ensuring these MassHealth benefits were only available to those truly eligible and resulting in savings for the MassHealth program. However, the most significant lesson we have learned is the need for an adequate data system to properly and consistently capture someone's PE status. For instance, PE status can change frequently; however, the system only records the last change on a given day, so there is no record of multiple changes that may have occurred during the day. There needs to be more detailed documentation to support any status change in the MMIS system. Consistent coding application would be another source of system documentation that can help ensure individuals are properly categorized throughout their eligibility and enrollment periods.

With MassHealth's decision to end the SHIP PA program, it seems that some public-private partnerships may not always work as they were originally intended. The sustainability of the policy implementation to promote a public and private partnership, such as through premium assistance, requires MassHealth to investigate the advantages of the policy not only to MassHealth and its members but also to other stakeholders (e.g., the private sector and non-MassHealth students). A policy is more sustainable if it supports the goals of all stakeholders. The decision to end this program reflects the reality that commercial insurers are unlikely to accept an influx of higher-cost members without commensurate adjustments in premiums or coverage. This lesson has a broader implication for Medicaid programs across the nation.

The SHIP PA policy could be re-configured by determining what would benefit schools and non-MassHealth students over the long run. Perhaps some cost-driving benefits (e.g., prevention and treatment of behavioral health and substance use) can be covered by MassHealth instead of commercial plans, which will make risks between MassHealth and non-MassHealth students more comparable. In addition, continued prevention efforts by MassHealth to reduce behavioral health conditions and substance use will drive down the healthcare needs and risks of MassHealth students.

Appendix A: Domains, Goals, Research Questions, and Hypotheses

Domain 1: State, organizational and provider-level actions promoting delivery system transformation

Research Questions	Hypotheses
RQ1: To what extent did the state take actions to support delivery system transformation?	**H1.1.** DSRIP ACO and CP funding will support delivery system transformation **H1.2.** Statewide investment (SWI) initiatives aimed at increasing the supply, preparedness, and retention of the community-based workforce (SWI 1 through 4) will support delivery system transformation **H1.3** SWI initiatives aimed at providing technical assistance to ACOs and CPs, supporting provider preparedness to enter alternative payment models, reducing emergency department boarding, and improving access for people with disabilities and for whom English is not a primary language (SWI 5 through 8) will support delivery system transformations
RQ2: To what extent did ACOs take organizational-level actions to transform care delivery under an accountable and integrated care model?	**H2.1.** ACOs will vary with respect to governance structure (e.g., lead provider, role of provider and patients), service scope, and local conditions (e.g., experience participating in payment reforms, local context/market served) **H2.2.** ACOs will engage providers (primary care and specialty) in delivery system change through financial (e.g., shared savings) and non-financial levers (e.g., data reports) **H.2.3.** ACOs will implement Health Information Technology (HIT)/Health Information Exchange (HIE) infrastructure to support population health management (e.g., reporting, data analytics) and data exchange within and outside the ACO **H2.4** ACOs will implement non-CP-related population health management activities including risk stratification, needs screenings and assessments, and programs to address identified needs **H2.5** ACOs will implement structures and processes to coordinate care across the care continuum **H2.6** ACOs will implement processes to identify and address health-related social needs (HRSN), including management of Flexible Services **H2.7** ACOs will implement strategies to reduce the total cost of care (e.g., utilization management, referral management, administrative cost reduction), excluding the population health management/care programs mentioned above **H2.8.** Accountable Care Partnership Plans (Model A) will transition more of the care management responsibilities to their ACO partners over the course of the Demonstration **H2.9** ACOs will establish processes to facilitate member engagement **H2.10** ACOs will monitor quality performance and establish mechanisms to support quality improvement efforts

Research Questions	Hypotheses
RQ3: How and to what extent did CPs target resources and take actions to operate under an accountable and integrated care model?	**H3.1:** CPs will engage constituent entities in delivery system change **H3.2:** CPs will recruit, train and/or retrain staff by leveraging SWIs and other supports **H3.3:** CPs will develop HIT/HIE infrastructure and interoperability to support care coordination (e.g. reporting, data analytics) and data exchange (e.g., internally with ACOs & MCOs, and externally with BH, LTSS, specialty providers, and social service entities) **H3.4:** CPs will develop systems to coordinate services across the care continuum that complement services provided by other state agencies (e.g., DMH)
RQ4: How and to what extent did ACOs, MCOS, and CPs align resources and take common actions to operate under an accountable and integrated care model?	**H4.1:** ACOs, MCOs, & CPs establish structures and processes to promote improved administrative coordination between organizations (e.g. enrollee assignment, engagement and outreach) **H4.2:** ACOs, MCOs, & CPs establish structures and processes to promote improved clinical integration across their organizations (e.g. flow of patient and patient information across settings, integrated care plans) **H4.3:** ACOs, MCOs, & CPs establish structures and processes for joint management of performance, quality, and conflict resolution

Domain 2: Changes in care processes

Research Question	Hypotheses
RQ5: To what extent did the identification of member needs including physical, BH, LTSS, and social needs improve?	**H5.1:** The identification of individual members' unmet needs (including health-related social needs, BH, and LTSS needs) will improve
RQ6: To what extent did access to physical care, BH care, and LTSS improve?	**H6.1:** Access to physical care services will improve or remain consistent for members **H6.2:** Access to BH services for will improve or remain consistent for members **H6.3:** Access to LTSS will improve or remain consistent for members
RQ7: To what extent did engagement with physical care, BH care, and LTSS improve?	**H7.1:** Engagement with physical care services will improve or remain consistent for members **H7.2:** Engagement with BH services will improve or remain consistent for members **H7.3:** Engagement with LTSS will improve or remain consistent for members

Research Questions	Hypotheses
RQ8: To what extent did care processes improve for physical, BH, and LTSS?	**H8.1:** Physical health care processes (e.g., wellness & prevention, chronic disease management) will improve for members **H8.2:** BH care processes will improve for members **H8.3:** LTSS processes will improve for members **H8.4:** The management of health-related social needs will improve through use of Flexible Services and/or other social service interventions for members **H8.5:** Provider staff will report an improved experience delivering healthcare services to members
RQ9: To what extent did integration between physical health, behavioral, and long-term services increase?	**H9.1:** Integration across the care continuum (e.g., physical health, BH, LTSS, acute care, social services) will increase **H9.2:** Provider staff will report increased care integration (within and between ACOs and CPs)
RQ10: How did the volume and mix of services change during the course of the Demonstration?	**H10.1:** The volume and mix of services utilized will shift, when clinically appropriate, in the direction of lower cost sites and types of care **H10.2:** The utilization of low value care will decrease

Domain 3: Changes in member outcomes

Research Question	Hypotheses
RQ11: To what extent did member outcomes improve?	**H11.1:** Inpatient and emergency department utilization rates will decrease overall **H11.2:** Inpatient and emergency department utilization rates will decrease for adults and children with specific conditions including ambulatory care sensitive conditions **H11.3:** Inpatient and emergency department utilization rates will decrease among adults with mental illness, substance addiction, co-occurring conditions, or LTSS needs **H11.4:** Community tenure will increase **H11.5:** Members will report improved ratings of health
RQ12: To what extent did member experience improve during the Demonstration?	**H12.1:** Members will report improved overall ratings of their healthcare provider

Domain 4: Changes in healthcare cost trends

Research Question	Hypotheses
RQ13: To what extent were Medicaid total cost of care trends moderated for the for the ACO population?	**H13.1:** The rate of increase in the total cost of care for the ACO population will decrease

Domain 5: Sustainability of innovation delivery system changes, including ACOs, Community Partners and Flexible Services

Research Question	Hypotheses
RQ14: To what extent will innovative delivery system changes including ACOs, CPs, and Flexible Services will be sustainable without DSRIP funding?	**H14.1:** ACOs will develop strategies to continue to operate under an accountable and integrated care model after the Demonstration ends **H14.2:** CPs will develop strategies to continue to operate under an accountable and integrated care model after the Demonstration ends **H14.3:** ACOs will pursue strategies to continue to provide Flexible Services to members after the Demonstration ends' **H14.4** The costs and effects of the ACO program will warrant continued investment **H14.5** The costs and effects of the CP program will warrant continued investment **H14.6** The costs and effects of the FS program will warrant continued investment
RQ15: To what extent did alternative and value-based payments constitute an increasingly larger proportion of the payments to organizations and providers managing the care of MassHealth members?	**H15.1:** The number of members cared for in ACOs will increase **H15.2:** ACOs and MCOs will engage in value-based payment arrangements with specialist providers **H15.3:** ACOs and MCOs will engage in alternative payment models and value-based payment arrangements with hospitals **H15.4** The number of primary care practices participating in ACOs will increase

Domain 6: Effects of Specific DSRIP Investments and Actions

Research Question	Hypotheses
RQ16: To what extent can observed changes in care processes, outcomes, and costs be attributed to DSRIP?	**H16.1:** Improvements in care processes will be associated with key DSRIP inputs and outputs **H16.2:** Improvements in member outcomes will be associated with key DSRIP inputs and outputs **H16.3:** Moderated total cost of care trends will be associated with key DSRIP inputs and outputs

Research Question	Hypotheses
	H16.4: The State and local context will modify the relationship between DSRIP outputs and ACO quality and cost performance

Demonstration Goal 3: Maintain Near-Universal Health Insurance Coverage

Research Questions	Hypotheses
RQ1: Has near-universal coverage in Massachusetts been maintained after the implementation of Demonstration investments?	**H1.** Massachusetts will maintain near-universal coverage over the Demonstration **H2.** The percentage of MassHealth members with a coverage gap of 45 days or more in a 1-year period will not increase over the study period (i.e., stable churn) **H3.** Massachusetts will maintain higher coverage, overall and among populations eligible for exchange subsidies, than states without premium and cost-sharing subsidies **H4.** Enrollment in new and select ongoing programs financially supported with Demonstration investments supports near-universal coverage in Massachusetts

Demonstration Goal 4: Sustainably Support Safety Net Providers to Ensure Continued Access to Care for MassHealth and Low-Income Uninsured Individuals

Research Question	Hypotheses
RQ1: What is the impact of safety net funding investments on safety net hospitals' quality performance and financial sustainability?	**H1.** Increasing the portion of at-risk funding for safety net hospitals under the PHTII and SNPP will be associated with improved care quality at these sites **H2.** Despite a reduction in total supplemental payments provided through the SNCP over time, the amount of uncompensated care costs will not increase relative to trends prior to the 2017–2022 Demonstration

Demonstration Goal 5: Address the Opioid Addiction Crisis by Expanding Access to a Broad Spectrum of Recovery-Oriented Substance Use Disorder Services

Research Question	Hypotheses
RQ1: What is the impact of expanding MassHealth coverage to include residential services and recovery support services on care quality, costs, and outcomes for members with SUD?	**H1.** The Demonstration will increase rates of identification, initiation, and engagement in treatment among individuals with SUD relative to trends prior to the 2017–2022 Demonstration **H2.** The Demonstration will improve adherence to treatment among individuals with any SUD diagnosis (including, in particular, OUD diagnosis) relative to trends prior to the current Demonstration period **H3.** The Demonstration will reduce nonfatal overdoses and overdose deaths, particularly those due to opioids, relative to trends prior to the current Demonstration period

Research Question	Hypotheses
	H4. The Demonstration will reduce the utilization of emergency department and inpatient hospital settings and overall healthcare costs among individuals with any SUD-related diagnosis and with OUD diagnosis **H5.** The Demonstration will result in fewer readmissions to the same or higher level of care relative to trends prior to the current Demonstration period **H6.** The Demonstration will result in improved access to care for comorbid physical and mental health conditions among individuals with any SUD diagnosis, including OUD diagnoses, relative to trends prior to the current Demonstration period **H7.** The Return on Investment (ROI) will support the continuation of SUD Demonstration activities

Demonstration Goal 6: Continue to Provide Coverage to Former Foster Care Youth

Research Question	Hypotheses
RQ1: Does the Demonstration provide continuous health insurance coverage for FFC youth meeting specified eligibility criteria?	**H1.** Eligible FFC youth will be enrolled continuously for 12 months
RQ2: How did FFC youth utilize health services?	**H2.** FFC youth will access health services at rates comparable to other Medicaid members with similar characteristics
RQ3: How do health outcomes for FFC youth compare to similar Medicaid members?	**H3.** FFC youth will have positive health outcomes as defined by National Quality Forum (NQF) measures, comparable to other Medicaid members with similar characteristics

Demonstration Goal 7: Ensure the Long-Term Financial Sustainability of the MassHealth Program

Research Question	Hypotheses
RQ1: What is the effect of the 2017–2022 Demonstration's refinement of PE?	**H1.** The 2017–2022 Demonstration's refinement of PE will decrease the number of individuals deemed provisionally eligible for MassHealth based on self-attestation of eligibility factors but who were not ultimately able to verify MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022. **H2.** The 2017–2022 Demonstration's refinement of PE will decrease costs to MassHealth by reducing MassHealth expenditures for individuals who are deemed provisionally eligible for MassHealth during the PE period but cannot verify their MassHealth eligibility over time after the implementation of the PE policy refinement in July 2018 through December 2022

Research Question	Hypotheses
RQ2: What is the effect of the Demonstration's authorization of SHIP PA on MassHealth expenditures?	**H3.** The SHIP PA program will result in cost savings for MassHealth **H4.** The SHIP PA program will result in a similar or better member experience compared with the period prior to enrollment.

Appendix B: List of ACOs, CPs, SSA's & SSO's

Table A-1 Accountable Care Organizations

Accountable Care Organization	Abbreviation
Merrimack Valley ACO in partnership with Allways Health Partners	AHP MVACO
Boston Accountable Care Organization in partnership with Boston Medical Center HealthNet Plan	BMCHP BACO
Mercy Health Accountable Care Organization in partnership with Boston Medical Center HealthNet Plan	BMCHP Mercy
Signature Healthcare Corporation in partnership with Boston Medical Center HealthNet Plan	BMCHP Signature
Southcoast Health Network in partnership with Boston Medical Center HealthNet Plan	BMCHP Southcoast
Community Care Cooperative, Inc.	C3
Health Collaborative of the Berkshires in partnership with Fallon Community Health Plan	FLN Berkshire
Reliant Medical Group in partnership with Fallon Community Health Plan	FLN Reliant
Wellforce in partnership with Fallon Community Health Plan	FLN Wellforce
Baystate Health Care Alliance in partnership with Health New England (BeHealthy Partnership)	HNE Baystate
Lahey Clinical Performance Network	Lahey CPN
Partners HealthCare Accountable Care Organization	PHACO
Steward Medical Care Network, Inc.	SMCN
Atrius Health in partnership with Tufts Health Public Plans	THPP Atrius
Beth Israel Deaconess Care Organization in partnership with Tufts Health Public Plans	THPP BIDCO
Cambridge Health Alliance in partnership with Tufts Health Public Plans	THPP CHA

Table A-2 Behavioral & LTSS Community Partners

Behavioral & LTSS Community Partner	Abbreviation
Behavioral Health Network, Inc.	BHN
Behavioral Health Partners of MetroWest, LLC	BHPMW
Boston Coordinated Care Hub	BCCH
Central Community Health Partnership (BH)	CCHP BP

Table A-3 Behavioral Health Community Partners

Behavioral Health Community Partner	Abbreviation
Brien Center Community Partner Program	Brien
Clinical and Support Options, Inc.	CSO
Community Care Partners, LLC	CCP
Community Counseling of Bristol County, Inc.	CCBC
Community Healthlink, Inc.	CHL
Eliot Community Human Services, Inc.	Eliot
Coordinated Care Network	CCN
Innovative Care Partners, LLC - BH	ICP-BH
Lahey Health Behavioral Services	LHBS
Lowell Community Health Center Community Partner d/b/a Greater Lowell BH Community Partner	Lowell CHC CP
Riverside Community Partners	Riverside
South Shore Community Partnership	South Shore
Southeast Community Partnership, LLC	Southeast
SSTAR Care Community Partners	SSTAR

Table A-4 Long-Term Services and Supports Community Programs

Long-Term Services and Supports Community Program	Abbreviation
Open Sky dba Central Community Health Partnership	CCHP LTSS
LTSS Care Partners, LLC	LTSS-CP
Boston Allied Partners	BAP
Merrimack Valley Community Partner	MVCP
Family Service Association	FSA
North Region LTSS Partnership	NRLP
Innovative Care Partners, LLC – LTSS	ICP-LTSS
Massachusetts Care Coordination Network	MCCN
Care Alliance of Western Massachusetts	CAWM

Table A-5 Community Services Agencies

Community Service Agency
Bay State Community Services CSA
Behavioral Health Network CSA
Brien Center CSA
Brockton Area Multiservices
Child & Family Services
Children's Services of Roxbury
Clinical and Support Options CSA
Community Counseling of Bristol County CSA
Community HealthLink CSA
Eliot Community Human Services CSA
Family Service Association CSA
Gándara Center
Justice Resource Institute (JRI)
Lahey Health Behavioral Services CSA
North Suffolk Mental Health Association
Riverside CSA
The Home for Little Wanderers
Wayside Youth & Family Support Network
Youth Opportunities Upheld

Table A-6 Social Service Organizations

Social Service Organization
About Fresh
Behavioral Health Network, Inc.
Berkshire County Regional Housing Authority
Berkshire County Sheriff's Office
Boston Coordinated Care Hub
Community Action Pioneer Valley
Community Counseling of Bristol County (CCBC)

Social Service Organization
Community Servings
Community Teamwork, Inc. (CTI)
Daily Table
Elder Services of Worcester Area
Eliot Community Human Services Inc
FamilyAid Boston
Father Bill's & Mainspring
Food Bank of Western Massachusetts (with partners)
Fresh Food Generation
The Guild
Housing Assistance Corporation (HAC)
Just Roots
Making Opportunities Count
Massachusetts Coalition for the Homeless
Mental Health Association (MHA)
Merrimack Valley Community Partner
Metro Housing Boston
Mill City Grows
MLPB
Neighborworks Housing Solutions
Nutre
Old Colony YMCA
Open Sky
Project Bread
Project Hope
Revitalize CDC
ServiceNet
SMOC
Vinfen
WayFinders

Social Service Organization
Wellspring

Appendix C: Wave 1 and Wave 2 Practice Site Administrator Survey Results for All Survey Questions

This appendix covers the results of the ACO Primary Care Practice Site Administrator surveys collected by the Public Consulting Group, who was the Independent Assessor for MassHealth's DSRIP Program. The surveys were fielded in 2019 (Wave 1) and 2021 (Wave 2). The methods used to conduct and analyze this survey are covered in Section 2.2. Sampling and inverse probability of response weights were applied to obtain results that were adjusted for the multi-stage sampling approach and observed sources of non-response bias.

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Care Coordination and Management			
Which of the following care coordination and management resources has your practice used in the past 12 months for your MassHealth members? Select all that apply.			
Community Health Workers	65%	63%	-2%
Patient Navigators/Referral Navigators	39%	57%	18%
Nurse Manager/Care Coordinator	71%	75%	3%
Any other (non-nurse) Care Coordinator/Manager	32%	40%	8%
Social Worker, excluding SWs providing bill-able BH services	68%	57%	-11%
Other title	12%	8%	-4%
In the past 12 months to what extent have these coordination and management resources helped your practice's efforts to deliver high quality care to your MassHealth members?			
Not at all	2%	1%	-1%
A little	11%	5%	-6%
Somewhat	28%	14%	-14%
Mostly	40%	40%	-1%
A great deal	18%	40%	22%
For your MassHealth members who receive care coordination and management services from more than one program or person, how often do these resources operate together efficiently?			
Never	1%	0%	-1%
Rarely	7%	4%	-3%
Sometimes	31%	26%	-5%
Usually	37%	53%	16%
Always	14%	7%	-7%
Don't Know/Not Applicable	10%	11%	1%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
In the past 12 months, how often was it difficult for staff in your practice site to do each of the following for your MassHealth members?			
a. Learn the result of a test your practice site ordered			
Always difficult	0%	0%	0%
Usually difficult	1%	5%	4%
Sometimes difficult	9%	16%	6%
Rarely difficult	51%	49%	-2%
Never difficult	36%	29%	-7%
Don't Know	3%	2%	-1%
b. Know that a patient referred by your practice site was seen by the consulting clinician			
Always difficult	2%	3%	1%
Usually difficult	5%	8%	3%
Sometimes difficult	38%	34%	-4%
Rarely difficult	31%	41%	9%
Never difficult	19%	11%	-8%
Don't Know	5%	4%	-1%
c. Learn what the consulting clinician recommends for your practice site's patient			
Always difficult	1%	3%	2%
Usually difficult	5%	9%	4%
Sometimes difficult	42%	35%	-7%
Rarely difficult	29%	38%	9%
Never difficult	19%	12%	-7%
Don't Know	4%	3%	-1%
d. Transmit relevant information about a patient who your practice site refers to a consulting clinician			
Always difficult	1%	1%	0%
Usually difficult	4%	3%	-1%
Sometimes difficult	32%	28%	-4%
Rarely difficult	37%	42%	5%
Never difficult	21%	22%	1%
Don't Know	5%	4%	-1%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
e. Reach the consulting clinician caring for a patient when your staff need to			
Always difficult	2%	2%	0%
Usually difficult	4%	6%	2%
Sometimes difficult	32%	34%	2%
Rarely difficult	46%	45%	-1%
Never difficult	11%	11%	1%
Don't Know	6%	1%	-5%
To what extent do you agree or disagree that providers and/or staff follow a clear, established process for each of the following?			
a. Arranging eye care from an ophthalmologist or optometrist			
There is no process in place	3%	1%	-2%
Strongly Disagree	0%	3%	3%
Disagree	0%	4%	3%
Neither agree nor disagree	13%	30%	17%
Agree	50%	36%	-13%
Strongly Agree	30%	24%	-6%
Don't Know/Not Applicable	4%	3%	-1%
b. Confirming that a diabetic eye exam was performed			
There is no process in place	5%	0%	-5%
Strongly Disagree	2%	2%	0%
Disagree	4%	9%	6%
Neither agree nor disagree	9%	16%	7%
Agree	49%	48%	-2%
Strongly Agree	21%	19%	-2%
Don't Know/Not Applicable	11%	6%	-5%
c. Ensuring that ${e://Field/Practice%20Site%20Name} receives the ophthalmologist or optometrist consult note			
There is no process in place	6%	2%	-3%
Strongly Disagree	0%	2%	2%
Disagree	3%	5%	2%
Neither agree nor disagree	18%	33%	15%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Agree	43%	38%	-5%
Strongly Agree	23%	17%	-6%
Don't Know/Not Applicable	7%	2%	-6%
For your complex highest-need MassHealth members, how often are any of the following care coordination or management resources involved in helping the patient adhere to the care plan?			
a. Any type of care coordinator/manager			
Almost Never	6%	1%	-5%
Rarely	10%	6%	-4%
Sometimes	33%	46%	13%
Often	38%	32%	-6%
Almost Always	13%	15%	1%
b. Any type of non-clinician (e.g., community health worker)			
Almost Never	8%	3%	-5%
Rarely	11%	3%	-8%
Sometimes	54%	66%	12%
Often	19%	18%	-1%
Almost Always	8%	10%	2%
c. Targeted interventions for patients who have been risk stratified into a high need sub-group			
Almost Never	10%	3%	-8%
Rarely	13%	4%	-9%
Sometimes	33%	49%	15%
Often	35%	33%	-1%
Almost Always	9%	11%	2%
d. Home visits			
Almost Never	19%	21%	3%
Rarely	24%	19%	-5%
Sometimes	47%	43%	-4%
Often	7%	15%	8%
Almost Always	4%	2%	-2%
For complex, high-need MassHealth members, how often does your practice use each of the following resources to help the patient adhere to the care plan?			

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
a. Referral to community-based services for health-related social needs			
Almost Never	3%	1%	-3%
Rarely	3%	6%	2%
Sometimes	32%	49%	18%
Often	50%	35%	-15%
Almost Always	12%	9%	-2%
b. Communication with the patient within 72 hours of discharge			
Almost Never	2%	1%	-1%
Rarely	5%	1%	-4%
Sometimes	14%	18%	4%
Often	36%	21%	-15%
Almost Always	42%	58%	16%
c. Home visit after discharge			
Almost Never	26%	34%	7%
Rarely	28%	15%	-12%
Sometimes	31%	30%	-1%
Often	12%	17%	5%
Almost Always	3%	5%	1%
d. Discharge summaries sent to primary care clinician within 72 hours of discharge			
Almost Never	3%	2%	-1%
Rarely	9%	0%	-9%
Sometimes	17%	22%	5%
Often	44%	36%	-8%
Almost Always	27%	39%	12%
e. Standardized process to reconcile multiple medications			
Almost Never	2%	1%	-2%
Rarely	8%	4%	-4%
Sometimes	10%	19%	9%
Often	47%	44%	-3%
Almost Always	33%	33%	-1%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
In the last 12 months, how often were your MassHealth members with behavioral health conditions referred to the following entities?			
a. Prescribing clinicians, including psycho-pharmacologists and psychiatrists (MDs)			
Almost Never	1%	0%	-1%
Rarely	5%	3%	-2%
Sometimes	31%	38%	7%
Often	22%	27%	5%
Almost Always	36%	28%	-7%
Don't Know / Not Applicable	5%	4%	-1%
b. Counseling therapists, including clinical social workers			
Almost Never	0%	0%	0%
Rarely	2%	0%	-2%
Sometimes	26%	28%	2%
Often	26%	27%	1%
Almost Always	43%	42%	-1%
Don't Know / Not Applicable	3%	3%	0%
c. Any type of care coordinator/manager to address behavioral health treatment, including addiction services			
Almost Never	2%	0%	-2%
Rarely	6%	1%	-5%
Sometimes	31%	36%	4%
Often	28%	26%	-2%
Almost Always	28%	33%	5%
Don't Know / Not Applicable	5%	4%	-1%
d. Any type of care coordinator/manager to address health-related social needs (housing, support, etc.)			
Almost Never	4%	0%	-4%
Rarely	7%	4%	-3%
Sometimes	34%	39%	5%
Often	20%	22%	2%
Almost Always	28%	32%	3%
Don't Know / Not Applicable	6%	4%	-3%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
For the Behavioral Health entities you selected in the previous question, how often are they located within your practice site? For those entities to which you never refer, please select Don't Know/Not Applicable.			
a. Prescribing clinicians, including psycho-pharmacologists and psychiatrists (MDs)			
Almost never within the practice site	53%	48%	-5%
Rarely within the practice site	9%	7%	-2%
Sometimes within the practice site	9%	11%	2%
Usually within the practice site,	7%	4%	-3%
Almost always within the practice site	9%	16%	7%
Don't know/Not Applicable	13%	14%	1%
b. Counseling therapists, including clinical social workers			
Almost never within the practice site	27%	25%	-2%
Rarely within the practice site	2%	1%	-2%
Sometimes within the practice site	35%	32%	-3%
Usually within the practice site,	9%	7%	-2%
Almost always within the practice site	17%	22%	6%
Don't know/Not Applicable	10%	12%	3%
c. Any type of care coordinator/manager to address behavioral health treatment, including addiction services			
Almost never within the practice site	31%	30%	-1%
Rarely within the practice site	16%	6%	-10%
Sometimes within the practice site	19%	25%	6%
Usually within the practice site,	7%	6%	-1%
Almost always within the practice site	19%	21%	2%
Don't know/Not Applicable	9%	12%	3%
d. Any type of care coordinator/manager to address health-related social needs (housing, support, etc.)			
Almost never within the practice site	26%	30%	4%
Rarely within the practice site	7%	6%	-1%
Sometimes within the practice site	15%	25%	11%
Usually within the practice site,	24%	6%	-18%
Almost always within the practice site	19%	21%	2%
Don't know/Not Applicable	9%	10%	1%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
To what extent do you agree or disagree that providers and/or staff follow a clear, established process for MassHealth members obtaining the following behavioral health services?			
a. Scheduling the appropriate behavioral health services			
There is no process in place	5%	0%	-5%
Strongly Disagree	3%	3%	1%
Disagree	2%	3%	1%
Neither agree nor disagree	24%	11%	-12%
Agree	35%	46%	11%
Strongly Agree	26%	33%	7%
Don't Know/Not Applicable	5%	4%	-2%
b. Confirming that behavioral health services were received			
There is no process in place	7%	3%	-4%
Strongly Disagree	3%	2%	-1%
Disagree	7%	5%	-2%
Neither agree nor disagree	30%	30%	1%
Agree	30%	33%	3%
Strongly Agree	19%	25%	6%
Don't Know/Not Applicable	4%	2%	-2%
c. Ensuring that your practice site receives the prescribing clinician, counseling therapist, or any type of care coordinator/manager's consult note, as appropriate			
There is no process in place	5%	4%	-1%
Strongly Disagree	2%	0%	-2%
Disagree	15%	6%	-9%
Neither agree nor disagree	28%	35%	7%
Agree	31%	31%	0%
Strongly Agree	13%	20%	6%
Don't Know/Not Applicable	6%	4%	-2%
d. Establishing when a prescribing clinician, counseling therapist, or any type of care coordinator/manager will share responsibility for co-managing the patient's care			
There is no process in place	7%	4%	-3%
Strongly Disagree	4%	3%	-1%
Disagree	8%	3%	-5%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Neither agree nor disagree	22%	37%	15%
Agree	39%	32%	-7%
Strongly Agree	13%	17%	4%
Don't Know/Not Applicable	7%	4%	-2%
How difficult is it for your practice to obtain treatment for your MassHealth members with opioid use disorders?			
Nearly impossible	7%	3%	-4%
Very difficult	13%	15%	1%
Somewhat difficult	15%	19%	4%
A little difficult	24%	26%	2%
Not at all difficult	14%	14%	0%
Don't Know/Not Applicable	26%	23%	-4%
How often are MassHealth members with opioid use disorder able to access medication assisted treatment (MAT) within the practice?			
Almost never within the practice site	N/A	17%	N/A
Rarely within the practice site	N/A	8%	N/A
Sometimes within the practice site	N/A	9%	N/A
Usually within the practice site,	N/A	19%	N/A
Almost always within the practice site	N/A	19%	N/A
Don't know/Not Applicable	N/A	28%	N/A
To what extent do you agree or disagree that providers follow a clear, established process for the following activities? In the following options, by LTSS, we mean Long-Term Services and Supports.			
a. Screening for service needs at home that are important for the patient's health?			
There is no process in place	9%	2%	-8%
Strongly Disagree	3%	0%	-3%
Disagree	3%	2%	-1%
Neither agree nor disagree	20%	16%	-4%
Agree	33%	50%	17%
Strongly Agree	14%	18%	4%
Don't Know/Not Applicable	18%	12%	-6%
b. Choosing among LTSS providers?			
There is no process in place	9%	4%	-5%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Strongly Disagree	3%	0%	-3%
Disagree	4%	6%	2%
Neither agree nor disagree	19%	40%	22%
Agree	37%	29%	-8%
Strongly Agree	6%	7%	1%
Don't Know/Not Applicable	23%	13%	-10%
c. Referring patients to specific LTSS providers with which your office has a relationship?			
There is no process in place	7%	5%	-2%
Strongly Disagree	3%	0%	-2%
Disagree	6%	3%	-3%
Neither agree nor disagree	31%	27%	-4%
Agree	28%	45%	17%
Strongly Agree	6%	8%	2%
Don't Know/Not Applicable	19%	12%	-7%
d. Confirming that the recommended LTSS have been provided?			
There is no process in place	8%	5%	-3%
Strongly Disagree	3%	0%	-2%
Disagree	3%	8%	4%
Neither agree nor disagree	34%	40%	6%
Agree	27%	25%	-2%
Strongly Agree	5%	9%	4%
Don't Know/Not Applicable	19%	13%	-6%
e. Establishing relationships with LTSS providers who serve your patients?			
There is no process in place	9%	4%	-5%
Strongly Disagree	1%	0%	-1%
Disagree	7%	5%	-3%
Neither agree nor disagree	23%	28%	6%
Agree	36%	43%	7%
Strongly Agree	5%	9%	4%
Don't Know/Not Applicable	19%	11%	-8%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
f. Getting updates about a patient's condition from the LTSS providers?			
There is no process in place	6%	4%	-2%
Strongly Disagree	3%	0%	-2%
Disagree	6%	10%	3%
Neither agree nor disagree	27%	25%	-2%
Agree	33%	44%	11%
Strongly Agree	4%	6%	2%
Don't Know/Not Applicable	21%	11%	-10%
Integration of Systems and Processes			
In the past year, to what degree have the following practices in your clinic become more standardized, less standardized or not changed?			
a. Physician compensation			
A lot less standardized	3%	0%	-2%
A little less	3%	4%	1%
No change	48%	40%	-8%
A little more	10%	12%	3%
A lot more standardized	11%	15%	4%
Don't Know	26%	28%	3%
b. Performance management of physicians			
A lot less standardized	1%	0%	-1%
A little less	0%	5%	5%
No change	30%	31%	0%
A little more	33%	34%	1%
A lot more standardized	16%	15%	-1%
Don't Know	19%	15%	-4%
c. Care processes and team structure			
A lot less standardized	0%	1%	1%
A little less	0%	3%	2%
No change	29%	24%	-6%
A little more	40%	49%	9%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
A lot more standardized	21%	13%	-8%
Don't Know	9%	11%	2%
d. Hospital discharge planning and follow-up			
A lot less standardized	0%	0%	0%
A little less	0%	3%	3%
No change	22%	22%	0%
A little more	29%	36%	6%
A lot more standardized	42%	34%	-8%
Don't Know	7%	6%	-1%
e. Recruiting and performance review			
A lot less standardized	1%	2%	1%
A little less	1%	4%	2%
No change	32%	43%	10%
A little more	30%	18%	-12%
A lot more standardized	12%	16%	4%
Don't Know	24%	17%	-6%
f. Data elements in the electronic health record			
A lot less standardized	0%	2%	2%
A little less	0%	2%	2%
No change	18%	22%	5%
A little more	33%	27%	-5%
A lot more standardized	38%	35%	-2%
Don't Know	12%	11%	0%
Health Information Technology			
Which of the following technologies are in use at your practice? Select all that apply.			
Electronic health record	100%	98%	-2%
Care management platform	49%	49%	-1%
Population health management platform	54%	59%	5%
Other technologies	10%	10%	0%
Population Health Management			

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
For which of the following are MassHealth members in your practice systematically screened? Select if screening takes place at any location (Managed Care Organization, Accountable Care Organization, Practice, Community Partner) by any method (in-person, electronically, mail).			
Tobacco Use	96%	98%	2%
Opioid Use	84%	76%	-8%
Substance Use	92%	97%	5%
Polypharmacy	33%	33%	-1%
Depression	97%	100%	3%
Low Health Literacy	28%	38%	10%
Food Security or SNAP Eligibility	62%	70%	8%
Housing Instability	72%	91%	18%
Utility Needs	47%	69%	22%
Interpersonal Violence	68%	70%	2%
Transportation Needs	60%	78%	18%
Need For Financial Assistance with Medical Bills	45%	55%	10%
Medicaid Eligibility	57%	60%	3%
Adequate Digital Access (Digital access is the ability to fully participate in digital society. This includes access to tools and technologies, such as the Internet and computers.)	N/A	22%	N/A
None of the Above	1%	0%	-1%
If screening for the needs in the previous question is performed at a level other than the practice (e.g., by an accountable care organization), how often does your practice have access to the results?			
Almost Never	8%	7%	-1%
Rarely	4%	11%	7%
Sometimes	7%	10%	3%
Often	33%	21%	-12%
Almost Always	17%	15%	-2%
Not Applicable	32%	37%	4%
How often are MassHealth members referred from your practice to social service organizations to address health-related social needs (e.g., housing, food security)?			
Almost Never	3%	0%	-3%
Rarely	11%	9%	-3%
Sometimes	46%	37%	-10%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Often	16%	28%	12%
Almost Always	12%	22%	11%
Not Applicable	11%	4%	-7%
How often are MassHealth members able to access services to address health-related social needs (e.g., housing, food security) within your practice?			
Almost never within the practice site	N/A	6%	N/A
Rarely within the practice site	N/A	13%	N/A
Sometimes within the practice site	N/A	25%	N/A
Usually within the practice site,	N/A	19%	N/A
Almost always within the practice site	N/A	27%	N/A
Don't know/Not Applicable	N/A	10%	N/A
When MassHealth members receive referrals to social service organizations, how often is your practice aware that those patients actually have received support from those organizations?			
Almost Never	5%	4%	-1%
Rarely	14%	11%	-3%
Sometimes	47%	32%	-15%
Often	14%	36%	22%
Almost Always	7%	13%	5%
Not Applicable	12%	4%	-8%
Which of the following does your practice regularly follow? Select all that apply.			
Scheduling to enable same day appointments	86%	99%	12%
Appointments on weekdays before 8 am or after 5 pm	50%	53%	2%
Appointments on weekends	33%	39%	6%
Home visits carried out by practice staff or a clinician	28%	21%	-6%
Clinical pharmacy services provided after discharge at the practice site	20%	19%	-2%
Care that is provided in part or in whole by phone or electronic media (e.g., patient portal, e-mail, telemedicine technology)	52%	92%	40%
What is the main source of information that your practice uses to identify which of your MassHealth members are complex, high need patients? Select one.			
We perform an ad hoc review of information from our own practice's system(s) (e.g., EHR) when we think it is relevant	20%	26%	6%
We regularly apply systematic risk stratification algorithms in our practice using our patient data	13%	17%	4%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
We receive risk stratification information from a managed care organization or accountable care organization	47%	49%	2%
We do not have a way of knowing which patients are complex/high need	0%	2%	1%
Don't know	20%	6%	-14%
Health Equity			
To what extent do you agree or disagree with each of the following statements:			
a. Our practice site is fully able to tailor delivery of care to meet the needs of patients affected by health inequities (e.g., by using culturally and linguistically appropriate services).			
Strongly Disagree	N/A	0%	N/A
Disagree	N/A	3%	N/A
Neither agree nor disagree	N/A	19%	N/A
Agree	N/A	44%	N/A
Strongly Agree	N/A	30%	N/A
Don't Know	N/A	4%	N/A
b. In the past year, our practice site's ability to tailor delivery of care to meet the needs of patients affected by health inequities has gotten a lot easier.			
Strongly Disagree	N/A	2%	N/A
Disagree	N/A	10%	N/A
Neither agree nor disagree	N/A	40%	N/A
Agree	N/A	25%	N/A
Strongly Agree	N/A	17%	N/A
Don't Know	N/A	5%	N/A
How often does your practice site use site-specific data to identify health inequities within its served population? For example, data might include EHR charts or ACO reports.			
Annually	4%	4%	0%
Bi-annually	3%	4%	1%
Quarterly	16%	32%	16%
Monthly	16%	23%	6%
On an ad hoc basis	32%	23%	-10%
We do not have access to this type of data.	17%	10%	-7%
We have access to this type of data but do no analyze it for health inequities.	11%	4%	-7%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
For which of the following factors does your practice assess patient data to identify health inequities (at least annually)?			
Age			
Yes	N/A	48%	N/A
No	N/A	14%	N/A
Don't Know	N/A	37%	N/A
Gender			
Yes	N/A	49%	N/A
No	N/A	11%	N/A
Don't Know	N/A	40%	N/A
Socioeconomic Status			
Yes	N/A	43%	N/A
No	N/A	11%	N/A
Don't Know	N/A	46%	N/A
Race and/or ethnicity			
Yes	N/A	51%	N/A
No	N/A	10%	N/A
Don't Know	N/A	39%	N/A
Mental Health			
Yes	N/A	37%	N/A
No	N/A	14%	N/A
Don't Know	N/A	48%	N/A
Sexual orientation or gender identity			
Yes	N/A	40%	N/A
No	N/A	20%	N/A
Don't Know	N/A	40%	N/A
Geographic Location			
Yes	N/A	46%	N/A
No	N/A	14%	N/A
Don't Know	N/A	40%	N/A

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Cognitive, sensory, or physical disability			
Yes	N/A	32%	N/A
No	N/A	21%	N/A
Don't Know	N/A	48%	N/A
Religion			
Yes	N/A	12%	N/A
No	N/A	31%	N/A
Don't Know	N/A	57%	N/A
Language			
Yes	N/A	51%	N/A
No	N/A	8%	N/A
Don't Know	N/A	41%	N/A
To what extent do you agree or disagree with the following statements:			
a. The ${e://Field/ACO%20Name} has engaged productively with our practice about health equity priorities.			
Strongly Disagree	N/A	4%	N/A
Disagree	N/A	3%	N/A
Neither agree nor disagree	N/A	38%	N/A
Agree	N/A	48%	N/A
Strongly Agree	N/A	6%	N/A
b. It has been easy for our practice to productively engage with our providers about health equity priorities.			
Strongly Disagree	N/A	3%	N/A
Disagree	N/A	3%	N/A
Neither agree nor disagree	N/A	53%	N/A
Agree	N/A	40%	N/A
Strongly Agree	N/A	2%	N/A
Community Partners			
Currently which of the following best describes how many MassHealth members in your practice are receiving care coordination services from a MassHealth designated Community Partner?			
Very few	17%	18%	0%
More than very few, but not many	32%	23%	-9%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
About half	19%	26%	7%
A majority	4%	5%	1%
Nearly all	0%	0%	0%
I don't know/I'm not aware	29%	29%	0%
How frequently have clinicians, staff and/or administrators interacted with Community Partner organization staff in coordinating these patients' care?			
Almost Never	6%	1%	-6%
Rarely	21%	15%	-7%
Sometimes	50%	36%	-14%
Often	10%	29%	19%
Almost Always	7%	15%	8%
Not Applicable	6%	6%	-1%
To the best of your knowledge, how has the existence of Community Partners impacted your ability to provide high quality care, for your MassHealth members?			
Has made it harder almost all of the time	1%	0%	-1%
Has made it harder some of the time	2%	4%	2%
Has made little or no change	34%	11%	-24%
Has made it easier some of the time	46%	48%	2%
Has made it easier almost all of the time	4%	27%	23%
Don't know	12%	11%	-1%
Organizational Factors			
In the past year, to what extent has your practice changed its processes and approaches to caring for MassHealth members?			
Massive change - completely redesigned their care	0%	0%	0%
A lot of change	26%	22%	-4%
Some change	38%	41%	3%
Very little change	23%	20%	-3%
No change	13%	17%	4%
To what extent do you agree or disagree with the following statements:			
a. Our practice site is fully able to deliver high quality care to MassHealth members.			
Strongly Disagree	N/A	0%	N/A
Disagree	N/A	0%	N/A

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Neither agree nor disagree	N/A	5%	N/A
Agree	N/A	57%	N/A
Strongly Agree	N/A	37%	N/A
b. In the past year, delivering high quality care to MassHealth members has gotten much easier for our practice.			
Strongly Disagree	N/A	0%	N/A
Disagree	N/A	7%	N/A
Neither agree nor disagree	N/A	65%	N/A
Agree	N/A	25%	N/A
Strongly Agree	N/A	3%	N/A
c. In the past year, COVID-19 has negatively impacted our practice's ability to implement system and process changes relevant to caring for MassHealth members.			
Strongly Disagree	N/A	2%	N/A
Disagree	N/A	17%	N/A
Neither agree nor disagree	N/A	25%	N/A
Agree	N/A	46%	N/A
Strongly Agree	N/A	10%	N/A
Who owns your practice? (select one)			
Independently owned	46%	41%	-5%
A larger physician group	18%	17%	-2%
A hospital	6%	6%	0%
A healthcare system (may include a hospital)	30%	29%	-1%
Other (please specify)	0%	8%	8%
Which of the following approaches are used to manage the performance of individual physicians and PCPs who practice at your site? Select all that apply.			
a. Performance measures on quality are reported and shared with physicians and PCPs			
Yes	89%	87%	-2%
No	0%	3%	3%
Don't Know	10%	10%	0%
b. Performance measures on cost are reported and shared with physicians and PCPs			
Yes	63%	68%	5%
No	22%	14%	-8%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Don't Know	15%	18%	3%
c. One-on-one review and feedback is used			
Yes	74%	68%	-6%
No	10%	9%	-1%
Don't Know	16%	23%	7%
d. Individual financial incentives are used			
Yes	46%	50%	5%
No	25%	23%	-2%
Don't Know	29%	26%	-3%
e. Individual non-financial awards or recognition is used			
Yes	30%	30%	0%
No	36%	34%	-1%
Don't Know	35%	36%	1%
MassHealth ACO			
Our records show that your practice is participating in the ${e://Field/ACO%20Name} for some or all of its MassHealth Medicaid members. Is that correct?			
Yes, I am aware of this	97%	98%	1%
I am not aware of this	3%	2%	-1%
Were you able to find a colleague who can help you answer questions about ${e://Field/ACO%20Name}?			
Yes	53%	81%	28%
No	47%	19%	-28%
Which of the following performance metrics are used by the Medicaid ACO to determine the amount of value-based payments to PCPs in your practice (from the ACO) or from your practice (to the ACO)? Select all that apply.			
Process quality measures (e.g., screening or vaccination rates)	N/A	70%	N/A
Outcome quality measures (e.g., blood pressure, HbA1c)	N/A	70%	N/A
Utilization measures (e.g., ED or hospital visits)	N/A	64%	N/A
Cost of care	N/A	47%	N/A
Don’t Know	N/A	27%	N/A
Please indicate the extent to which you agree or disagree with the following statement: Our practice has adequate systems and processes to succeed under a payment model that capitates or sub-capitates primary care.			

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
Strongly Disagree	N/A	6%	N/A
Disagree	N/A	7%	N/A
Neither agree nor disagree	N/A	17%	N/A
Agree	N/A	35%	N/A
Strongly Agree	N/A	2%	N/A
Don't Know/Not applicable	N/A	32%	N/A
Has your practice received any financial distributions (DSRIP dollars) as part of its engagement with the MassHealth Accountable Care Organization?			
Yes	40%	42%	2%
No	12%	7%	-5%
Don't Know	48%	52%	3%
Is a representative from your practice site engaged in ACO governance?			
Yes	44%	44%	0%
No	29%	13%	-16%
Don't Know	27%	43%	16%
To what extent do you feel your practice has had a say in important aspects of planning and decision making within the MassHealth Accountable Care Organization that affect your practice site?			
Almost never had a say	20%	9%	-11%
Rarely had a say	13%	15%	2%
Sometimes had a say	16%	31%	15%
Usually had a say	21%	8%	-13%
Almost always had a say	9%	8%	-1%
Don't Know/Not Applicable	21%	30%	9%
Please indicate the extent to which you agree or disagree with the following statement: ACO leaders have communicated to this practice site a vision for the MassHealth ACO and the care it delivers.			
Strongly Disagree	5%	0%	-5%
Disagree	7%	1%	-6%
Neither agree nor disagree	19%	24%	4%
Agree	51%	47%	-5%
Strongly Agree	13%	11%	-2%
Don't Know/Not applicable	5%	17%	12%
To what extent do you agree or disagree with each of the following statements:			

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
a. The MassHealth ACO is a resource and partner in problem-solving for our practice.			
Strongly Disagree	1%	1%	-1%
Disagree	11%	6%	-6%
Neither agree nor disagree	21%	49%	28%
Agree	45%	24%	-22%
Strongly Agree	13%	9%	-4%
Don't Know/Not applicable	7%	12%	5%
b. When problems arise with other clinical providers in the MassHealth ACO, we are able to work jointly to find solutions.			
Strongly Disagree	2%	0%	-2%
Disagree	9%	5%	-4%
Neither agree nor disagree	29%	48%	20%
Agree	33%	24%	-9%
Strongly Agree	7%	8%	1%
Don't Know/Not applicable	20%	14%	-6%
c. All entities in this MassHealth ACO work together to solve problems when needed.			
Strongly Disagree	1%	1%	-1%
Disagree	9%	4%	-5%
Neither agree nor disagree	24%	51%	27%
Agree	41%	25%	-17%
Strongly Agree	10%	8%	-2%
Don't Know/Not applicable	14%	11%	-3%
In the past year, which of the following resources has your practice accessed as part of its involvement in this MassHealth ACO? Select all that apply.			
The MassHealth ACO has provided resources and/or assistance to help recruit providers and/or staff	33%	4%	-29%
The MassHealth ACO has provided resources and/or assistance to help train providers and/or staff	68%	49%	-19%
Providers and/or staff have taken part in trainings made available directly by MassHealth	48%	43%	-5%
Providers and/or staff have received training focused on behavioral health and long-term services and supports.	50%	36%	-14%

Questions and Response Options	Wave 1 (2019)	Wave 2 (2021)	Change
DSRIP Statewide Investments (e.g. Student Loan Repayment Program) have been provided to help in training and/or recruiting.	23%	15%	-8%
Overall, how satisfied are you with your practice's experience as part of this MassHealth ACO?			
Highly dissatisfied	3%	2%	-1%
Somewhat dissatisfied	10%	4%	-6%
Neither satisfied nor dissatisfied	34%	48%	14%
Somewhat satisfied	44%	30%	-14%
Highly satisfied	8%	16%	8%
Demographics			
What is your professional discipline? (select one)			
Primary care physician	14%	14%	0%
Physician assistant/nurse practitioner	0%	0%	0%
Registered nurse/nurse case manager/ LVN/LPN	7%	9%	2%
Professional administrator (e.g., practice manager)	74%	66%	-8%
Other	4%	10%	6%
How long have you worked at this practice site? (select one)			
Less than 6 months	3%	3%	0%
6-12 months	8%	5%	-3%
1-2 years	8%	9%	1%
3-5 years	13%	11%	-2%
More than 5 years	68%	72%	4%

Appendix D. Weighted Results from Wave 2 of the ACO Primary Care Provider Survey And The CP Staff Survey

This appendix covers the results of Wave 2 of the ACO Primary Care Provider Survey and the CP Staff Survey collected by UMass Chan to understand how providers and staff experience delivery of care within the ACO model. The surveys were fielded between September and December 2022 (Wave 2). The methods used to conduct and analyze this survey are covered in Section 2.2. Additional results for Wave 1 of the surveys are available in the Independent Evaluation's Interim Report.[246] Sampling and inverse probability of response weights were applied to obtain results that were adjusted for the multi-stage sampling approach and observed sources of non-response bias. Total answering presented in Domains 2 and 3, and in this appendix does not include those who skipped the question or responded "don't know".

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Below is a list of statements related to care coordination within this practice site. To what extent do you agree or disagree with each of the following statements? Q9									
Patient care is well coordinated among providers, nurses, and clinical staff Q9a									
Total Answering (Weighted)	1122	525	222	321	54	581	459	59	62
Strongly Agree / Agree	86%	84%	86%	90%	88%	87%	88%	80%	85%
Neither Disagree nor Agree	6%	8%	7%	3%	5%	8%	7%	10%	12%
Disagree / Strongly Disagree	7%	8%	8%	7%	7%	5%	5%	10%	3%
Providers and staff meet frequently (e.g., team huddles) to plan for patient visits Q9b									
Total Answering (Weighted)	1109	514	222	320	53	581	459	60	62
Strongly Agree / Agree	64%	62%	53%	73%	65%	84%	83%	86%	84%
Neither Disagree nor Agree	16%	17%	20%	14%	13%	10%	10%	8%	10%

[246] https://www.mass.gov/doc/cms-approved-interim-evaluation-report/download

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Disagree / Strongly Disagree	20%	21%	27%	14%	21%	7%	7%	6%	6%
Candid and open communication exists between providers and other staff Q9c									
Total Answering (Weighted)	1125	524	227	320	54	585	463	60	62
Strongly Agree / Agree	90%	93%	92%	84%	87%	88%	81%	88%	88%
Neither Disagree nor Agree	6%	4%	6%	9%	8%	6%	6%	11%	8%
Disagree / Strongly Disagree	4%	3%	2%	7%	4%	6%	6%	8%	4%
Providers and staff are well informed at the time of each patient visit about patients' medical history and current treatments Survey = ACO Q9d									
Total Answering (Weighted)	1126	525	227	321	53				
Strongly Agree / Agree	82%	83%	81%	83%	75%				
Neither Disagree nor Agree	11%	11%	10%	11%	17%				
Disagree / Strongly Disagree	7%	6%	9%	6%	8%				
Providers and staff are well informed about patients' current social needs (e.g., housing, transportation) Q9e									
Total Answering (Weighted)	1124	524	227	319	54	582	461	60	61
Strongly Agree / Agree	72%	69%	67%	81%	76%	75%	76%	69%	71%
Neither Disagree nor Agree	17%	20%	17%	13%	15%	12%	12%	13%	12%
Disagree / Strongly Disagree	11%	12%	15%	6%	9%	13%	12%	18%	17%
Patients see the same care team or provider for routine clinic visits Q9f									
Total Answering (Weighted)	1123	522	227	322	53	571	452	59	60
Strongly Agree / Agree	75%	75%	74%	76%	84%	73%	74%	70%	72%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Neither Disagree nor Agree	13%	14%	11%	14%	12%	16%	15%	20%	16%
Disagree / Strongly Disagree	11%	11%	15%	10%	4%	11%	11%	10%	12%
*Staff are well informed at the time of the **initial member encounter** about members' medical history and current treatments Survey = CP Q9d1*									
Total Answering (Weighted)						580	459	59	62
Strongly Agree / Agree						49%	50%	43%	46%
Neither Disagree nor Agree						16%	16%	9%	20%
Disagree / Strongly Disagree						35%	33%	48%	34%
Staff are well informed at the time of each subsequent member encounter about members' medical history and current treatments Survey = CP Q9d2									
Total Answering (Weighted)						354	288	29	37
Strongly Agree / Agree						61%	63%	48%	61%
Neither Disagree nor Agree						20%	20%	23%	17%
Disagree / Strongly Disagree						19%	18%	29%	22%
Below is a list of statements related to care coordination with external providers. To what extent do you agree or disagree with each of the following statements? Q10									
Patient care is well coordinated with external health care providers (e.g., specialists, hospitals) Survey = ACO Q10a									
Total Answering (Weighted)	1101	516	226	309	50				
Strongly Agree / Agree	63%	62%	61%	69%	55%				
Neither Disagree nor Agree	18%	17%	17%	18%	27%				
Disagree / Strongly Disagree	18%	21%	22%	13%	18%				

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
We have good systems in place to track referrals to external providers Q10b									
Total Answering (Weighted)	1083	510	223	302	47	555	440	58	57
Strongly Agree / Agree	58%	57%	55%	63%	38%	53%	54%	44%	58%
Neither Disagree nor Agree	17%	15%	20%	19%	19%	27%	26%	30%	29%
Disagree / Strongly Disagree	25%	28%	25%	18%	43%	20%	20%	25%	13%
We routinely receive discharge summaries after our patients are hospitalized Q10c									
Total Answering (Weighted)	1103	518	224	313	48	571	452	59	60
Strongly Agree / Agree	72%	77%	69%	70%	49%	41%	40%	39%	51%
Neither Disagree nor Agree	13%	11%	15%	16%	15%	15%	16%	11%	15%
Disagree / Strongly Disagree	15%	13%	16%	14%	37%	43%	44%	49%	34%
We routinely receive event notification system alerts about our patients' healthcare encounters (e.g., inpatient and emergency department admissions) Q10d									
Total Answering (Weighted)	1093	517	223	307	46	573	456	57	59
Strongly Agree / Agree	76%	79%	77%	73%	59%	87%	88%	85%	86%
Neither Disagree nor Agree	13%	10%	15%	15%	20%	7%	6%	12%	8%
Disagree / Strongly Disagree	11%	11%	8%	12%	20%	6%	6%	3%	6%
*Member care is well coordinated with external **health care providers** (e.g., primary care providers, specialists, hospitals) Survey = CP Q10a1*									
Total Answering (Weighted)						577	459	58	59
Strongly Agree / Agree						67%	69%	56%	63%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Neither Disagree nor Agree						18%	16%	27%	22%
Disagree / Strongly Disagree						15%	14%	17%	15%
*Member care is well coordinated with external **care management programs** (e.g., Independent Living Centers, Department of Mental Health) Survey = CP Q10a2*									
Total Answering (Weighted)						567	451	58	58
Strongly Agree / Agree						63%	63%	58%	67%
Neither Disagree nor Agree						23%	23%	23%	36%
Disagree / Strongly Disagree						14%	14%	18%	8%
Member care is well coordinated with our ACO partners Survey = CP Q10a3									
Total Answering (Weighted)						571	453	59	59
Strongly Agree / Agree						68%	68%	61%	72%
Neither Disagree nor Agree						22%	22%	26%	16%
Disagree / Strongly Disagree						11%	10%	13%	13%
Are you aware of the MassHealth Flexible Services (FS) program? Q20									
Total Answering (Weighted)	1120	520	225	320	55	581	461	60	60
Yes	15%	13%	11%	18%	33%	81%	80%	93%	69%
No	85%	87%	89%	82%	67%	19%	20%	7%	31%
How often are your patients with health-related social needs (e.g., housing, nutrition) referred for Flexible Services? Q20a									
Total Answering (Weighted)	163	64	25	56	18	465	369	56	40
Rarely / Never	16%	19%	13%	15%	13%	10%	10%	10%	5%
Sometimes	35%	34%	33%	34%	47%	51%	51%	52%	47%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Always / Usually	49%	47%	54%	52%	40%	39%	39%	38%	49%
Below is a list of statements related to care coordination with community resources. To what extent do you agree or disagree with each of the following statements? Q11									
*Providers and staff are well informed about available **community resources** for patients Q11a*									
Total Answering (Weighted)	1073	496	215	308	54	580	461	60	59
Strongly Agree / Agree	51%	41%	44%	71%	62%	83%	83%	87%	76%
Neither Disagree nor Agree	23%	29%	22%	17%	19%	10%	11%	7%	11%
Disagree / Strongly Disagree	25%	30%	34%	12%	19%	7%	6%	6%	13%
*Patient care is well coordinated with **community resources** (e.g., support groups, food pantries, shelters) Q11b*									
Total Answering (Weighted)	1052	490	209	301	52	580	460	60	59
Strongly Agree / Agree	53%	45%	43%	71%	68%	86%	85%	91%	85%
Neither Disagree nor Agree	26%	29%	27%	20%	15%	9%	9%	6%	11%
Disagree / Strongly Disagree	21%	25%	30%	9%	17%	5%	5%	3%	5%
*We have established relationships with **community resources** to facilitate our referrals to them Q11d*									
Total Answering (Weighted)	1049	490	203	294	53	578	459	60	59
Strongly Agree / Agree	59%	50%	50%	78%	75%	79%	79%	80%	74%
Neither Disagree nor Agree	21%	23%	24%	18%	9%	14%	13%	13%	18%
Disagree / Strongly Disagree	20%	27%	26%	4%	16%	8%	8%	7%	8%
*Our referrals to **community resources** are effective in addressing the patient's health-related social needs (e.g., housing, nutrition) Q11e*									
Total Answering (Weighted)	1028	481	200	294	54	576	457	60	59

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Strongly Agree / Agree	50%	40%	44%	68%	60%	77%	77%	76%	81%
Neither Disagree nor Agree	30%	35%	31%	24%	24%	15%	14%	21%	14%
Disagree / Strongly Disagree	20%	25%	25%	8%	16%	8%	9%	3%	5%
*Patient care is well coordinated with organizations providing **Flexible Services [ASK IF 20=1 (YES)]** Q11a1*									
Total Answering (Weighted)	157	63	24	55	15	457	362	56	39
Strongly Agree / Agree	68%	57%	71%	81%	58%	68%	67%	69%	79%
Neither Disagree nor Agree	25%	35%	12%	18%	25%	23%	24%	22%	14%
Disagree / Strongly Disagree	8%	8%	17%	1%	17%	9%	9%	9%	7%
*Our referrals for **Flexible Services** are effective in addressing the patient's health-related social needs (e.g., housing, nutrition) [**ASK IF 20=1 (YES)]** Q11a2*									
Total Answering (Weighted)	158	63	24	55	17	458	364	56	38
Strongly Agree / Agree	59%	45%	48%	77%	67%	69%	68%	68%	79%
Neither Disagree nor Agree	30%	37%	35%	23%	23%	23%	23%	28%	14%
Disagree / Strongly Disagree	11%	18%	17%	0%	10%	8%	9%	4%	7%
To what extent do you agree or disagree with each of the following statements about the MassHealth Community Partners (CP) program? MassHealth Community Partners refers to the entities that partner with MassHealth ACOs and MCOs to support patients with complex long-term services and supports or behavioral health needs. Q11a									
*We have established relationships with our **MassHealth Community Partners** Q11ac*									
Total Answering (Weighted)	812	349	171	254	39				
Strongly Agree / Agree	54%	47%	51%	65%	64%				

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Neither Disagree nor Agree	31%	32%	36%	29%	24%				
Disagree / Strongly Disagree	14%	21%	13%	6%	13%				
*Patient care is well coordinated with our **MassHealth Community Partners** Q11a(a)*									
Total Answering (Weighted)	802	346	165	254	63				
Strongly Agree / Agree	46%	36%	42%	61%	50%				
Neither Disagree nor Agree	36%	38%	42%	31%	24%				
Disagree / Strongly Disagree	18%	26%	17%	8%	25%				
*I believe the **MassHealth Community Partners** program helps us better support our patients' needs Q19d*									
Total Answering (Weighted)	791	339	160	257	36				
Strongly Agree / Agree	53%	45%	48%	66%	60%				
Neither Disagree nor Agree	34%	36%	41%	29%	23%				
Disagree / Strongly Disagree	13%	19%	11%	5%	17%				
Below is a list of statements related to patient-centered care and patient engagement. To what extent do you agree or disagree with each of the following statements? Q12									
We communicate with patients in a way that they understood (e.g., appropriate language and literacy) Q12a									
Total Answering (Weighted)	1074	497	218	305	54	576	458	59	59
Strongly Agree / Agree	95%	95%	95%	97%	92%	97%	97%	91%	95%
Neither Disagree nor Agree	4%	4%	4%	3%	7%	3%	2%	8%	3%
Disagree / Strongly Disagree	1%	1%	1%	1%	1%	1%	1%	2%	1%
We routinely contact patients to remind them of regular preventive or follow-up visits (e.g., flu vaccine or routine lab tests) Q12b									

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Total Answering (Weighted)	1044	492	210	300	42	574	457	58	59
Strongly Agree / Agree	85%	84%	86%	87%	87%	90%	92%	75%	86%
Neither Disagree nor Agree	9%	10%	7%	8%	9%	5%	4%	14%	11%
Disagree / Strongly Disagree	6%	6%	8%	5%	4%	5%	4%	11%	3%
We routinely contact patients to inform them of abnormal laboratory results Survey = ACO Q12c									
Total Answering (Weighted)	1048	496	217	302	33				
Strongly Agree / Agree	96%	96%	97%	94%	87%				
Neither Disagree nor Agree	3%	3%	2%	5%	13%				
Disagree / Strongly Disagree	1%	1%	1%	1%	0%				
We routinely contact patients with chronic conditions to help them manage their conditions Q12d									
Total Answering (Weighted)	1044	491	216	299	39	574	457	58	59
Strongly Agree / Agree	82%	80%	80%	86%	87%	90%	91%	82%	91%
Neither Disagree nor Agree	13%	14%	16%	11%	12%	7%	7%	7%	7%
Disagree / Strongly Disagree	5%	6%	5%	2%	1%	3%	2%	11%	3%
Providers and staff view patients as equal partners in their care Q12e									
Total Answering (Weighted)	1069	493	217	306	53	569	452	58	59
Strongly Agree / Agree	92%	91%	93%	93%	88%	95%	95%	93%	93%
Neither Disagree nor Agree	7%	8%	6%	5%	9%	3%	3%	7%	3%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Disagree / Strongly Disagree	1%	2%	0%	2%	3%	2%	2%	0%	3%
Care is designed to meet the preferences of patients and their families Q12f									
Total Answering (Weighted)	1067	495	216	302	54	575	457	59	59
Strongly Agree / Agree	90%	89%	92%	92%	84%	92%	91%	97%	97%
Neither Disagree nor Agree	7%	7%	6%	6%	10%	6%	6%	3%	3%
Disagree / Strongly Disagree	3%	3%	2%	2%	6%	2%	2%	0%	0%
When developing a treatment plan, providers and staff routinely encourage patients to actively participate in setting goals Q12g									
Total Answering (Weighted)	1059	492	217	298	51	574	457	58	59
Strongly Agree / Agree	92%	91%	93%	93%	91%	98%	98%	100%	98%
Neither Disagree nor Agree	7%	7%	5%	6%	5%	1%	2%	0%	2%
Disagree / Strongly Disagree	1%	1%	1%	1%	4%	1%	1%	0%	0%
Providers and staff routinely work with patients to develop self-management skills for managing their health conditions Q12h									
Total Answering (Weighted)	1059	492	217	301	49	574	456	59	59
Strongly Agree / Agree	89%	86%	92%	92%	90%	94%	94%	91%	95%
Neither Disagree nor Agree	8%	10%	7%	7%	7%	5%	5%	6%	3%
Disagree / Strongly Disagree	2%	3%	1%	1%	3%	2%	2%	3%	1%
We regularly use feedback from patients and families to improve services Q12i									
Total Answering (Weighted)	1017	476	204	292	44	563	447	58	58
Strongly Agree / Agree	77%	74%	82%	81%	67%	84%	85%	78%	88%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Neither Disagree nor Agree	17%	19%	14%	15%	23%	12%	11%	17%	11%
Disagree / Strongly Disagree	6%	7%	4%	4%	11%	4%	4%	5%	2%
*Most of our patients with **chronic conditions** take responsibility for managing their health Survey = ACO Q12j1*									
Total Answering (Weighted)	1042	487	212	299	44				
Strongly Agree / Agree	40%	42%	38%	38%	35%				
Neither Disagree nor Agree	39%	38%	41%	39%	52%				
Disagree / Strongly Disagree	21%	20%	21%	23%	13%				
*Most of our patients **with behavioral health needs** take responsibility for managing their health Survey = ACO Q12j2*									
Total Answering (Weighted)	1052	489	212	299	53				
Strongly Agree / Agree	30%	28%	33%	29%	41%				
Neither Disagree nor Agree	38%	39%	34%	38%	38%				
Disagree / Strongly Disagree	32%	33%	34%	33%	21%				
Most of our patients with long-term services and supports needs take responsibility for managing their health Survey = ACO Q12j3									
Total Answering (Weighted)	1032	483	208	296	45				
Strongly Agree / Agree	40%	42%	40%	38%	35%				
Neither Disagree nor Agree	39%	36%	41%	39%	60%				
Disagree / Strongly Disagree	21%	22%	19%	23%	5%				
Most of our members take responsibility for managing their health Survey = CP Q12j									
Total Answering (Weighted)						572	454	59	59

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Strongly Agree / Agree						43%	41%	50%	50%
Neither Disagree nor Agree						33%	33%	25%	34%
Disagree / Strongly Disagree						24%	25%	25%	16%
In the last 12 months, to what extent has this practice site changed its processes and approaches to caring for MassHealth members? Q16									
Total Answering (Weighted)	1052	493	216	290	53	570	454	58	58
No change / Very little change	67%	66%	79%	61%	61%	29%	29%	32%	28%
Moderate amount of change / A lot of change	33%	34%	21%	39%	39%	71%	71%	68%	72%
Over the past 12 months, has it become easier or harder for this practice site to deliver high quality care to MassHealth members? Q17									
Total Answering (Weighted)	1047	490	211	293	53	571	455	58	58
A lot / Somewhat easier	18%	19%	13%	21%	21%	35%	37%	28%	30%
No change	54%	49%	65%	54%	53%	31%	30%	33%	42%
Somewhat / A lot harder	28%	32%	22%	25%	26%	33%	33%	38%	28%
To what extent do you agree or disagree with each of the following statements about the MassHealth Accountable Care Organization (ACO) program? Q19									
I have a clear understanding of the purpose and goals of the MassHealth ACO program Q19a									
Total Answering (Weighted)	987	455	199	281	53	568	453	58	57
Strongly Agree / Agree	52%	50%	50%	58%	55%	84%	83%	89%	88%
Neither Disagree nor Agree	25%	28%	30%	18%	19%	9%	9%	10%	8%
Disagree / Strongly Disagree	22%	22%	20%	23%	26%	7%	7%	1%	4%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
I believe this practice site is performing well under the MassHealth ACO program Q19b									
Total Answering (Weighted)	868	396	170	255	47	560	446	58	56
Strongly Agree / Agree	65%	65%	60%	67%	63%	82%	84%	72%	80%
Neither Disagree nor Agree	30%	28%	34%	31%	31%	14%	13%	22%	15%
Disagree / Strongly Disagree	5%	6%	6%	2%	5%	4%	4%	6%	5%
I believe the MassHealth ACO program helps improve quality of care for our patients Q19c									
Total Answering (Weighted)	892	405	181	259	48	564	450	585	56
Strongly Agree / Agree	59%	57%	57%	65%	60%	84%	85%	78%	81%
Neither Disagree nor Agree	33%	32%	37%	30%	34%	13%	12%	19%	14%
Disagree / Strongly Disagree	8%	11%	6%	5%	6%	4%	4%	3%	5%
Do you receive financial incentives (e.g., bonuses or adjustments to your salary) based on your performance on quality measures? Q13									
Total Answering (Weighted)	820	390	172	215	42	472	375	50	47
Yes	33%	52%	20%	13%	2%	34%	34%	50%	20%
No	67%	48%	80%	87%	98%	66%	66%	50%	80%
For which of the following types of patients do you receive financial incentives based on your performance on quality measures? Survey = ACO Q14									
Total Answering (Weighted)	149	126	11	12	1				
MassHealth patients	83%	84%	51%	100%	100%				
Medicare patients	42%	45%	47%	8%	38%				
Private insurance patients	90%	89%	100%	92%	100%				
What percentage of your annual salary is from financial incentives based on your performance on quality measures? Survey = ACO Q15									

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Total Answering (Weighted)	128	106	11	11	1				
Up to 5%	75%	74%	56%	100%	100%				
More than 5%	25%	26%	44%	0%	0%				
Below is a list of statements related to costs and treatment decisions. To what extent do you agree or disagree with each of the following statements? Q15a									
I have a prominent role in limiting the use of unnecessary treatments and tests Survey = ACO Q15a(a)									
Total Answering (Weighted)	990	486	207	260	37				
Strongly Agree / Agree	66%	82%	79%	32%	23%				
Neither Disagree nor Agree	18%	11%	12%	33%	27%				
Disagree / Strongly Disagree	16%	7%	8%	35%	50%				
I have a prominent role in limiting potentially avoidable emergency department and hospital stays Survey = ACO Q15a(b)									
Total Answering (Weighted)	1009	483	207	273	46				
Strongly Agree / Agree	71%	70%	77%	71%	59%				
Neither Disagree nor Agree	16%	18%	13%	15%	23%				
Disagree / Strongly Disagree	12%	12%	10%	14%	19%				
I consider both clinical and cost-effectiveness information when making treatment decisions Survey = ACO Q15a(c)									
Total Answering (Weighted)	998	487	212	257	42				
Strongly Agree / Agree	81%	91%	91%	62%	41%				
Neither Disagree nor Agree	12%	7%	7%	24%	31%				
Disagree / Strongly Disagree	6%	2%	2%	14%	27%				

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Now thinking of the next five years, to what extent do you agree that value-based payments will be a major and sustained model of payment at this practice site? Survey = ACO Q21									
Total Answering (Weighted)	624	341	121	145	18				
Strongly Agree / Agree	54%	60%	47%	45%	54%				
Neither Disagree nor Agree	35%	25%	42%	49%	41%				
Disagree / Strongly Disagree	11%	14%	11%	6%	5%				
How often do you use the following types of telehealth and community-based care for your patients from this practice site? QN1									
Live audio-visual interactive telehealth visits QN1a									
Total Answering (Weighted)	1037	488	211	286	53	560	447	57	56
Every day or more often	24%	19%	26%	27%	47%	6%	6%	6%	5%
Two to six times a week	26%	30%	31%	16%	21%	11%	10%	14%	9%
Once a week	15%	18%	155	9%	13%	12%	12%	11%	6%
Less than once a week	18%	25%	17%	8%	11%	33%	33%	29%	37%
Never	18%	9%	10%	40%	7%	39%	38%	40%	43%
Live telephone (audio-only) telehealth visits QN1b									
Total Answering (Weighted)	1036	486	211	287	53	568	453	58	57
Every day or more often	21%	15%	16%	29%	51%	58%	57%	64%	62%
Two to six times a week	23%	26%	27%	15%	23%	13%	15%	6%	7%
Once a week	15%	16%	20%	10%	6%	7%	7%	7%	11%
Less than once a week	23%	30%	22%	12%	10%	10%	10%	16%	8%
Never	18%	12%	15%	34%	10%	11%	11%	7%	12%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Remote monitoring of a patient (e.g., blood pressure or O_2 monitoring) Survey = ACO QN1c									
Total Answering (Weighted)	1036	486	211	288	51				
Every day or more often	6%	5%	5%	11%	1%				
Two to six times a week	10%	11%	8%	11%	3%				
Once a week	9%	10%	13%	5%	2%				
Less than once a week	17%	22%	16%	11%	2%				
Never	58%	51%	58%	62%	92%				
Communication with a patient through email, patient portal, or text messaging QN1d									
Total Answering (Weighted)	1041	488	211	290	53	569	454	58	57
Every day or more often	60%	65%	56%	58%	45%	45%	46%	44%	42%
Two to six times a week	17%	16%	19%	16%	30%	26%	26%	27%	28%
Once a week	7%	8%	7%	6%	8%	12%	11%	18%	13%
Less than once a week	7%	6%	11%	7%	10%	13%	13%	9%	17%
Never	8%	5%	7%	14%	7%	3%	4%	3%	0%
Care at a community site (e.g., senior center, cultural center) QN1e									
Total Answering (Weighted)	1040	488	211	289	53	565	452	57	57
Every day or more often	3%	2%	1%	6%	5%	11%	11%	11%	12%
Two to six times a week	3%	2%	3%	3%	9%	15%	17%	4%	15%
Once a week	3%	3%	3%	3%	4%	18%	19%	15%	11%
Less than once a week	11%	10%	16%	8%	8%	35%	34%	49%	33%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Never	80%	83%	77%	80%	75%	21%	20%	21%	29%
Home visits QN1f									
Total Answering (Weighted)	1039	486	211	289	53	569	454	58	56
Every day or more often	1%	1%	0%	3%	1%	9%	9%	7%	8%
Two to six times a week	3%	2%	6%	3%	3%	31%	33%	20%	32%
Once a week	3%	3%	3%	4%	2%	22%	23%	19%	21%
Less than once a week	10%	14%	6%	8%	4%	30%	28%	40%	34%
Never	82%	80%	85%	815	91%	8%	8%	14%	5%
Home testing or lab services Survey = ACO QN1g									
Total Answering (Weighted)	1037	486	209	289	53				
Every day or more often	6%	6%	5%	9%	0%				
Two to six times a week	7%	7%	9%	6%	4%				
Once a week	8%	9%	8%	6%	1%				
Less than once a week	16%	22%	19%	8%	0%				
Never	63%	56%	60%	72%	95%				
Other (please specify___n1_h_other_____) QN1h									
Total Answering (Weighted)	371	164	76	103	28	104	83	13	8
Every day or more often	3%	3%	1%	6%	0%	12%	14%	7%	0%
Two to six times a week	3%	5%	0%	1%	3%	10%	11%	7%	0%
Once a week	2%	3%	1%	2%	0%	17%	17%	17%	25%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Less than once a week	2%	1%	5%	1%	0%	10%	11%	5%	0%
Never	90%	89%	92%	88%	97%	52%	48%	63%	75%
To what extent do you agree or disagree with each of the following statements? QN3a									
Our practice site is fully able to tailor delivery of care to meet the needs of patients affected by health inequities (e.g., by using culturally- and linguistically-appropriate services) QN3a(a)									
Total Answering (Weighted)	1025	476	208	288	53	563	449	58	56
Strongly Agree / Agree	74%	68%	72%	85%	72%	82%	81%	85%	80%
Neither Disagree nor Agree	16%	19%	20%	7%	14%	11%	12%	10%	9%
Disagree / Strongly Disagree	10%	13%	8%	7%	13%	7%	7%	5%	11%
Our ACO has engaged productively with our practice about health equity priorities QN3a(b)									
Total Answering (Weighted)	869	401	181	242	45	555	441	57	57
Strongly Agree / Agree	62%	56%	58%	73%	73%	83%	83%	82%	89%
Neither Disagree nor Agree	28%	31%	33%	23%	19%	13%	13%	15%	6%
Disagree / Strongly Disagree	10%	13%	10%	4%	8%	4%	4%	3%	5%
Our staff members are culturally and linguistically aligned with the members we serve QN3a(c)									
Total Answering (Weighted)	1026	482	210	282	53	560	447	58	55
Strongly Agree / Agree	77%	76%	75%	81%	73%	82%	82%	86%	76%
Neither Disagree nor Agree	17%	18%	19%	13%	15%	11%	11%	11%	14%
Disagree / Strongly Disagree	6%	6%	6%	6%	13%	7%	7%	3%	10%
Over the last 12 months, has it become easier or harder for you to provide equitable access to care for the following types of patients? Survey = ACO QNA4									

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
*Patients **with** chronic conditions QNA4a*									
Total Answering (Weighted)	982	466	201	273	42				
Much / Somewhat easier	19%	15%	16%	26%	26%				
No change	51%	53%	56%	47%	40%				
Somewhat / Much harder	30%	32%	27%	27%	34%				
*Patients **without** chronic conditions QNA4b*									
Total Answering (Weighted)	975	465	198	271	41				
Much / Somewhat easier	18%	14%	15%	25%	29%				
No change	64%	66%	71%	57%	54%				
Somewhat / Much harder	18%	20%	14%	18%	17%				
Patients with behavioral health needs QNA4c									
Total Answering (Weighted)	1004	473	206	273	53				
Much / Somewhat easier	19%	17%	17%	25%	25%				
No change	19%	18%	18%	22%	15%				
Somewhat / Much harder	61%	65%	65%	54%	60%				
Patients needing long-term services and supports QNA4d									
Total Answering (Weighted)	968	461	197	261	49				
Much / Somewhat easier	14%	12%	14%	17%	16%				
No change	42%	42%	44%	41%	30%				
Somewhat / Much harder	44%	46%	42%	42%	54%				

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Patients with unmet health-related social needs (e.g., housing problems) QNA4e									
Total Answering (Weighted)	943	453	186	257	47				
Much / Somewhat easier	16%	13%	13%	22%	24%				
No change	39%	40%	43%	38%	19%				
Somewhat / Much harder	45%	47%	44%	41%	56%				
Children and adolescents QNA4f									
Total Answering (Weighted)	702	344	123	195	39				
Much / Somewhat easier	17%	13%	9%	28%	14%				
No change	61%	62%	70%	59%	34%				
Somewhat / Much harder	23%	25%	21%	13%	52%				
Black patients QNA4g									
Total Answering (Weighted)	921	441	190	245	45				
Much / Somewhat easier	12%	9%	6%	21%	20%				
No change	77%	80%	83%	71%	50%				
Somewhat / Much harder	11%	12%	10%	8%	30%				
Hispanic or Latinx patients QNA4h									
Total Answering (Weighted)	927	442	194	246	45				
Much / Somewhat easier	12%	9%	8%	20%	20%				
No change	77%	79%	82%	73%	50%				
Somewhat / Much harder	11%	12%	10%	7%	31%				

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Asian and Pacific Islander patients QNA4i									
Total Answering (Weighted)	893	426	186	241	40				
Much / Somewhat easier	10%	8%	6%	18%	17%				
No change	81%	83%	87%	76%	58%				
Somewhat / Much harder	9%	9%	7%	7%	26%				
American Indian or Alaska Native patients QNA4j									
Total Answering (Weighted)	811	365	171	237	37				
Much / Somewhat easier	10%	5%	6%	18%	17%				
No change	83%	87%	88%	75%	64%				
Somewhat / Much harder	7%	7%	6%	6%	19%				
Patients whose preferred language is other than English QNA4k									
Total Answering (Weighted)	953	448	199	257	48				
Much / Somewhat easier	18%	14%	14%	29%	14%				
No change	67%	71%	72%	60%	41%				
Somewhat / Much harder	15%	15%	14%	11%	45%				
In the last 12 months, has it become easier or harder for you to provide equitable care coordination supports for the following types of members with behavioral health needs? Survey = CP QNC4									
*Members **with** comorbid chronic conditions QNC4a*									
Total Answering (Weighted)						435	404	0	30
Much / Somewhat easier						20%	20%	N/A	18%
No change						49%	49%	N/A	52%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Somewhat / Much harder						31%	31%	N/A	30%
*Members **without** comorbid chronic conditions QNC4b*									
Total Answering (Weighted)						432	402	0	29
Much / Somewhat easier						25%	25%	N/A	22%
No change						62%	61%	N/A	69%
Somewhat / Much harder						13%	13%	N/A	9%
Members needing long-term services and supports QNC4c									
Total Answering (Weighted)						422	395	0	28
Much / Somewhat easier						20%	20%	N/A	16%
No change						46%	45%	N/A	53%
Somewhat / Much harder						34%	35%	N/A	31%
Members with unmet health-related social needs (e.g., housing problems) QNC4d									
Total Answering (Weighted)						454	421	1	31
Much / Somewhat easier						17%	17%	100%	20%
No change						34%	33%	0%	41%
Somewhat / Much harder						49%	50%	0%	39%
Black members QNC4e									
Total Answering (Weighted)						411	380	0	31
Much / Somewhat easier						14%	14%	N/A	12%
No change						77%	76%	N/A	80%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Somewhat / Much harder						10%	10%	N/A	9%
Hispanic or Latinx members QNC4f									
Total Answering (Weighted)						413	382	0	31
Much / Somewhat easier						15%	16%	N/A	12%
No change						73%	73%	N/A	77%
Somewhat / Much harder						12%	12%	N/A	11%
Asian and Pacific Islander members QNC4g									
Total Answering (Weighted)						385	356	0	29
Much / Somewhat easier						11%	11%	N/A	9%
No change						80%	80%	N/A	84%
Somewhat / Much harder						8%	9%	N/A	6%
American Indian and Alaska Native members QNC4h									
Total Answering (Weighted)						374	345	0	29
Much / Somewhat easier						11%	12%	N/A	9%
No change						82%	82%	N/A	84%
Somewhat / Much harder						7%	7%	N/A	6%
Members whose preferred language is other than English QNC4i									
Total Answering (Weighted)						421	389	1	31
Much / Somewhat easier						18%	19%	0%	9%
No change						58%	58%	0%	55%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
Somewhat / Much harder						24%	23%	100%	36%
In the last 12 months, has it become easier or harder for you to provide equitable care coordination supports for the following types of members with long-term services and supports needs? Survey = CP QNC5									
*Members **with** comorbid physical health conditions QNC5a*									
Total Answering (Weighted)						113	39	51	23
Much / Somewhat easier						20%	34%	13%	12%
No change						48%	44%	46%	60%
Somewhat / Much harder						32%	23%	40%	28%
*Members **without** comorbid physical health conditions QNC5b*									
Total Answering (Weighted)						114	39	52	23
Much / Somewhat easier						28%	35%	24%	26%
No change						62%	60%	61%	67%
Somewhat / Much harder						10%	6%	15%	8%
Members with behavioral health needs QNC5c									
Total Answering (Weighted)						115	41	51	23
Much / Somewhat easier						17%	30%	8%	12%
No change						27%	34%	22%	29%
Somewhat / Much harder						56%	37%	70%	59%
Members with unmet health-related social needs (e.g., housing problems) QNC5d									
Total Answering (Weighted)						120	41	54	25
Much / Somewhat easier						12%	17%	11%	7%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
No change						35%	44%	29%	33%
Somewhat / Much harder						53%	40%	60%	60%
Children and adolescents QNC5e									
Total Answering (Weighted)						98	23	51	25
Much / Somewhat easier						7%	4%	6%	11%
No change						61%	68%	58%	60%
Somewhat / Much harder						32%	28%	36%	29%
Black members QNC5f									
Total Answering (Weighted)						116	39	53	24
Much / Somewhat easier						8%	10%	7%	8%
No change						81%	78%	80%	89%
Somewhat / Much harder						11%	13%	12%	3%
Hispanic or Latinx members QNC5g									
Total Answering (Weighted)						114	38	53	23
Much / Somewhat easier						7%	7%	6%	8%
No change						79%	82%	73%	84%
Somewhat / Much harder						15%	11%	21%	8%
Asian and Pacific Islander members QNC5h									
Total Answering (Weighted)						109	37	49	23
Much / Somewhat easier						9%	10%	8%	8%

	ACO, Total	ACO, Physicians	ACO, NPs/PAs	ACO, Nurses	ACO, Social Workers	CP, Total	CP, BH Only	CP, LTSS Only	CP, BH & LTSS
No change						82%	81%	79%	88%
Somewhat / Much harder						10%	9%	13%	4%
American Indian and Alaska Native members QNC5i									
Total Answering (Weighted)						107	37	48	23
Much / Somewhat easier						8%	7%	8%	8%
No change						82%	84%	78%	88%
Somewhat / Much harder						10%	9%	14%	4%
Members whose preferred language is other than English QNC5j									
Total Answering (Weighted)						116	38	53	25
Much / Somewhat easier						15%	21%	11%	15%
No change						57%	66%	56%	48%
Somewhat / Much harder						28%	13%	33%	38%

Appendix E: Key Informant Interview Guides

This appendix contains interview guides, as listed below, used for qualitative data collection conducted between 2021 and 2022. The data collection process and analysis methods are described in Section 2.2 of the report.

E1: DSRIP ACO Wave 2 Interview Guide

Thank you very much for taking the time to talk with us again about your MassHealth ACO. As you know, we are part of the independent team evaluating the MassHealth Delivery System Reform Incentive Payment (DSRIP) program. Your insights in the first wave were instrumental in constructing our interim evaluation report. This is the second of two rounds of interviews with ACO senior leaders we plan to conduct as part of the evaluation. Findings from these interviews will inform the evaluation's final report.

In this round, we are interested in learning how things have changed over the past two years, 2019-2020, and the approaches each ACO is taking to achieve the overall goals of the MassHealth ACO demonstration project as funding decreases through the rest of the program. As a reminder, the original goals of the ACO program were to integrate and improve care, improve quality, and reduce costs. We know your healthcare organizations/health plan may have more than one ACO contract, but we will be focusing only on your MassHealth ACO in today's discussion. We have a range of questions, and we know that some of you are better suited to respond to some questions than others.

The coronavirus pandemic may have influenced how DSRIP-related changes have rolled out. We have a set of questions related to your ACO's response to COVID, but please call out any other changes when answering other questions.

We will be sending out a link to a DSRIP Evaluation Demographic Interview Demographic Data Collection Form to each of you via email within the next few days. The information collected on this form will be used only to describe the group of people we interviewed. No individual information will be reported. There is also a space in that form where you can share any additional information you think of after the interview. We hope you will take the time to fill this out.

We want to remind you that we are recording the interviews to ensure that we accurately capture the information you provide. When we write our report about the interviews, we will not use the names, roles, or clinical practice site of respondents. Please note that while UMass Chan Medical School will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMass Chang Medical School as required under the public records statute of Massachusetts General Law.

Do you have any questions before we start?

SECTION 1: Organizational Structure

We would like to hear about your ACO's governance structure, specifically any changes that have been made, the reasons for changes and how Community Partners, other community-based organizations, and/or MassHealth members have been engaged.

1. What changes, if any, have been made to your ACO's governance structure since it was first established?
   a. What were the reasons for the changes?
   b. How have the changes enhanced or inhibited the governance structure?
   c. In what way, if any, have Community Partners, or CPs, been integrated into your ACO's governance? Do you foresee this changing in the future?
   d. How does your ACO engage MassHealth members in governance? How is that working for your ACO?

SECTION 2: Provider Engagement

Some ACOs are using financial incentives for primary care providers, specialists, or hospitals as a mechanism to engage providers in delivery system changes. MassHealth is also proposing changing the payment model for primary care providers to primary care sub-capitation to shift away from fee-for-service and better align provider incentives with those of the ACO and MassHealth.

2. In what way, if any, does your ACO use financial incentives (or value-based payments) based on quality or cost performance for *primary care* providers in your ACO?
   a. Approximately how large are those incentives as a percentage of provider salaries?
   b. How well do incentives align between MassHealth and other payers?
   c. In what way, if any, do these incentives differ for specialist providers in your ACO?
   d. How have these or other strategies for provider engagement changed over time?

3. Do you plan to use financial incentives in the future?
   a. What might those look like?

4. How are providers incentivized to use data to improve quality and financial performance?
   a. What data and reporting do providers receive or have access to? E.g., member-level non-compliance reports, aggregate provider or practice performance.
   b. How does your ACO get feedback from providers regarding the utility of these reports?
   c. How does your ACO work with providers to understand and use performance data?

5. How has your ACO continued to adopt structures and processes to promote success under alternative payment models (APMs) rather than fee-for-service reimbursement?
   a. What has facilitated the transition towards accountable care and away from fee-for-service?
   b. What challenges, if any, has the ACO encountered in the transition?
   c. What remains to be done?
   d. What challenges do you anticipate in the future?

e. Do you foresee challenges associated with a transition from fee-for-service payment for primary care providers to a primary care sub-capitation payment model?

SECTION 3: Care Coordination
We are interested in learning about the changes to care coordination processes used to organize patient care activities between two or more participants (including the patient) in order to facilitate the appropriate delivery of health care services. These activities include building personnel and other resources needed to carry out care activities and managing the exchange of information among participants responsible for different aspects of care.

6. How, if at all, have care coordination processes changed or continued to evolve in the last two years?
    a. What have been the facilitators and barriers to implementing care coordination processes?
    b. What has been the level of standardization of care coordination approaches across the provider organizations and practices in the ACO?
    c. How does your ACO evaluate how well these processes are working, either formally or informally?
    d. What data/risk stratification processes do you use to identify populations for care coordination and management?

7. How does the ACO identify which patients or populations will receive care coordination services from a behavioral health (BH) or Long-Term Services and Supports (LTSS) CP versus in-house through the ACO?
    a. What is the role of providers in assigning people to care coordination?
    b. What has been the provider experience of initiating and engaging members in care coordination?

8. In addition to working with CPs, what strategies are used within the ACO to coordinate and manage care for members with BH or LTSS needs?
    a. How is your ACO integrating primary and BH care, such as by increasing the co-location of these provider types? What further steps will be taken?
    b. How does the ACO work to reduce or eliminate BH or LTSS service access issues?
    c. Can you briefly describe any programming that your ACO has specifically for members with substance use disorders?

SECTION 4: Health-Related Social Needs (HSRNs) and Flexible Services Program
We now have a few questions related to Health-Related Social Needs (HSRNs) for MassHealth members and how your ACO might be addressing them as well as the Flexible Services Programs offered by your ACO.

9. How has your ACO's approach to screening for health-related social needs evolved?
    a. We understand that ACOs have to use MassHealth-approved screening tools to get credit for the HRSN measure. What is the level of standardization of the

screening tools and approaches across provider organizations and practices in your ACO?
   b. How are the responses shared with and used by providers?
   c. What have been the facilitators and barriers to your ACO's approach to screening MassHealth members for HSRNs?
   d. How have the MassHealth-approved and your ACO's own HRSN screening tools been used to identify members who may be eligible for the MassHealth Flexible Services Program?

10. How has your ACO's ability to respond to members' HRSNs, changed over time since the start of the ACO program?
   a. How have the electronic referral processes and service offerings changed?
   b. How does your ACO ensure that members get connected to needed services? What have been the challenges? What has your ACO found that helps this process?
   c. What differences, if any, are there in how your organization identifies and responds to pediatric-specific (for those under age 21) HRSNs compared to adult needs?
   d. How does your ACO learn and keep informed about community-based resources that can be accessed to respond to individual members' and/or their family's needs?
   e. How does your ACO evaluate its ability to assess and respond to HRSNs?

11. We have learned that your ACO provides Flexible Services Programs. What has your ACO's experience with the Flexible Services program been so far?
   a. What decision-making was involved in selecting the target populations?
   b. What decision-making was involved in selecting the Flexible Services that were chosen?
   c. How does the State's eligibility criteria for the Flexible Services Program align with how your ACO would determine member's need for Flexible Services?
   d. How well are the billing and payment processes related to HRSNs and Flexible Services working? Have there been challenges to establishing payment rates for FS?
   e. What have been the facilitators and barriers to implementation of your ACO's Flexible Services Program?
   f. How does your ACO avoid duplication of services for members who are using Flexible Services?
   g. What are the most high value supports your ACO has been able to deliver?
   h. How does your ACO evaluate the effectiveness of your ACO's Flexible Services Programs?

12. What do you think about the program structure - the "Buy versus Build" framework - of contracting with SSOs or CPs acting as SSOs to deliver Flexible Services *[i.e., purchasing existing programming from vendors versus developing programming inhouse from scratch]?*

   a. What opportunities does your ACO see to expand partnerships with SSOs to address HRSNs not currently being targeted by the Flexible Services Program?

13. What does your ACO see as the future of the Flexible Services Program within your organization?

SECTION 5: Promoting Health Equity and Addressing Health Disparities
Thanks for all the great information you've provided so far. We'd now like to turn to asking about how your ACO may be promoting health equity and addressing health disparities for MassHealth members.

14. What, if any, targeted initiatives or changes in clinical practice has your ACO introduced in the last year to reduce health disparities among MassHealth members?
    a. What plans do you have for future initiatives or changes?

15. What trainings, if any, has your ACO provided to providers and staff within the last year about unconscious or implicit bias, anti-racism or anti-oppression, and/or health equity?
    a. If so, what topics were covered?
    b. How effective do you think the training has been?

16. What information, if any, does your ACO or provider organization share with providers about the health disparities that your MassHealth members are experiencing?
    a. How is that information collected or acquired before it is shared?

17. Are there lessons that your ACO has learned about promoting equity and addressing health disparities for MassHealth members that you wish to share?

SECTION 6: Responding to the COVID-19 Pandemic
We'd like to ask a few specific questions about how your ACO has been able to serve MassHealth members during the coronavirus pandemic.

18. What clinical practice changes, such as telehealth or mobile health units, have been put in place in your ACO to serve MassHealth members during the coronavirus pandemic?
    a. Are there any differences in the changes for adult versus pediatric members?
    b. What changes do you anticipate your ACO will keep in place for the future?
    c. Does MassHealth's plans to change to a primary care sub-capitation model affect your ACO's planning?

19. What impact did the coronavirus pandemic have on the use of and access to LTSS or BH services, and did this differ for CP versus non-CP members?

20. How has the pandemic response impacted the ACO at an organizational level?
    a. Has your ACO experienced lower financial gains, greater losses, or unanticipated expenditures, such as investments in information technology infrastructure?

21. What lessons learned have come out of your ACO's pandemic response?

a. What, if any, lessons specifically relating to promoting equity and addressing health disparities has your ACO learned?

SECTION 7: Organizational Processes
Next, we'd like to move to asking about some your ACO's specific organizational processes.

22. How would you characterize your ACO's strategies for managing cost performance?
    a. How has your ACO engaged provider organizations and practices in managing cost performance?
    b. What have been the facilitators and barriers to managing and/or reducing care costs?
    c. If your ACO achieves shared savings, how are they distributed or invested?

23. What are your ACO's current strategies for managing and improving quality performance?
    a. What are the current "areas of focus"?
    b. What are the differences in your ACO's strategies for managing and improving quality performance, if any, for pediatric (under age 21) patients?
    c. What is the degree to which strategies are common or different across provider organizations and practices in your ACO?
    d. How have these approaches changed over the course of your ACO's development?
    e. How have financial sustainability concerns influenced your approach?

24. How has your ACO's health information technology continued to support or inhibit your ability to achieve performance goals?
    a. What future goals do you have for your organization's health information technology?

25. Can you describe the level to which your ACO can electronically share MassHealth member information among your ACO providers?
    a. Are there differences in your ACO's ability to share pediatric patient (under age 21) information versus sharing adult patient information?
    b. What barriers in HIT/HIE, if any, have hindered your progress as an ACO?

SECTION 8: Community Partners Program
In the following section of questions, we'd like to ask you some specific questions about the status of the Community Partners (CP) Program in your ACO.

26. Overall, how well is the current CP program working for your ACO?
    a. How would you describe your relationships with LTSS CPs?
    b. How would you describe your relationships with BH CPs?
    c. What conditions facilitate and/or impede the CP program's effectiveness from your ACO's perspective?
    d. How have the processes to coordinate care and administrative functions, such as member assignment and care plan signature, evolved over the last few years within your ACO?

27. How do you jointly manage performance and quality improvement with the CPs?

28. Beginning in 2020, ACOs and MCOs were given more flexibility in determining member assignment and were allowed to end certain CP affiliations, with approval from MassHealth. How has your ACO taken advantage of either of these policies?
    a. How have these changes improved the program for your ACO?

29. In the new waiver Demonstration, MassHealth intends for CPs to directly contract with ACOs as opposed to only with MH. What are your thoughts about this change?

30. With DSRIP ending and a new MassHealth 1115 Demonstration beginning which is proposed to involve direct ACO-CP contracting and expanded BH CP capabilities as Community Behavioral Health Centers or expanded LTSS CP capabilities to better align with the BH CP model of care coordination, what do you see as the future of the CP program within your organization?
    a. What would you change if anything about the overall CP program going forward?

SECTION 9: DSRIP-Funded Programs and the Role of MassHealth
We want to thank you again for all the great information you've provided so far. We are getting closer to the end of the interview, in this next set of questions, we'd like to ask you about DSRIP-Funded Programs and the role of MassHealth.

31. Can you briefly describe some DSRIP-funded clinical programs that highlight your ACO's experience in the MassHealth ACO program?
    a. How, if at all, has your ACO's approach to using DSRIP funds changed over time?
    b. How have you evaluated the value of your ACO's DSRIP funded programs?
    c. How have you used the results of self-evaluations and any other data points, including input from MassHealth, to target DSRIP funds to the most promising programs?

32. How is your ACO managing the intentional move towards sustainability, as opposed to reliance on DSRIP funds?
    a. How has MassHealth supported this?
    b. How have you used data to determine which programs to maintain or to end?
    c. What programs do you hope to continue after the end of DSRIP?
    d. What is the plan to continue effective programs?
    e. What do you see as facilitators and barriers to sustaining these programs?

33. We sent you a list of SWIs that we have learned your ACO has used, and we'd like to ask you a few questions related to those SWIs.
    a. What did you find useful about the SWIs your ACO used?
    b. What was not so useful?
    c. Why haven't you used or not yet used other SWIs?
    d. What did you find useful and not so useful about the SWI pop-up mini conferences regarding member engagement held between Fall 2019 and Spring 2021, if you were able to attend?

34. What did providers who attended the learning collaboratives, if any, find useful about them?
    a. What, if any, changes would they suggest for the learning collaboratives?

35. We understand that since we conducted our first round of KIIs in 2019, ACOs participated in a self-evaluation process and submitted evaluation deliverables to the State. What was that process like for your ACO?
    a. What did your ACO learn from going through the self-evaluation process?
    b. How manageable was the self-evaluation process for your ACO?
    c. How is your ACO continuing to use the self-evaluation documents (e.g., sharing with staff, informing decision-making)?

SECTION 10: Closing Questions
We have just 2 more questions to wrap up the discussion which are more general in nature. We want to thank you for your time once again.

36. In general, how do you feel your organization's transition to a MassHealth ACO facilitated by DSRIP funding has impacted care for your MassHealth members?
    a. Are there organizational conditions for your ACO that facilitate or hinder effective care relative to the pre-ACO delivery system?
    b. Are there organizational conditions related to functioning as a MassHealth ACO that impact access to different types of care, such as specialty care, behavioral health care, or care for complex needs?
    c. Have there been differences in the transition to an ACO for adult versus pediatric (under age 21) populations and their providers?
    d. What do you perceive the value to be of operating as a MassHealth ACO?

37. Is there anything else you think is important for our team to know about your experience with the MassHealth ACO program and 1115 Waiver Demonstration or your experience operating as a MassHealth ACO?

Thank you for your time and insights. You can feel free to follow up with us via email if you think of anything else you'd like to share with us.

E2: DSRIP CP Wave 2 Interview Guide

Thank you very much for taking the time to talk with us again about your organization's participation in MassHealth's Community Partners (CP) program. As you know, we are part of the independent team evaluating the MassHealth Delivery System Reform Incentive Payment (DSRIP) Program. Your insights in the first wave, conducted in Spring 2019, were instrumental in constructing our interim evaluation report. This is the second of two rounds of interviews with CP senior administrators we plan to conduct as part of the evaluation. Findings from these two rounds of interviews will be integrated into the final report.

In this round, we are interested in learning about how things have changed over the past two years (since Spring 2019) for your CP's efforts to achieve the overall goals of the DSRIP program: integrating and improving quality of care and reducing costs for Medicaid members. We know that CPs contract with multiple ACOs. If your experiences differ considerably between ACOs, please feel free to explain those differences in your answers throughout the interview. We have a range of questions, and we know that some of you are better suited to respond to some questions than others.

The coronavirus pandemic may have influenced how DSRIP-related changes have been rolled out. We have a set of questions about your CP's response to COVID, but please call out any other changes when answering other questions.

We want to remind you that we would like to record the interviews to ensure that we accurately capture the information you provide. When we write our report about the interviews, we will not use the respondents' names, roles, or clinical practice sites. Please note that while UMMS will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMMS as required under the public records statute of Massachusetts General Law.

We will be sending you a demographic information via email following today’s interview. This information will be used only to describe the group of people we interviewed. No individual information will be reported.

Does anyone have any questions before we start?

SECTION 1: Alignment with ACO(s) and other Consortium/Affiliated CPs
We’d like to start off by asking about the alignment with ACOs and other consortium/affiliated Community Partners (CPs).

1. How did your CP develop its original care coordination model, including defining the types of staff and providers that would need to be involved, and delineating roles and responsibilities?
    a. Has this model been refined over time, if so how and why?
    b. Does your CP co-locate staff with ACO primary care providers? What about with behavioral health (BH) providers?

2. Now that the CP program has been in place for more than three years and has experienced changes since December 2019, how well are the following processes functioning?
    a. Enrollee assignment systems?
    b. Member outreach and engagement systems?
    c. Sharing information systems?
    d. Quality and performance initiatives?
    e. Differences from your original plan?
    f. How do you work with the ACOs and/or consortium CPs/affiliated partners to coordinate these functions?

3. How has your CP continued to adapt and refine processes to minimize duplicating care management and coordination efforts with the ACOs/MCOs you work with?
    a. How have your processes differed from what your CP originally planned?
    b. What follow-up methods or other care coordination strategies work well/work less well for member outreach?
    c. What is your CP's process for coordinating with ACO/MCO partners?
        i. Strategically at the leadership level?
        ii. Between member-facing staff and providers?
        iii. How does this differ between different ACOs and MCOs?
    d. What have been the facilitators and barriers to managing your care coordination efforts?

4. Over the last two years, how have your CP's processes differed for working with DMH Adult Community Clinical Services (ACCS) enrollees or those who transitioned out of ACCS, if they differed at all?

5. With regard to Flexible Services, how does your CP coordinate services and functions with the Social Service Organizations (SSOs) that you work with?
    a. To what extent did your CP form new relationships with SSOs versus formalize existing relationships?
    b. How does this differ from any work your CP has done with these organizations in the past?

6. [*For CPs that are also SSOs*] How do the processes to coordinate Flexible Services with enrollees differ between the CP and the SSO? Specifically, what is the difference in roles as a CP versus as an SSO?

SECTION 2: Care Management and Transitions
Thanks for all that insight. We'd like to turn to asking some questions about care management and transitions.

7. We have learned from prior interviews how CPs develop a care plan for their enrollees. How has the care plan process changed, if at all, over the last two years?
    a. How did those changes come about?
    b. How does the care plan now differ from your original plan?
    c. Who are the staff, by role, that are involved in creating the care plan?

   i. [For BH CPs, probe for Clinical Care Managers, Care Coordinators, Nurses]
   ii. [For LTSS CPs, probe for CP Care Coordinator, Care Coordinator Supervisory Staff]
d. How is the member engaged in the process?
e. How does the CP coordinate the care plan development with the ACOs?
f. How well is the coordination process working?
g. How well do you feel Health-Related Social Needs (HRSNs) are being addressed with the rollout of the Flexible Services program?

8. How do staff in your CP help MassHealth members to navigate the BH and Long-Term Services and Supports (LTSS) delivery systems to connect to care?
   a. How do staff in your CP work with members to teach them how to navigate the health care system independently, such as making and attending appointments, talking with MassHealth about benefits, troubleshooting, and resolving benefits issues?
   b. What have been facilitators and barriers to effective member navigation, both at an organization level and at the member level?
   c. [*For CPs that are both BH and LTSS*] Are there differences in the facilitators and barriers between the BH/LTSS delivery systems?
   d. What processes, formal or informal, does your CP have in place to evaluate the success of member navigation practices?

9. What strategies does your organization use to promote meaningful enrollee participation and engagement with their care, such as being able to make their own decisions and managing their health needs?
   a. How have these strategies evolved over the last two years?
   b. What have been the facilitators and barriers to member engagement?
   c. How is the effectiveness of member engagement strategies assessed?
   d. [For *LTSS CPs only*] Are there differences in this process for pediatric members (members aged 3-17)?

10. How have your CP's processes to coordinate care across the clinical and social service providers that serve MassHealth members with complex BH/LTSS needs changed over time?
   a. What internal resources have been put in place to support this work?
   b. How has the use of electronic data transfer of member-related information evolved in the last two years?
   c. What have been the facilitators and barriers to your CP's care coordination processes?

11. We understand that CPs are expected to assist ACOs and/or MCOs to identify and use existing community-based resources, such as other community organizations or programs, that can be accessed to respond to members' BH/LTSS/HRSN needs with supports. How is this going?
   a. What is working well/less well about this process?

12. Are there differences in the way your CP assists members with their social needs versus their medical and BH needs?

13. What internal resources have contributed to success in supporting your CP's care coordination work? Internal resources could be databases, staffing, or organizational relationships.
    a. Could you give us some examples of how these resources have contributed to the success of your CP's care coordination work?

SECTION 3: Quality and Process Improvement
In this next set of questions, we'd like to ask about Quality and Process Improvement.

14. How have the strategies that your organization adopted to measure quality performance evolved?
    a. How much quality performance measurement work was new to the organization since the start of the CP program?
    b. What strategies have been successful/less successful?

15. How has your CP worked to address barriers to meeting performance targets?

16. How have you worked to align your CP's performance metrics efforts with those of the ACOs that you work with?
    a. What have been the facilitators and barriers to aligning efforts?
    b. From your CP's perspective, what are the quality measures you consider most relevant for CPs to be held accountable to?
    c. From your CP's perspective, what quality measures are more appropriate for ACOs to be responsible for?

17. What strategies has your organization adopted to engage the leadership and front-line staff in your CP in working to meet CP performance goals?
    a. What financial incentives, if any, are used?
    b. What other types of incentives, such as quality improvement feedback loops, that are used?
    c. What have been the facilitators and barriers to both leadership and staff engagement in meeting performance goals?

SECTION 4: Promoting Health Equity and Addressing Health Disparities
We'd like to thank you for all the information you've provided so far. In the following section, we'd like to ask about how your CP may be promoting health equity and addressing health disparities.

18. What, if any, targeted initiatives or changes in practice has your CP introduced in the last year to reduce health disparities among MassHealth members?
    a. What plans do you have for future initiatives or changes?

19. What trainings, if any, has your CP provided to providers and staff within the last year about unconscious or implicit bias, anti-racism or anti-oppression, and/or health equity?

a. If so, what topics were covered?
b. How effective do you think the training has been?

20. What information, if any, does your CP share with staff about the health disparities that MassHealth members are experiencing?
    a. *[If information is provided]* How is that information collected or acquired before it is shared?

21. Are there lessons that your CP has learned about promoting equity and addressing health disparities for MassHealth members that you wish to share?

SECTION 5: Responding to the COVID-19 Pandemic
We'd now like to ask a few questions about how your CP has been responding to the coronavirus pandemic.

22. What changes has your CP put in place to serve MassHealth members during the coronavirus pandemic?
    a. [*For LTSS CPs only*] Are there any differences in the changes for adult versus pediatric (members aged 3-17) members?
    b. What changes do you anticipate your CP will keep in place for the future?

23. How has the pandemic response impacted the CP at an organizational level?
    a. Has your CP experienced lower financial gains, greater losses, or unanticipated expenditures, such as investments in information technology infrastructure?

24. What lessons learned have come out of the pandemic for your CP?
    a. What, if any, lessons specifically relating to promoting equity and addressing health disparities has your CP learned?

SECTION 6: Role of MassHealth
We're getting close to the end of our questions. In this section, we'd like to ask about the role of MassHealth plays in your CP.

25. How have you continued to work with MassHealth over the past two years to address your CP program's needs?

26. What do you perceive to be the value of operating as a MassHealth CP and partnering with the ACOs?

27. Let's review the SWI grid we sent around [*Review list of SWIs*.]
    a. What has been helpful about the ones you've used?
    b. What has not been helpful?
    c. Why have you not used [X, Y, Z SWI]?

28. What did staff who attended the learning collaboratives, if any, find useful about them?
    a. What, if any, changes would they suggest for the learning collaboratives?

29. What did CP staff who attended the SWI pop-up mini conferences regarding member engagement held between Fall 2019 and Spring 2021, if any, find useful and not so useful about them?

30. Are there other ways MassHealth has continued to support or hinder your organization's ability to operate as a CP?

SECTION 7: Closing Questions
We want to thank you so much for all the information you've provided. We just have 2 more questions in closing that are more generic in nature.

31. In general, how well do you feel the MassHealth CP program is working?
    a. What, if anything, would you change about the CP program?

32. Is there anything else you think is important for our team to know about your experiences as a CP participating in the MassHealth 1115 Waiver?

Thank you for your time and insight. If you have anything else you'd like to share with us, feel free to email us.

E3: DSRIP MCO Wave 2 Interview Guide

Thank you very much for taking the time to talk with us again about your MassHealth MCO. As you know, we are part of the independent team evaluating the MassHealth Delivery System Reform Incentive Program (DSRIP). Your insights in the first wave were instrumental in constructing our interim evaluation report. This is the second of two rounds of interviews with MCO senior leaders we plan to conduct as part of the evaluation. Findings from these interviews will inform the evaluation's final report.

In this round, we are interested in learning how things have changed over the past three years, 2019-2021, and the approaches each MCO is taking to achieve the overall goals of the MassHealth demonstration project as funding decreases through the rest of the program. As a reminder, the original goals of the ACO program were to integrate and improve care, improve quality, and reduce costs. We know your healthcare organization/health plan has multiple contracts with ACOs, but in today's discussion we will be focusing on your MCO-administered ACO contract, as well as your standard MCO contract. We have a range of questions, and we know that some of you are better suited to respond to some questions than others.

The coronavirus pandemic may have influenced how DSRIP-related changes have rolled out. We have a set of questions related to your MCO's response to COVID, but please call out any other changes when answering other questions.

We will be sending out a link to a DSRIP Evaluation Interview Demographic Data Collection Form to each of you via email within the next few days. The information collected on this form will be used only to describe the group of people we interviewed. No individual information will be reported. There is also a space in that form where you can share any additional information you think of after the interview. We hope you will take the time to fill this out.

We want to remind you that we are recording the interviews to ensure that we accurately capture the information you provide. When we write our report about the interviews, we will not use the names, roles, or clinical practice site of respondents. Please note that while UMass Chan Medical School will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMass Chan Medical School as required under the public records statute of Massachusetts General Law.

Do you have any questions before we start?

SECTION 1: Organizational Structure
We would like to hear about your MCO's governance structure, specifically any changes that have been made, the reasons for changes and how Community Partners, other community-based organizations, and/or MassHealth members have been engaged. Please focus your answers specifically on the governance associated with your standard MCO contract with MassHealth.

1. What changes, if any, have been made to your MCO's governance structure since it was first established?
    a. What were the reasons for the changes?
    b. How have the changes enhanced or inhibited the governance structure?
    c. In what way, if any, have Community Partners, or CPs, been integrated into your MCO's governance? Do you foresee this changing in the future?
    d. How does your MCO engage MassHealth members in governance? How is that working for your MCO?

SECTION 2: Provider Engagement
Some organizations are using financial incentives for primary care providers, specialists, or hospitals as a mechanism to engage providers in delivery system changes.

2. In what way, if any, does your MCO use financial incentives (or value-based payments) for primary care providers contracted with your MCO?
    a. Approximately how large are those incentives as a percentage of provider salaries?
    b. How well do incentives align between MassHealth and other payers?
    c. In what way, if any, do these incentives differ for specialist providers in your MCO?
    d. How have these or other strategies for provider engagement changed over time?

3. Do you plan to use financial incentives in the future?
    a. What might those look like?

4. How are providers incentivized to use data to improve quality and financial performance?
    a. What data and reporting do providers receive or have access to? Examples might be member-level non-compliance reports, aggregate provider or practice performance.
    b. How does your MCO get feedback from providers regarding the utility of these reports?
    c. How does your MCO work with providers to understand and use performance data?

5. How has your MCO continued to adopt structures and processes to promote success under alternative payment models (APMs) rather than fee-for-service reimbursement?
    a. What has facilitated the transition towards accountable care and away from fee-for-service?
    b. What challenges, if any, has the MCO encountered in the transition?
    c. What remains to be done?
    d. What challenges do you anticipate in the future?
    e. Do you foresee challenges associated with a transition from fee-for-service payment for primary care providers to a primary care sub-capitation payment model?

6. Over the last three years, what changed in the process of shifting the practices toward ACO participation? Have you noticed changes in provider perspective over the last two years?

SECTION 3: Care Coordination
We are interested in learning about the changes to care coordination processes used to organize patient care activities between two or more participants (including the patient) in order to facilitate the appropriate delivery of health care services. These activities include building personnel and other resources needed to carry out care activities and managing the exchange of information among participants responsible for different aspects of care.

7. How, if at all, have care coordination processes changed or continued to evolve in the last three years?
    a. What have been the facilitators and barriers to implementing care coordination processes?
    b. What has been the level of standardization of care coordination approaches across the provider organizations and practices in the MCO?
    c. How does your MCO evaluate how well these processes are working, either formally or informally?
    d. What data/risk stratification processes do you use to identify populations for care coordination and management?

8. How does the MCO identify which patients or populations will receive care coordination services from a behavioral health (BH) or Long-Term Services and Supports (LTSS) CP versus in-house through the MCO?
    a. What is the role of providers in assigning people to care coordination?
    b. What has been the provider experience of initiating and engaging members in care coordination?

9. In addition to working with CPs, what strategies are used within the MCO to coordinate and manage care for members with BH or LTSS needs?
    a. How does the MCO work to reduce or eliminate BH or LTSS service access issues?
    b. Can you briefly describe any programming that your MCO has specifically for members with substance use disorders?

SECTION 4: Health-Related Social Needs (HSRNs)
We now have a few questions related to Health-Related Social Needs (HSRNs) for MassHealth.

10. How has your MCO’s approach to screening for health-related social needs evolved?
    a. How are the responses shared with and used by providers?
    b. What have been the facilitators and barriers to your MCO’s approach to screening MassHealth members for HSRNs?

11. How has your MCO’s ability to respond to members’ HRSNs, changed over time since the start of the MCO program?

a. How have the electronic referral processes and service offerings changed?
b. How does your MCO ensure that members get connected to needed services? What have been the challenges? What has your MCO found that helps this process?
c. What differences, if any, are there in how your organization identifies and responds to pediatric-specific (for those under age 21) HRSNs compared to adult needs?
d. How does your MCO learn and keep informed about community-based resources that can be accessed to respond to individual members' and/or their family's needs?
e. How does your MCO evaluate its ability to assess and respond to HRSNs?

SECTION 5: Promoting Health Equity and Addressing Health Disparities
Thanks for all the great information you've provided so far. We'd now like to turn to asking about how your MCO may be promoting health equity and addressing health disparities for MassHealth members.

12. What, if any, targeted initiatives or changes in clinical practice has your MCO introduced in the last year to reduce health disparities among MassHealth members?
    a. What plans do you have for future initiatives or changes?

13. What trainings, if any, has your MCO provided to providers and staff within the last year about unconscious or implicit bias, anti-racism or anti-oppression, and/or health equity?
    a. If so, what topics were covered?
    b. How effective do you think the training has been?

14. What information, if any, does your MCO or provider organization share with providers about the health disparities that your MassHealth members are experiencing?
    a. How is that information collected or acquired before it is shared?

15. Are there lessons that your MCO has learned about promoting equity and addressing health disparities for MassHealth members that you wish to share?

SECTION 6: Responding to the COVID-19 Pandemic
We'd like to ask a few specific questions about how your MCO has been able to serve MassHealth members during the coronavirus pandemic.

16. What clinical practice changes, such as telehealth or mobile health units, have been put in place in your MCO to serve MassHealth members during the coronavirus pandemic?
    a. Are there any differences in the changes for adult versus pediatric members?
    b. What changes do you anticipate your MCO will keep in place for the future?
    c. Does MassHealth's plans to change to a primary care sub-capitation model affect your MCO's planning?

17. What impact did the coronavirus pandemic have on the use of and access to LTSS or BH services, and did this differ for CP versus non-CP members?

18. How has the pandemic response impacted the MCO at an organizational level?
    a. Has your MCO experienced lower financial gains, greater losses, or unanticipated expenditures, such as investments in information technology infrastructure?

19. What lessons learned have come out of your MCO's pandemic response?
    a. What, if any, lessons specifically relating to promoting equity and addressing health disparities has your MCO learned?

SECTION 7: Organizational Processes
Next, we'd like to move to asking about some your MCO's specific organizational processes.

20. How would you characterize your MCO's strategies for managing cost performance?
    a. How has your MCO engaged provider organizations and practices in managing cost performance?
    b. What have been the facilitators and barriers to managing and/or reducing care costs?
    c. If your MCO achieves shared savings, how are they distributed or invested?

21. What are your MCO's current strategies for managing and improving quality performance?
    a. What are the current "areas of focus"?
    b. What are the differences in your MCO's strategies for managing and improving quality performance, if any, for pediatric (under age 21) patients?
    c. What is the degree to which strategies are common or different across provider organizations and practices in your MCO?
    d. How have these approaches changed over the course of your MCO's development?
    e. How have financial sustainability concerns influenced your approach?

22. How has your MCO's health information technology continued to support or inhibit your ability to achieve performance goals?
    a. What future goals do you have for your organization's health information technology?

23. Can you describe the level to which your MCO can electronically share MassHealth member information among your MCO providers?
    a. Are there differences in your MCO's ability to share pediatric patient (under age 21) information versus sharing adult patient information?
    b. What barriers in HIT/HIE, if any, have hindered your progress as an MCO?

SECTION 8: Community Partners Program
In the following section of questions, we'd like to ask you some specific questions about the status of the Community Partners (CP) Program in your MCO.

24. Overall, how well is the current CP program working for your MCO?
    a. How would you describe your relationships with LTSS CPs?
    b. How would you describe your relationships with BH CPs?

   c. What conditions facilitate and/or impede the CP program's effectiveness from your MCO's perspective?
   d. How have the processes to coordinate care and administrative functions, such as member assignment and care plan signature, evolved over the last few years within your MCO?

25. Are there any differences in your relationships with CPs for your standard MCO model of care versus in the Model A or Model C models?

26. How do you jointly manage performance and quality improvement with the CPs?

27. Beginning in 2020, ACOs and MCOs were given more flexibility in determining member assignment and were allowed to end certain CP affiliations, with approval from MassHealth. How has your MCO taken advantage of either of these policies?
    a. How have these changes improved the program for your MCO?

28. Are there any differences in your relationships with CPs in the MCO only model of care versus in the ACO-MCO Partnership model? How did that evolve over the last three years?

29. With DSRIP ending and a new MassHealth 1115 Demonstration beginning which is proposed to involve direct MCO-CP contracting and expanded BH CP capabilities as Community Behavioral Health Centers or expanded LTSS CP capabilities to better align with the BH CP model of care coordination, what do you see as the future of the CP program within your organization?
    a. What would you change if anything about the overall CP program going forward?

Thank you for your time and insights. You can feel free to follow up with us via email if you think of anything else you'd like to share with us.

E4: DSRIP MEI Adult Wave 2 Interview Guide

MEMBER EXPERIENCE INTERVIEW GOALS:

- To develop a more in-depth understanding of:
    - member experience and satisfaction with ACO services, CP supports, and potential barriers in meeting member needs identified from the overall results of the member experience surveys; and
    - member's familiarity with the goals of the ACO program; their personal experience with changes in care since ACO inception and/or changes experienced by family or friends; perceptions of changes in care quality, access, and patient centeredness; and recommendations for improving member's experiences.

MEMBER EXPERIENCE INTERVIEW GUIDE:
Introduction:
[Introduce Self]

Thank you so much for agreeing to talk to me today about your experience as a MassHealth Member enrolled in [ACO organization, if known]. [ACO organization] is one of the 17 MassHealth Accountable Care Organizations, or ACOs, which were created about a few years ago to improve the way your healthcare is delivered. An ACO is a group of healthcare providers that work together as a team to provide care to patients. I'm part of the team that is evaluating the MassHealth ACO programs. In this part of our project, we want to learn more about member experiences receiving health care and with MassHealth. What we learn from these interviews will be reported in our evaluation report.

Did you have a chance to review the fact sheet we sent ahead of time?

[If yes] Great. We want to remind you that we would like to record this interview to accurately capture the information you provide. We would also like to remind you that this interview is completely voluntarily. You do not have to answer any questions you do not want to, and you can end the interview at any time. After all of our interviews, we will combine the information together into a report. Your individual answers and personal information will not appear in the summary report. We will not use personal information like names, addresses, birth dates or dates that you received medical care in the report. No one will be able to identify you by reading the report. Also, we will not share your specific interview responses to MassHealth, or to your healthcare provider(s).

However, records related to this project are considered public record, and we would share this information only if required by Massachusetts law. When we store the records, your name isn't connected with your responses and the interview recording will be transcribed and stored in a de-identified format.

[If no, offer the fact sheet to the interviewee and read the script above without "As a reminder" lead]

[Note to Interviewer: Please remind interviewee that they should not provide any identifying details such as dates of care received, names of doctors, or other identifying information. Stating provider type is acceptable]

Do I have your permission to record?

Turn Recorder On

The recording is now on. Do I still have your permission to proceed with recording?

Do you have any questions before we start?

General Opening Questions:

1. How would you describe your health in general right now? - excellent, good, fair, poor? Why do you say that?

2. How does your health affect your everyday life?

3. About how long have you had MassHealth insurance?

4. Does anyone help you decide what kind of health care you need or what kind of healthcare providers that you need to see? If so, who helps you?

5. Can you name all of the key people that help you with your healthcare needs? (Nurses, Doctors, Care Coordinators, etc.) (Reminder: no names or identifying information)
    a. Probe for their role, such as a nurse, specialist, BH provider, care coordinator?
    b. Probe for frequency of contacts?

6. Where do you go for your regular health care needs such as annual visits, minor injuries, colds, sore throats, ear pain, and anything non-emergency? Probe to see if a primary care doctor or a specialist. (Reminder: no names or identifying information)
    a. How long have you been seeing them/going there?

Primary Care Provider:

7. (Depending on previous answer, ask: Do you have a primary care provider? A primary care provider is someone that works in a medical office that you would see for checkups) Tell me about the last time you saw your primary care provider or the doctor you see most often:
    a. How long ago was it? (Virtual visits included)
    b. Did you go to this provider because you had a healthcare issue or was it for a regular checkup?
    c. How comfortable were you asking them questions? What kinds of questions did you ask them? Give an example or two of the questions you asked.

d. Did they give you any advice or recommend anything to you to improve your health? If so, what were the recommendations?
e. Were there any additional tests, such as lab work or x-rays, that were recommended? Did they help you schedule? Please explain how they helped.
f. Did they recommend that you see an additional healthcare provider for your health needs? Did they help you schedule it? Please explain how they helped.
g. Did you talk with your healthcare provider about other needs that you may have beyond your health like housing, transportation, or nutrition?

[If yes] (Please share what you are comfortable sharing) What kind of needs did you talk to them about? Did they help you address these needs? How?

h. Was there anything different about this visit compared to visits in the past?
i. Have you noticed any changes in your care over the past few years?
    a. Has receiving care become easier or more difficult, more or less confusing, or complicated? How so?
j. Overall, how would you describe your experience with your provider? Would you recommend your healthcare provider to a friend or loved-one?
k. Do you have suggestions to make your most recent experience any better?

Specialists:

8. Next, we are going to ask about your experience with specialists. A specialist is a type of healthcare provider that helps you with a specific illness or healthcare problem (Examples include cardiologist for people with heart problems, psychiatrist for mental health conditions, or dermatologist for someone with skin conditions). Do you see a specialist? What kind of specialist provider are you seeing? (Ask questions below for selected specialists)
    a. How long ago was it? (Virtual visits included)
    b. Did you go to this provider because you had a healthcare issue or was it for a regular checkup?
    c. How comfortable were you asking them questions? What kinds of questions did you ask them? Give an example or two of the questions you asked.
    d. Did they give you any advice or recommend anything to you to improve your health? If so, what were the recommendations?
    e. Were there any additional tests, such as lab work or x-rays, that were recommended? Did they help you schedule? Please explain how they helped.
    f. Did they recommend that you see an additional healthcare provider for your health needs? Did they help you schedule it? Please explain how they helped.
    g. Did you talk with your healthcare provider about other needs that you may have beyond your health like housing, transportation, or nutrition?

[If yes] (Please share what you are comfortable sharing) What kind of needs did you talk to them about? Did they help you address these needs? How?

    h. Was there anything different about this visit compared to visits in the past?
    i. Have you noticed any changes in your care over the past few years?
        a. Has receiving care become easier or more difficult, confusing, or complicated? How so?
    j. Overall, how would you describe your experience with your provider? Would you recommend your healthcare provider to a friend or loved-one?

k. Do you have suggestions to make your most recent experience any better?

Telehealth:

9. Has anything changed about the care you received because of the pandemic? If yes, please describe these changes.

10. How have you been getting care over the last year? Has this been in the doctor's office, at home or in-person somewhere else, or via the phone or video?
    a. If you have had telephone or video doctor's appointments:
        i. How often were they?
        ii. What platform(s) do you use to connect with your doctors/providers? (Zoom, Skype, FaceTime, WhatsApp, etc.)
    b. Have you had any problems using telehealth, for example with internet access, having the right equipment like a smartphone, difficulty navigating the specific platform used by a provider?
    c. Did meeting on the phone or video conference raise any concerns for you? (i.e., concerns about confidentiality, security, safety)
        i. If so, what kinds?
        ii. What created these concerns? (i.e., setting, privacy, sense of detachment)
    d. Do you prefer one way of getting care over another (i.e., in-person versus telephone vs video) overall or for specific types of appointments?
    e. Are you given the choice of whether to see your doctor/provider in person or having a telehealth appointment?
        i. Which other providers, if any, would you want to see via telehealth that you aren't seeing that way now?
        ii. If needed, are you able to go to the office/hospital (maybe for lab tests or vaccinations)?
    f. Do phone or video visits meet your definition of a "good care visit"? Are you satisfied with them?
    g. Have you continued to see any of your healthcare providers and are you getting the care you need?
        i. Do you think you are getting the care you need through both in-person and telehealth visits? Any differences between the visits that you have noticed?
        ii. [If yes] Any trouble getting an appointment with your provider? Any other troubles with in-person visits that you experienced? (i.e., transportation)
        iii. [If they aren't going into the providers office] Are there other ways you are in touch with your healthcare providers, such as by telephone, video call, messaging (e.g., through a patient portal or through emails/texts from your provider's office)?

Hospital Visits:

11. Have you been to the emergency room **in the past year**?

If no, skip to the next question
If yes,

a. Thinking about your most recent trip to the emergency room, what brought you there? In a few words, how would you describe your experience?
b. Were you or the emergency room providers talking with your primary care doctor or other providers you see outside the emergency department while you were there?
c. Thinking about your most recent trip to the emergency room, what was the process like when you were being sent home? Did you know who to follow-up with, if anyone?
d. Were you offered any health-related follow-up appointments or helpful services after you were sent home? What services did you choose/receive?
e. When you were sent home from the hospital, did anyone contact you shortly after to see how you were doing? If so, who?

12. Have you stayed overnight in the hospital **in the past year**?

If no, skip to the next question
If yes,

a. For your most recent overnight stay, what brought you to the hospital?
b. Were you or the hospital providers talking with your primary care doctor or other providers you see outside the hospital while you were staying there?
c. What was the process like when you were being sent home? Did you know who to follow-up with, if anyone?
d. Were you offered any health-related follow-up appointments or helpful services after you were sent home? What services did you choose/receive?
e. When you were sent home from the hospital, did anyone contact you shortly after to see how you were doing? If so, who?

Community Partner & Flexible Services:

13. Now we are going to talk about Care Coordinators and Case Managers. Do you have one or more Care Coordinators or Case Managers? (Someone that helps you get all of your healthcare needs addressed but isn't a doctor or healthcare provider. They may help you get your appointments scheduled, check in with you to make sure you can get to your appointments, etc.)
    a. How did you get connected with them? Did someone refer you? Who?
        i. Do you know where they work?
        ii. If you have multiple care coordinators, do they work together?

14. Did you have to fill out any paperwork, go through any visits, or do anything special to begin working with your care coordinator?
    a. Would you say it was an easy process to begin working with your care coordinator? Why or why not?

15. Tell me what your care coordinator helps you with?
    a. How long have you been working with them?
    b. What do you talk about?
    c. How often do you connect with them?

d. Do they help you with other things beyond your healthcare needs such as housing, transportation, or nutrition? (Share if you are comfortable)
e. What types of things do they help you with that isn't healthcare related?
f. How do they go about helping you with these needs? Describe.
g. [If not already addressed] Do your providers and care coordinators work closely together [as a care team]? If you have a visit with one, are others present, and if not will they be up to date on what happened at your other visits next time you see them?
h. If you are admitted to the Emergency Department (ED), does your care coordinator help you with planning for after you are discharged?

16. Has your overall health changed now that you are working with your care coordinator? If so, how has it changed?

17. Has a health care provider connected you to an organization to provide you with specific housing services or goods, like assistance with finding housing, or a specific food-related services of goods, like medically tailored meals or vouchers? This is called Flexible Services.

18. If you are receiving Flexible Services, what has that experience been like for you?
    a. Can you tell me which service or services you enrolled in?
    b. How did you find out about these services? Did you find the process of agreeing to Flex easy? Anything that might make it easier?
    c. Once you agreed to services, were you able to receive them quickly? If not, why?
    d. How has your experience with these services been?
    e. If you received housing services or goods, how have these services changed (if at all) your housing situation?
    f. If you receive nutrition services or goods, how have these services impacted your nutrition status?
    g. Are you happy with the services you received? Why/Why not?
    h. Have you seen improvement in your health since you received these services?
    i. Do you have any suggestions for changes?
    j. Would you recommend these services to a friend or loved-one if they needed the same service? Why?
    k. Are there any other services that you wish were available?

BH and LTSS Services:

19. We would like to learn more about how Behavioral Health and/or Long-Term Services and Supports may or may not have impacted your overall health. Behavioral Health Services help members with needs related to mental health conditions and substance use disorders. Long-term Services and Supports includes a wide range of help provided to people with certain disabilities or chronic health conditions, to allow these people to live more independently. This may include assistance with personal needs such as bathing and grooming, healthcare needs such as managing medication, and activities of daily living such as cooking or driving.

a. What information has your care coordinator shared with you about the types of services, like these, you could receive
b. Has your care coordinator helped to connect you to any services which help you with these needs?
c. Do you receive any services like these?
d. How has your experience with these services been?
e. Would you recommend these services to a friend or loved-one if they needed the same service?
f. Do you have any suggestions for changes?

Health Care Goals:

20. I want to hear more about how you set health-related goals for yourself and how you make decisions about what treatment you would like to receive.
    a. How do you decide what is the most important health goal for yourself?
    b. If you have a Care Coordinator, do they work with your healthcare providers to identify goals that you need to work on for your health?
    c. How do you communicate with your healthcare providers or care coordinator what goals are most important to you? Do your healthcare providers or your care coordinator help you decide which ones you should focus on? Do you feel your healthcare providers or care coordinator support you in deciding the goals that you want to work on?
    d. Are there specific providers within your care team you feel more or less comfortable talking to?

21. The goals you set with your providers are usually written down and referred to as a Care Plan. You may have signed this Care Plan. You may have had a discussion with your Care Coordinator or Healthcare Provider about the goals you would work on. I'd like to ask you some questions about your Care Plan.
    a. Do you remember having a care plan?
        i. If yes: Do you have a copy of your care plan?
        ii. Do you know what is included in your care plan?
        iii. Can you tell me about some of your health-related goals?
        iv. Do you have non-medical goals as part of your care plan?
        v. Do you know who was involved in putting your care plan together? Did you and your care team agree on what goals should be included?
        vi. How are your healthcare providers and care coordinators working with you to meet your goals?
        vii. If you have questions related to your health-related goals, do you know who you should go to with these questions?
        viii. Does anything get in the way of meeting your goals? If so, what types of things?
    b. Do you have anything in your health that has improved that you'd like to share? How did your Care Coordinator and/or healthcare providers help you accomplish this?
    c. Do you have anything else that you think impacts your overall health but are not currently addressing? Would you like to address this?

22. Can you talk about your experiences with getting the care/services you want or need in a timely manner?
    a. Do you experience any delays in getting care? If so, please explain.
    b. Is there any care you are not getting that you want/need? If so, why do you think you aren't receiving the care? (Probe for availability/accessibility, disability, language)
    c. Do you feel your healthcare providers and care coordinators understand your medical needs? Please explain why or why not.

23. Can you tell me how your healthcare providers and/or care coordinator help you understand all of the care that might be available to you through MassHealth?
    a. What kind of information do they provide to you about the services that you can take advantage of?
        i. What type of information is really helpful for you? What type of information is not helpful for you?
        ii. Where/how else are you finding this information if it is not being shared with you?
    b. How would you like to receive information from your care team? (i.e., electronic, paper, text, phone call)
    c. Is there any information you would like to receive, that you aren't currently receiving? If so, what would that include?

Closing Questions:

24. What factors are most important to you in selecting a provider or care coordinator?

25. For my next question, let me start with some examples. Sometimes, people want to have a provider who is similar to them in some way, such as: if someone is Hispanic, that person might have a preference for a healthcare provider who is also Hispanic; or someone who is gay may want a healthcare provider who is gay.
    a. Have you had a health care provider or care coordinator who was different from your preference? Was that an issue for you?
    b. What, if any, factors are important to you in terms of culture, race, ethnicity, gender, or sexual identity when selecting a provider?

26. We mentioned earlier that the MassHealth Accountable Care Organization program started about four years ago. As a reminder, an Accountable Care Organization is a group of healthcare providers that work together as a team to provide care to patients. In what ways, if any, is your care **different now than before, say, two to three years ago**, that are not related to the pandemic?
    a. How is it the same?
    b. What is better? Why?
    c. What may be worse, and why?

27. Is there anything else that you would like to share with us today regarding your healthcare experiences **over the last year**? Have there been any large changes?

28. Overall, has your quality of life changed **in the last year** because of your health or healthcare? If so, how has it changed?

29. Is there anything else you would like to share with us today about MassHealth or your healthcare providers that you haven't already?

[Thank them for their time; Shut off recorder; Confirm any missing demographic information; Collect gift card information]

Gift card vendor: Walmart, Target, or Amazon
Gift card type: electronic or physical
Mailing address:
Email address:

E5: DSRIP MEI Pediatric Wave 2 Interview Guide

MEMBER EXPERIENCE INTERVIEW GOALS:

- To develop a more in-depth understanding of:
  - member experience and satisfaction with ACO services, CP supports, and potential barriers in meeting member needs identified from the overall results of the member experience surveys; and
  - member's familiarity with the goals of the ACO program; their personal experience with changes in care since ACO inception and/or changes experienced by family or friends; perceptions of changes in care quality, access, and patient centeredness; and recommendations for improving member's experiences.

MEMBER EXPERIENCE INTERVIEW GUIDE:
INTRODUCTION:

[Introduce Self]

Thank you so much for agreeing to talk to me today about your child's experience as a MassHealth Member enrolled in [ACO organization, if known]. [ACO organization] is one of the 17 MassHealth Accountable Care Organizations, or ACOs, which were created about a few years ago to improve the way your healthcare is delivered for your child. I'm part of the team that is evaluating the MassHealth ACO program. In this part of our project, we want to learn more about member experiences receiving health care and with MassHealth. What we learn from these interviews will be reported in our evaluation report.
Did you have a chance to review the fact sheet we sent ahead of time?

[If yes] Great. We want to remind you that we are recording the interviews to ensure that we accurately capture the information you provide. After all of our interviews, we will combine the information together into a report. We would also like to remind you that this interview is completely voluntarily. You do not have to answer any questions you do not want to, and you can end the interview at any time. Your individual answers and personal information will not appear in the summary report. We will not use personal information like names, addresses, birth dates or dates that you received medical care in the report. No one will be able to identify you by reading the report. Also, we will not share your specific interview responses to MassHealth, or to your healthcare provider(s).

However, records related to this project are considered public record, and we would share this information only if required by Massachusetts law. When we store the records, you and your child's names aren't connected with your responses and the interview recording will be transcribed and stored in a de-identified format.

[If no, offer the fact sheet to interviewee and read script above without "As a reminder" lead]

[Note to Interviewer: Please remind interviewee that they should not provide any identifying details such as dates of care received, names of doctors or places they received care, or other identifying information. Stating provider type is acceptable.]

Do I have your permission to record?

Turn Recorder On

The recording is now on. Do I still have your permission to proceed with recording?

Do you have any questions before we start?

General Opening Questions: [Remind interviewee not to share identifying information]

1. How would you describe your child's health in general right now? - excellent, good, fair, poor? Why?

2. How does your child's health affect your child's everyday life?

3. About how long has your child been covered by MassHealth?

4. Who are the key provider types that helped you with your child's healthcare needs over the last 12 months? (Nurses, Doctors, social workers, Care Coordinators, etc.)
    a. Probe for their role, such as a nurse, specialist, BH provider, care coordinator?
    b. Probe for frequency of contacts?

5. Where does your child go for regular health care needs such as annual visits, minor injuries, colds, sore throats, ear pain, and anything non-emergency? (Reminder: no names or identifying information) Probe to see if a primary care doctor or a specialist.
    a. How long has your child been seeing them/going there?

Primary Care Provider: [Remind interviewee not to share identifying information]

6. (Depending on previous answer, ask: Does your child have a primary care provider? A primary care provider is someone that works in a medical office that your child would see for checkups/routine visits) Tell me about the last time your child saw their primary care provider or the provider they see most often:
    a. How long ago was it? (Virtual visits included)
    b. Did your child go to this provider because they had a healthcare issue or was it for a regular checkup?
    c. How comfortable were you and your child, if applicable, asking them questions? What kinds of questions have you and your child, if applicable, asked them? Give an example or two of the questions that were asked.
    d. Did the healthcare provider give you any advice or recommend anything to you to improve your child's health? If so, what were the recommendations?
    e. Were there any additional tests, such as lab work or x-rays, that were recommended? Did the provider or provider's office personnel help you schedule? Please explain how they helped.

f. Did the provider recommend that your child see an additional healthcare provider for their health needs? Did the provider or provider's office personnel help you schedule it? Please explain how they helped.
g. To your knowledge, does your child's primary care provider talk with school-based providers at all?
h. Did you talk with your healthcare provider about other needs that your child may have beyond their health like housing or nutrition?

[If yes] (Please share what you are comfortable sharing) What kind of needs did you talk to them about? Did the provider help you address these needs? How?

i. Was there anything different about this visit compared to visits in the past?
j. Have you noticed any changes in your child's care over the past two years?
    a. Has receiving care become easier or more difficult, more or less confusing, or complicated? How so?
k. Overall, how would you describe your experience and your child's experience with your child's healthcare provider? Would you recommend the healthcare provider to a friend or loved-one?
l. Do you have suggestions to make your child's most recent experience any better?

Specialists: [Remind interviewee not to share identifying information]

7. Next, we are going to ask about your child's experience with specialists. A specialist is a type of healthcare provider that helps your child with a specific illness or healthcare problem (Examples include cardiologist for children with heart problems, psychiatrist for mental health conditions, or dermatologist for children with skin conditions). Does your child see a specialist? What kind of specialist provider are they seeing? (Ask questions below for selected specialists)
    a. How long ago was it? (Virtual visits included)
    b. Did your child go to this provider because they had a healthcare issue or was it for a regular checkup?
    c. How comfortable were you and your child, if applicable, asking the specialist questions? What kinds of questions did you and your child, if applicable, ask them? Give an example or two of the questions that were asked.
    d. Did the specialist give you any advice or recommend anything to you to improve your child's health? If so, what were the recommendations?
    e. Were there any additional tests, such as lab work or x-rays, that were recommended? Did the specialist of specialist's office personnel help you schedule? Please explain how they helped.
    f. Did the specialist recommend that your child see an additional healthcare provider for their health needs? Did the specialist of specialist's office personnel help you schedule it? Please explain how they helped.
    g. To your knowledge, does your child's primary care provider talk with school-based providers at all?
    h. Did you talk with your child's specialist about other needs that your child may have beyond their health like housing or nutrition?

[If yes] (Please share what you are comfortable sharing) What kind of needs did you talk to them about? Did the specialist help you address these needs? How?

i. Was there anything different about this visit compared to visits in the past?
j. Have you noticed any changes in your child's health care over the past few years?
    i. Has receiving care become easier or more difficult, confusing, or complicated? How so?

8. Overall, how would you describe your experience with your child's specialist? Would you recommend your child's specialist to a friend or loved-one?

9. Do you have suggestions to make this most recent experience any better?

Telehealth: [Remind interviewee not to share identifying information]

10. Have you felt that anything has changed about the care your child received because of the pandemic? If yes, please describe these changes.

11. How has your child been getting care over the last year? Has this been in the doctor's office, at home or in-person somewhere else, or via the phone or video?
    a. If your child has had telephone or video doctor's appointments:
        i. How often were they?
        ii. What platform(s) do you and your child use to connect with your doctors/providers? (Zoom, Skype, FaceTime, WhatsApp, etc.)
    b. Have you and your child, if applicable, had any problems using telehealth, for example with internet access, having the right equipment like a smartphone, difficulty navigating the specific platform used by a provider?
    c. Did meeting on the phone or video conference raise any concerns for you or your child? (i.e., concerns about confidentiality, security, safety)
        i. If so, what kinds?
        ii. What created these concerns? (i.e., setting, privacy, sense of detachment)
    d. Do you or your child prefer one way of getting care over another (i.e., in-person versus telephone vs video) overall or for specific types of appointments?
    e. Are you given the choice of whether your child can see their doctor/provider in person or having a telehealth appointment?
        i. Which other providers, if any, would you or your child want to see via telehealth that your child isn't seeing that way now?
        ii. If needed, is your child able to go to the office/hospital (maybe for lab tests or vaccinations)?
    f. Do phone or video visits meet your definition of a "good care visit" for your child? Are you satisfied with them?
    g. Has your child continued to see their healthcare providers and getting the care they need?
        i. Do you think your child is getting the care they need through both in-person and telehealth visits? Any differences between the visits that you have noticed?

ii. [If yes] Any trouble getting an appointment with your child's provider? Any other troubles with in-person visits that you experienced? (i.e., transportation)
iii. [If they aren't going into the providers office] Are there other ways you or your child is in touch with your child's healthcare providers, such as by telephone, video call, messaging (e.g., through a patient portal or through emails/texts from your provider's office)?

Hospital Visits: [Remind interviewee not to share identifying information]

12. Has your child been to the emergency room **in the past year**?

If no, skip to the next question
If yes,

a. Thinking about their most recent trip to the emergency room, what brought your child there? In a few words, how would you describe your child's experience?
b. Were you or the hospital providers talking with your child's primary care doctor or other providers your child sees outside the hospital while your child was staying there?
c. Thinking about your child's most recent trip to the emergency room, what was the process like when they were being sent home? Did you know who to follow-up with if anyone?
d. Was your child offered any health-related follow-up appointments or helpful services after they were sent home? What services did you choose for your child to receive?
e. When your child was sent home from the hospital, did anyone contact you or another caretaker shortly after to see how your child was doing? If so, who contacted you?

13. Has your child stayed overnight in the hospital **in the past year**?

If no, skip to the next question
If yes,

a. For their most recent overnight stay, what brought your child to the hospital?
b. Were you or the hospital providers talking with your child's primary care doctor or other providers your child sees outside the hospital while your child was staying there?
c. Thinking about your child's most recent trip to the hospital, what was the process like when they were being sent home? Did you know who to follow-up with if anyone?
d. Was your child offered any health-related follow-up appointments or helpful services after they were sent home? What services did you choose for your child to receive?
e. When your child was sent home from the hospital, did anyone contact you or another caretaker shortly after to see how your child was doing? If so, who contacted you?

Community Partner & Flexible Services: [Remind interviewee not to share identifying information]

14. Now we are going to talk about Care Coordinators and Case Managers. Does your child have one or more Care Coordinators or Case Managers? (Someone that helps you get all of your child's healthcare needs addressed but isn't a doctor or healthcare provider. They may help you and your child get your child's appointments scheduled, check in with you to make sure you can get to your child to their appointments, etc.)
    a. How did you and your child get connected with them? Did someone refer your child? Who?
        i. Do you know where they work (Reminder: no names or identifying information)?
        ii. If your child has multiple care coordinators, do they work together?

15. Did you have to fill out any paperwork, did your child have to go through any visits, or do anything special to begin working with your child's care coordinator?
    a. Would you say it was an easy process to begin working with your child's care coordinator? Why or why not?

16. Tell me what your child's care coordinator helps you and your child with?
    a. How long have you and your child been working with them?
    b. What do you talk about?
    c. How often do you and your child connect with them?
    d. Do they help you and your child with other things beyond your child's healthcare needs such as housing, transportation, or nutrition? (Share if you are comfortable)
    e. What types of things do they help you and your child with that isn't healthcare related?
    f. How do they go about helping you and your child with these needs? Describe.
    g. [If not already addressed] Do your child's providers and care coordinators work closely together [as a care team]? If you and your child have a visit with one, are others present, and if not, will they be up to date on what happened at your child's other visits next time you and your child see them?
    h. If your child is admitted to the Emergency Department (ED), does your care coordinator help you with planning for after your child is discharged?

17. Has your child's overall health changed now that you and your child are working with their care coordinator? If so, how has it changed?

18. Has a health care provider connected you and your child to an organization to provide you with specific housing services or goods, like assistance with finding housing, or a specific food-related services of goods, like medically tailored meals or vouchers? This is called Flexible Services.

19. If you and your child are receiving Flexible Services, what has that experience been like for you?
    a. Can you tell me which service or services you enrolled in?
    b. How did you find out about these services? Did you find the process of agreeing to Flex easy? Anything that might make it easier?

c. Once you agreed to services, were you able to receive them quickly? If not, why?
d. How has your experience with these services been?
e. If you received housing services or goods, how have these services changed (if at all) your housing situation?
f. If you receive nutrition services or goods, how have these services impacted your nutrition status?
g. Are you happy with the services you received? Why/Why not?
h. Have you seen improvement in your health since you received these services?
i. Do you have any suggestions for changes?
k. Would you recommend these services to a friend or loved-one if they needed the same service? Why?
l. Are there any other services that you wish were available?

LTSS Services: [Remind interviewee not to share identifying information]

20. We would like to learn more about how Long-Term Services and Supports may or may not have impacted your child's overall health. Long-term Services and Supports includes a wide range of help provided to people with certain disabilities or chronic health conditions, to allow these people to live more independently. This may include assistance with personal needs such as bathing and grooming and healthcare needs such as managing medications.
    a. What information has your care coordinator shared with you about the types of services, like these, you could receive?
    b. Has your care coordinator helped to connect you to any services which help you with these needs?
    c. Does your child receive any Long-Term Services and Supports? (Such as personal care attendants, medication management)
    d. How has your child's experience with these services been?
    e. Would you recommend these services to a friend or loved-one if their child needed the same service?
    f. Do you have any suggestions for changes?

School and other state agencies: [Remind interviewee not to share identifying information]

21. Do you feel your child's care team members helped you if there were any problems with your child attending school or receiving services in school related to his/her health issues?

22. Do you feel your child's health care team members have effectively supported you if you needed help getting services at school or at other places where your child receives educational services?

23. Does your child receive services through other state agencies (Department of Mental Health, Department of Children and Families, Department of Developmental Services, Department of Youth Services)?
    a. If yes, do you feel your child's care team has helped you coordinate with other services?

Health Care Goals: [Remind interviewee not to share identifying information]

24. I want to hear more about how you and your child set health-related goals for your child and how you make decisions about what treatment your child would like to receive.
    a. How do you decide what is the most important health goal for your child?
    b. If you have a Care Coordinator, do they work with your child's healthcare providers to identify goals that your child needs to work on for their health?
    c. How do you communicate with your child's healthcare providers or care coordinator what goals are most important to you and your child? Do your child's healthcare providers or your care coordinator help you decide which ones your child should focus on? Do you feel your child's healthcare providers or care coordinator support you and your child in deciding the goals that you want your child to work on?
    d. Are there specific providers within your child's care team you and your child feel more or less comfortable talking to? (Reminder: no names or identifying information)

25. The goals you set with your child's providers are usually written down and referred to as a Care Plan. You may have signed this Care Plan. You may have had a discussion with your child's Care Coordinator or Healthcare Provider about the goals your child would work on. I'd like to ask you some questions about your child's Care Plan.
    a. Do you remember your child having a care plan?
        i. If yes: Do you have a copy of your child's care plan?
        ii. Do you know what is included in your child's care plan?
        iii. Do you have non-medical goals as part of your child's care plan?
        iv. Do you know who was involved in putting your child's care plan together? Did you and your child's care team agree on what goals should be included?
        v. How are your child's healthcare providers and care coordinators working with you to meet your child's goals?
        vi. If you have questions related to your child's health-related goals, do you know who you should go to with these questions?
        vii. Does anything get in the way of your child's meeting their goals? If so, what types of things?
    b. Do you have anything in your child's health that has improved that you'd like to share? How did your Care Coordinator and/or healthcare providers help your child accomplish this?
    c. Do you have anything else that you think impacts your child's overall health that is not currently being addressed? Would you like to address this?

26. Can you talk about your child's experiences with getting the care/services they want or need in a timely manner?
    a. Do you experience any delays in getting your child care? If so, please explain.

b. Is there any care your child's is not getting that you and your child want/need? If so, why do you think your child isn't receiving the care? (Probe for availability/accessibility, disability, language)
c. Do you feel your child's healthcare providers and care coordinators understand your child's medical needs? Please explain why or why not.

27. Can you tell me how your child's healthcare providers and/or care coordinator helps you understand all of the care that might be available to your child through MassHealth?
    a. What kind of information do they provide to you about the services that your child can take advantage of?
        i. What type of information is really helpful for you? What type of information is not helpful for you?
        ii. Where/how else are you finding this information if it is not being shared with you?
    b. How would you like to receive information from your child's care team? (i.e., electronic, paper, text, phone call)
    c. Is there any information you would like to receive, that you aren't currently receiving? If so, what would that include?

Closing Questions: [Remind interviewee not to share identifying information]

28. What factors are most important to you in selecting a provider or care coordinator for your child?
    a. What, if any, factors are important to you in terms of culture, race, ethnicity, gender, or sexual identity when selecting a provider for your child?

29. We mentioned earlier that the MassHealth Accountable Care Organization program started about four years ago. As a reminder, an Accountable Care Organization is a group of healthcare providers that work together as a team to provide care to patients. In what ways, if any, is your child's care **different now than before, say, two to three years ago**, that are not related to the pandemic?
    a. What do you feel is the same?
    b. Do you feel anything is better? Why?
    c. Do you feel anything is worse, and why?

30. Is there anything else that you would like to share with us today regarding your child's healthcare experiences **over the last year**? Have there been any large changes?

31. Overall, has your child's quality of life changed **in the last year** because of your child's health or healthcare? If so, how has it changed?

32. Is there anything else you would like to share with us today about MassHealth or your child's healthcare providers that you haven't already?

[Thank them for their time; Shut off recorder; Confirm any missing demographic information; Collect gift card information]

Gift card vendor: Walmart, Target, or Amazon
Gift card type: electronic or physical
Mailing address:
Email address:

E6: DSRIP MassHealth Staff Wave 2 Interview Guide

MassHealth Leadership/Staff Key Informant Interview Guide – Final v4 (updated May 9th, 2022)

Goals

- To obtain Mass Health Leaders/Staff perspective on delivery system reform and DSRIP program implementation (process and progress) from their particular vantage point, both internally, within MassHealth, and externally, with ACOs, CPs, and other stakeholders (e.g., health systems and members)
- To understand the goals, organizational structure and system transformation/changes built into the DSRIP program from the perspective of MassHealth leaders/staff involved in design and/or implementation; and the ways in which their interpretation of these have shaped their expectations/evaluations for process and progress.
- To identify delivery system and DSRIP implementation successes and challenges, innovations, and opportunities, both inside MassHealth as well as related to the ACOs, CPs and other stakeholders.
- To explore MassHealth actions to support delivery system transformation so far, and lessons learned that have informed course corrections or might inform activities over the next few years

Description

Thank you for joining us for this interview. As you may know, we are part of the UMass Chan Medical School team that is evaluating the Waiver Demonstration and DSRIP. *[Introduce interview team.]*

This is the second of two waves of interviews. The first wave informed the interim report. Our focus in this round of interviews is primarily on what has happened in DSRIP since our interviews in 2020; however, some questions reflect on the entirety of the program. In addition, we would like to focus on this Demonstration period, though we know you are already planning ahead for the next phase of ACO development.

The COVID pandemic may have led to programmatic or other adjustments that were unanticipated. Please point out any areas where the pandemic has impacted activities or led to unanticipated programmatic changes for the DSRIP program.

We will be sending out a link to a Demographic Data Collection Form to each of you via email within the next few days. The information collected on this form will be used only to describe the group of people we interviewed. No individual information will be reported. There is also a space in that form where you can share any additional information you think of after the interview. We hope you will take the time to fill this out.

We want to remind you that we are recording the interviews to ensure that we accurately capture the information you provide. When we write our report about the interviews, we will

not use the names of respondents. Please note that while UMass Chan Medical School will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMass Chan Medical School as required under the public records statute of Massachusetts General Law.

Do you have any questions before we start?
[Turn recorder on]

A. Introduction (All Respondents)
To get things started, we'd like you each to introduce yourselves.

1. Please tell us:
    a. Your name
    b. Your position/ title

2. Before getting into specific topics, can you please describe what, if any, changes have been made to MassHealth's overarching strategy for improving care integration and quality while moderating rising costs since we last spoke in 2019?
    a. How do the current Demonstration and DSRIP programs fit into MassHealth's larger strategy?

B. DSRIP Investments
Next, we'd like to discuss DSRIP investments.

3. Overall, how have DSRIP funds been spent over the last two years (2020-2021) - for MassHealth and ACOs?
    a. How is this pattern similar to or different from the first few years of DSRIP?
    b. Have DSRIP funds been spent in the way MassHealth had hoped?
    c. Can you describe MassHealth's strategy for reinvesting additional DSRIP funds that are recouped from ACOs and CPs based on accountability scores?

4. What have been the most important changes MassHealth has made organizationally/internally to promote health system transformation in the context of DSRIP?
    a. How would you characterize the internal collaboration in MassHealth as it relates to DSRIP?
    b. In what ways has the collaboration benefited or detracted from progress with DSRIP?

5. Overall, what have been the successes or challenges to the DSRIP investments? Facilitators or barriers?
    a. Have there been any innovations related to DSRIP investments that you wish to share?
    b. Are there any lessons learned that you could share?

C. MassHealth Development and implementation of Quality and Performance Indicators

In this next set of questions, we'd like to inquire about MassHealth's development and implementation of its quality measurement program for ACOs and CPs.

6. Now that DSRIP has been in place for several years:
    a. What are the strategies that appear to be successful in improving the quality of healthcare?
    b. Has there been any major shifts in MassHealth's overarching quality strategy for ACOs and CPs?
    c. Are there strategies that appear to be successful in improving the value of healthcare? Please describe the strategies and why you feel they improve the value of healthcare.

7. How would you characterize the effectiveness of the quality measure slates in incentivizing desired changes in care delivery?
    a. Do you believe the level of financial accountability associated with quality measure performance was appropriate? If not, what changes would you consider now?
    b. Do you have any motivating examples where ACOs or CPs implemented programs with the goal of improving care for a specific quality measure targeted subpopulation?
    c. How successful do you believe MassHealth was in creating benchmarks within this system that were fair and attainable?

8. What changes have been made in the metrics for ACOs and for CPs in the last two years?
    a. What brought about those changes? Have they proved to be useful changes?
    b. We have heard ACO's indicate that they feel there are too many metrics to focus on them all; can you describe any evolution in your thinking regarding how to assemble a quality measure slate that successfully balances the number and diversity of metrics against the burden on providers and signal dilution?
    c. What is your current perspective on the optimal mix of process and outcome measures? What about administrative, hybrid, and member experience measures?
    d. Are there any efforts underway to increase response rates and improve the representativeness of member experience data?
    e. How successful would you consider efforts to date that have sought to align quality measures across payers?
    f. How would you characterize the role of stakeholders within the state with regard to setting priorities and contributing to decisions regarding which metrics to keep, change or eliminate? What about CMS?

9. What have been the overall facilitators in designing your quality measure slates? Please also state facilitators for operationalizing your quality measure slates?
    a. What have been the challenges?
    b. What has worked well to overcome those challenges?

10. Have you made any changes in how you seek to maintain fairness in quality performance evaluation across diverse organizations with unique member populations?

D. MassHealth DSRIP Activities to support ACOs
Now let's shift to specific DSRIP-related activities for the ACO program. This section of questions will ask about several areas of activities including care coordination, HIT, etc.

11. To begin this section, what have been the most important successes and challenges for the ACO program since our last round of interviews in 2020?

D1. Care Coordination/Integration

12. What actions has MassHealth taken that have continued to support care coordination and service integration within ACOs?
    a. What key activities have you seen ACOs implement to support care coordination and service integration?
    b. What is working particularly well for ACOs? Or not so well? Does it vary across ACOs?

13. What actions has MassHealth taken that have continued to support care coordination and service integration between ACOs and external entities?
    a. What key activities have you seen ACOs implement to support care coordination and service integration between ACOs and external organizations?
    b. What is working particularly well? Or not so well?

14. Overall, what are the most important factors or conditions that have supported improvements in care coordination and integration within ACOs?
    a. What factors or conditions have posed significant barriers to ACO efforts to improve care integration and coordination within their organization?
    b. What factors/conditions have worked to support innovation by ACOs?
    c. What has MassHealth done to support these relationships?

15. What are the most important factors or conditions that have supported improvements in care coordination and integration between ACOs and external entities?
    a. What factors or conditions have posed significant barriers to ACO efforts to improve care integration and coordination with external entities?
    b. What factors/conditions have worked to support innovation by ACOs?
    c. What has MassHealth done to support these relationships?

D2. Population Health Management

16. What are ACOs doing well in terms of Population Health Management?
    a. Are there best practices or outlier ACOs in this area?
    b. Are there ACOs that are still struggling? Why? Has any ACO done a good job of overcoming particular challenges?
    c. How has MassHealth supported ACOs in this area?

D3. Health Related Social Needs & the Flexible Services Program

17. How are the ACOs doing in screening for HRSNs? Are any ACOs doing particularly well? What are the challenges?

18. With HRSN screening comes the challenge of addressing significant unmet needs, how are ACOs doing in translating positive screens into referrals?
    a. When individuals with an identified HRSN are not referred for supports, what are the common reasons (e.g., lack of ACO infrastructure and staffing, lack of available community-based organizations, lack of member engagement)?
    b. What types of needs are not being referred for supports? Do you see opportunities to target those needs with new or modified programs in the future?

19. How are ACOs doing in addressing HRSNs?
    a. Are you observing differences in an ACO's ability to address HRSNs based on their level of participation in the Flexible Services program?
    b. Have you observed early changes in member health outcomes with the Flex Services program? Have you observed early signs that member social needs are better addressed with the Flex Services program?

20. What resources within and outside of MassHealth were needed to implement the Flex Services Program?

    a. Can you briefly describe the rationale and structure for the social services organization preparation fund?
    b. To what extent did the SSO prep fund accomplish its goals? What are the next steps?

21. What factors facilitated FS program implementation? What barriers impeded implementation?

22. Do you find that ACOs have had sufficient flexibility in designing and implementing their programs? Are there additional requirements or flexibilities that may be needed in the future?

23. How far along are ACOs and their partners in achieving the objectives of the FS Program? What data will be needed to refine the program?

24. What are the most significant successes you've seen so far in the FS Program or other programs addressing HRSNs for ACO members?

25. What challenges remain implementing and sustaining the FS program?

26. How has MassHealth's vision for the Flexible Services program evolved from design through implementation?

D4. Data Analytics and Reporting

27. What is MassHealth doing to support ACOs with Data Analytics and Reporting?

   a. What is working particularly well? Or not so well?
   b. How has MassHealth sought to balance program oversight and integrity with the reporting burden on ACOs?

28. What are the ACOs doing well or not so well with regard to their own data analytics and reporting?
   a. What factors/conditions have worked to support innovation and improvement? Have there been challenges?
   b. How and to what effect are third parties (e.g., Mathematica) supporting data analytics and reporting?

D5. Health Information Technology

29. What is working particularly well with Health Information Technology?
   a. Or not so well? How has MassHealth or organizations responded to those challenges?
   b. What factors/conditions have worked to support or impede innovation and improvement?

30. How many ACO's subscribed to an Event Notification Service, that you are aware of?
   a. Were these services effective in improving care coordination? Why or why not?

D6. Financial Performance/Engagement

31. The MassHealth ACO contract is one of many each system is managing. Do you think that the financial incentives associated with participation in the MassHealth ACO program are strong enough to change the behavior of health systems with higher commercial payer mixes?

32. How would you describe how the ACOs are doing financially? What strategies are ACOs taking to improve financial performance and sustain their programs beyond the DSRIP program? And for CPs?
   a. What is MassHealth doing to support these actions?
   b. What is working particularly well? Or not so well? How are MassHealth and the organizations responding to these challenges?
   c. What factors/conditions have worked to support innovation and improvement?
   d. What is your perspective on what is driving variation in cost and quality performance across ACOs and CPs?

D7. Quality Performance

33. How are the ACOs and CPs doing with meeting their quality benchmarks? What are they doing to meet those benchmarks? Any examples of specific programs?

34. How have your efforts to support ACO and CP quality improvement activities evolved, if at all, since the start of DSRIP?

35. Overall, what has worked well and not so well?

a. What factors contributed to success/innovation?
b. How are MassHealth and participating organizations responding to challenges?

D8. ACO Provider Engagement

36. What strategies have you heard ACOs are using to engage providers? (e.g., informative meetings, better communication, etc.)
    a. How effective are these strategies?
    b. What MassHealth strategies have been used to promote provider engagement efforts?

37. Some ACOs, are using financial incentives for primary care providers, specialists, and/or hospitals as a mechanism to engage providers in delivery system changes. How are these working out?

38. What, if any, strategies have you heard ACOs using to help avoid provider burnout?

D9. ACO Member Engagement

39. ACOs are using various strategies to promote member engagement. What strategies have you heard about?
    a. How are these working out?
    b. What MassHealth strategies have been used to promote member engagement efforts by ACOs?

E. MassHealth DSRIP Activities to Support CPs

Now let's shift to specific DSRIP-related activities for the CP program. Your perspective and level of insight into these will obviously vary according to your role and responsibilities, or perhaps your previous experiences.

40. To begin this section**,** what have been the most important successes and challenges for the CP program since our last round of interviews in 2020?

41. How have the CPs done with implementing the program?
    a. Have you seen differences between BH and LTSS CPs?
    b. What is working particularly well? Or not so well? Does it vary across CPs?
    c. How are CPs doing related to Health-Related Social Needs screenings? How effective are they at connecting members to appropriate services, including Flexible Services?
    d. How are MassHealth and organizations responding to challenges with implementing the CP program?
    e. What has MassHealth done to continue to support CPs?
    f. Do you feel the CPs are equipped to be financially sustainable?
    g. Which CP program infrastructure areas have had sufficient investment to support sustainability? Which may require additional investment?

E1. Health Information Technology

42. What is working particularly well with Health Information Technology?
    a. Or not so well? How has MassHealth or organizations responded to those challenges?
    b. What factors/conditions have worked to support innovation and improvement?

E2. Data Analytics and Reporting

43. What is MassHealth doing to support CPs with Data Analytics and Reporting?
    a. What is working particularly well? Or not so well?
    b. How has MassHealth sought to balance program oversight and integrity with the reporting burden on CPs?

44. What are the CPs doing well or not so well with regard to their own data analytics and reporting?
    a. Does it vary across CPs?
    b. What factors/conditions have worked to support innovation and improvement? Have there been challenges?
    c. How have third-parties (e.g., Mathematica) supported CPs with analytics?
    d. Was the involvement of an organization like Mathematica part of the original DSRIP program design?
    e. Can you describe the facilitators and barriers to working with an external vendor in this way?

E3. CP Member Engagement

45. What have been to key activities MassHealth has engaged in to support member engagement activities by CPs?
    a. What have been the major challenges CPs experienced with member engagement?
    b. How have they resolved them?
    c. How did MassHealth support resolution of challenges related to CP member engagement activities?

F. ACO and CP Alignment

Next, we'd like to ask about ACO and CP alignment.

46. How have ACOs and CPs been doing in establishing and developing successful relationships?
    a. What are some notable successes in these relationships so far?
    b. Have you noticed any common barriers to establishing or continuing these relationships?
    c. How has MassHealth helped to facilitate the development of these relationships?
    d. What would you like to see change in the ACO-CP relationship?
    e. In the absence of DSRIP funding, how do you envision ACOs could sustain these relationships?

47. Can you describe how the integration with CPs has been overall for the ACOs?
    a. What factors/conditions have worked to support innovation and improvement?

G. MassHealth Support for Delivery System Transformation through Statewide Investments
We'd now like to ask about Statewide Investments.

48. We will start with a question regarding the overall success of SWIs and then move into individual programs. How successful do you feel the SWI program, overall, has been?
    a. Did it have the intended benefits?
    b. What have been the facilitators and barriers to building and running the program?
    c. Were there challenges that needed to be resolved?
    d. What trends has MH seen in utilization by ACOs and CPs of particular SWIs?

49. With respect to Category 1 SWIs: Building and Training the Primary Care and Behavioral Health (BH) workforce, how successful do you feel each of the following programs have been in recruiting, retaining, and training the healthcare workforce? Comment on any facilitators or barriers to building and running each program.
    a. Student Loan Repayment Program?
    b. Primary Care/ Behavioral Health Special Projects Program?
    c. Investment in Community-based Training and Recruitment?
    d. Workforce Development Grant Program?

50. In reference to the SWIs in Category 2, Capacity Building for ACOs, CPs, and Providers, how successful do you feel each of the following programs have been in providing technical assistance and shared learning opportunities to promote alternative payment model adoption? Comment on any facilitators or barriers to building and running each program.
    a. Technical Assistance?
    b. Alternative Payment Methods Preparation Fund?

51. For Category 3 SWIs, Initiatives to Address Statewide Gaps in Care Delivery, how successful do you feel each of the following programs have been in improving the care provided to members with behavioral health or accessibility needs? Comment on any facilitators or barriers to building and running each program.
    a. Enhanced diversionary behavioral health activities?
    b. Improved accessibility for people with disabilities or for whom English is not a primary language?

H. Stakeholder Engagement
In this section, our focus is on stakeholder engagement.

52. How have you continued to utilize the following groups to inform implementation?
    a. DSRIC
    b. Social Services Integration Working Group (SSIWG)?
    c. Quality Measure Alignment Taskforce?
    d. Monthly meetings with advocates if these have continued?

e. Other stakeholders important to DSRIP implementation that we haven't mentioned?

53. In what ways have these relationships/committees been useful?
    a. Are there any concerns or recommendations that have emerged from stakeholders that you haven't been able to address? Why not?

I. Factors External to MassHealth

We'd like to ask a bit about factors external to MassHealth.

54. What local, state, or national factors have impacted the implementation of DSRIP?

55. Are there any changes that have occurred external to the Demonstration or DSRIP that you think have influenced the success of the program (e.g., commercial marketplace changes in MA, mergers, closures, etc.)?

J. COVID-19 Impacts

We realize that COVID-19 has had an impact on all of us and we may have touched on some of this in previous sections, but we'd like to ask a few questions about COVID-19 impacts specifically.

56. How, if at all, did expectations for ACOs change as a result of the pandemic?
    a. How did expectations for CPs change as a result of the pandemic?
    b. Do you expect any health systems will adjust their participation in the ACO program because of COVID-19 related effects on their organization?

57. Disruptions from Covid-19 may lead to worse quality and cost performance, causing ACO financial losses. How has MassHealth adjusted quality and financial benchmarks for ACOs to account for effects of COVID-19?
    a. How long will these crisis-era adjustments last? How will these emergency steps impact ACOs and CPs?
    b. If the public health emergency ends soon, do you anticipate keeping in place any pandemic-related programmatic adjustments?

58. Which emergency measures put in place by MassHealth to mitigate the impact of the pandemic may also advance aspects of the Demonstration? Which might hinder the goals of the Demonstration?

59. How do you expect payment for telehealth services to change after the pandemic?
    a. How might telehealth utilization during the crisis affect plans to change relative payment rates to encourage a healthy balance of in-person vs virtual care after the pandemic?
    b. How will MassHealth support or sustain telehealth adoption after the state of emergency is lifted?

60. How has the Flexible Services program been impacted by social and economic disruptions for MassHealth members, including school closures, childcare and school lunch suspensions, new unemployment/underemployment?

61. What, if any, targeted initiatives or changes in practices in the last year has MassHealth taken to promote health equity among MassHealth members?
    a. Have these targeted initiatives been successful? Why or Why not?
    b. What plans do you have for future initiatives or changes to current initiatives?

K. DSRIP Performance Remediation Plan

Next, we'll talk about a bit about the DSRIP Performance Remediation Plan Program.

62. How did MassHealth develop the Performance Remediation Plan process?
    a. What was the intended benefit?
    b. Has that benefit been realized?
    c. What challenges have been encountered?

L. ACO-Required Self-Evaluation

We wanted to ask a few questions about the ACO-required Self-Evaluation process.

63. How did MassHealth develop the ACO-required self-evaluation program?
    a. What have been the benefits to MassHealth and to the ACOs of the self-evaluations?

M. Looking to the Future

In this last set of questions, we'd like to ask for your thoughts on the future of the ACO, CP, Flexible Services, and state-wide investments programs.

64. What overall lessons learned have shaped MassHealth's plans for future programmatic development?
    a. Do you have ideas or plans for modifying programs to further promote delivery system transformation beyond the current 1115 waiver?
    b. Are these plans motivated by current or anticipated future opportunities or challenges?

65. Are there any lessons that have been learned so far by MassHealth at the organizational level that should be considered going forward or would be of interest/value to other states pursuing delivery system reform?

66. Is there anything else you think is important for our team to know, or anything else you would like to share with regard to the current demonstration period?

[Turn off recorder]

Thank you for your time and insights. You can feel free to follow up with us via email if you think of anything else you'd like to share with us. Please remember to fill out the Demographic Data Collection Form when we share the link.

E7: DSRIP ACO Case Study Wave 2 Interview Guide

MassHealth ACO Case Study
Interview Protocol
[ACO NAME]

Thank you for speaking with us today about your experience as a MassHealth ACO during the DSRIP implementation. [Start with brief introductions of the evaluation team and interview participants.] **[ACO NAME]** is one of 4 ACOs selected for a more detailed study based on your ACO's characteristics, such as innovative approaches used for building capacity and delivering care to MassHealth members. Findings from interviews with **[ACO NAME]** staff and other ACOs will inform our evaluation of the MassHealth ACO program. They will be compiled and reported in the aggregate in the final evaluation report. When we write our report based on information gathered in these ACO interviews, we will not use participants' names, roles, or clinical practice sites without your permission (e.g., if there is an example of an innovation we would like to highlight).
We will send a link to a Demographic Data Collection Form via email within the next few days. The information collected on this form will be used only to describe the group of people interviewed. No individual information will be reported. There is also a space in that form where you can share any additional information you think of after the interview. We ask that each of you take the time to fill this out.
Did you have a chance to review the fact sheet we sent ahead of time? [Address Questions.]
[If yes] Great. We want to remind you that we are recording the interviews to ensure that we accurately capture the information you provide. Please note that while UMass Chan Medical School will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMass Chan Medical School as required under the public records statute of Massachusetts General Law.

[If no, offer the fact sheet to the interviewee]

[If ACO applicable: [ACO NAME] participated in our first wave of interviews with us in Fall 2020.**]** We are especially interested in changes that have occurred as well as facilitators and barriers that you have found throughout these changes. Since the first wave of interviews, the COVID pandemic's impact has continued to be significant. We also hope to explore what and how changes have been made to your ACO in response to the pandemic. Do you have any questions before we start? [Turn Recorder On.]

SECTION 1: Introduction/Overview
For this section, we would like to understand the overarching changes, facilitators, and barriers that have occurred at **[ACO name]** since the launch of your ACO and the implementation of DSRIP programming.
Suggested Participant(s): All Interviewees

1. Since Fall 2020, what were the most significant changes at the practice site or your role because of the MassHealth ACO Program?

2. What have been the most critical aspects of the DSRIP programming, and how have they impacted your ACO's efforts to transform care delivery to meet members' needs? What have been the most significant barriers?

ACO Member Experience
This section aims to understand how care coordination and planning have impacted member engagement and experience, particularly since Fall 2020. The sub-sections include member outreach, member engagement, care planning, health-related social needs screening, and addressing health-related social needs (HRSN).

Member Outreach, Member Engagement, and Care Planning
Suggested Participant(s): Care Coordination Team Member(s); Outreach specialists such as CHW(s) (who focus on specific populations such as the hard-to-reach or homeless)

3. We are interested in how your member **outreach** strategies have evolved since Fall 2020.
    a. How have your organization's goals for member outreach and engagement strategies changed since Fall 2020?
    b. Have practices changed for newly enrolled versus longstanding members?
    c. What strategies have engaged pediatric members and their parents or caregivers?
    d. What strategies have helped your organization regarding difficult-to-reach populations?
    e. How has connecting with community members offered growth to your organization? **(CORE)**

4. Please walk us through how you currently engage and involve a member **in care planning. (CORE)**
    a. What strategies (e.g., steps you take) do you use to engage members in care planning?
    b. How does the engagement process differ between adult members and pediatric members?
    c. Has this changed since the initial ACO implementation or due to the pandemic?
    d. What challenges to member engagement remain to be addressed?
    e. Who do you bring into the planning process (i.e., family, other advocates, CP)?
    f. How have members progressed in independently navigating the healthcare system? What strategies have been employed to facilitate this?

5. What are some organizational conditions that facilitate or hinder effective member outreach and engagement relative to the pre-ACO delivery system?

6. What significant lessons did you and your ACO learn regarding member engagement and DSRIP programming?

Member Care Planning

7. Once a member is engaged, what types of conversations do you have with members to involve them in care planning?

8. Have your members progressed in independently navigating the healthcare system? In what ways? What strategies have been employed to facilitate this? What do you see as barriers to members independently navigating the healthcare system?

9. How have the processes to coordinate care and administrative functions, such as member assignment and care plan signature, evolved over the last few years?
    a. What care coordination supports do you think your members most highly value?
    b. In what ways have the changes made things easier? More difficult?

Addressing Health-Related Social Needs (HRSNs) through Screening Suggested Participant(s): CCM Team Member(s); CHW(s); Flex Services Team

10. Who completes the health-related social needs screenings? If this varies, what factors influence who does the screening for a specific member? **(CORE)**
    a. Do you screen for a standard set of HRSNs for all members, and if not, how do you decide what needs are asked about and addressed? Do you use risk stratification or another strategy to prioritize needs?
    b. How do you approach HRSN screening and referral differently in the pediatric population vs. adults?
    c. Is screening standardized across providers and practices?
        i. What tools and methods are used for screenings?
        ii. Has this changed since Fall 2020?
    d. What have been the facilitators and barriers to your ACO's approach to screening MassHealth members for HSRNs?

11. Who do you partner with to deliver the Flex Services Programs, and what programs (other than Flexible Services) are in place to meet member HRSNs?
    a. How does your ACO connect members with needed services to address health-related social needs?
    b. What helps this process? What hinders it?
    c. How has this process evolved since Fall 2020?
    d. Are there certain HRSNs that are harder to find resources to address than others?
    e. What have been barriers and/or facilitators in addressing HRSNs?

Flexible Services Program

12. We understand your ACO has X Flexible Services (FS) programs to address member housing and/or nutritional needs.
    a. Overall, what is your perspective on how effective your ACO FS programs have been in addressing member HRSNs thus far? What in particular is working well or not so well?
    b. How would you describe your relationships with SSO partners? What are the facilitators or barriers to developing successful partnerships?

c. Do you seek to expand partnerships with SSOs to serve larger numbers of members? Are you reaching the limits of FS funding or SSO capacity? Do you see opportunities to work with SSOs to address HRSNs not currently targeted by the Flexible Services Program?

13. What barriers are involved with how your organization evaluates the effectiveness of your ACO's Flexible Services Programs?
    a. How do you track services and monitor outcomes for HRSN and FS? **(CORE)**

ACO/CP Care Planning/Coordination
In this interview section, we would like to better understand the care coordination and care planning process at [ACO name]. A large part of MassHealth's 1115 Waiver and DSRIP programs is the relationship between the ACOs and the CPs. In the sections that follow, we will explore this in more detail. We understand that you work with multiple CPs. For the purposes of our conversation today, we are particularly interested in your relationships with **[site-specific CPs]** and how these relationships and processes are similar or different from each other or other CPs.

ACO/CP Care Coordination Relationship
Suggested Participant(s): Care management staff who are responsible for managing ACO/CP relationship and member coordination

14. We understand that CPs have established preferred informal relationships and have formally ended some relationships. How has this flexibility changed your relationships with CPs?
    a. Are there any CPs you prefer to work with over others? Why?

15. How has the COVID pandemic impacted how your ACO's relationships with CPs are managed and sustained?

16. Please describe the impact of the shift from MassHealth assignment to ACO assignment of members to CPs your organization.
    a. How has this change resulted in improvements (or not) for your ACO?

17. Overall, how would you describe the impact of CP supports on the care received by members of your ACO?

LTSS and BH Services Management
Suggested Participant(s): Director for Behavioral Health; Director of LTSS; Director of SDOH

18. How has the overall strategy in working with CPs evolved since Fall 2020?
    a. How has risk stratification evolved?
    b. How has the identification of members for CP referrals evolved? **(CORE)**
    c. How has the practice of sharing member care information with CPs evolved?
    d. What changes have been made to the site/community health center referral process?

e. How is primary care coordination responsibility determined between practice sites, CPs, other entities such as DMH or DDS, and ***[ACO name / MCO if applicable]***? Is this documented and updated through a management platform or EMR? Has this evolved since Fall 2020?
f. How are front-line staff's responsibilities determined between practice sites, CPs, and other entities?

19. What practices/systems for performance monitoring of CPs have you found work well or not so well?
    a. What barriers have impeded performance improvement?

20. What impact did the COVID pandemic have on using and accessing LTSS or BH services?
    a. How does this differ for CP versus non-CP members?

21. What changes in your CP relationships do you expect from CPs directly contracting with your ACO instead of with MassHealth ***[ACO name]***?

Promoting Health Equity and Addressing Health Disparities
Suggested Participant(s): All

22. What targeted initiatives or changes in clinical practice or procedures has ***[ACO name]*** introduced in the last year to reduce health disparities among MassHealth members? **(CORE)**

23. What are lessons that ***[ACO name]*** has learned about promoting equity and addressing health disparities for MassHealth members that you wish to share?

24. Due to ***[ACO name]***'s pandemic experience, what lessons have you learned about promoting equity and addressing health disparities?

Other/Non-CP Specific Care Coordination and Management
(To review the multitude of non-CP [ACO NAME] care management programs)
Suggested Participant(s): CCM Team Member(s) (CHWs, RNs, etc.); site-embedded care team member(s), site employee(s); BH care management staff; CHW(s); Medical Assistant(s) at some sites

25. How have Care Coordination and Management (CCM) staffing roles changed since Fall 2020?
    a. Can you describe how the CCM staff location changed? PCP, hospital, ***[ACO name]*** central office, etc.? What role did the COVID pandemic play in CCM staff location change?
    b. How is it decided whether a member receives care management or coordination from a central or site-specific (ACO vs. CHC staff)?
    c. What does care team communication look like, and what are the barriers and facilitators among care team members?

d. Can you describe if and how the care management team role has evolved since Fall 2020? How has ***[ACO name]*** integrated primary and BH care?

26. Since Fall 2020, how has the process for identifying at-risk members for readmission after leaving the hospital evolved? **(CORE)**
    a. Do you offer post-discharge services of varying intensity for members based on their level of risk? How do you determine an individual's risk level? Is risk/need based on clinician judgment or an algorithm that weighs individual clinical and social characteristics?
    b. What have been significant barriers and facilitators to meeting member needs after hospital discharge? How have barriers been addressed?

27. What critiques do you have regarding the tools used to identify people as candidates for different care management programs (e.g., Complex care management, condition care for BH or chronic conditions [non-CP], vs. care coordination for non-intensive)? Who has the responsibility of deciding who is referred to a program?
    a. How is outreach conducted? Have promotional materials been developed? What works?

28. How has the standardization of care coordination approaches across the practices in the ACO evolved since DSRIP's implementation?
    a. What additional resources could be beneficial to create more efficiency in operating practices surrounding care coordination and management?

29. Can you describe how findings from your ACOs evaluation of CCM programs have evolved since Fall 2020?
    a. How have evaluations of CCM programs' effectiveness evolved, and how do they differ by diagnosis? **(CORE)**

30. What programs have been successful and why? Or why not?

31. How has the COVID pandemic impacted care coordination, management practices, and programs?

Population management and Health Information Technology (HIT)
In this interview section, we would like to understand the efforts that went into HIT integration, as this is another important aspect of the DSRIP program. The subsections below will explore this in more detail.

Population Health Management
Suggested Participant(s): Chief of Practice Transformation and Quality-Implementation Strategies; site leadership; data and analytics team; population health manager

32. What strategies are implemented for population health management by the ACO? **(CORE)**

33. What strategies are implemented for performance improvement by the ACO?

34. How has the management of population health data systems at the site level evolved?

35. How is population health data harnessed and put into action?

36. What are the benefits or barriers of the data systems you use? Have you made changes to the systems you use?

37. How has the support the ACO gives sites to understand and utilize data grown or changed?

38. How does data usage differ between your ACO's administration and the practice sites?

39. What are significant lessons ***[ACO name or site]*** has learned regarding quality improvement and performance since Fall 2020?

Care Coordination and Management Training
Suggested Participant(s): Population Health Tool super user(s)

40. What is the process of training people to effectively use population health management tools in the HER or other platforms? How often do you do training, refreshers, etc.?

41. What training practices have you found to be the most effective since Fall 2020?

42. What impacts has the COVID pandemic had on training?

43. How do staff get clinical support within your organization? (i.e., coordinating care for a difficult member or in a complicated situation)?

44. How do staff get technological support within your organization?

45. What have been the most important lessons learned regarding helping staff with technology?

Information Sharing
Suggested Participant(s): IT staff; and/or IT Director level staff member

46. How have information sharing processes changed within your organization or outside entities since Fall 2020? E.g., with CPs, SSOs, specialists, and providers outside ***[ACO name]***.

47. Who manages data reporting? How much is automated versus customized based on specific requests? Who receives raw data and end-user reports, and how are data and reports distributed?
    a. How integrated is the EHR with other platforms (e.g., PHM)?
    b. How are data shared using the EHR or other platforms? Integrated as one system or requires push and pull across multiple connected systems?

48. What are the differences in your ACO's capacity to share pediatric patient (under age 21) information versus adult patient information?

49. Have there been beneficial changes since Fall 2020? Not beneficial changes?

50. How has HIT/Health Information Exchange facilitated or hindered your progress as an ACO?

Workforce Development
In this section, we would like to learn about the efforts that went into workforce development, as this is another important aspect of the DSRIP program.

General Workforce Recruitment and Training Policies
Suggested Participant(s): HR Staff

51. Can you describe how, if at all, recruitment for roles has changed since Fall 2020?

52. [If changed] How has the change in recruitment strategies, especially regarding case coordination/management roles, affected recruitment and retention?

53. Describe how role-specific training is performed.

54. Can you describe the role of any external groups you may be partnering with for this?

55. Can you describe the process of evaluating the effectiveness of trainings?

56. What policies and procedures are in place to ensure staff meets the contractual training requirements?
    a. How are competing training and job-related demands managed?
    b. Regarding cultural competency training, who provides this training, and what topics are covered?
    c. Have you found this, or other trainings, helpful? How so?

57. How has the COVID pandemic impacted overall workforce development?

58. What are significant lessons your ACO has learned regarding workforce development?

SWI Utilization [Review with the interviewee(s) the list of SWIs they used and did not use. This list was shared via email before the interview]
Suggested Participant(s): ACO staff responsible for or familiar with the use of SWIs (e.g., Human Resources, Care Management program staff)

59. Can you describe how the process of using SWI(s) evolved since Fall 2020?

60. What did you find useful about these SWIs?

61. Why haven't you used or not yet used other SWIs? What limitations were encountered? What would you like to see in the future?

62. What did you find helpful and not so helpful about the SWI pop-up mini conferences regarding member engagement held between Fall 2019 and Spring 2021 if you could attend?

Sustainability
In this section of the interview, we will ask about planning for your organization's future and any efforts being made to assure the sustainability of ACO programs considering the tapering of DSRIP funds. Financial incentives and quality measures are essential aspects of the DSRIP program, and the subsections below will also explore this in more detail.

Suggested Participants: Data and Analytics Team Member(s) (speak about QPI); Chief of Practice Transformation and Quality; Finance Committee Members (governance board); select ACO leadership

63. How do you set performance improvement priorities? What data are used? Which stakeholders are engaged? **(CORE)**

64. Please describe your ACO's general approach to obtaining shared savings against the total cost of care benchmarks.

65. Does your ACO engage providers and practices in cost management efforts? Can you provide examples of how your ACO engages provider organizations and practices in managing cost performance and any changes that have been made?

66. What have been facilitators and barriers to managing and/or reducing care costs?

67. Have procedures surrounding distributing or investing shared savings evolved?

68. How has your ACO's approach to using DSRIP funds changed over time?

69. How have you evaluated the value of your ACO's DSRIP-funded programs?

70. How have you used the results of self-evaluations and other data points, including input from MassHealth?

71. How do you use data analytics to create transformative practices around delivering quality care?

72. How have sites used them to change practice or process?

73. How has technology use evolved to reduce the total care cost?

74. How has technology use improved the quality of care?

75. Are there other innovative uses of technology and data analytics by your organization?

76. How has the COVID pandemic impacted sustainability ***[ACO name]*** at an organizational level?

77. Because of the COVID pandemic, has your ACO experienced higher financial gains, more significant losses, or unanticipated expenditures, such as investments in information technology infrastructure?

78. What COVID pandemic-specific changes do you anticipate your ACO will permanently adopt?

79. How has your ACO continued to adopt structures and processes to promote success under alternative payment models (APMs) rather than fee-for-service reimbursement?

80. What did your ACO learn from going through the self-evaluation process as part of the progress reporting for DSRIP-funded programs?

81. How manageable was the self-evaluation process for your ACO?

82. How is your ACO continuing to use the self-evaluation documents (e.g., sharing with staff, informing decision-making)?

Governance Structure
Suggested Participant(s): ACO governance member representative; PFAC representative

83. How has member engagement in the ACO's governance structure evolved since Fall 2020?

84. What resources could create additional opportunities for members to become more involved in ACO governance?

85. In what ways has the COVID pandemic impacted member involvement in governance structure?

Provider Engagement
Suggested Participant(s): The individual(s) who conduct one-on-one feedback with providers and select providers

86. How has the engagement of providers in quality performance improvement evolved?

87. Have how providers are incentivized to use data to improve quality and financial performance changed since Fall 2020?

88. What has been the provider's experience of initiating and engaging members in care coordination and care planning discussions?

89. Can you describe the provider's thoughts and perceptions regarding the learning collaboratives? What changes would they suggest? What went well?

90. How did the COVID pandemic impact overall provider engagement since Fall 2020?

Overall ACO DSRIP Experience
Suggested Participant(s): All

91. What new internal programs, processes, etc., within your ACO have you seen come online since Fall 2020 that you find helpful to your overall ACO DSRIP experience?

92. Why/how were they helpful?

93. How have you shared best practices learned from your DSRIP-related activities within and outside your ACO?

94. What do you perceive as the value of operating as a MassHealth ACO?

95. How did MassHealth's role support your overall ACO DSRIP experience?

96. What do you perceive the value to be of the Community Partners program?

97. Is there anything else you think our team should know about your experience with the MassHealth ACO program and 1115 Waiver Demonstration or your experience operating as a MassHealth ACO?

Thank you for participating in this interview. Your responses will be helpful in our evaluation of the MassHealth ACO program and the DSRIP program.

Please remember to complete the DSRIP Evaluation Demographic Interview Demographic Data Collection Form that will be sent to each of you via email. Thank you again for your participation—[Turn recorder off].

E8: DSRIP CP Case Study Wave 2 Interview Guide

MassHealth CP Case Study
Interview Protocol
[CP NAME]

Thank you for speaking with us today about your experience as a CP as part of the MassHealth DSRIP program and 1115 Demonstration. [Start with brief introductions of the evaluation team and CP staff.] **[CP NAME]** is one of 4 CPs selected for a more detailed study based on your CP's characteristics, such as innovative approaches for building capacity and delivering care to MassHealth members. Findings from interviews with **[CP NAME]** staff and other CPs will inform our evaluation of the MassHealth CP program. They will be compiled and reported in the aggregate in the final evaluation report. When we write our report based on information gathered in these CP interviews, we will not use participants' names, roles, or practice sites without your permission (e.g., if there is an example of an innovation we'd like to highlight).
We will send a link to a Demographic Form to each of you via email within the next few days. The information collected on this form will be used only to describe the group of people interviewed. No individual information will be reported. There is also a space on the form where you can share any additional information you think of after the interview. We ask that you take the time to fill this out.
Did you have a chance to review the fact sheet we sent ahead of time? [Address Questions.]
[If yes] Great. Please note that while UMass Chan Medical School will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMass Chan Medical School as required under the public records statute of Massachusetts General Law.
[If no, offer the fact sheet to the interviewee and read the script above without "As a reminder"]

[CP NAME] participated in our first wave of interviews with us in Fall 2020. We are especially interested in changes that have occurred as well as facilitators and barriers that you have found throughout these changes. Since the first wave of interviews, the COVID pandemic's impact has continued to be significant. We also hope to explore what and how changes have been made to your CP in response to the pandemic. Do you have any questions before we start? We will be recording this interview if that's ok with everyone. Any objections? [Turn Recorder On.]

ACO/CP Alignment
In this interview section, we would like to understand your CP's relationship with ACOs in the last two years. A large part of the DSRIP program is the relationship between the ACOs and the CPs.

1. How has the way you share information with your ACO partners changed?
    a. How often do you have meetings with your ACO partners? Do you meet with some more than others? Are those meetings structured the same or differently?

   b. Do you have any examples of collaborative efforts with ACO partners that help integrate information sharing systems and help to provide better care for members?
   c. How has the COVID pandemic impacted your CP's ability to align with ACOs?
2. How has information access to ACO systems changed, such as event notification systems or electronic medical records?
   a. How has this helped support care coordination, including during care transitions?

3. Has partnering with the ACOs and participating in the MassHealth DSRIP program affected how you meet the needs of patients who are not a part of an ACO?

Member Outreach/Care Experience
For this section, we would like to better understand member outreach strategies and member care experience at your CP since the Fall of 2020.

4. Could you walk us through a common scenario in which a member engages with your CP for either BH/LTSS services or both, and what that usually looks like?
   a. What scenarios present the most challenges?

5. What particular information-sharing systems/programs/processes do you use during referral, outreach, and engagement? How are they helpful?

6. What changes has your CP implemented to ensure outreach, service, and engagement efforts with members continue to be effective during the COVID pandemic? Have these changes continued?

7. How do your CP's evaluation strategies inform the way you engage members in navigating their care?

8. Do you have co-located ACO or Social Service Organization (SSO) staff on your site(s)?
   a. How do you maintain relationships with these ACO or SSO staff?
   b. How do you work together to meet members' needs?

Care Planning/Coordination/Care Management
In this interview section, we would like to better understand the care coordination and care planning process at your CP and how it has changed since the Fall of 2020.

9. Can you describe any changes that have been made to your CPs care coordination models?
   a. How has the COVID pandemic impacted the way your CP manages care coordination efforts?

10. Please walk us through a scenario in which you have a newly engaged member who needs to develop a care plan – what does that look like, and how has that process changed?

   a. How has the process of obtaining PCP signatures on care plans evolved in the past two years?

11. What care management platforms does your CP utilize?

12. How has minimizing duplicating care management and coordination efforts with ACOs impacted providers that serve MassHealth members with complex BH/LTSS needs?
13. How have the processes in managing care transitions and discharging members from CP services changed?

Addressing Health-Related Social Needs
In the following section, we would like to ask how your CP addresses health-related social needs and how this has changed since the Fall of 2020.

14. Can you describe any needs assessment tool(s) that your CP program utilizes to address health-related social needs (HRSNs)?

15. What role does your CP play in the HRSN screening process?

16. What facilitators and/or barriers has your CP found in addressing HRSNs?
    a. Can you describe the facilitators and barriers to addressing HRSNs through the Flexible Services program?

17. What changes have occurred in how your CP coordinates services and functions with other community-based organizations, including the SSOs participating in ACO Flexible Services programs?
    a. Did your CP form new relationships with SSOs, formalize existing relationships, or both? Please explain.
    b. How does your current work differ from any work your CP has done with these organizations in the past?

18. What current and future plans does your CP have for initiatives regarding the promotion of health equity? What would you recommend to others?

Workforce Development
In this section, we would like to learn about the efforts that went into workforce development since the Fall of 2020, as this is another important aspect of the DSRIP program.

19. How have strategies or methods for recruiting, training, and retaining staff evolved?
    a. Have you worked with community-based organizations to recruit? If so, how?
    b. Any other recruitment and retention strategies you would like to talk about?

20. Have you collaborated with other CPs, ACOs, or organizations to develop and implement staff training or retention programs? If so, have these been beneficial?

Quality Process Improvement/Sustainability/ Service Integration and HIT

In this section, we will be asking about the efforts since the Fall of 2020 that have been made to improve quality and promote the sustainability of your CP programming, considering the tapering off of DSRIP funds. We would also like to understand the efforts that went into health information technology (HIT) integration, as this is another important aspect of the DSRIP program.

21. How do you use data analytics and quality metrics to understand performance? How have these efforts been used to make changes?
    a. How has data usage/sharing become more accessible/useful?
    b. How does the data impact how you deliver care to MassHealth members?
    c. Are there other ways you think about your successes that aren't measured?

22. How has health information technology (HIT) evolved over the last year at your CP?
    a. What has worked well in the information-sharing process between your CP and external partners, such as ACOs?
    b. What suggestions do you have that could improve the information-sharing process between ACOs and CPs?

23. What structural or process changes in your organization have been made to ensure financial sustainability?
    a. In what ways have you developed these with the ACO together or independently?

24. Are you contracting with ACOs to provide CP-type supports to non-CP-eligible MassHealth members? Which supports are being delivered, and which groups of members are being targeted?

Role of MassHealth

In this section, we would like to ask about the role MassHealth has played in your CP, especially since the Fall of 2020.

25. In what ways does MassHealth continue to address your CP program's needs?

26. How does MassHealth help your CP navigate challenges, especially going into the next waiver?

Overview

In this section, we would like to ask questions regarding the functioning of your CP program overall, especially the relationship your CP has to the DSRIP program.

27. In the absence of the DSRIP funding, would you anticipate continuing similar partnerships with ACOs and MCOs for MassHealth members?

28. Looking back to the start of the program, what do you wish was in place then that would have helped your organization perform better in the program?

29. What has been the most significant change within your CP program over the last few years?
    a. What outcomes did this change bring to your program?

30. Is there anything else you think is important for our team to know about your experience as a MassHealth CP?

Thank you for participating in this interview. Your responses will be helpful in our evaluation of the MassHealth CP program and the DSRIP program. Please remember to complete the DSRIP Evaluation Demographic Interview Demographic Data Collection Form that was sent to each of you via email. Thank you again for your participation— [Turn recorder off].

E9: DSRIP SSO Case Study Wave 2 Interview Guide

MassHealth SSO Case Study

Interview Protocol

[SSO NAME]

Thank you for speaking with us today about your experience as a Social Service Organization (SSO) as part of the MassHealth Flexible Services program, which is funded by the state's Delivery System Reform Incentive Payment (DSRIP) program. We are evaluating the MassHealth DSRIP program and 1115 Demonstration. Today we will be focusing on the Flexible Services your organization provides to MassHealth ACO members.
[Start with brief introductions of the evaluation team and SSO staff.] **[SSO NAME]** is one of 4 SSOs selected for a more detailed study based on your SSO's characteristics, such as innovative approaches to delivering services to MassHealth Accountable Care Organization (ACO) members. Findings from interviews with **[SSO NAME]** staff and other SSOs will inform our evaluation of the MassHealth Flexible Services program. Results will be compiled and reported in a blinded manner or in aggregate in a final evaluation report. When we write our report based on information gathered in these SSO interviews, we will not use participants' names, roles, or organizational names without your permission (e.g., if there is an example of an innovation we'd like to highlight).
We will send a link to a Demographic Form to each of you via email within the next few days. The information collected on this form will be used only to describe the group of people interviewed. No individual information will be reported. There is also a space on the form where you can share any additional information you think of after the interview. We ask that you take the time to fill this out.
Did you have a chance to review the fact sheet we sent ahead of time? [Address Questions.]
[If yes] Great. Please note that while UMass Chan Medical School will not publicly share interview responses as a matter of course, records related to the project are considered public and may be produced by UMass Chan Medical School as required under the public records statute of Massachusetts General Law.
[If no, offer the fact sheet to the interviewee and read the script above without "As a reminder"]

We are especially interested in changes that have occurred over time during the program implementation, including those related to the COVID pandemic. Do you have any questions before we start? We will be recording this interview if that's ok with everyone. Any objections?
[Turn Recorder On.]

ACO/SSO Alignment

In this section of the interview, we would like to understand your organization's relationship with ACO(s) and Community Partner(s).

1. Can you describe your organization's relationships with healthcare organizations (i.e., Accountable Care Organizations (ACOs), Community Partners (CPs), etc.) prior to participating in the MassHealth Flexible Services program?
    a. Do you currently work with other healthcare organizations besides partnerships through the MassHealth Flexible Services Program?
    b. *[If MassHealth ACOs were first healthcare partners]* Did your experience working with MassHealth ACOs motivate you or dissuade you to work with other healthcare organizations?

2. Can you tell me about your organization's partnerships with MassHealth ACOs?
    a. How are your partnerships with MassHealth ACOs and their practice sites different than your relationships with other healthcare organizations?
    b. Have you engaged in any new conversations or contracts with additional ACOs since the Flexible Services program first launched in 2020?
    c. If working with multiple ACOs, what have you found to be factors of successful partnerships? What are some characteristics of more challenging partnerships?
    d. Have any of your previous contracts with ACOs changed or ended?

3. In your experience, what are the characteristics, structures, and processes of more successful and less successful ACO and SSO partnerships?
    a. Is there an overlap of responsibilities between ACOs and SSOs? Please describe. What suggestions do you have to reduce this overlap?

4. How does your organization work with ACOs to identify member needs and eligibility for Flexible Services?
    a. Can you speak about the Flexible Services screening process at your organization? What needs are screened and assessed?
    b. Is your organization part of the Health-Related Social Needs (HRSN) screening process with partnering ACOs? If so, what needs do you screen or assess?
    c. Does your process for assessing member needs differ for certain patient subgroups, or is it standardized? If it differs, why and how so?

5. How does your organization work with ACOs to respond to member needs that can be addressed through the Flexible Services Program?
    a. How is the Flexible Services Plan developed? How often is the plan revisited with the member? With the ACO?
    b. How has the COVID pandemic impacted your SSO's ability to work with ACOs?

6. How does your organization help address ACO member needs that are not targeted by the nutritional and housing supports as part of the Flexible Services program?
    a. Does your organization do this for MassHealth members who are not eligible for Flexible Services?

   b. How does your organization help ACOs find community-based resources to respond to their members' needs?
   c. Can you walk us through how you would work with members to obtain services needed? Does the process differ for members with certain characteristics, e.g., with behavioral health or LTSS needs?

7. How do you receive referrals and share information with your ACO partners?
   a. Has your organization implemented any new health information technology infrastructure because of your participation in the Flex Services program?
   b. Do you have any examples of successful collaborative efforts with ACOs that have helped integrate information-sharing systems?
   c. What barriers have you encountered with regard to information sharing?

8. How did your organization establish payment rates for Flexible Services?
   a. Were rates set for individual services or for bundles of services offered to ACOs? If services were offered in bundles, can you please describe this more?
   b. Were existing rates used or new rates specific to the Flexible Services program developed?
   c. How well have the negotiation, payment, and reconciliation processes gone with ACOs thus far? If rates were identified as incorrect how did your organization change them?

9. The ACO program is continuing over the next five years. If your organization continues participating in the Flexible services program, can you describe how you envision your ACO relationships changing?

10. What about your ACO relationship(s) has contributed to the sustainability of offering Flex Services?
    a. What about the relationship has hindered the sustainability of offering Flex Services?

11. What additional support could have been offered to help strengthen your organization's relationship with your ACO partner(s) to improve Flex Services?
    a. Can you speak more about any financial support from the ACO(s) and/or TA funds?

12. Do you see opportunities to expand partnerships with healthcare organizations to address larger structural challenges such as housing shortages or food deserts?

13. How does your SSO coordinate services and supports with Community Partners (CPs)? **[if applicable]**
    a. Did your organization form new relationships with CPs, formalize existing relationships, neither, or both?

Member Outreach, Member Experience, and Case Management
For this section, we would like to better understand member outreach strategies, member experiences, and the case management process at your organization better.

14. Can you please describe your member outreach processes and the most common scenarios that occur when engaging in outreach?
    a. When does member outreach begin at your organization (i.e., once a referral is received from an ACO, once your organization identity's needs in members)?
    b. How has your process changed since partnering with MassHealth Organizations to deliver flexible services?

15. What strategies have you found helpful in gaining members' trust and engaging them in your services?
    a. How do outreach and member engagement strategies vary by member population (e.g., families versus single adults, unstably housed in shelters vs. group homes vs. residential programs)?
    b. How has engagement changed for MassHealth members over the course of the COVID pandemic? What changes do you anticipate your SSO will keep in place for the future?

16. How do you help and encourage members to make their own decisions?

17. Can you please describe your organization's case management model?
    a. What resources are most beneficial in supporting case management?
    b. How has the COVID pandemic impacted the way your organization conducts case management efforts?

18. What follow-up methods have you found to be particularly effective in retaining members in your program? What challenges have you encountered

19. What have been the challenges that members report when navigating services?
    a. How has your SSO overcome these challenges?

20. Does your SSO use formal or informal evaluation strategies to understand how successful you are in connecting members to needed services and supporting members in persisting with services and programs? Please explain.
    a. Has this informed the way your SSO engages with members initially and over time? If so, how and over what time period?

21. What is the case closing process for ACO members finishing receipt of Flexible Services from your organization?
    a. How does the case closing process differ for members whose health-related social need is still present versus those whose need has been partially or fully addressed?

b. What processes are in place to transition members to other services if needed?

SSO Programming
In the following section, we would like to ask about how your SSO is addressing interconnected needs and providing services.

22. Can you walk us through an example of services members are receiving? Can you provide us with an example of how services would be delivered to a member enrolled in the flexible services program and the time period that the member would be served?
    a. How effective do you perceive your services are for members in addressing the targeted health-related social need?
    b. What are contributing factors you feel increase or decrease the effectiveness of services?
    c. What data does your organization collect to support internal or ACO analyses of program effectiveness?

23. Has your organization observed any indirect benefits for members that were not the direct result of service provision because of the support of SSO case workers (e.g., better member engagement)?

24. How do the services offered by your organization differ for individuals who are not enrolled in Flexible Services programs?

25. How is your organization seeking to promote health equity?
    a. How has your organization's approaches to promoting health equity changed over the course of your participation in the Flexible Services program?
    b. What else could have supported your organization in promoting health equity?

Workforce Development
In this section, we would like to learn about the efforts that went into workforce recruitment, retention, and training.

26. How did your organization determine the staffing model, including levels of effort, roles, and responsibilities needed for participating in the Flexible Services program?

27. Can you please describe your strategies for recruiting staff?
    a. How have you worked with community-based or other organizations to recruit staff?
    b. Are there recruitment barriers that have been difficult to address?

28. What are some strategies your organization has for retaining staff?
    a. Are there retention barriers that have been difficult to address?

29. What is your organization's process for onboarding and training new staff?
    a. What about ongoing staff training opportunities?

b. What trainings does your SSO provide to staff about unconscious or implicit bias, anti-racism, anti-oppression, and/or health equity?
c. How effective do you think your organization's training approach has been?
d. Are there gaps in staff knowledge or experience that you would like to see addressed in the future?

30. How has the COVID pandemic impacted your recruitment and retention strategies?

Quality Process Improvement/Sustainability
In this section, we will be asking about the efforts made to assure the sustainability of the SSO flexible services programs and the future of your organization.

31. What strategies does your organization use to measure quality performance?
    a. What are the quality measures most relevant to your organization?
    b. How do these align with your ACO partners?
    c. Are there measures that could be better aligned with the ACO's?

32. Can you provide examples of how you have successfully engaged both leadership and staff in meeting performance goals?
    a. What has been found to be challenging?

33. How does data impact your organization's delivery of service(s)?

34. How do you anticipate sustaining the flexible services you deliver?
    a. What processes are in place to ensure financial sustainability at your organization?
    b. In the absence of MassHealth funding, would you anticipate continuing similar partnerships with ACOs for MassHealth members?

Overview and Role of MassHealth
In this section, we would like to ask about the role MassHealth plays in your SSO and the functioning of the flexible service program overall.

35. In what ways has MassHealth worked to address your program's needs and challenges?

36. What do you perceive to be the value of operating as an organization partnering with ACOs and CPs to provide Flexible services for MassHealth members?
    a. What have been the successes and challenges of partnering with ACOs and CPs to deliver services to members? What contributed to the successes?
    b. How were barriers overcome?

37. Is there anything else you think is important for our team to know about your experience?

Thank you for participating in this interview. Your responses will be helpful in our evaluation of the MassHealth SSO program and the DSRIP program. Please remember to complete the DSRIP Evaluation Demographic Interview Demographic Data Collection Form that was sent to each of you via email. Thank you again for your participation— [Turn recorder off].

Appendix F: Select Qualitative Interview Demographics

Table F-1 KII Demographics Wave 1 and Wave 2 (n (%))

	Wave 1 ACO (n=53)	Wave 2 ACO (n=91)	Wave 1 CP (n=46)	Wave 2 CP (n=91)	Wave 1 MCO (n=4)	Wave 2 MCO (n=12)	Wave 1 MH Staff (n=18)	Wave 2 MH Staff (n=25)
Age								
21-30 years	0 (0%)	4 (4%)	0 (0%)	8 (9%)	0 (0%)	0 (0%)		5 (20%)
31-40 years	7 (13%)	26 (29%)	8 (17%)	31 (34%)	2 (50%)	5 (42%)		16 (64%)
41-50 years	13 (25%)	25 (28%)	9 (20%)	22 (24%)	1 (25%)	4 (33%)		2 (8%)
51-60 years	17 (32%)	20 (22%)	5 (10%)	23 (25%)	0 (0%)	3 (25%)		0 (0%)
> 60 years	2 (4%)	16 (18%)	1 (2%)	7 (8%)	1 (25%)	0 (0%)		1 (4%)
Gender								
Male	17 (32%)	30 (33%)	7 (15%)	16 (18%)	0 (0%)	3 (25%)	5 (28%)	9 (36%)
Female	36 (68%)	59 (65%)	39 (85%)	74 (81%)	4 (100%)	9 (75%)	12 (72%)	15 (60%)
Race								
Caucasian/White		77 (85%)		74 (81%)	4 (100%)	10 (83%)		14 (56%)
African American/Black		3 (3%)		4 (4%)	0 (0%)	0 (0%)		1 (4%)
Asian/Pacific Islander		6 (7%)		4 (4%)	0 (0%)	0 (0%)		9 (36%)
Other		3 (3%)		2 (2%)	0 (0%)	2 (17%)		0 (0%)
Ethnicity								
Hispanic		4 (4%)		6 (7%)	0 (0%)	1 (10%)		0 (0%)
Non-Hispanic		83 (91%)		81 (89%)	4 (100%)	10 (83%)		24 (96%)
Role								
Executive Leadership	17 (32%)	11 (12%)	14 (30%)	21 (23%)	1 (25%)	1 (8%)	4 (22%)	7 (28%)
Mid-Level Leadership	13 (25%)	24 (26%)	9 (20%)	13 (14%)	2 (50%)	4 (33%)	6 (33%)	8 (32%)
Program Mgmt.	23 (43%)	53 (58%)	22 (48%)	51 (56%)	1 (25%)	7 (58%)	7 (38%)	10 (40%)
Other (e.g., coordinator)	0 (0%)	3 (3%)	1 (2%)	6 (7%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Years in Current Role								
<1 year	1 (2%)	17 (19%)	0 (0%)	8 (9%)	0 (0%)	7 (58%)	2 (11%)	6 (24%)
1-5 years	24 (45%)	61 (67%)	17 (37%)	72 (79%)	3 (75%)	4 (33%)	14 (77%)	16 (64%)
6-10 years	5 (9%)	9 (10%)	0 (0%)	6 (7%)	1 (25%)	0 (0%)	2 (11%)	3 (12%)
> 10 years	8 (15%)	4 (4%)	3 (6%)	5 (6%)	0 (0%)	1 (8%)	0 (0%)	0 (0%)
Years Experience								
<1 year	0 (0%)	6 (7%)	0 (0%)	5 (6%)	0 (0%)	4 (33%)	0 (0%)	6 (24%)
1-5 years	5 (9%)	44 (48%)	2 (4%)	48 (53%)	0 (0%)	4 (33%)	8 (44%)	16 (64%)
6-10 years	4 (8%)	24 (26%)	3 (6%)	15 (17%)	0 (0%)	2 (17%)	2 (11%)	3 (12%)
> 10 years	28 (53%)	17 (11%)	32 (70%)	17 (19%)	4 (100%)	2 (17%)	8 (44%)	0 (0%)

Wave 1: 108 interviewees (ACO, MCO, & CP), 18 MH Staff

Wave 2: 264 interviewees (ACO, MCO & CP), 25 MH Staff

In some cases, Wave 1 and Wave 2 interviewees may have been repeated (e.g., participated in both rounds of interviews). Therefore, not all numbers in the table represent unique interviewees.

Numbers reported in the table represent interviewees who provided demographic information; numbers do not represent the total sample of interviewees.

Totals do not always reach 100% due to sporadic missing data.

Table F-2 Case Studies Demographics Wave 1 and Wave 2 (n (%))

	Wave 1 ACO (n=52)	Wave 2 ACO (n=56)	Wave 1 CP (n=46)	Wave 2 CP (n=27)	Wave 2 SSO (n=6)
Age					
21-30 years	5 (10%)	4 (7%)	10 (22%)	1 (4%)	0 (0%)
31-40 years	20 (38%)	11 (20%)	8 (17%)	7 (26%)	3 (50%)
41-50 years	10 (19%)	13 (23%)	9 (20%)	10 (37%)	2 (33%)
51-60 years	10 (19%)	14 (25%)	15 (33%)	8 (30%)	1 (17%)
> 60 years	5 (10%)	12 (21%)	3 (6%)	1 (4%)	0 (0%)
Gender					
Male	11 (21%)	16 (29%)	9 (20%)	6 (22%)	1 (17%)
Female	40 (77%)	39 (70%)	37 (80%)	21 (78%)	4 (66%)
Race					
Caucasian/White	41 (79%)	42 (75%)	35 (76%)	24 (89%)	4 (66%)
African American/Black	4 (7%)	5 (9%)	6 (13%)	2 (7%)	2 (33%)
Asian/Pacific Islander	2 (3%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)
Other (e.g., more than one race)	3 (6%)	5 (9%)	4 (8%)	1 (4%)	0 (0%)
Ethnicity					
Hispanic	1 (1%)	9 (16%)	4 (8%)	1 (4%)	0 (0%)
Non-Hispanic	47 (90%)	46 (82%)	37 (80%)	26 (96%)	5 (83%)
Role					
Executive Leadership	9 (17%)	12 (21%)	9 (20%)	3 (11%)	1 (17%)
Mid-Level Leadership	20 (38%)	21 (38%)	8 (17%)	11 (41%)	2 (33%)
Program Mgmt.	6 (11%)	15 (27%)	9 (20%)	10 (37%)	1 (17%)
Other (e.g., coordinator)	17 (32%)	8 (14%)	20 (44%)	3 (11%)	2 (33%)
Years in Current Role					
<1 year	1 (1%)	3 (5%)	7 (15%)	4 (15%)	4 (66%)
1-5 years	48 (92%)	39 (70%)	37 (80%)	20 (74%)	1 (17%)
6-10 years	2 (3%)	12 (21%)	0 (0%)	3 (11%)	0 (0%)
> 10 years	1 (1%)	2 (4%)	1 (2%)	0 (0%)	1 (17%)
Years at Org/Experience					
<1 year	0 (0%)	0 (0%)	0 (0%)	2 (7%)	3 (50%)

	Wave 1 ACO (n=52)	Wave 2 ACO (n=56)	Wave 1 CP (n=46)	Wave 2 CP (n=27)	Wave 2 SSO (n=6)
1-5 years	6 (11%)	44 (78%)	6 (13%)	21 (78%)	0 (0%)
6-10 years	11 (21%)	9 (16%)	13 (28%)	3 (11%)	0 (0%)
> 10 years	35 (67%)	3 (6%)	27 (59%)	1 (4%)	3 (50%)

Wave 1 Total Case Study participants n=98; 52 ACO, and 46 CP

Wave 2 Total Case Study participants n=112; 75 ACO and 31 CP, and 9 SSO

In some cases, Wave 1 and Wave 2 interviewees may have been repeated (e.g., participated in both rounds of interviews). Therefore, not all numbers in the table represent unique interviewees.

Numbers reported in the table represent interviewees who provided demographic information; numbers do not represent the total sample of interviewees.

Totals do not always reach 100% due to sporadic missing data.

One SSO site was also a CP site; data reported in CP case study column.

Table F-3 Member Demographics

	Wave 1 (n=30)	Wave 2 (n=57)
Interview Type		
Adult	25 (83%)	44 (77%)
Pediatric	5 (17%)	13 (23%)
Age		
Adult Range (Mean)	26-64 (45)	27-64 (49)
Pediatric Range (Mean)	5-17 (11)	5-20 (11)
Gender		
Male	12 (40%)	19 (33%)
Female	17 (57%)	34 (60%)
Race		
Caucasian/White	20 (67%)	27 (47%)
African American/Black	6 (20%)	15 (26%)
Other (e.g., more than one race)	2 (7%)	6 (11%)
Ethnicity		
Hispanic	7 (23%)	15 (26%)
Non-Hispanic	21 (70%)	35 (62%)
Primary Language		
English	27 (90%)	46 (81%)
Spanish	3 (10%)	7 (12%)
Other (e.g., more than one language)	0 (0%)	4 (7%)
Region of Massachusetts		
Greater Boston	7 (23%)	23 (40%)
West	10 (33%)	7 (12%)
Southeast/Cape	3 (10%)	10 (18%)
Central	4 (13%)	5 (9%)
Northeast	2 (7%)	12 (21%)

Total Interviewees n=87

Appendix G: Select Additional Member Experience Survey Results

This appendix presents the results of 12-member experience surveys of adult and children who received primary care, BH, and LTTS services during the 2017-2022 demonstration (CY 2018 – CY 2022) and covered in Domains 2 and 3. The methods used to analyze these questions are covered in **Section 2.2**. We focused on usable responses defined as members who answered yes to the screening question and answered 50% of survey questions prior to the demographics section at the conclusion of the survey. We used inverse probability weighting to address potential bias due to non-response.

Table G-1 Adult Member Experience: Behavioral Health (BH), ACO Members

Number of Survey Respondents by Survey Year				
Year	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1	4,378	24.75	4,378	24.75
2	3,978	22.49	8,356	47.24
3	3,220	18.20	11,576	65.44
4	2,968	16.78	14,544	82.22
5	3,145	17.78	17,689	100.0

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Number of Respondents	4,378	3,978	3,220	2,968	3,145
In the last 12 months, did you need mental health services?					
No	14%	19%	22%	23%	23%
Yes	86%	81%	78%	77%	77%
P-value	N/A	0.10	0.00	0.00	0.00
How well were your needs for mental health services met?					
Not at all	7%	5%	6%	7%	7%
Somewhat	26%	20%	21%	25%	24%
Very well	66%	75%	73%	69%	70%
P-value	N/A	0.00	0.01	0.05	0.28
In the last 12 months, did you need substance use treatment services for problems with alcohol or drugs?					
No	70%	76%	73%	66%	73%
Yes	30%	24%	27%	34%	27%
P-value	N/A	0.00	0.68	0.00	0.22
How well were your needs for substance use treatment services for problems with alcohol or drugs met?					
Not at all	8%	6%	6%	5%	6%
Somewhat	23%	19%	20%	18%	20%
Very well	69%	76%	74%	76%	74%
P-value	N/A	0.28	0.78	0.11	0.79

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
In the last 12 months, did you need behavioral health prescription medications?					
No	18%	25%	28%	28%	28%
Yes	82%	75%	72%	72%	72%
P-value	N/A	0.84	0.00	0.00	0.01
How well were your needs for behavioral health prescription medications met?					
Not at all	7%	4%	4%	5%	5%
Somewhat	25%	18%	17%	19%	19%
Very well	69%	78%	79%	77%	76%
P-value	N/A	0.00	0.00	0.25	0.71
In the last 12 months, did someone from your care team meet with you, in person or by telephone, to assess your behavioral health needs?					
Yes	73%	70%	73%	74%	72%
No	20%	22%	20%	20%	21%
Don't know/Not sure	6%	7%	6%	6%	7%
P-value	N/A	0.00	0.50	0.03	0.83
To what extent do you feel that your behavioral health needs were identified and discussed during the assessment?					
Not at all	8%	7%	7%	7%	7%
Somewhat	26%	22%	23%	24%	23%
Complete	66%	71%	70%	69%	70%
P-value	N/A	0.06	0.31	0.92	0.29
Do you have a care plan?	N/A	N/A	N/A	N/A	N/A
Yes	60%	57%	58%	57%	58%
No	21%	22%	22%	22%	22%
Don't know/Not sure	19%	21%	20%	21%	21%
P-value	N/A	0.89	0.90	0.42	0.82
Did you have a choice of services and providers during the care planning process?					
No	14%	12%	12%	13%	12%
Yes, somewhat	27%	25%	25%	26%	25%
Yes, completely	58%	63%	63%	62%	62%
P-value	N/A	0.31	0.30	0.84	0.24
Did anyone in your care team explain to you who was responsible for the different parts of your care plan?					
No	22%	18%	17%	19%	18%
Yes, somewhat	25%	22%	22%	23%	22%
Yes, completely	53%	60%	62%	58%	60%
P-value	N/A	0.22	0.00	0.83	0.31
Do you feel that your care plan includes all of the services that you need?					
No	12%	9%	8%	9%	10%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Yes, somewhat	26%	22%	20%	22%	22%
Yes, completely	62%	69%	71%	69%	69%
P-value	N/A	0.42	0.00	0.46	0.49
Did your care team discuss with you ways to change your care plan, if needed?					
No	33%	15%	18%	19%	16%
Yes	67%	85%	82%	81%	84%
P-value	N/A	0.00	0.08	0.33	0.00
Do you feel that you need a care coordinator?					
Yes	31%	33%	33%	34%	33%
No	44%	43%	43%	43%	43%
Don't know/Not sure	25%	23%	24%	23%	24%
P-value	N/A	0.30	0.82	0.18	0.74
Do you have a care coordinator?					
Yes, I have one care coordinator	22%	23%	22%	22%	21%
Yes, I have more than one care coordinator	7%	8%	7%	7%	7%
No	49%	49%	49%	49%	49%
Don't know/Not sure	22%	20%	22%	22%	23%
P-value	N/A	0.00	0.59	0.96	0.12
In the last 12 months, did you have contact with your care coordinator?					
No	5%	4%	5%	5%	5%
Yes	95%	96%	95%	95%	95%
P-value	N/A	0.29	0.79	0.71	0.54
In the last 12 months, did you need services in the community, such as support groups, day programs, or clubhouse?					
No	55%	55%	62%	57%	61%
Yes	45%	45%	38%	43%	39%
P-value	N/A	0.01	0.01	0.72	0.04
Did your care coordinator help you obtain these services in the community?					
No	20%	32%	31%	30%	33%
Yes	80%	68%	69%	70%	67%
P-value	N/A	0.21	0.39	0.79	0.10
In the last 12 months, did you need a referral to a specialist?					
No	30%	32%	32%	30%	34%
Yes	70%	68%	68%	70%	66%
P-value	N/A	0.75	0.78	0.50	0.15
Did your care coordinator assist you with any referrals to a specialist?					
No	33%	38%	39%	35%	40%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Yes	67%	62%	61%	65%	60%
P-value	N/A	0.83	0.35	0.35	0.08
In the last 12 months, how often did your care coordinator seem to know the important information about your medical history?					
Never	6%	5%	5%	5%	6%
Sometimes	18%	17%	16%	17%	17%
Usually	30%	30%	29%	30%	30%
Always	46%	48%	49%	47%	47%
P-value	N/A	0.94	0.30	0.91	0.95
How would you rate your care coordinator's knowledge of you as a person, including values and beliefs that are important to you?					
Very poor	2%	2%	2%	2%	2%
Poor	3%	3%	3%	3%	3%
Fair	13%	12%	11%	12%	12%
Good	23%	22%	22%	23%	23%
Very good	27%	27%	27%	27%	27%
Excellent	32%	34%	35%	32%	33%
P-value	N/A	0.56	0.21	0.85	0.92
In the last 12 months, did you see a behavioral health provider?					
Yes, I saw one behavioral health provider	53%	48%	42%	43%	46%
Yes, I saw more than one behavioral health provider	28%	30%	31%	31%	30%
No	19%	22%	26%	26%	23%
P-value	N/A	0.09	0.00	0.00	0.96
In the last 12 months, how often did your behavioral health provider explain things in a way that was easy to understand?					
Never	3%	3%	3%	3%	3%
Sometimes	12%	12%	12%	13%	12%
Usually	28%	29%	29%	30%	29%
Always	57%	56%	57%	54%	56%
P-value	N/A	0.97	0.35	0.07	0.83
In the last 12 months, how often did your behavioral health provider listen carefully to you?					
Never	2%	2%	2%	2%	3%
Sometimes	9%	10%	10%	10%	10%
Usually	20%	22%	22%	22%	23%
Always	69%	65%	66%	66%	65%
P-value	N/A	0.20	0.87	0.71	0.14
In the last 12 months, how often did your behavioral health provider show respect for what you had to say?					

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Never	2%	2%	2%	2%	2%
Sometimes	6%	7%	7%	7%	7%
Usually	16%	17%	17%	17%	17%
Always	76%	73%	74%	73%	74%
P-value	N/A	0.24	0.73	0.51	0.81
In the last 12 months, how often did your behavioral health provider spend enough time with you?					
Never	3%	4%	4%	4%	4%
Sometimes	10%	12%	11%	13%	12%
Usually	24%	26%	25%	27%	27%
Always	63%	59%	60%	56%	57%
P-value	N/A	0.78	0.41	0.02	0.10
In the last 12 months, how often did your behavioral health provider show respect for your cultural/ethnic background?					
Never	2%	3%	3%	3%	3%
Sometimes	3%	4%	4%	4%	4%
Usually	10%	12%	12%	12%	13%
Always	85%	81%	82%	82%	81%
P-value	N/A	0.10	0.73	0.49	0.09
In the last 12 months, how often did your behavioral health provider show respect for your sexual orientation, gender expression and gender identity?					
Never	3%	4%	4%	4%	4%
Sometimes	2%	3%	3%	3%	3%
Usually	7%	9%	8%	9%	9%
Always	88%	83%	85%	84%	84%
P-value	N/A	0.01	0.45	0.40	0.18
Behavioral health services were available at times that were convenient for me.					
Strongly disagree	4%	4%	3%	4%	4%
Disagree	5%	5%	5%	5%	5%
Neither disagree nor agree	11%	11%	10%	12%	12%
Agree	43%	43%	43%	44%	44%
Strongly agree	37%	37%	39%	36%	36%
P-value	N/A	0.97	0.03	0.39	0.25
Behavioral health providers were able to see me as often as I felt was necessary.					
Strongly disagree	4%	5%	4%	5%	5%
Disagree	7%	7%	7%	8%	7%
Neither disagree nor agree	12%	13%	12%	13%	13%
Agree	40%	41%	40%	41%	41%
Strongly agree	36%	35%	38%	33%	34%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
P-value	N/A	0.77	0.01	0.07	0.46
In the last 12 months, how often did your behavioral health provider(s) and primary care provider work together as a team to provide your care?					
Never	26%	25%	24%	26%	26%
Sometimes	17%	17%	17%	17%	17%
Usually	18%	18%	18%	18%	18%
Always	32%	33%	34%	33%	32%
Not applicable, I did not see a primary care provider in the last 12 months.	6%	7%	7%	7%	7%
P-value	N/A	0.15	0.01	0.78	0.36
In the last 12 months, how often did all of your behavioral health providers work together as a team to provide you with the behavioral health services you needed?					
Never	16%	16%	16%	17%	16%
Sometimes	14%	14%	14%	14%	14%
Usually	17%	17%	17%	17%	17%
Always	36%	35%	36%	35%	35%
Not applicable, I did not have multiple behavioral health providers in the last 12 months	18%	18%	18%	17%	18%
P-value	N/A	0.90	0.57	0.51	0.96
Would you recommend your behavioral health provider(s) to your family and friends if they needed similar behavioral health?					
Definitely not	4%	5%	4%	5%	5%
Probably not	4%	5%	4%	5%	5%
Not sure	11%	11%	11%	11%	11%
Probably yes	28%	28%	27%	28%	28%
Definitely yes	53%	51%	54%	51%	51%
P-value	N/A	0.52	0.07	0.52	0.50
In the last 12 months, did you contact anyone from your care team about your behavioral health services to get help or advice?					
Yes	47%	48%	46%	47%	45%
No	43%	43%	44%	44%	45%
Don't know/Not sure	10%	10%	10%	10%	11%
P-value	N/A	0.05	0.67	0.98	0.03
In the last 12 months, when you contacted someone from your care team about your behavioral health services, did you get the help or advice you needed?					
No	13%	24%	23%	26%	27%
Yes	87%	76%	77%	74%	73%
P-value	N/A	0.13	0.56	0.00	0.00
In the last 12 months, were you hospitalized overnight?					

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
No	75%	76%	77%	74%	77%
Yes	25%	24%	23%	26%	23%
P-value	N/A	0.96	0.07	0.03	0.20
Following your last hospitalization, did anyone from your care team contact you to ask about your condition?					
No	39%	30%	33%	35%	36%
Yes	61%	70%	67%	65%	64%
P-value	N/A	0.00	0.36	0.81	0.36
As a result of behavioral health services, I am better able to take care of my needs.					
Strongly disagree	5%	5%	N/A	N/A	N/A
Disagree	6%	6%	N/A	N/A	N/A
Neither disagree nor agree	24%	24%	N/A	N/A	N/A
Agree	41%	41%	N/A	N/A	N/A
Strongly agree	24%	24%	N/A	N/A	N/A
P-value	N/A	0.85	N/A	N/A	N/A
As a result of behavioral health services, I am better able to manage my money and pay my bills.					
Strongly disagree	7%	6%	N/A	N/A	N/A
Disagree	8%	7%	N/A	N/A	N/A
Neither disagree nor agree	28%	26%	N/A	N/A	N/A
Agree	27%	27%	N/A	N/A	N/A
Strongly agree	16%	17%	N/A	N/A	N/A
Not applicable	14%	16%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A
As a result of behavioral health services, I am better able to work or go to school.					
Strongly disagree	10%	10%	N/A	N/A	N/A
Disagree	11%	11%	N/A	N/A	N/A
Neither disagree nor agree	21%	21%	N/A	N/A	N/A
Agree	16%	16%	N/A	N/A	N/A
Strongly agree	11%	11%	N/A	N/A	N/A
I do not work or go to school	31%	31%	N/A	N/A	N/A
P-value	N/A	0.82	N/A	N/A	N/A
As a result of behavioral health services, my housing situation has improved.					
Strongly disagree	10%	9%	N/A	N/A	N/A
Disagree	11%	10%	N/A	N/A	N/A
Neither disagree nor agree	45%	44%	N/A	N/A	N/A
Agree	25%	26%	N/A	N/A	N/A
Strongly agree	10%	11%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
As a result of behavioral health services, I do better in social situations.					
Strongly disagree	7%	7%	N/A	N/A	N/A
Disagree	12%	11%	N/A	N/A	N/A
Neither disagree nor agree	35%	34%	N/A	N/A	N/A
Agree	36%	37%	N/A	N/A	N/A
Strongly agree	11%	11%	N/A	N/A	N/A
P-value	N/A	0.24	N/A	N/A	N/A
As a result of behavioral health services, I have people with whom I can do enjoyable things, such as talk on the phone or get together.					
Strongly disagree	7%	7%	N/A	N/A	N/A
Disagree	11%	11%	N/A	N/A	N/A
Neither disagree nor agree	33%	33%	N/A	N/A	N/A
Agree	37%	37%	N/A	N/A	N/A
Strongly agree	13%	13%	N/A	N/A	N/A
P-value	N/A	0.16	N/A	N/A	N/A
I have care goals that are important to me.					
No	N/A	N/A	15%	15%	15%
Yes, somewhat	N/A	N/A	24%	24%	24%
Yes, definitely	N/A	N/A	61%	61%	61%
P-value	N/A	N/A	N/A	0.99	0.70
My care team understands my care goals.					
Strongly disagree	N/A	N/A	6%	6%	6%
Disagree	N/A	N/A	5%	5%	5%
Neither disagree nor agree	N/A	N/A	18%	19%	19%
Agree	N/A	N/A	41%	41%	41%
Strongly agree	N/A	N/A	30%	28%	29%
P-value	N/A	N/A	N/A	0.28	0.68
My care team works with me so I am better able to manage my physical health.					
Strongly disagree	N/A	N/A	6%	6%	6%
Disagree	N/A	N/A	7%	7%	7%
Neither disagree nor agree	N/A	N/A	22%	22%	22%
Agree	N/A	N/A	40%	40%	40%
Strongly agree	N/A	N/A	24%	24%	25%
P-value	N/A	N/A	N/A	0.93	0.75
My care team works with me so I am better able to manage my mental health.					
Strongly disagree	N/A	N/A	6%	6%	6%
Disagree	N/A	N/A	6%	7%	6%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Neither disagree nor agree	N/A	N/A	18%	19%	19%
Agree	N/A	N/A	39%	39%	39%
Strongly agree	N/A	N/A	31%	29%	29%
P-value	N/A	N/A	N/A	0.38	0.46
My care team works with me so I am better able to participate in activities I enjoy with friends or family.					
Strongly disagree	N/A	N/A	6%	6%	6%
Disagree	N/A	N/A	7%	7%	7%
Neither disagree nor agree	N/A	N/A	26%	26%	26%
Agree	N/A	N/A	37%	37%	37%
Strongly agree	N/A	N/A	24%	23%	23%
P-value	N/A	N/A	N/A	0.86	0.52
My care team works with me so I am better able to take care of myself where I live.					
Strongly disagree	N/A	N/A	6%	6%	6%
Disagree	N/A	N/A	6%	7%	7%
Neither disagree nor agree	N/A	N/A	22%	23%	23%
Agree	N/A	N/A	39%	39%	39%
Strongly agree	N/A	N/A	27%	25%	25%
P-value	N/A	N/A	N/A	0.29	0.43
In the last 12 months, did you have a telehealth visit with a behavioral health provider?					
No	N/A	N/A	27%	36%	31%
Yes	N/A	N/A	73%	64%	69%
P-value	N/A	N/A	N/A	0.02	0.98
Was this most recent telehealth visit by video or by phone?					
By phone	N/A	N/A	61%	51%	36%
By video	N/A	N/A	39%	49%	64%
P-value	N/A	N/A	N/A	0.45	0.00
Were you and the provider able to see (for a video visit) and/or hear (for a video or phone visit) each other clearly throughout the visit?					
No	N/A	N/A	1%	2%	1%
Yes, somewhat	N/A	N/A	15%	16%	14%
Yes, definitely	N/A	N/A	84%	82%	84%
P-value	N/A	N/A	N/A	0.59	0.60
Were you able to communicate all of your healthcare needs to the provider?					
No	N/A	N/A	3%	3%	3%
Yes, somewhat	N/A	N/A	21%	21%	20%
Yes, definitely	N/A	N/A	76%	76%	77%
P-value	N/A	N/A	N/A	0.88	0.80

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Using any number from 0 to 10, where 0 is the worst visit possible and 10 is the best visit possible, what number would you use to rate your most recent telehealth visit?					
0 Worst visit possible	N/A	N/A	1%	1%	1%
1	N/A	N/A	1%	1%	1%
2	N/A	N/A	1%	1%	1%
3	N/A	N/A	1%	1%	1%
4	N/A	N/A	1%	1%	1%
5	N/A	N/A	5%	5%	4%
6	N/A	N/A	4%	4%	4%
7	N/A	N/A	8%	7%	7%
8	N/A	N/A	16%	16%	15%
9	N/A	N/A	20%	20%	20%
10 Best visit possible	N/A	N/A	41%	41%	45%
P-value	N/A	N/A	N/A	0.50	0.11
Would you recommend a telehealth visit to your family or friends if they had a similar health care need?					
No	N/A	N/A	9%	8%	6%
Yes, somewhat	N/A	N/A	28%	25%	21%
Yes, definitely	N/A	N/A	64%	67%	73%
P-value	N/A	N/A	N/A	0.78	0.01
Would you like to have a telehealth visit option in the future?					
No	N/A	N/A	21%	22%	17%
Yes, somewhat	N/A	N/A	24%	25%	22%
Yes, definitely	N/A	N/A	55%	54%	62%
P-value	N/A	N/A	N/A	0.12	0.00
Using any number from 0 to 10, where 0 is the worst behavioral health services possible and 10 is the best behavioral health services possible, what number would you use to rate your behavioral health services in the last 12 months?					
0 Worst behavioral health services possible	3%	4%	3%	4%	3%
1	2%	2%	2%	2%	2%
2	2%	2%	2%	2%	2%
3	3%	3%	3%	3%	3%
4	3%	3%	3%	3%	3%
5	9%	9%	8%	9%	9%
6	6%	6%	6%	6%	6%
7	11%	11%	11%	11%	11%
8	18%	18%	18%	18%	18%
9	14%	14%	14%	14%	14%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
10 Best behavioral health services possible	30%	29%	32%	29%	30%
P-value	N/A	0.11	0.01	0.26	0.90
In general, how would you rate your overall health now?					
Excellent	6%	6%	6%	6%	6%
Very good	15%	16%	16%	16%	16%
Good	33%	34%	34%	34%	34%
Fair	35%	34%	34%	34%	34%
Poor	11%	10%	10%	10%	10%
P-value	N/A	0.80	0.14	0.39	0.95
In general, how would you rate your overall mental or emotional health now?					
Excellent	5%	6%	6%	6%	6%
Very good	12%	13%	13%	13%	13%
Good	30%	31%	31%	30%	31%
Fair	38%	37%	37%	37%	37%
Poor	14%	13%	13%	13%	13%
P-value	N/A	0.75	0.43	0.50	0.43
In the last 12 months, were you ever homeless?					
No	86%	86%	87%	85%	87%
Yes	14%	14%	13%	15%	13%
P-value	N/A	0.66	0.75	0.42	0.20
In the last 12 months, how often were you worried or stressed about having enough money to pay your rent/mortgage?					
Never	24%	27%	28%	26%	26%
Sometime	27%	28%	28%	28%	28%
Usually	16%	15%	15%	16%	16%
Always	32%	29%	29%	31%	31%
P-value	N/A	0.03	0.02	0.74	0.29
In the last 12 months, how often were you worried or stressed about having enough money to buy nutritious meals?					
Never	28%	31%	35%	34%	31%
Sometime	33%	34%	34%	34%	34%
Usually	16%	15%	13%	14%	15%
Always	23%	21%	18%	19%	21%
P-value	N/A	0.14	0.00	0.00	0.09
How easy is it for you to access the internet for a healthcare visit?					
Very easy	N/A	N/A	54%	56%	57%
Somewhat easy	N/A	N/A	31%	30%	29%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Somewhat difficult	N/A	N/A	9%	9%	8%
Very difficult	N/A	N/A	4%	4%	4%
I do not have access to the internet	N/A	N/A	1%	1%	1%
P-value	N/A	N/A	N/A	0.99	0.43
In general, how comfortable are you using a smartphone, computer, tablet or other device to access the internet?					
Very uncomfortable	N/A	N/A	3%	3%	2%
Somewhat uncomfortable	N/A	N/A	5%	5%	5%
Somewhat comfortable	N/A	N/A	31%	31%	29%
Very comfortable	N/A	N/A	61%	61%	64%
P-value	N/A	N/A		0.49	0.30
Do you have a cell phone?	N/A	N/A			
No	N/A	N/A	1%	1%	0%
Yes	N/A	N/A	99%	99%	100%
P-value	N/A	N/A	N/A	0.40	0.10
How often do you worry about having enough cell phone minutes or data?					
Never	N/A	N/A	60%	61%	62%
Sometimes	N/A	N/A	26%	25%	25%
Usually	N/A	N/A	7%	7%	7%
Always	N/A	N/A	7%	7%	6%
P-value	N/A	N/A	N/A	0.96	0.49
Did someone help you complete this survey?					
No	78%	82%	83%	84%	86%
Yes	22%	18%	17%	16%	14%
P-value	N/A	0.01	0.40	0.10	0.00
Read the questions to me					
No	43%	50%	47%	48%	45%
Yes	57%	50%	53%	52%	55%
P-value	N/A	0.14	0.87	0.57	0.34
Wrote down the answers I gave					
No	64%	67%	64%	61%	67%
Yes	36%	33%	36%	39%	33%
P-value	N/A	0.13	0.63	0.09	0.41
Answered the questions for me					
No	87%	85%	85%	85%	85%
Yes	13%	15%	15%	15%	15%
P-value	N/A	0.89	0.49	0.69	0.84

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Translated in the questions into my language					
No	83%	88%	87%	90%	89%
Yes	17%	12%	13%	10%	11%
P-value	N/A	0.55	0.88	0.08	0.10
Helped in some other way					
No	75%	76%	76%	78%	81%
Yes	25%	24%	24%	22%	19%
P-value	N/A	0.42	0.43	0.71	0.13

For cells containing “N/A”, the related question was not asked in all years (i.e., results are only present for some of the years, not all five 2018-2022)

Table G-2 Adult Member Experience LTSS Survey

Number of Survey Respondents by Survey Year				
Year	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1	1,648	14.69	1,648	14.69
2	2,420	21.57	4,068	36.27
3	2,499	22.28	6,567	58.55
4	2,351	20.96	8,918	79.50
5	2,299	20.50	11,217	100.0

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Number of Respondents	1,648	2,420	2,499	2,351	2,299
In the last 12 months, did you need physical, occupational or speech therapy services?					
No	52%	58%	54%	51%	54%
Yes	48%	42%	46%	49%	46%
P-value	N/A	0.00	0.93	0.01	0.31
How well were your needs for physical, occupational or speech therapy services met?					
Not at all	11%	6%	6%	6%	6%
Somewhat	28%	19%	19%	20%	19%
Very well	61%	75%	75%	74%	75%
P-value	N/A	0.03	0.04	0.37	0.08
In the last 12 months, did you need skilled nursing?					
No	57%	77%	77%	79%	80%
Yes	43%	23%	23%	21%	20%
P-value	N/A	0.02	0.01	0.00	0.00
How well were your needs for skilled nursing met?					
Not at all	6%	4%	5%	5%	4%
Somewhat	15%	12%	12%	13%	12%
Very well	79%	84%	83%	81%	84%
P-value	N/A	0.48	0.63	0.50	0.36
In the last 12 months, did you need help with personal care or everyday tasks?					
No	38%	59%	58%	58%	61%
Yes	62%	41%	42%	42%	39%
P-value	N/A	0.00	0.01	0.01	0.00
How well were your needs for personal care or everyday tasks met?					
Not at all	9%	7%	8%	10%	10%
Somewhat	17%	15%	15%	17%	18%
Very well	73%	78%	7%7	73%	72%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
P-value	N/A	0.01	0.09	0.37	0.07
In the last 12 months, did you need medical equipment, such as a wheelchair or a walker, or medical supplies, such as catheters or syringes?					
No	48%	64%	64%	63%	66%
Yes	52%	36%	36%	37%	34%
P-value	N/A	0.00	0.00	0.09	0.00
How well were your needs for medical equipment or medical supplies met?					
Not at all	9%	6%	6%	7%	8%
Somewhat	19%	15%	15%	17%	18%
Very well	72%	79%	80%	76%	75%
P-value	N/A	0.08	0.01	0.66	0.33
In the last 12 months, when you visited your doctor's or other health provider's office, did you need special assistance or accommodations, for example to sit on the examination table?					
No	64%	77%	75%	74%	77%
Yes	36%	23%	25%	26%	23%
P-value	N/A	0.00	0.06	0.77	0.00
How well were your needs for special assistance or accommodations met?					
Not at all	8%	4%	5%	5%	6%
Somewhat	21%	13%	14%	15%	16%
Very well	70%	83%	82%	80%	79%
P-value	N/A	0.05	0.04	0.61	0.97
In the last 12 months, did you need an interpreter to help you speak with your doctors or other health providers?					
No	71%	82%	79%	80%	76%
Yes	29%	18%	21%	20%	24%
P-value	N/A	0.05	0.16	0.27	0.01
How well were your needs for an interpreter met?					
Not at all	10%	9%	9%	7%	9%
Somewhat	11%	10%	10%	8%	10%
Very well	79%	81%	81%	85%	81%
P-value	N/A	0.99	0.74	0.03	0.67
In the last 12 months, did you need assistive technology, such as special software or keyboards?					
No	91%	95%	93%	93%	94%
Yes	9%	5%	7%	7%	6%
P-value	N/A	0.00	0.59	0.08	0.28
How well were your needs for assistive technology met?					
Not at all	21%	22%	17%	19%	24%
Somewhat	22%	23%	20%	21%	23%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Very well	57%	56%	64%	60%	53%
P-value	N/A	0.81	0.09	0.50	0.20
In the last 12 months, did you need day programs, such as Day Habilitation or Adult Day Health?					
No	74%	86%	88%	88%	89%
Yes	26%	14%	12%	12%	11%
P-value	N/A	0.29	0.00	0.00	0.00
How well were your needs for day programs met?					
Not at all	14%	9%	16%	14%	15%
Somewhat	15%	11%	16%	15%	15%
Very well	72%	80%	67%	71%	70%
P-value	N/A	0.00	0.06	0.60	0.40
In the last 12 months, did you need specialty care services?					
No	24%	30%	31%	31%	29%
Yes	76%	70%	69%	69%	71%
P-value	N/A	0.10	0.01	0.00	0.76
How well were your needs for specialty care services met?					
Not at all	6%	3%	3%	4%	4%
Somewhat	18%	11%	12%	13%	13%
Very well	76%	86%	85%	83%	83%
P-value	N/A	0.00	0.03	0.94	0.79
In the last 12 months, did you need mental health services?					
No	54%	61%	62%	61%	61%
Yes	46%	39%	38%	39%	39%
P-value	N/A	0.50	0.02	0.11	0.17
How well were your needs for mental health services met?					
Not at all	10%	6%	8%	10%	10%
Somewhat	18%	12%	16%	18%	17%
Very well	72%	82%	76%	72%	73%
P-value	N/A	0.00	0.35	0.02	0.28
In the last 12 months, did you need substance use treatment services for problems with alcohol or drugs?					
No	95%	96%	96%	96%	96%
Yes	5%	4%	4%	4%	4%
P-value	N/A	0.96	0.80	0.37	0.28
How well were your needs for substance use treatment services for problems with alcohol or drugs met?					
Not at all	12%	14%	9%	11%	11%
Somewhat	16%	17%	13%	15%	15%
Very well	72%	69%	78%	74%	74%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
P-value	N/A	0.23	0.28	0.86	0.91
In the last 12 months, did you need transportation services to get to medical appointments?					
No	51%	62%	72%	69%	69%
Yes	49%	38%	28%	31%	31%
P-value	N/A	0.00	0.00	0.00	0.00
How well were your needs for transportation services to get to medical appointments met?					
Not at all	16%	15%	13%	14%	15%
Somewhat	20%	19%	17%	18%	19%
Very well	64%	67%	70%	68%	67%
P-value	N/A	0.86	0.05	0.34	0.85
In the last 12 months, did you need transportation services to get to places in the community, for example to visit friends, go shopping or go to work?					
No	65%	75%	81%	79%	79%
Yes	35%	25%	19%	21%	21%
P-value	N/A	0.08	0.00	0.00	0.00
How well were your needs for transportation services to get to places in the community met?					
Not at all	26%	24%	25%	26%	30%
Somewhat	18%	17%	18%	18%	19%
Very well	56%	59%	57%	57%	52%
P-value	N/A	0.06	0.60	0.43	0.05
In the last 12 months, did you need prescription medications?					
No	5%	7%	9%	9%	8%
Yes	95%	93%	91%	91%	92%
P-value	N/A	0.63	0.00	0.01	0.79
How well were your needs for prescription medications met?					
Not at all	3%	2%	2%	2%	2%
Somewhat	14%	8%	8%	9%	10%
Very well	83%	90%	90%	89%	88%
P-value	N/A	0.04	0.00	0.13	0.69
In the last 12 months, did someone from your care team meet with you, in person or by telephone, to assess your long term services and supports needs?					
Yes	58%	49%	53%	53%	50%
No	31%	36%	34%	34%	36%
Don't know/Not sure	11%	15%	13%	13%	15%
P-value	N/A	0.00	0.40	0.59	0.01
To what extent do you feel that your long term services and supports needs were identified and discussed during the assessment?					
Not at all	9%	7%	7%	8%	8%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Somewhat	19%	17%	18%	18%	18%
Very well	72%	76%	75%	74%	74%
P-value	N/A	0.35	0.43	0.74	0.90
Do you have a care plan?					
Yes	51%	47%	45%	47%	47%
No	29%	30%	31%	30%	30%
Don't know/Not sure	20%	23%	24%	23%	23%
P-value	N/A	0.67	0.02	0.90	0.68
Did you have a choice of services and providers during the care planning process?					
No	15%	11%	13%	13%	13%
Yes, somewhat	23%	19%	21%	21%	21%
Yes, completely	63%	69%	67%	65%	66%
P-value	N/A	0.04	0.52	0.53	0.83
Did anyone in your care team explain to you who was responsible for the different parts of your care plan?					
No	18%	19%	19%	17%	18%
Yes, somewhat	20%	21%	21%	20%	20%
Yes, completely	62%	61%	60%	63%	62%
P-value	N/A	0.48	0.24	0.21	0.84
Do you feel that your care plan includes all of the services that you need?					
No	13%	9%	9%	10%	11%
Yes, somewhat	24%	19%	19%	20%	21%
Yes, completely	63%	71%	71%	71%	68%
P-value	N/A	0.18	0.07	0.29	0.69
Did your care team discuss with you ways to change your care plan, if needed?					
No	32%	28%	29%	28%	29%
Yes	68%	72%	71%	72%	71%
P-value	N/A	0.59	0.86	0.51	0.80
Do you feel that you need a care coordinator?					
Yes	32%	28%	27%	28%	27%
No	49%	50%	50%	50%	50%
Don't know/Not sure	19%	22%	23%	22%	23%
P-value	N/A	0.99	0.06	0.92	0.03
Do you have a care coordinator?					
Yes, I have one care coordinator	33%	21%	19%	20%	18%
Yes, I have more than one care coordinator	7%	6%	6%	6%	5%
No	49%	56%	56%	56%	56%
Don't know/Not sure	10%	18%	19%	18%	21%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
P-value	N/A	0.11	0.00	0.02	0.00
In the last 12 months, did you have contact with your care coordinator?					
No	7%	11%	8%	11%	9%
Yes	93%	89%	92%	89%	91%
P-value	N/A	0.14	0.64	0.15	0.80
In the last 12 months, did you need services in the community, such as support groups or day programs?					
No	66%	68%	73%	75%	73%
Yes	34%	32%	27%	25%	27%
P-value	N/A	0.11	0.25	0.06	0.24
Did your care coordinator help you obtain services in the community?					
No	15%	30%	35%	34%	37%
Yes	85%	70%	65%	66%	63%
P-value	N/A	0.76	0.12	0.27	0.05
In the last 12 months, did you need a referral to a specialist?					
No	24%	29%	30%	26%	23%
Yes	76%	71%	70%	74%	77%
P-value	N/A	0.11	0.03	0.90	0.10
Did your care coordinator assist you with any referrals to a specialist?					
No	25%	39%	38%	36%	33%
Yes	75%	61%	62%	64%	67%
P-value	N/A	0.07	0.12	0.53	0.57
In the last 12 months, how often did your care coordinator seem to know the important information about your medical history?					
Never	4%	4%	4%	4%	4%
Sometimes	14%	15%	15%	14%	14%
Usually	26%	27%	27%	26%	26%
Always	56%	54%	54%	57%	56%
P-value	N/A	0.56	0.53	0.38	0.68
How would you rate your care coordinator's knowledge of you as a person, including values and beliefs that are important to you?					
Very poor	1%	1%	1%	1%	1%
Poor	2%	2%	2%	2%	2%
Fair	10%	8%	9%	9%	8%
Good	23%	21%	22%	22%	21%
Very good	28%	27%	28%	28%	28%
Excellent	36%	40%	39%	39%	40%
P-value	N/A	0.41	0.88	0.83	0.47
In the last 12 months, did you get care or services from an LTSS provider?					

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Yes, from one LTSS provider	31%	19%	21%	21%	19%
Yes, from more than one LTSS provider	11%	9%	9%	9%	9%
No	58%	72%	70%	70%	72%
P-value	N/A	0.00	0.31	0.40	0.00
In the last 12 months, how often did your LTSS provider explain things in a way that was easy to understand?					
Never	3%	4%	3%	4%	3%
Sometimes	10%	11%	10%	11%	9%
Usually	25%	25%	24%	26%	22%
Always	61%	61%	62%	60%	66%
P-value	N/A	0.39	0.96	0.16	0.01
In the last 12 months, how often did your LTSS provider listen carefully to you?					
Never	2%	2%	2%	2%	2%
Sometimes	8%	8%	8%	9%	8%
Usually	22%	21%	21%	23%	22%
Always	69%	69%	69%	66%	68%
P-value	N/A	0.71	0.48	0.20	0.98
In the last 12 months, how often did your LTSS provider show respect for what you had to say?					
Never	2%	2%	1%	2%	2%
Sometimes	6%	6%	5%	6%	5%
Usually	18%	17%	16%	19%	16%
Always	75%	76%	78%	73%	77%
P-value	N/A	0.96	0.09	0.07	0.49
In the last 12 months, how often did your LTSS provider spend enough time with you?					
Never	2%	2%	2%	3%	2%
Sometimes	9%	10%	10%	11%	9%
Usually	23%	24%	23%	25%	23%
Always	65%	64%	65%	61%	66%
P-value	N/A	0.83	0.58	0.07	0.32
In the last 12 months, how often did your LTSS provider show respect for your cultural/ethnic background?					
Never	2%	2%	2%	3%	2%
Sometimes	4%	4%	3%	4%	3%
Usually	12%	13%	10%	14%	12%
Always	82%	81%	86%	80%	83%
P-value	N/A	0.30	0.01	0.04	0.76
In the last 12 months, how often did your LTSS provider show respect for your sexual orientation, gender expression and gender identity?					
Never	5%	5%	4%	5%	5%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Sometimes	3%	2%	2%	3%	2%
Usually	9%	8%	7%	9%	8%
Always	83%	85%	87%	83%	85%
P-value	N/A	0.99	0.03	0.20	0.91
Long term services and supports were scheduled at times that were convenient for me.					
Strongly disagree	2%	2%	2%	2%	2%
Disagree	2%	2%	2%	2%	2%
Neither disagree nor agree	8%	8%	8%	8%	8%
Agree	43%	43%	44%	44%	43%
Strongly agree	45%	44%	44%	43%	46%
P-value	N/A	0.83	0.73	0.49	0.40
Long term services and support provider(s) saw me as scheduled and on time.					
Strongly disagree	1%	1%	1%	2%	1%
Disagree	2%	2%	2%	2%	2%
Neither disagree nor agree	7%	6%	7%	7%	6%
Agree	44%	43%	44%	45%	41%
Strongly agree	46%	47%	46%	45%	50%
P-value	N/A	0.69	0.65	0.24	0.14
Long term services and support provider(s) were able to see me as often as I felt was necessary.					
Strongly disagree	2%	2%	2%	3%	2%
Disagree	5%	5%	5%	6%	5%
Neither disagree nor agree	9%	9%	9%	10%	9%
Agree	43%	43%	43%	44%	43%
Strongly agree	41%	41%	41%	38%	41%
P-value	N/A	0.62	0.62	0.12	0.53
In the last 12 months, how often did your LTSS provider(s) and primary care provider work together as a team to provide your care?					
Never	10%	10%	11%	11%	11%
Sometimes	14%	13%	14%	14%	14%
Usually	20%	19%	20%	20%	20%
Always	53%	53%	51%	51%	51%
Not applicable, I did not see a primary care provider in the last 12 months.	4%	4%	4%	4%	4%
P-value	N/A	0.23	0.81	0.88	0.61
In the last 12 months, how often did all of your LTSS providers work together as a team to provide you with the long term services and supports you needed?					
Never	8%	8%	8%	7%	7%
Sometimes	12%	11%	12%	11%	10%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Usually	17%	17%	17%	16%	16%
Always	45%	45%	45%	46%	46%
Not applicable, I did not have multiple LTSS providers in the last 12 months	18%	19%	18%	20%	21%
P-value	N/A	0.65	0.32	0.39	0.11
Would you recommend your LTSS provider(s) to your family and friends if they needed similar long term services and supports?					
Definitely not	1%	2%	2%	2%	1%
Probably not	2%	3%	3%	3%	2%
Not sure	9%	10%	10%	10%	9%
Probably yes	27%	29%	29%	29%	28%
Definitely yes	60%	57%	58%	56%	59%
P-value	N/A	0.58	0.83	0.36	0.40
In the last 12 months, did you contact anyone from your care team about your long term services and supports to get help or advice?					
Yes	40%	30%	31%	32%	29%
No	51%	57%	56%	56%	57%
Don't know/Not sure	9%	13%	13%	12%	14%
P-value	N/A	0.01	0.33	0.49	0.00
In the last 12 months, when you contacted someone from your care team about long term services and supports, did you get the help or advice you needed?					
No	13%	22%	21%	25%	26%
Yes	87%	78%	79%	75%	74%
P-value	N/A	0.46	0.83	0.01	0.00
In the last 12 months, were you hospitalized overnight?					
No	64%	72%	74%	75%	77%
Yes	36%	28%	26%	25%	23%
P-value	N/A	0.67	0.25	0.01	0.00
Following your last hospitalization, did anyone from your care team contact you to ask about your condition?					
No	31%	31%	24%	30%	29%
Yes	69%	69%	76%	70%	71%
P-value	N/A	0.06	0.00	0.71	0.79
As a result of long term services and supports, I am better able to take care of my needs.					
Strongly disagree	7%	7%	N/A	N/A	N/A
Disagree	8%	9%	N/A	N/A	N/A
Neither disagree nor agree	27%	28%	N/A	N/A	N/A
Agree	35%	34%	N/A	N/A	N/A
Strongly agree	23%	22%	N/A	N/A	N/A
P-value	N/A	0.45	N/A	N/A	N/A

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
As a result of long term services and supports, I am better able to work or go to school.					
Strongly disagree	9%	13%	N/A	N/A	N/A
Disagree	9%	12%	N/A	N/A	N/A
Neither disagree nor agree	18%	21%	N/A	N/A	N/A
Agree	12%	12%	N/A	N/A	N/A
Strongly agree	8%	7%	N/A	N/A	N/A
I do not work or go to school	45%	35%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A
As a result of long term services and supports, my housing situation has improved.					
Strongly disagree	8%	10%	N/A	N/A	N/A
Disagree	9%	11%	N/A	N/A	N/A
Neither disagree nor agree	38%	41%	N/A	N/A	N/A
Agree	31%	27%	N/A	N/A	N/A
Strongly agree	14%	11%	N/A	N/A	N/A
P-value	N/A	0.01	N/A	N/A	N/A
As a result of long term services and supports, I do better in social situations.					
Strongly disagree	6%	7%	N/A	N/A	N/A
Disagree	11%	12%	N/A	N/A	N/A
Neither disagree nor agree	40%	42%	N/A	N/A	N/A
Agree	32%	29%	N/A	N/A	N/A
Strongly agree	11%	10%	N/A	N/A	N/A
P-value	N/A	0.15	N/A	N/A	N/A
As a result of long term services and supports, I have people with whom I can do enjoyable things, such as talk on the phone or get together.					
Strongly disagree	5%	6%	N/A	N/A	N/A
Disagree	9%	11%	N/A	N/A	N/A
Neither disagree nor agree	32%	35%	N/A	N/A	N/A
Agree	38%	35%	N/A	N/A	N/A
Strongly agree	17%	13%	N/A	N/A	N/A
P-value	N/A	0.01	N/A	N/A	N/A
I have care goals that are important to me.					
No	N/A	N/A	28%	26%	28%
Yes, somewhat	N/A	N/A	20%	20%	20%
Yes, definitely	N/A	N/A	52%	54%	52%
P-value	N/A	N/A	N/A	0.12	0.48
My care team understands my care goals.					
Strongly disagree	N/A	N/A	4%	4%	4%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Disagree	N/A	N/A	4%	5%	4%
Neither disagree nor agree	N/A	N/A	18%	19%	18%
Agree	N/A	N/A	41%	41%	41%
Strongly agree	N/A	N/A	33%	31%	32%
P-value	N/A	N/A	N/A	0.26	0.67
My care team works with me so I am better able to manage my physical health.					
Strongly disagree	N/A	N/A	4%	4%	4%
Disagree	N/A	N/A	5%	5%	5%
Neither disagree nor agree	N/A	N/A	22%	21%	21%
Agree	N/A	N/A	41%	41%	41%
Strongly agree	N/A	N/A	28%	28%	29%
P-value	N/A	N/A	N/A	1.00	0.43
My care team works with me so I am better able to manage my mental health.					
Strongly disagree	N/A	N/A	5%	5%	5%
Disagree	N/A	N/A	7%	7%	6%
Neither disagree nor agree	N/A	N/A	27%	27%	26%
Agree	N/A	N/A	36%	36%	36%
Strongly agree	N/A	N/A	26%	26%	27%
P-value	N/A	N/A	N/A	0.44	0.14
My care team works with me so I am better able to participate in activities I enjoy with friends or family.					
Strongly disagree	N/A	N/A	5%	5%	5%
Disagree	N/A	N/A	8%	8%	7%
Neither disagree nor agree	N/A	N/A	29%	30%	28%
Agree	N/A	N/A	36%	35%	36%
Strongly agree	N/A	N/A	23%	22%	24%
P-value	N/A	N/A	N/A	0.12	0.03
My care team works with me so I am better able to take care of myself where I live.					
Strongly disagree	N/A	N/A	5%	5%	5%
Disagree	N/A	N/A	6%	7%	6%
Neither disagree nor agree	N/A	N/A	27%	27%	27%
Agree	N/A	N/A	37%	37%	37%
Strongly agree	N/A	N/A	24%	24%	25%
P-value	N/A	N/A	N/A	0.83	0.67
Using any number from 0 to 10, where 0 is the worst long term services and supports possible and 10 is the best long term services and supports possible, what number would you use to rate your long term services and supports in the last 12 months?					
0 Worst long term services and supports possible	3%	4%	3%	3%	3%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
1	1%	1%	1%	1%	1%
2	1%	2%	1%	1%	1%
3	2%	2%	2%	2%	2%
4	3%	3%	2%	3%	3%
5	10%	12%	10%	11%	11%
6	5%	5%	5%	5%	5%
7	9%	10%	9%	10%	10%
8	17%	18%	17%	18%	17%
9	14%	13%	14%	13%	14%
10 Best long term services and supports possible	35%	30%	36%	32%	34%
P-value	N/A	0.00	0.00	0.41	0.56
In the last 12 months, did you have a telehealth visit with a healthcare provider?					
No	N/A	N/A	24%	32%	44%
Yes	N/A	N/A	76%	68%	56%
P-value	N/A	N/A	N/A	0.49	0.00
Was this most recent telehealth visit by video or by phone?					
By phone	N/A	N/A	59%	52%	49%
By video	N/A	N/A	41%	48%	51%
P-value	N/A	N/A	N/A	0.32	0.04
Were you and the provider able to see (for a video visit) and/or hear (for a video or phone visit) each other clearly throughout the visit?					
No	N/A	N/A	2%	2%	1%
Yes, somewhat	N/A	N/A	13%	13%	10%
Yes, definitely	N/A	N/A	86%	85%	89%
P-value	N/A	N/A	N/A	0.23	0.09
Were you able to communicate all of your healthcare needs to the provider?					
No	N/A	N/A	3%	3%	3%
Yes, somewhat	N/A	N/A	17%	19%	15%
Yes, definitely	N/A	N/A	80%	78%	82%
P-value	N/A	N/A	N/A	0.18	0.20
Using any number from 0 to 10, where 0 is the worst visit possible and 10 is the best visit possible, what number would you use to rate your most recent telehealth visit?					
0 Worst visit possible	N/A	N/A	0%	1%	0%
1	N/A	N/A	0%	0%	0%
2	N/A	N/A	0%	0%	0%
3	N/A	N/A	1%	1%	1%
4	N/A	N/A	1%	2%	1%

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
5	N/A	N/A	4%	5%	4%
6	N/A	N/A	3%	4%	3%
7	N/A	N/A	8%	9%	8%
8	N/A	N/A	17%	18%	16%
9	N/A	N/A	17%	17%	17%
10 Best visit possible	N/A	N/A	47%	42%	49%
P-value	N/A	N/A	N/A	0.01	0.11
Would you recommend a telehealth visit to your family or friends if they had a similar health care need?					
No	N/A	N/A	8%	7%	5%
Yes, somewhat	N/A	N/A	25%	23%	20%
Yes, definitely	N/A	N/A	67%	70%	75%
P-value	N/A	N/A	N/A	0.65	0.01
Would you like to have a telehealth visit option in the future?					
No	N/A	N/A	22%	24%	23%
Yes, somewhat			25%	26%	25%
Yes, definitely	N/A	N/A	53%	50%	51%
P-value	N/A	N/A	N/A	0.30	0.85
In general, how would you rate your overall health now?					
Excellent	4%	7%	7%	7%	7%
Very good	10%	15%	15%	15%	15%
Good	26%	31%	31%	31%	31%
Fair	40%	35%	35%	35%	35%
Poor	18%	12%	12%	12%	12%
P-value	N/A	0.01	0.01	0.20	0.00
In general, how would you rate your overall mental or emotional health now?					
Excellent	8%	11%	12%	11%	12%
Very good	13%	17%	17%	16%	17%
Good	29%	31%	32%	31%	32%
Fair	37%	32%	31%	32%	31%
Poor	12%	9%	9%	9%	8%
P-value	N/A	0.24	0.04	0.70	0.00
In the last 12 months, were you ever homeless?					
No	94%	94%	95%	96%	95%%
Yes	6%	6%	5%	4%	5
P-value	N/A	0.01	0.70	0.04	0.27
In the last 12 months, how often were you worried or stressed about having enough money to pay your rent/mortgage?					

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
Never	31%	31%	36%	35%	36%
Sometimes	32%	32%	32%	32%	32%
Usually	13%	13%	12%	12%	12%
Always	24%	24%	20%	21%	20%
P-value	N/A	0.01	0.01	0.07	0.04
In the last 12 months, how often were you worried or stressed about having enough money to buy nutritious meals?					
Never	36%	37%	45%	45%	41%
Sometimes	35%	34%	33%	33%	34%
Usually	12%	11%	10%	9%	10%
Always	18%	17%	13%	13%	15%
P-value	N/A	0.00	0.00	0.00	0.99
Are you deaf, or do you have serious difficulty hearing?					
No	N/A	91%	90%	90%	90%
Yes	N/A	9%	10%	10%	10%
P-value	N/A	N/A	0.74	0.73	0.79
Are you blind, or do you have difficulty seeing, even when wearing glasses?					
No	N/A	88%	86%	86%	85%
Yes	N/A	12%	14%	14%	15%
P-value	N/A	N/A	0.67	0.67	0.17
Because of a physical, mental or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?					
No	N/A	53%	57%	59%	60%
Yes	N/A	47%	43%	41%	40%
P-value	N/A	N/A	0.73	0.31	0.01
Do you have serious difficulty walking or climbing stairs?					
No	N/A	53%	52%	53%	55%
Yes	N/A	47%	48%	47%	45%
P-value	N/A	N/A	0.19	0.76	0.06
Do you have difficulty dressing or bathing?					
No	N/A	65%	64%	64%	67%
Yes	N/A	35%	36%	36%	33%
P-value	N/A	N/A	0.45	0.18	0.05
Because of a physical, mental or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?					
No	N/A	55%	57%	57%	60%
Yes	N/A	45%	43%	43%	40%
P-value	N/A	N/A	0.85	0.46	0.01

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
How easy is it for you to access the internet for a healthcare visit?					
Very easy	N/A	N/A	48%	48%	51%
Somewhat easy	N/A	N/A	23%	24%	23%
Somewhat difficult	N/A	N/A	12%	12%	11%
Very difficult	N/A	N/A	9%	9%	8%
I do not have access to the internet	N/A	N/A	8%	8%	7%
P-value	N/A	N/A	N/A	0.42	0.07
In general, how comfortable are you using a smartphone, computer, tablet or other device to access the internet?					
Very uncomfortable	N/A	N/A	9%	9%	9%
Somewhat uncomfortable	N/A	N/A	9%	10%	9%
Somewhat comfortable	N/A	N/A	26%	27%	26%
Very comfortable	N/A	N/A	56%	55%	56%
P-value	N/A	N/A	N/A	0.86	0.76
Do you have a cell phone?	N/A	N/A			
No	N/A	N/A	8%	5%	5%
Yes	N/A	N/A	92%	95%	95%
P-value	N/A	N/A	N/A	0.62	0.10
How often do you worry about having enough cell phone minutes or data?					
Never	N/A	N/A	63%	66%	67%
Sometimes	N/A	N/A	22%	21%	20%
Usually	N/A	N/A	5%	5%	4%
Always	N/A	N/A	10%	9%	8%
P-value	N/A	N/A	N/A	0.63	0.24
Did someone help you complete this survey?					
No	73%	67%	71%	74%	77%
Yes	27%	33%	29%	26%	23%
P-value	N/A	0.00	0.15	0.56	0.00
Read the questions to me					
No	55%	50%	50%	44%	49%
Yes	45%	50%	50%	56%	51%
P-value	N/A	0.56	0.96	0.01	0.51
Wrote down the answers I gave					
No	66%	64%	68%	63%	63%
Yes	34%	36%	32%	37%	37%
P-value	N/A	0.64	0.13	0.31	0.27
Answered the questions for me					

Question and Response Options	Adult, 2018	Adult, 2019	Adult, 2020	Adult, 2021	Adult, 2022
No	72%	77%	75%	79%	73%
Yes	28%	23%	25%	21%	27%
P-value	N/A	0.26	0.80	0.06	0.22
Translated in the questions into my language					
No	73%	75%	77%	81%	83%
Yes	27%	25%	23%	19%	17%
P-value	N/A	0.00	0.45	0.10	0.01
Helped in some other way					
No	78%	85%	86%	87%	81%
Yes	22%	15%	14%	13%	19%
P-value	N/A	0.47	0.06	0.03	0.14

For cells containing “N/A”, the related question was not asked in all years (i.e., results are only present for some of the years, not all five 2018-2022)

Table G-3 Adult Member Experience: Primary Care, ACO Members

Number of Survey Respondents by Survey Year				
Year	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1	11,522	21.70	11,522	21.70
2	11,715	22.06	23,237	43.76
3	9,231	17.39	32,468	61.15
4	11,012	20.74	43,480	81.89
5	9,616	18.11	53,096	100.0

Question and Response Options	2018	2019	2020	2021	2022
Number of Respondents	11,522	11,715	9,231	11,012	9,616
Is this the provider you usually see if you need a check-up, want advice about a health problem, or get sick or hurt?					
No	5%	7%	9%	8%	8%
Yes	95%	93%	91%	92%	92%
P-value	N/A	0.76	0.00	0.06	0.00
How long have you been going to this provider?					
Less than 6 months	8%	9%	8%	8%	8%
At least 6 months but less than 1 year	8%	8%	8%	8%	8%
At least 1 year but less than 3 years	19%	20%	20%	20%	19%
At least 3 years but less than 5 years	16%	16%	16%	16%	16%
5 years or more	50%	47%	48%	48%	50%
P-value	N/A	0.00	0.74	0.86	0.03
In the last 12 months, did you call this provider's office to get an appointment for an illness, injury, or condition that needed care right away?					
No	34%	38%	39%	37%	36%
Yes	66%	62%	61%	63%	64%
P-value	N/A	0.11	0.00	0.04	0.05
In the last 12 months, when you called this provider's office to get an appointment for care you needed right away, how often did you get an appointment as soon as you needed?					
Never	3%	3%	3%	3%	4%
Sometimes	11%	12%	13%	14%	15%
Usually	25%	26%	28%	29%	30%
Always	61%	59%	56%	54%	51%
P-value	N/A	0.00	0.88	0.00	0.00
In the last 12 months, did you make any appointments for a check-up or routine care with this provider?					
No	8%	11%	15%	12%	11%
Yes	92%	89%	85%	88%	89%

Question and Response Options	2018	2019	2020	2021	2022
P-value	N/A	0.07	0.00	0.28	0.54
In the last 12 months, when you made an appointment for a check-up or routine care with this provider, how often did you get an appointment as soon as you needed?					
Never	2%	2%	2%	2%	3%
Sometimes	10%	10%	11%	12%	3%
Usually	28%	29%	30%	31%	32%
Always	61%	59%	56%	55%	52%
P-value	N/A	0.00	0.31	0.00	0.00
Did this provider's office give you information about what to do if you needed care during evenings, weekends, or holidays?					
No	21%	22%	25%	25%	25%
Yes	79%	78%	75%	75%	75%
P-value	N/A	0.00	0.02	0.01	0.00
In the last 12 months, did you call this provider's office with a medical question during regular office hours?					
No	44%	43%	37%	36%	36%
Yes	56%	57%	63%	64%	64%
P-value	N/A	0.00	0.00	0.00	0.00
In the last 12 months, when you called this provider's office during regular office hours, how often did you get an answer to your medical question that same day?					
Never	4%	4%	4%	4%	4%
Sometimes	12%	12%	13%	14%	15%
Usually	30%	30%	31%	31%	32%
Always	55%	54%	52%	51%	49%
P-value	N/A	0.00	0.97	0.15	0.00
In the last 12 months, how often did this provider explain things in a way that was easy to understand?					
Never	2%	2%	2%	2%	2%
Sometimes	5%	5%	6%	6%	6%
Usually	18%	18%	20%	20%	20%
Always	76%	75%	72%	72%	72%
P-value	N/A	0.00	0.00	0.01	0.00
In the last 12 months, how often did this provider listen carefully to you?					
Never	2%	2%	2%	2%	2%
Sometimes	5%	5%	6%	6%	6%
Usually	15%	16%	18%	18%	18%
Always	78%	78%	74%	74%	74%
P-value	N/A	0.00	0.00	0.00	0.00
In the last 12 months, how often did this provider seem to know the important information about your medical history?					
Never	2%	2%	3%	2%	2%

Question and Response Options	2018	2019	2020	2021	2022
Sometimes	7%	7%	7%	7%	7%
Usually	22%	22%	24%	23%	23%
Always	70%	68%	66%	68%	67%
P-value	N/A	0.22	0.00	0.83	0.02
In the last 12 months, how often did this provider show respect for what you had to say?					
Never	1%	2%	2%	2%	2%
Sometimes	4%	4%	5%	5%	5%
Usually	13%	13%	15%	14%	15%
Always	82%	81%	79%	79%	79%
P-value	N/A	0.01	0.01	0.21	0.00
In the last 12 months, how often did this provider spend enough time with you?					
Never	2%	2%	3%	3%	3%
Sometimes	6%	7%	8%	7%	8%
Usually	20%	21%	23%	22%	23%
Always	71%	70%	67%	68%	67%
P-value	N/A	0.00	0.00	0.22	0.00
How would you rate this provider's knowledge of you as a person, including values and beliefs that are important to you?					
Very poor	1%	1%	2%	2%	2%
Poor	2%	2%	2%	2%	2%
Fair	6%	6%	7%	7%	7%
Good	16%	16%	18%	17%	18%
Very good	28%	28%	29%	29%	29%
Excellent	47%	46%	43%	43%	43%
P-value	N/A	0.00	0.00	0.00	0.00
Specialists are doctors like surgeons, heart doctors, allergy doctors, skin doctors, and other doctors who specialize in one area of care. In the last 12 months, did you see a specialist for a particular health problem?					
No	35%	37%	38%	39%	37%
Yes	65%	63%	62%	61%	63%
P-value	N/A	0.93	0.04	0.01	0.33
In the last 12 months, how often did the provider named in the prior question seem informed and up-to-date about the care you got from specialists?					
Never	3%	4%	4%	4%	4%
Sometimes	9%	9%	10%	10%	10%
Usually	26%	27%	27%	27%	28%
Always	62%	60%	59%	60%	58%
P-value	N/A	0.47	0.43	1.00	0.01
In the last 12 months, did the provider named in Question 1 order a blood test, x-ray, or other test for you?					

Question and Response Options	2018	2019	2020	2021	2022
No	14%	17%	19%	18%	17%
Yes	86%	83%	81%	82%	83%
P-value	N/A	0.51	0.00	0.06	0.29
In the last 12 months, when this provider ordered a blood test, x-ray, or other test for you, how often did someone from this provider's office follow up to give you these results?					
Never	5%	5%	6%	6%	6%
Sometimes	8%	8%	9%	9%	10%
Usually	19%	20%	20%	20%	21%
Always	67%	67%	66%	65%	63%
P-value	N/A	0.01	0.84	0.50	0.00
Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?					
0 Worst provider possible	1%	1%	1%	1%	1%
1	0%	0%	0%	0%	0%
2	1%	1%	1%	1%	1%
3	1%	1%	1%	1%	1%
4	1%	1%	1%	1%	1%
5	3%	3%	3%	3%	3%
6	2%	2%	3%	3%	3%
7	6%	6%	6%	6%	6%
8	14%	15%	15%	15%	16%
9	20%	20%	20%	20%	20%
10 Best provider possible	52%	51%	48%	49%	48%
P-value	N/A	0.00	0.01	0.21	0.00
Would you recommend this provider to your family and friends?					
Definitely not	3%	3%	3%	3%	3%
Probably not	3%	3%	3%	3%	3%
Not sure	6%	6%	7%	7%	8%
Probably yes	20%	21%	22%	22%	23%
Definitely yes	68%	67%	65%	64%	63%
P-value	N/A	0.00	0.07	0.01	0.00
In the last 12 months, did you and anyone in this provider's office talk about specific goals for your health?					
No	27%	28%	33%	30%	31%
Yes	73%	72%	67%	70%	69%
P-value	N/A	0.00	0.00	0.23	0.03
In the last 12 months, did anyone in this provider's office ask you if there are things that make it hard for you to take care of your health?					
No	47%	46%	49%	48%	45%

Question and Response Options	2018	2019	2020	2021	2022
Yes	53%	54%	51%	52%	55%
P-value	N/A	0.09	0.00	0.15	0.00
In the last 12 months, did you take any prescription medicine?					
No	11%	13%	14%	13%	13%
Yes	89%	87%	86%	87%	87%
P-value	N/A	0.88	0.00	0.94	0.30
In the last 12 months, how often did you and someone from this provider's office talk about all the prescription medicines you were taking?					
Never	6%	6%	7%	7%	7%
Sometimes	12%	12%	14%	14%	13%
Usually	22%	22%	24%	24%	23%
Always	60%	59%	55%	56%	57%
P-value	N/A	0.00	0.00	0.03	0.32
In the last 12 months, did you get care from more than one kind of health care provider or use more than one kind of health care service?					
No	43%	43%	44%	44%	43%
Yes	57%	57%	56%	56%	57%
P-value	N/A	0.51	0.17	0.27	0.20
In the last 12 months, did you need help from anyone in this provider's office to manage your care among these different providers and services?					
No	48%	50%	51%	50%	49%
Yes	52%	50%	49%	50%	51%
P-value	N/A	0.76	0.09	0.40	0.67
In the last 12 months, did you get the help you needed from this provider's office to manage your care among these different providers and services?					
No	5%	5%	5%	5%	6%
Yes, somewhat	18%	18%	19%	20%	21%
Yes, definitely	78%	77%	76%	75%	74%
P-value	N/A	0.04	0.98	0.25	0.00
In the last 12 months, did anyone in this provider's office ask you if there was a period of time when you felt sad, empty, or depressed?					
No	31%	27%	31%	29%	27%
Yes	69%	73%	69%	71%	73%
P-value	N/A	0.00	0.00	0.98	0.00
In the last 12 months, did you and anyone in this provider's office talk about things in your life that worry you or cause you stress?					
No	39%	37%	41%	40%	38%
Yes	61%	63%	59%	60%	62%
P-value	N/A	0.00	0.00	0.09	0.05

Question and Response Options	2018	2019	2020	2021	2022
In the last 12 months, how often were the front office staff at this provider's office as helpful as you thought they should be?					
Never	2%	2%	3%	3%	3%
Sometimes	8%	8%	10%	10%	10%
Usually	26%	26%	29%	29%	29%
Always	64%	63%	59%	58%	58%
P-value	N/A	0.00	0.00	0.00	0.00
In the last 12 months, how often did the front office staff at this provider's office treat you with courtesy and respect?					
Never	1%	1%	2%	2%	2%
Sometimes	5%	5%	6%	6%	6%
Usually	17%	17%	19%	20%	20%
Always	77%	76%	73%	73%	72%
P-value	N/A	0.00	0.02	0.01	0.00
Did you have a telehealth visit with a primary care provider?					
No	N/A	N/A	47%	59%	70%
Yes	N/A	N/A	53%	41%	30%
P-value	N/A	N/A	N/A	0.15	0.00
Was this most recent telehealth visit by video or by phone?					
By phone	N/A	N/A	66%	65%	63%
By video	N/A	N/A	34%	35%	37%
P-value	N/A	N/A	N/A	0.73	0.07
Were you and the provider able to see (for a video visit) and/or hear (for a video or phone visit) each other clearly throughout the visit?					
No	N/A	N/A	5%	5%	6%
Yes, somewhat	N/A	N/A	13%	12%	13%
Yes, definitely	N/A	N/A	82%	82%	81%
P-value	N/A	N/A	N/A	0.30	0.13
Were you able to communicate all of your healthcare needs to the provider?					
No	N/A	N/A	3%	3%	2%
Yes, somewhat	N/A	N/A	15%	15%	13%
Yes, definitely	N/A	N/A	83%	83%	85%
P-value	N/A	N/A	N/A	0.17	0.04
Using any number from 0 to 10, where 0 is the worst visit possible and 10 is the best visit possible, what number would you use to rate your most recent telehealth visit?					
0 Worst visit possible	N/A	N/A	1%	1%	1%
1	N/A	N/A	1%	1%	0%
2	N/A	N/A	1%	0%	0%
3	N/A	N/A	1%	1%	1%

Question and Response Options	2018	2019	2020	2021	2022
4	N/A	N/A	1%	1%	1%
5	N/A	N/A	4%	4%	4%
6	N/A	N/A	3%	3%	3%
7	N/A	N/A	7%	7%	6%
8	N/A	N/A	16%	15%	15%
9	N/A	N/A	18%	18%	18%
10 Best visit possible	N/A	N/A	46%	49%	51%
P-value	N/A	N/A	N/A	0.64	0.01
Would you recommend a telehealth visit to your family and friends if they had a similar health care need?					
No	N/A	N/A	10%	9%	8%
Yes, somewhat	N/A	N/A	27%	25%	23%
Yes, definitely	N/A	N/A	63%	66%	68%
P-value	N/A	N/A	N/A	0.97	0.00
Would you like to have a telehealh visit option in the future?					
No	N/A	N/A	33%	36%	37%
Yes, somewhat	N/A	N/A	28%	28%	28%
Yes, definitely	N/A	N/A	38%	36%	35%
P-value	N/A	N/A	N/A	0.55	0.00
In general, how would you rate your overall health?					
Excellent	12%	13%	12%	12%	12%
Very good	26%	27%	26%	26%	26%
Good	37%	37%	37%	37%	37%
Fair	21%	20%	20%	21%	20%
Poor	4%	4%	4%	4%	4%
P-value	N/A	0.00	0.21	0.16	0.67
In general, how would you rate your overall mental or emotional health?					
Excellent	19%	18%	18%	18%	18%
Very good	27%	26%	27%	26%	26%
Good	31%	32%	32%	32%	32%
Fair	18%	19%	19%	19%	19%
Poor	4%	4%	4%	5%	5%
P-value	N/A	0.63	0.99	0.00	0.15
In the last 12 months, were you ever homeless?					
No	N/A	95%	96%	96%	95%
Yes	N/A	5%	4%	4%	5%
P-value	N/A	N/A	0.14	0.00	0.21

Question and Response Options	2018	2019	2020	2021	2022
In the last 12 months, how often were you worried or stressed about having enough money to pay your rent/mortgage?					
Never	N/A	35%	39%	39%	39%
Sometimes	N/A	37%	37%	37%	37%
Usually	N/A	12%	11%	11%	11%
Always	N/A	16%	14%	14%	14%
P-value	N/A	N/A	0.07	0.07	0.01
In the last 12 months, how often were you worried or stressed about having enough money to buy nutritious meals?					
Never	N/A	45%	51%	49%	49%
Sometimes	N/A	35%	32%	33%	34%
Usually	N/A	10%	8%	9%	9%
Always	N/A	10%	8%	9%	9%
P-value	N/A	N/A	0.00	0.09	0.94
Has a provider ever told you that you had: Diabetes					
No	N/A	79%	79%	77%	78%
Yes	N/A	21%	21%	23%	22%
P-value	N/A	N/A	0.71	0.14	0.48
Has a provider ever told you that you had: Heart disease or heart problems					
No	N/A	83%	82%	82%	81%
Yes	N/A	17%	18%	18%	19%
P-value	N/A	N/A	0.54	0.63	0.57
Has a provider ever told you that you had: Anxiety					
No	N/A	57%	57%	58%	58%
Yes	N/A	43%	43%	42%	42%
P-value	N/A	N/A	0.70	0.67	0.71
Has a provider ever told you that you had: Depression					
No	N/A	61%	62%	63%	64%
Yes	N/A	39%	38%	37%	36%
P-value	N/A	N/A	0.42	0.85	0.01
How easy is it for you to access the internet for a healthcare visit?					
Very easy	N/A	N/A	44%	44%	47%
Somewhat easy	N/A	N/A	24%	24%	23%
Somewhat difficult	N/A	N/A	12%	12%	12%
Very difficult	N/A	N/A	8%	8%	7%
I do not have access to the internet	N/A	N/A	12%	12%	11%
P-value	N/A	N/A	N/A	0.01	0.00

Question and Response Options	2018	2019	2020	2021	2022
In general, how comfortable are you using a smartphone, computer, tablet or other device to access the internet?					
Very comfortable	N/A	N/A	51%	51%	53%
Somewhat comfortable	N/A	N/A	27%	27%	27%
Somewhat uncomfortable	N/A	N/A	11%	11%	10%
Very uncomfortable	N/A	N/A	11%	11%	10%
P-value	N/A	N/A	N/A	0.04	0.00
Do you have a cell phone?					
No	N/A	N/A	4%	4%	4%
Yes	N/A	N/A	96%	96%	96%
P-value	N/A	N/A	N/A	0.04	0.04
How often do you worry about having enough cell phone minutes or data?					
Never	N/A	N/A	66%	66%	68%
Sometimes	N/A	N/A	22%	22%	21%
Usually	N/A	N/A	5%	5%	5%
Always	N/A	N/A	7%	7%	6%
P-value	N/A	N/A	N/A	0.25	0.00
Did someone help you complete this survey?					
No	88%	88%	88%	88%	89%
Yes	12%	12%	12%	12%	11%
P-value	N/A	0.43	0.29	0.06	0.07
How did that person help you?: Read the questions to me					
No	51%	53%	56%	54%	54%
Yes	49%	47%	44%	46%	46%
P-value	N/A	0.75	0.15	1.00	0.74
How did that person help you?: Wrote down the answers I gave					
No	68%	67%	68%	69%	70%
Yes	32%	33%	32%	31%	30%
P-value	N/A	0.50	0.73	0.96	0.41
How did that person help you?: Answered the questions for me					
No	84%	81%	82%	81%	79%
Yes	16%	19%	18%	19%	21%
P-value	N/A	0.83	0.72	0.73	0.02
How did that person help you?: Translated in the questions into my language					
No	78%	79%	79%	81%	82%
Yes	22%	21%	21%	19%	18%
P-value	N/A	0.11	0.38	0.20	0.02

Question and Response Options	2018	2019	2020	2021	2022
How did that person help you?: Helped in some other way					
No	83%	81%	83%	80%	80%
Yes	17%	19%	17%	20%	20%
P-value	N/A	0.86	0.30	0.25	0.41

For cells containing “N/A”, the related question was not asked in all years (i.e., results are only present for some of the years, not all five 2018-2022)

Table G-4 Pediatric Member Experience: Behavioral Health (BH), ACO Members

Number of Survey Respondents by Survey Year				
Year	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1	987	25.71	987	25.71
2	903	23.52	1,890	49.23
3	710	18.49	2,600	67.73
4	627	16.33	3,227	84.06
5	612	15.94	3,839	100.0

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Number of Respondents	987	903	710	627	612
In the last 12 months, did your child need mental health services?					
No	13%	16%	23%	18%	18%
Yes	87%	84%	77%	82%	82%
P-value	N/A	0.26	0.00	0.73	0.44
How well were your child's needs for mental health services met?					
Not at all	7%	3%	5%	6%	6%
Somewhat	35%	22%	29%	33%	32%
Very well	58%	75%	66%	61%	62%
P-value	N/A	0.00	0.44	0.07	0.19
In the last 12 months, did your child need substance use treatment services for problems with alcohol or drugs?					
No	97%	98%	98%	97%	96%
Yes	3%	2%	2%	3%	4%
P-value	N/A	0.29	0.44	0.78	0.19
How well were your child's needs for substance use treatment services for problems with alcohol or drugs met?					
Not at all	23%	26%	42%	32%	34%
Somewhat	35%	36%	35%	36%	36%
Very well	42%	38%	23%	32%	30%
P-value	N/A	0.54	0.24	0.94	0.74
In the last 12 months, did your child need behavioral health prescription medications?					
No	34%	43%	43%	38%	41%
Yes	66%	57%	57%	62%	59%
P-value	N/A	0.04	0.03	0.35	0.66
How well were your child's needs for behavioral health prescription medications met?					
Not at all	6%	3%	5%	5%	5%
Somewhat	30%	18%	25%	26%	24%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Very well	64%	79%	70%	69%	71%
P-value	N/A	0.00	0.80	0.45	0.88
In the last 12 months, did someone from your child's care team meet with you, in person or by telephone, to assess your child's behavioral health needs?					
Yes	80%	74%	71%	76%	73%
No	17%	22%	24%	20%	22%
Don't know/Not sure	3%	4%	5%	4%	5%
P-value	N/A	0.43	0.02	0.53	0.29
To what extent do you feel that your child's behavioral health needs were identified and discussed during the assessment?					
Not at all	6%	5%	5%	6%	5%
Somewhat	26%	21%	22%	26%	23%
Complete	68%	74%	73%	68%	72%
P-value	N/A	0.06	0.30	0.17	0.72
Does your child have a care plan?					
Yes	56%	53%	53%	51%	58%
No	28%	29%	29%	30%	27%
Don't know/Not sure	16%	17%	18%	19%	15%
P-value	N/A	0.53	0.47	0.13	0.05
Did you and/or your child have a choice of services and providers during the care planning process?					
No	13%	13%	14%	14%	15%
Yes, somewhat	27%	26%	28%	28%	29%
Yes, completely	60%	61%	58%	58%	56%
P-value	N/A	0.20	0.74	0.96	0.29
Did anyone in your child's care team explain to you and/or your child who was responsible for the different parts of your child's care plan?					
No	16%	14%	17%	15%	17%
Yes, somewhat	24%	22%	25%	23%	25%
Yes, completely	60%	64%	58%	62%	58%
P-value	N/A	0.11	0.40	0.56	0.28
Does you feel that your child's care plan includes all of the services that your child needs?					
No	17%	11%	12%	12%	12%
Yes, somewhat	30%	23%	25%	25%	25%
Yes, completely	53%	66%	63%	63%	63%
P-value	N/A	0.05	0.55	0.60	0.49
Did your child's care team discuss with you and/or your child ways to change your child's care plan, if needed?					
No	29%	12%	16%	12%	12%
Yes	71%	88%	84%	88%	88%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
P-value	N/A	0.03	0.75	0.05	0.07
Do you feel that your child needs a care coordinator?					
Yes	26%	26%	28%	30%	29%
No	49%	49%	49%	49%	49%
Don't know/Not sure	24%	25%	23%	21%	22%
P-value	N/A	0.09	0.82	0.11	0.32
Does your child have a care coordinator?					
Yes, my child has one care coordinator	16%	13%	13%	13%	14%
Yes, my child has more than one care coordinator	5%	4%	5%	4%	5%
No	65%	66%	66%	66%	66%
Don't know/Not sure	13%	17%	16%	17%	15%
P-value	N/A	0.24	0.49	0.29	0.51
In the last 12 months, did you have contact with your child's care coordinator?					
No	2%	7%	8%	8%	9%
Yes	98%	93%	92%	92%	91%
P-value	N/A	0.57	0.53	0.48	0.21
In the last 12 months, did your child need services in the community, such as support groups, day programs or clubhouse?					
No	49%	49%	58%	48%	60%
Yes	51%	51%	42%	52%	40%
P-value	N/A	0.35	0.26	0.25	0.10
Did your child's care coordinator help your child obtain these services in the community?					
No	28%	12%	37%	29%	17%
Yes	72%	88%	63%	71%	83%
P-value	N/A	0.01	0.03	0.29	0.22
Specialists are providers like psychiatrists, surgeons, heart doctors, allergy doctors, and other doctors who specialize in one area of health care. In the last 12 months, did your child need any referrals to a specialist?					
No	32%	29%	30%	29%	30%
Yes	68%	71%	70%	71%	70%
P-value	N/A	0.81	0.98	0.75	0.96
Did your child's care coordinator assist your child with any referrals to a specialist?					
No	26%	27%	31%	33%	24%
Yes	74%	73%	69%	67%	76%
P-value	N/A	0.81	0.54	0.28	0.34
In the last 12 months, how often did your child's care coordinator seem to know the important information about your child's medical history?					
Never	3%	2%	2%	3%	2%
Sometimes	16%	11%	16%	19%	13%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Usually	30%	25%	29%	31%	27%
Always	51%	62%	53%	47%	59%
P-value	N/A	0.05	0.74	0.05	0.26
How would you rate your child's care coordinator's knowledge about your child as a person, including special abilities, concerns and fears?					
Very poor	1%	1%	1%	1%	1%
Poor	2%	1%	1%	1%	1%
Fair	10%	7%	7%	8%	7%
Good	24%	19%	19%	21%	19%
Very good	30%	30%	30%	30%	30%
Excellent	33%	42%	43%	38%	43%
P-value	N/A	0.57	0.39	0.78	0.40
In the last 12 months, did your child see a behavioral health provider?					
Yes, my child saw one behavioral health provider	53%	44%	42%	42%	40%
Yes, my child saw more than one behavioral health provider	31%	35%	36%	36%	36%
No	15%	20%	22%	22%	23%
P-value	N/A	0.95	0.21	0.13	0.02
In the last 12 months, how often did your child's behavioral health provider explain things in a way that was easy to understand?					
Never	4%	3%	4%	5%	4%
Sometimes	13%	11%	13%	17%	14%
Usually	29%	27%	29%	32%	30%
Always	54%	59%	55%	46%	52%
P-value	N/A	0.00	0.42	0.00	0.65
In the last 12 months, how often did your child's behavioral health provider listen carefully to you and/or your child?					
Never	2%	1%	2%	2%	2%
Sometimes	10%	8%	10%	13%	12%
Usually	23%	21%	24%	28%	26%
Always	66%	70%	64%	56%	60%
P-value	N/A	0.00	0.75	0.00	0.11
In the last 12 months, how often did your child's behavioral health provider show respect for what you and/or your child had to say?					
Never	1%	1%	1%	2%	2%
Sometimes	6%	6%	6%	9%	8%
Usually	15%	14%	16%	20%	18%
Always	77%	79%	77%	69%	72%
P-value	N/A	0.02	0.31	0.00	0.14

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
In the last 12 months, how often did your child's behavioral health provider spend enough time with you and/or your child?					
Never	2%	2%	3%	4%	3%
Sometimes	10%	10%	12%	15%	14%
Usually	26%	25%	29%	32%	31%
Always	62%	63%	56%	49%	52%
P-value	N/A	0.00	0.89	0.00	0.03
In the last 12 months, how often did your child's behavioral health provider show respect for your child's cultural/ethnic background?					
Never	1%	1%	1%	2%	2%
Sometimes	2%	3%	3%	5%	4%
Usually	9%	10%	10%	15%	14%
Always	87%	86%	86%	78%	81%
P-value	N/A	0.16	0.11	0.00	0.05
In the last 12 months, how often did your child's behavioral health provider show respect for your child's sexual orientation, gender expression and gender identity?					
Never	1%	2%	1%	3%	2%
Sometimes	1%	2%	1%	3%	2%
Usually	7%	9%	7%	13%	10%
Always	90%	87%	90%	81%	86%
P-value	N/A	0.96	0.03	0.00	0.58
Behavioral health services were available at times that were convenient for me and my child.					
Strongly disagree	5%	4%	4%	6%	6%
Disagree	6%	5%	5%	7%	7%
Neither disagree nor agree	12%	10%	11%	14%	13%
Agree	42%	40%	41%	42%	42%
Strongly agree	36%	42%	39%	30%	32%
P-value	N/A	0.00	0.09	0.00	0.10
Behavioral health providers were able to see my child as often as I felt was necessary.					
Strongly disagree	5%	4%	4%	7%	6%
Disagree	10%	8%	9%	12%	11%
Neither disagree nor agree	14%	12%	13%	16%	15%
Agree	39%	38%	38%	38%	39%
Strongly agree	33%	38%	35%	27%	29%
P-value	N/A	0.00	0.08	0.00	0.07
In the last 12 months, how often did your child's behavioral health provider(s) and primary care provider work together as a team to provide your child's care?					
Never	31%	28%	28%	27%	29%
Sometimes	18%	18%	18%	18%	18%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Usually	18%	18%	18%	18%	18%
Always	29%	31%	31%	31%	30%
Not applicable, my child did not see a primary care provider in the last 12 months.	5%	6%	6%	6%	5%
P-value	N/A	0.48	0.82	0.42	0.72
In the last 12 months, how often did all of your child's behavioral health providers work together as a team to provide your child with the behavioral health services your child needed?					
Never	16%	16%	17%	20%	17%
Sometimes	16%	16%	16%	18%	16%
Usually	18%	18%	18%	18%	18%
Always	30%	30%	30%	27%	29%
Not applicable, my child did not see multiple behavioral health providers in the last 12 months	20%	20%	20%	16%	19%
P-value	N/A	0.32	0.56	0.01	0.74
Would your child recommend your child's behavioral health provider(s) to your family and friends if they needed similar behavioral health services?					
Definitely not	4%	3%	4%	5%	4%
Probably not	5%	4%	5%	6%	5%
Not sure	12%	11%	12%	14%	13%
Probably yes	30%	28%	30%	32%	31%
Definitely yes	49%	54%	49%	43%	47%
P-value	N/A	0.00	0.87	0.01	0.66
In the last 12 months, did your child contact anyone from your child's care team about your child's behavioral health services to get help or advice?					
Yes	62%	55%	56%	57%	55%
No	34%	39%	39%	38%	39%
Don't know/Not sure	4%	5%	5%	5%	6%
P-value	N/A	0.39	0.46	0.81	0.29
In the last 12 months, when your child contacted someone from your child's care team about your child's behavioral health services, did your child get the help or advice your child needed?					
No	11%	19%	20%	28%	28%
Yes	89%	81%	80%	72%	72%
P-value	N/A	0.61	0.87	0.00	0.00
My child has care goals that are important to me and my child.					
No	N/A	N/A	21%	18%	18%
Yes, somewhat	N/A	N/A	16%	15%	15%
Yes, definitely	N/A	N/A	63%	67%	67%
P-value	N/A	N/A	N/A	0.49	0.55
My child's care team understands my child's care goals.					

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Strongly disagree	N/A	N/A	4%	4%	4%
Disagree	N/A	N/A	3%	3%	3%
Neither disagree nor agree	N/A	N/A	17%	18%	18%
Agree	N/A	N/A	44%	44%	44%
Strongly agree	N/A	N/A	32%	31%	30%
P-value	N/A	N/A	N/A	0.91	0.61
My child's care team works with me and my child so we can better manage my child's physical health.					
Strongly disagree	N/A	N/A	5%	5%	5%
Disagree	N/A	N/A	6%	6%	6%
Neither disagree nor agree	N/A	N/A	21%	22%	21%
Agree	N/A	N/A	41%	40%	41%
Strongly agree	N/A	N/A	28%	27%	27%
P-value	N/A	N/A	N/A	0.69	0.91
My child's care team works with me and my child so we can better manage my child's mental health.					
Strongly disagree	N/A	N/A	5%	6%	5%
Disagree	N/A	N/A	5%	6%	5%
Neither disagree nor agree	N/A	N/A	16%	17%	17%
Agree	N/A	N/A	41%	41%	41%
Strongly agree	N/A	N/A	33%	31%	31%
P-value	N/A	N/A	N/A	0.43	0.91
My child's care team works with me and my child so I am better able to take care of my child where we live.					
Strongly disagree	N/A	N/A	4%	5%	5%
Disagree	N/A	N/A	6%	7%	7%
Neither disagree nor agree	N/A	N/A	22%	24%	24%
Agree	N/A	N/A	39%	38%	39%
Strongly agree	N/A	N/A	29%	25%	26%
P-value	N/A	N/A	N/A	0.17	0.83
In the last 12 months, did someone from your child's care team talk with you about whether your child may need to change to a new provider who treats mostly adults?					
Yes	5%	4%	4%	4%	4%
No	80%	79%	79%	79%	79%
Don't know/Not sure	3%	4%	4%	4%	4%
Not Applicable, my child is not old enough for these discussions	11%	12%	11%	12%	12%
Not Applicable, my child already sees a provider treats mostly adults	1%	2%	1%	2%	2%
P-value	N/A	0.81	0.83	0.71	0.67
Did they discuss a specific plan for changing to a new provider who treats mostly adults?					

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Yes	52%	43%	46%	50%	45%
No	38%	42%	41%	39%	41%
Don't know/Not sure	10%	14%	13%	11%	13%
P-value	N/A	0.54	0.86	0.78	0.78
In the last 12 months, was your child hospitalized overnight?					
No	82%	84%	82%	80%	81%
Yes	18%	16%	18%	20%	19%
P-value	N/A	0.06	0.76	0.35	0.48
Following your child's last hospitalization did anyone from your child's care team contact you to ask about your child's condition?					
No	25%	30%	33%	23%	31%
Yes	75%	70%	67%	77%	69%
P-value	N/A	0.59	0.29	0.16	0.51
As a result of behavioral health services, my child has better coping skills.					
Strongly disagree	4%	4%	N/A	N/A	N/A
Disagree	8%	7%	N/A	N/A	N/A
Neither disagree nor agree	26%	24%	N/A	N/A	N/A
Agree	43%	43%	N/A	N/A	N/A
Strongly agree	20%	21%	N/A	N/A	N/A
P-value	N/A	0.28	N/A	N/A	N/A
As a result of behavioral health services, my child does better in school, work and/or other activities.					
Strongly disagree	6%	5%	N/A	N/A	N/A
Disagree	10%	9%	N/A	N/A	N/A
Neither disagree nor agree	26%	25%	N/A	N/A	N/A
Agree	40%	41%	N/A	N/A	N/A
Strongly agree	19%	20%	N/A	N/A	N/A
P-value	N/A	0.24	N/A	N/A	N/A
As a result of behavioral health services, my child is better able to do the things he or she wants to do.					
Strongly disagree	4%	4%	N/A	N/A	N/A
Disagree	8%	8%	N/A	N/A	N/A
Neither disagree nor agree	29%	28%	N/A	N/A	N/A
Agree	41%	42%	N/A	N/A	N/A
Strongly agree	17%	18%	N/A	N/A	N/A
P-value	N/A	0.50	N/A	N/A	N/A
As a result of behavioral health services, my child does better in social situations.					
Strongly disagree	5%	4%	N/A	N/A	N/A
Disagree	10%	9%	N/A	N/A	N/A

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Neither disagree nor agree	32%	31%	N/A	N/A	N/A
Agree	38%	40%	N/A	N/A	N/A
Strongly agree	15%	16%	N/A	N/A	N/A
P-value	N/A	0.16	N/A	N/A	N/A
As a result of behavioral health services, the quality of our family life has improved.					
Strongly disagree	5%	4%	N/A	N/A	N/A
Disagree	8%	8%	N/A	N/A	N/A
Neither disagree nor agree	29%	27%	N/A	N/A	N/A
Agree	40%	41%	N/A	N/A	N/A
Strongly agree	18%	20%	N/A	N/A	N/A
P-value	N/A	0.22	N/A	N/A	N/A
Using any number from 0 to 10, where 0 is the worst behavioral health services possible and 10 is the best behavioral health services possible, what number would you use to rate your child's behavioral health services in the last 12 months?					
0 Worst behavioral health services possible	3%	2%	2%	3%	3%
1	2%	1%	1%	2%	2%
2	2%	2%	2%	2%	2%
3	3%	3%	3%	3%	3%
4	3%	3%	3%	3%	3%
5	10%	9%	9%	11%	10%
6	6%	6%	6%	6%	6%
7	12%	11%	11%	12%	12%
8	20%	20%	20%	20%	20%
9	15%	16%	16%	15%	15%
10 Best behavioral health services possible	25%	29%	28%	23%	25%
P-value	N/A	0.02	0.18	0.06	0.38
In the last 12 months, did your child have a telehealth visit with a behavioral health provider?					
No	N/A	N/A	22%	44%	33%
Yes	N/A	N/A	78%	56%	67%
P-value	N/A	N/A	N/A	0.03	0.85
Was this most recent telehealth visit by video or by phone?					
By phone	N/A	N/A	23%	14%	14%
By video	N/A	N/A	77%	86%	86%
P-value	N/A	N/A	N/A	0.59	0.52
Were you and/or your child and the provider able to see (for a video visit) and/or hear (for a video or phone visit) each other clearly throughout the visit?					
No	N/A	N/A	1%	2%	1%
Yes, somewhat	N/A	N/A	13%	25%	11%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Yes, definitely	N/A	N/A	86%	73%	88%
P-value	N/A	N/A	N/A	0.06	0.21
Were you and/or your child able to communicate all of your child's healthcare needs to the provider?					
No	N/A	N/A	4%	10%	6%
Yes, somewhat	N/A	N/A	16%	28%	21%
Yes, definitely	N/A	N/A	79%	62%	73%
P-value	N/A	N/A	N/A	0.13	0.83
Using any number from 0 to 10, where 0 is the worst visit possible and 10 is the best visit possible, what number would you use to rate your child's most recent telehealth visit?					
0 Worst visit possible	N/A	N/A	1%	2%	1%
1	N/A	N/A	1%	1%	1%
2	N/A	N/A	1%	1%	1%
3	N/A	N/A	3%	5%	3%
4	N/A	N/A	1%	1%	1%
5	N/A	N/A	5%	7%	4%
6	N/A	N/A	4%	6%	4%
7	N/A	N/A	12%	16%	12%
8	N/A	N/A	16%	17%	16%
9	N/A	N/A	19%	17%	19%
10 Best visit possible	N/A	N/A	37%	26%	39%
P-value	N/A	N/A	N/A	0.16	0.32
Would you recommend a telehealth visit to your family and friends if they had a similar health care need?					
No	N/A	N/A	9%	15%	10%
Yes, somewhat	N/A	N/A	27%	34%	29%
Yes, definitely	N/A	N/A	64%	51%	61%
P-value	N/A	N/A	N/A	0.25	0.69
Would you like to have a telehealth visit option in the future?					
No	N/A	N/A	20%	26%	20%
Yes, somewhat	N/A	N/A	27%	30%	28%
Yes, definitely	N/A	N/A	53%	45%	52%
P-value	N/A	N/A	N/A	0.28	0.60
In general, how would you rate your child's overall health now?					
Excellent	15%	18%	16%	15%	15%
Very good	30%	32%	31%	29%	29%
Good	37%	35%	36%	38%	38%
Fair	15%	13%	14%	16%	16%
Poor	3%	2%	2%	3%	3%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
P-value	N/A	0.01	0.53	0.29	0.35
In general, how would you rate your child's overall mental or emotional health now?					
Excellent	5%	7%	6%	5%	6%
Very good	16%	19%	17%	16%	18%
Good	35%	36%	35%	34%	36%
Fair	34%	30%	32%	34%	32%
Poor	10%	8%	9%	10%	9%
P-value	N/A	0.01	0.95	0.13	0.39
As your child's caregiver, do you have adequate support and resources to meet your and your child's needs?					
Definitely not	7%	6%	5%	7%	7%
Probably not	11%	10%	9%	12%	11%
Not sure	16%	15%	14%	16%	16%
Probably yes	35%	35%	34%	35%	35%
Definitely yes	31%	35%	37%	30%	32%
P-value	N/A	0.13	0.01	0.09	0.61
In the last 12 months, was your family ever homeless?					
No	98%	98%	98%	98%	98%
Yes	2%	2%	2%	2%	2%
P-value	N/A	0.68	0.24	0.90	0.78
In the last 12 months, how often were you worried or stressed about having enough money to pay your rent/mortgage?					
Never	39%	45%	48%	49%	51%
Sometimes	34%	33%	32%	31%	30%
Usually	12%	10%	9%	9%	9%
Always	15%	12%	11%	11%	10%
P-value	N/A	0.27	0.24	0.17	0.01
In the last 12 months, how often were you worried or stressed about having enough money to buy nutritious meals?					
Never	49%	56%	63%	57%	54%
Sometimes	33%	30%	26%	29%	30%
Usually	9%	7%	5%	7%	7%
Always	10%	7%	6%	7%	8%
P-value	N/A	0.93	0.00	0.49	0.46
How easy is it for you to access the internet for a healthcare visit?					
Very easy	N/A	N/A	76%	76%	67%
Somewhat easy	N/A	N/A	18%	18%	24%
Somewhat difficult	N/A	N/A	4%	4%	6%
Very difficult	N/A	N/A	2%	2%	2%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
I do not have access to the internet	N/A	N/A	0%	0%	1%
P-value	N/A	N/A	N/A	0.45	0.17
In general, how comfortable are you using a smartphone, computer, tablet or other device to access the internet?					
Very comfortable	N/A	N/A	79%	81%	74%
Somewhat comfortable	N/A	N/A	16%	14%	20%
Somewhat uncomfortable	N/A	N/A	4%	3%	5%
Very uncomfortable	N/A	N/A	1%	1%	1%
P-value	N/A	N/A	N/A	0.42	0.28
How often do you worry about having enough cell phone minutes or data?					
Never	N/A	N/A	72%	79%	74%
Sometimes	N/A	N/A	22%	17%	20%
Usually	N/A	N/A	2%	2%	2%
Always	N/A	N/A	4%	3%	4%
P-value	N/A	N/A	N/A	0.32	0.82

For cells containing “N/A”, the related question was not asked in all years (i.e., results are only present for some of the years, not all five 2018-2022)

Table G-5 Pediatric Member Experience: Long-Term Services and Supports (LTSS), ACO Enrollees

Number of Survey Respondents by Survey Year				
Year	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1	814	17.51	814	17.51
2	1,347	28.98	2,161	46.49
3	907	19.51	3,068	66.01
4	776	16.70	3,844	82.70
5	804	17.30	4,648	100.0

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Number of Respondents	814	1,347	907	776	804
In the last 12 months, did your child need physical, occupational or speech therapy services?					
No	28%	53%	41%	33%	30%
Yes	72%	47%	59%	67%	70%
P-value	N/A	0.00	0.01	0.01	0.00
How well were your child's needs for physical, occupational or speech therapy services met?					
Not at all	6%	5%	7%	5%	6%
Somewhat	23%	18%	24%	19%	21%
Very well	71%	78%	69%	76%	73%
P-value	N/A	0.02	0.01	0.16	0.88
In the last 12 months, did your child need skilled nursing?					
No	85%	92%	88%	87%	83%
Yes	15%	8%	12%	13%	17%
P-value	N/A	0.00	0.83	0.69	0.00
How well were your child's needs for skilled nursing met?					
Not at all	10%	6%	13%	9%	11%
Somewhat	17%	12%	20%	16%	18%
Very well	73%	82%	67%	75%	71%
P-value	N/A	0.04	0.08	0.79	0.44
In the last 12 months, did your child need help with personal care or everyday tasks?					
No	51%	72%	58%	58%	53%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Yes	49%	28%	42%	42%	47%
P-value	N/A	0.00	0.38	0.65	0.00
How well were your child's needs for personal care or everyday tasks met?					
Not at all	9%	7%	7%	8%	6%
Somewhat	23%	20%	20%	21%	18%
Very well	67%	73%	73%	71%	75%
P-value	N/A	0.97	0.90	0.66	0.09
In the last 12 months, did your child need medical equipment, such as a wheelchair or a walker, or medical supplies, such as catheters or syringes?					
No	78%	81%	78%	77%	75%
Yes	22%	19%	22%	23%	25%
P-value	N/A	0.01	0.58	0.66	0.02
How well were your child's needs for medical equipment or medical supplies met?					
Not at all	7%	3%	4%	4%	4%
Somewhat	19%	10%	12%	13%	13%
Very well	75%	88%	84%	83%	83%
P-value	N/A	0.04	0.76	0.88	0.90
In the last 12 months, did your child need assistive technology, such as special software or keyboards?					
No	85%	90%	84%	85%	82%
Yes	15%	10%	16%	15%	18%
P-value	N/A	0.00	0.06	0.79	0.01
How well were your child's needs for assistive technology met					
Not at all	24%	21%	16%	21%	15%
Somewhat	29%	28%	25%	28%	24%
Very well	48%	51%	60%	52%	61%
P-value	N/A	0.75	0.10	0.62	0.13
In the last 12 months, did your child need specialty care services?					
No	42%	45%	40%	42%	40%
Yes	58%	55%	60%	58%	60%
P-value	N/A	0.00	0.22	0.59	0.15

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
How well were your child's needs for specialty care services met?					
Not at all	4%	2%	3%	3%	3%
Somewhat	18%	11%	15%	15%	14%
Very well	78%	86%	82%	82%	82%
P-value	N/A	0.00	0.58	1.00	0.90
In the last 12 months, did your child need mental health services?					
No	73%	74%	69%	71%	72%
Yes	27%	26%	31%	29%	28%
P-value	N/A	0.04	0.07	0.43	0.92
How well were your child's needs for mental health services met?					
Not at all	12%	9%	13%	15%	12%
Somewhat	27%	22%	27%	29%	27%
Very well	60%	69%	60%	56%	61%
P-value	N/A	0.00	0.72	0.09	0.68
In the last 12 months, did your child need substance use treatment services for problems with alcohol or drugs?					
No	100%	99%	100%	99%	99%
Yes	0%	1%	0%	1%	1%
P-value	N/A	0.53	0.47	0.31	0.43
How well were your child's needs for substance use treatment services for problems with alcohol or drugs met?					
Not at all	33%	45%	20%	45%	27%
Somewhat	21%	20%	17%	20%	19%
Very well	46%	36%	63%	35%	54%
P-value	N/A	0.60	0.35	0.67	0.76
In the last 12 months, did your child need transportation services to get to medical appointments?					
No	81%	89%	87%	85%	82%
Yes	19%	11%	13%	15%	18%
P-value	N/A	0.00	0.34	0.94	0.03
How well were your child's needs for transportation services to get to medical appointments met?					
Not at all	19%	19%	16%	19%	14%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Somewhat	24%	25%	22%	25%	21%
Very well	57%	56%	62%	56%	65%
P-value	N/A	0.42	0.53	0.36	0.11
In the last 12 months, did your child need prescription medications?					
No	32%	29%	30%	33%	25%
Yes	68%	71%	70%	67%	75%
P-value	N/A	0.81	0.65	0.02	0.00
How well were your child's needs for prescription medications met?					
Not at all	3%	2%	2%	3%	3%
Somewhat	14%	7%	10%	11%	12%
Very well	82%	91%	88%	86%	85%
P-value	N/A	0.00	0.29	0.30	0.22
In the last 12 months, did someone from your child's care team meet with you, in person or by telephone, to assess your child's long term services and supports needs?					
Yes	49%	41%	52%	56%	50%
No	39%	43%	37%	35%	38%
Don't know/Not sure	12%	16%	11%	9%	12%
P-value	N/A	0.00	0.13	0.00	0.80
To what extent do you feel that your child's long term services and supports needs were identified and discussed during the assessment?					
Not at all	6%	7%	7%	6%	7%
Somewhat	19%	19%	20%	18%	21%
Completely	75%	74%	74%	77%	72%
P-value	N/A	0.69	0.61	0.24	0.30
Does your child have a care plan?					
Yes	43%	42%	48%	50%	51%
No	35%	36%	33%	33%	32%
Don't know/Not sure	21%	23%	18%	17%	17%
P-value	N/A	0.01	0.12	0.05	0.03
Did you and/or your child have a choice of services and providers during the care planning process?					
No	15%	12%	12%	11%	14%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Yes, somewhat	25%	21%	21%	20%	23%
Yes, completely	60%	67%	67%	69%	63%
P-value	N/A	0.42	0.62	0.07	0.29
Did anyone in your child's care team explain to you and/or your child who was responsible for the different parts of your child's care plan?					
No	21%	19%	18%	15%	19%
Yes, somewhat	22%	21%	20%	18%	21%
Yes, completely	58%	60%	61%	66%	61%
P-value	N/A	0.26	0.83	0.03	0.94
Do you feel that your child's care plan includes all of the services that your child needs?					
No	10%	10%	10%	9%	12%
Yes, somewhat	23%	23%	22%	21%	25%
Yes, completely	66%	67%	68%	70%	63%
P-value	N/A	0.88	0.64	0.17	0.08
Did your child's care team discuss with you and/or your child ways to change your child's care plan, if needed?					
No	28%	25%	28%	25%	25%
Yes	72%	75%	72%	75%	75%
P-value	N/A	0.44	0.23	0.58	0.52
Do you feel that your child needs a care coordinator?					
Yes	26%	26%	29%	29%	33%
No	52%	52%	52%	52%	51%
Don't know/Not sure	21%	22%	19%	19%	16%
P-value	N/A	0.03	0.65	0.96	0.00
Does your child have a care coordinator?					
Yes, my child has one care coordinator	13%	14%	15%	14%	12%
Yes, my child has more than one care coordinator	5%	5%	6%	5%	5%
No	62%	62%	61%	62%	61%
Don't know/Not sure	20%	20%	18%	19%	22%
P-value	N/A	0.74	0.02	0.49	0.02
In the last 12 months, did you have contact with your child's care coordinator?					

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
No	7%	11%	8%	4%	11%
Yes	93%	89%	92%	96%	89%
P-value	N/A	0.14	0.79	0.04	0.12
In the last 12 months, did your child need services in the community, such as support groups or day programs?					
No	54%	60%	62%	55%	51%
Yes	46%	40%	38%	45%	49%
P-value	N/A	0.31	0.09	0.65	0.17
Did your child's care coordinator help your child obtain services in the community?					
No	18%	39%	30%	33%	47%
Yes	82%	61%	70%	67%	53%
P-value	N/A	0.25	0.56	0.90	0.02
In the last 12 months, did your child need any referrals to a specialist?					
No	28%	30%	31%	28%	32%
Yes	72%	70%	69%	72%	68%
P-value	N/A	0.83	0.68	0.66	0.54
Did your child's care coordinator assist your child with any referrals to a specialist?					
No	25%	44%	37%	20%	36%
Yes	75%	56%	63%	80%	64%
P-value	N/A	0.01	0.22	0.01	0.30
In the last 12 months, how often did your child's care coordinator seem to know the important information about your child's medical history?					
Never	4%	7%	4%	3%	5%
Sometimes	17%	24%	15%	15%	20%
Usually	28%	31%	27%	27%	30%
Always	50%	38%	54%	55%	44%
P-value	N/A	0.00	0.09	0.07	0.24
How would you rate your child's care coordinator's knowledge of your child as a person, including special abilities, concerns and fears?					
Very poor	1%	3%	1%	2%	2%
Poor	3%	5%	2%	3%	3%
Fair	9%	14%	8%	10%	10%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Good	22%	28%	21%	24%	23%
Very good	28%	25%	27%	27%	27%
Excellent	38%	25%	40%	34%	35%
P-value	N/A	0.00	0.06	0.94	0.79
In the last 12 months, did your child get care or services from an LTSS provider?					
Yes, from one LTSS provider	24%	12%	18%	17%	20%
Yes, from more than one LTSS provider	12%	7%	10%	10%	10%
No	64%	81%	72%	73%	70%
P-value	N/A	0.00	0.60	0.73	0.09
In the last 12 months, how often did your child's LTSS provider explain things in a way that was easy to understand?					
Never	2%	2%	1%	2%	2%
Sometimes	14%	15%	12%	14%	15%
Usually	27%	27%	25%	26%	28%
Always	57%	57%	61%	59%	55%
P-value	N/A	0.69	0.22	0.79	0.42
In the last 12 months, how often did your child's LTSS provider listen carefully to you and/or your child?					
Never	1%	1%	1%	2%	2%
Sometimes	11%	10%	10%	13%	13%
Usually	23%	23%	22%	26%	26%
Always	65%	65%	67%	60%	59%
P-value	N/A	0.44	0.22	0.23	0.24
In the last 12 months, how often did your child's LTSS provider show respect for what you and/or your child had to say?					
Never	1%	1%	1%	2%	1%
Sometimes	6%	7%	6%	9%	8%
Usually	17%	19%	17%	21%	20%
Always	76%	72%	75%	69%	71%
P-value	N/A	0.88	0.38	0.11	0.61
In the last 12 months, how often did your child's LTSS provider spend enough time with your child?					
Never	2%	2%	2%	2%	2%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Sometimes	10%	12%	11%	12%	11%
Usually	25%	26%	26%	28%	26%
Always	63%	60%	61%	57%	60%
P-value	N/A	0.86	0.96	0.34	0.93
In the last 12 months, how often did your child's LTSS provider show respect for your child's cultural/ethnic background?					
Never	2%	2%	2%	3%	2%
Sometimes	4%	4%	4%	5%	4%
Usually	12%	12%	12%	15%	12%
Always	82%	82%	82%	77%	82%
P-value	N/A	0.69	0.90	0.11	0.54
In the last 12 months, how often did your child's LTSS provider show respect for your child's sexual orientation, gender expression and gender identity?					
Never	2%	3%	2%	3%	3%
Sometimes	2%	3%	2%	3%	3%
Usually	9%	11%	8%	12%	12%
Always	86%	84%	87%	82%	82%
P-value	N/A	0.94	0.15	0.31	0.31
Long term services and supports were scheduled at times that were convenient for me and my child.					
Strongly disagree	2%	2%	1%	2%	2%
Disagree	2%	2%	2%	2%	3%
Neither disagree nor agree	8%	8%	6%	7%	9%
Agree	47%	48%	43%	47%	49%
Strongly agree	42%	39%	48%	42%	38%
P-value	N/A	0.33	0.02	0.98	0.18
Long term services and support provider(s) saw my child as scheduled and on time.					
Strongly disagree	1%	1%	1%	1%	1%
Disagree	2%	2%	2%	2%	2%
Neither disagree nor agree	6%	6%	5%	6%	6%
Agree	47%	49%	44%	49%	46%
Strongly agree	45%	42%	49%	42%	45%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
P-value	N/A	0.31	0.12	0.33	0.78
Long term services and support provider(s) were able to see my child as often as I felt was necessary.					
Strongly disagree	2%	3%	2%	3%	3%
Disagree	6%	7%	6%	6%	7%
Neither disagree nor agree	8%	9%	8%	9%	9%
Agree	43%	44%	42%	43%	44%
Strongly agree	41%	38%	42%	39%	38%
P-value	N/A	0.76	0.42	0.81	0.57
In the last 12 months, how often did your child's LTSS provider(s) and primary care provider work together as a team to provide your child's care?					
Never	10%	19%	12%	15%	15%
Sometimes	14%	20%	16%	18%	18%
Usually	17%	20%	18%	19%	19%
Always	53%	37%	48%	44%	43%
Not applicable, my child did not see a primary care provider in the last 12 months.	6%	3%	5%	4%	4%
P-value	N/A	0.00	0.13	0.64	0.30
In the last 12 months, how often did all of your child's LTSS providers work together as a team to provide your child with the long term services and supports needed?					
Never	10%	11%	8%	12%	12%
Sometimes	15%	17%	14%	18%	17%
Usually	19%	20%	18%	20%	20%
Always	40%	37%	41%	36%	37%
Not applicable, my child did not have multiple LTSS providers in the last 12 months	17%	15%	20%	14%	14%
P-value	N/A	0.42	0.02	0.15	0.29
Would you recommend your child's LTSS provider(s) to your family and friends if they needed similar long term services and supports?					
Definitely not	1%	1%	1%	1%	1%
Probably not	2%	2%	2%	2%	2%
Not sure	7%	10%	7%	8%	9%
Probably yes	30%	35%	29%	31%	33%
Definitely yes	60%	51%	61%	58%	54%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
P-value	N/A	0.08	0.17	0.62	0.28
In the last 12 months, did you contact anyone from your child's care team about your child's long term services and supports to get help or advice?					
Yes	44%	30%	35%	40%	34%
No	49%	58%	55%	52%	56%
Don't know/Not sure	7%	12%	10%	8%	10%
P-value	N/A	0.00	0.44	0.05	0.21
In the last 12 months, when you contacted someone from your child's care team about your child's long term services and supports, did you get the help or advice you needed?					
No	12%	28%	22%	25%	27%
Yes	88%	72%	78%	75%	73%
P-value	N/A	0.01	0.90	0.18	0.06
In the last 12 months, did someone from your child's care team talk with you about whether your child may need to change to a new provider who treats mostly adults?					
Yes	2%	5%	4%	3%	3%
No	55%	75%	71%	69%	65%
Don't know/Not sure	8%	5%	6%	6%	7%
Not Applicable, my child is not old enough for these discussions	33%	14%	19%	20%	25%
Not Applicable, my child already sees a provider who treats mostly adults	2%	1%	1%	1%	1%
P-value	N/A	0.00	0.01	0.37	0.01
Did they discuss a specific plan for changing to a new provider who treats mostly adults?					
Yes	23%	33%	33%	15%	34%
No	50%	47%	48%	46%	48%
Don't know/Not sure	26%	19%	19%	40%	18%
P-value	N/A	0.25	0.33	0.03	0.44
In the last 12 months, was your child hospitalized overnight?					
No	86%	87%	87%	85%	83%
Yes	14%	13%	13%	15%	17%
P-value	N/A	0.22	0.08	0.45	0.03
Following your child's last hospitalization, did anyone from your child's care team contact you to ask about your child's condition?					

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
No	31%	31%	21%	17%	26%
Yes	69%	69%	79%	83%	74%
P-value	N/A	0.16	0.34	0.03	0.72
As a result of long term services and supports, my child has better coping skills.					
Strongly disagree	3%	5%	N/A	N/A	N/A
Disagree	5%	8%	N/A	N/A	N/A
Neither disagree nor agree	28%	37%	N/A	N/A	N/A
Agree	41%	36%	N/A	N/A	N/A
Strongly agree	23%	14%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A
As a result of long term services and supports, my child does better in school, work and/or other activities.					
Strongly disagree	3%	5%	N/A	N/A	N/A
Disagree	5%	8%	N/A	N/A	N/A
Neither disagree nor agree	24%	32%	N/A	N/A	N/A
Agree	42%	38%	N/A	N/A	N/A
Strongly agree	27%	17%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A
As a result of long term services and supports, my child is better able to do the things he or she wants to do.					
Strongly disagree	3%	5%	N/A	N/A	N/A
Disagree	5%	9%	N/A	N/A	N/A
Neither disagree nor agree	25%	33%	N/A	N/A	N/A
Agree	44%	40%	N/A	N/A	N/A
Strongly agree	23%	15%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A
As a result of long term services and supports, my child does better in social situations.					
Strongly disagree	3%	5%	N/A	N/A	N/A
Disagree	7%	10%	N/A	N/A	N/A
Neither disagree nor agree	30%	36%	N/A	N/A	N/A
Agree	41%	36%	N/A	N/A	N/A
Strongly agree	19%	13%	N/A	N/A	N/A

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
P-value	N/A	0.00	N/A	N/A	N/A
As a result of long term services and supports, the quality of our family life has improved.					
Strongly disagree	2%	4%	N/A	N/A	N/A
Disagree	3%	6%	N/A	N/A	N/A
Neither disagree nor agree	23%	34%	N/A	N/A	N/A
Agree	46%	41%	N/A	N/A	N/A
Strongly agree	26%	15%	N/A	N/A	N/A
P-value	N/A	0.00	N/A	N/A	N/A
My child has care goals that are important to me and my child.					
No	N/A	N/A	27%	23%	23%
Yes, somewhat	N/A	N/A	11%	10%	10%
Yes, definitely	N/A	N/A	62%	67%	67%
P-value	N/A	N/A	N/A	0.40	0.24
My child's care team understands my child's care goals.					
Strongly disagree	N/A	N/A	5%	5%	5%
Disagree	N/A	N/A	2%	2%	2%
Neither disagree nor agree	N/A	N/A	11%	12%	12%
Agree	N/A	N/A	40%	41%	41%
Strongly agree	N/A	N/A	41%	39%	40%
P-value	N/A	N/A	N/A	0.71	0.97
My child's care team works with me and my child so we can better manage my child's physical health.					
Strongly disagree	N/A	N/A	4%	5%	4%
Disagree	N/A	N/A	4%	5%	4%
Neither disagree nor agree	N/A	N/A	16%	17%	16%
Agree	N/A	N/A	41%	41%	41%
Strongly agree	N/A	N/A	34%	33%	34%
P-value	N/A	N/A	N/A	0.43	0.46
My child's care team works with me and my child so we can better manage my child's mental health.					
Strongly disagree	N/A	N/A	4%	5%	5%
Disagree	N/A	N/A	5%	6%	6%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Neither disagree nor agree	N/A	N/A	21%	23%	22%
Agree	N/A	N/A	39%	39%	39%
Strongly agree	N/A	N/A	31%	27%	29%
P-value	N/A	N/A	N/A	0.05	0.73
My child's care team works with me and my child so that my child is better able to participate in activities my child enjoys with friends and family.					
Strongly disagree	N/A	N/A	5%	6%	5%
Disagree	N/A	N/A	6%	6%	6%
Neither disagree nor agree	N/A	N/A	22%	24%	22%
Agree	N/A	N/A	39%	38%	38%
Strongly agree	N/A	N/A	29%	26%	29%
P-value	N/A	N/A	N/A	0.05	0.25
My child's care team works with me and my child so I am better able to take care of my child where we live.					
Strongly disagree	N/A	N/A	4%	5%	5%
Disagree	N/A	N/A	6%	7%	6%
Neither disagree nor agree	N/A	N/A	20%	23%	22%
Agree	N/A	N/A	40%	40%	40%
Strongly agree	N/A	N/A	30%	25%	27%
P-value	N/A	N/A	N/A	0.06	0.85
In the last 12 months, did your child have a telehealth visit with a healthcare provider?					
No	N/A	N/A	34%	43%	53%
Yes	N/A	N/A	66%	57%	47%
P-value	N/A	N/A	N/A	0.95	0.00
Was this most recent telehealth visit by video or by phone?					
By phone	N/A	N/A	25%	19%	23%
By video	N/A	N/A	75%	81%	77%
P-value	N/A	N/A	N/A	0.29	0.95
Were you and/or your child and the provider able to see (for a video visit) and/or hear (for a video or phone visit) each other clearly throughout the visit?					
No	N/A	N/A	2%	2%	3%
Yes, somewhat	N/A	N/A	10%	8%	13%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Yes, definitely	N/A	N/A	88%	90%	84%
P-value	N/A	N/A	N/A	0.24	0.12
Were you and/or your child able to communicate all of your child's healthcare needs to the provider?					
No	N/A	N/A	2%	3%	4%
Yes, somewhat	N/A	N/A	11%	14%	18%
Yes, definitely	N/A	N/A	87%	84%	79%
P-value	N/A	N/A	N/A	0.88	0.08
Using any number from 0 to 10, where 0 is the worst visit possible and 10 is the best visit possible, what number would you use to rate your child's most recent telehealth visit?					
0 Worst visit possible	N/A	N/A	2%	1%	2%
1	N/A	N/A	0%	0%	0%
2	N/A	N/A	1%	1%	1%
3	N/A	N/A	1%	1%	1%
4	N/A	N/A	0%	0%	0%
5	N/A	N/A	6%	5%	5%
6	N/A	N/A	5%	4%	5%
7	N/A	N/A	9%	7%	8%
8	N/A	N/A	18%	17%	18%
9	N/A	N/A	20%	21%	21%
10 Best visit possible	N/A	N/A	38%	43%	40%
P-value	N/A	N/A	N/A	0.42	0.99
Would you recommend a telehealth visit to your family and friends if they had a similar health care need?					
No	N/A	N/A	12%	6%	8%
Yes, somewhat	N/A	N/A	27%	19%	22%
Yes, definitely	N/A	N/A	61%	75%	70%
P-value	N/A	N/A	N/A	0.09	0.97
Would you like to have a telehealth visit option in the future?					
No	N/A	N/A	26%	25%	28%
Yes, somewhat	N/A	N/A	27%	27%	28%
Yes, definitely	N/A	N/A	46%	48%	44%

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
P-value	N/A	N/A	N/A	0.49	0.35
Using any number from 0 to 10, where 0 is the worst long term services and supports possible and 10 is the best long term services and supports possible, what number would you use to rate your child's long term services and supports in the last 12 months?					
0 Worst long term services and supports possible	3%	3%	2%	3%	3%
1	1%	2%	1%	1%	1%
2	1%	1%	1%	1%	1%
3	2%	2%	2%	2%	2%
4	2%	3%	2%	2%	2%
5	8%	10%	8%	8%	9%
6	6%	06%	5%	6%	6%
7	12%	12%	11%	11%	12%
8	20%	20%	20%	20%	20%
9	14%	13%	14%	14%	14%
10 Best long term services and supports possible	31%	27%	33%	31%	31%
P-value	N/A	0.00	0.12	0.47	0.95
In general, how would you rate your child's overall health now?					
Excellent	19%	26%	24%	23%	21%
Very good	30%	32%	32%	31%	31%
Good	36%	30%	32%	33%	34%
Fair	14%	10%	11%	11%	13%
Poor	2%	1%	2%	2%	2%
P-value	N/A	0.00	0.49	0.71	0.29
In general, how would your child rate your child's overall mental or emotional health now?					
Excellent	19%	26%	22%	22%	21%
Very good	22%	23%	22%	22%	22%
Good	32%	30%	31%	31%	31%
Fair	22%	18%	20%	20%	21%
Poor	5%	4%	5%	5%	5%
P-value	N/A	0.01	0.52	0.80	0.80
As your child's caregiver, do you have adequate support and resources to meet your and your child's needs?					

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
Definitely not	6%	6%	6%	6%	7%
Probably not	10%	10%	10%	10%	11%
Not sure	17%	17%	17%	17%	18%
Probably yes	30%	30%	30%	30%	30%
Definitely yes	36%	36%	38%	37%	35%
P-value	N/A	0.27	0.36	0.96	0.43
In the last 12 months, was your family ever homeless?					
No	97%	97%	98%	98%	97%
Yes	3%	3%	2%	2%	3%
P-value	N/A	0.29	0.38	0.10	0.69
In the last 12 months, how often were you worried or stressed about having enough money to pay your rent/mortgage?					
Never	36%	36%	40%	38%	39%
Sometimes	40%	40%	39%	40%	39%
Usually	10%	10%	9%	10%	10%
Always	13%	14%	12%	12%	12%
P-value	N/A	0.01	0.31	0.66	0.43
In the last 12 months, how often were you worried or stressed about having enough money to buy nutritious meals?					
Never	46%	48%	52%	50%	47%
Sometimes	36%	35%	33%	35%	36%
Usually	8%	7%	7%	7%	8%
Always	10%	9%	8%	8%	9%
P-value	N/A	0.40	0.04	0.38	0.31
How easy is it for you to access the internet for a healthcare visit?					
Very easy	N/A	N/A	62%	63%	57%
Somewhat easy	N/A	N/A	19%	19%	20%
Somewhat difficult	N/A	N/A	7%	7%	8%
Very difficult	N/A	N/A	5%	5%	6%
I do not have access to the internet	N/A	N/A	7%	6%	9%
P-value	N/A	N/A	N/A	0.57	0.71

Question and Response Options	Child, 2018	Child, 2019	Child, 2020	Child, 2021	Child, 2022
In general, how comfortable are you using a smartphone, computer, tablet or other device to access the internet?					
Very uncomfortable	N/A	N/A	3%	2%	3%
Somewhat uncomfortable	N/A	N/A	5%	3%	6%
Somewhat comfortable	N/A	N/A	20%	14%	21%
Very comfortable	N/A	N/A	72%	81%	70%
P-value	N/A	N/A	N/A	0.01	0.13
How often do you worry about having enough cell phone minutes or data?					
Never	N/A	N/A	70%	74%	58%
Sometimes	N/A	N/A	20%	18%	27%
Usually	N/A	N/A	2%	2%	3%
Always	N/A	N/A	7%	6%	12%
P-value	N/A	N/A	N/A	0.02	0.00

For cells containing “N/A”, the related question was not asked in all years (i.e., results are only present for some of the years, not all five 2018-2022)

Table G-6 Pediatric Member Experience: Primary Care, ACO Members

Number of Survey Respondents by Survey Year				
Year	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1	10,887	26.90	10,887	26.90
2	9,514	23.51	20,401	50.40
3	6,533	16.14	26,934	66.54
4	7,207	17.81	34,141	84.35
5	6,335	15.65	40,476	100.0

Question and Response Options	2018	2019	2020	2021	2022
Number of Respondents	10,887	9,514	6,533	7,207	6,335
Is this the provider you usually see if your child needs a check-up or gets sick or hurt?					
No	4%	4%	4%	5%	5%
Yes	96%	96%	96%	95%	95%
P-value	N/A	0.40	0.09	0.00	0.07
How long has your child been going to this provider?					
Less than 6 months	7%	7%	8%	8%	7%
At least 6 months but less than 1 year	8%	9%	9%	9%	9%
At least 1 year but less than 3 years	19%	19%	20%	20%	19%
At least 3 years but less than 5 years	15%	15%	15%	15%	15%
5 years or more	51%	49%	49%	48%	49%
P-value	N/A	0.17	0.41	0.28	0.96
In the last 12 months, did you ever stay in the exam room with your child during a visit to this provider?					
No	10%	11%	14%	13%	12%
Yes	90%	89%	86%	87%	88%
P-value	N/A	0.01	0.00	0.01	0.31
Did this provider give you enough information about what was discussed during the visit when you were not there?					
No	13%	12%	14%	14%	13%
Yes	86%	88%	86%	86%	87%
P-value	N/A	0.30	0.65	0.45	0.58

Question and Response Options	2018	2019	2020	2021	2022
Is your child able to talk with providers about his or her health care?					
No	32%	29%	30%	30%	29%
Yes	68%	71%	70%	70%	71%
P-value	N/A	0.00	0.40	0.48	0.19
In the last 12 months, how often did this provider explain things in a way that was easy for your child to understand?					
Never	1%	1%	1%	1%	1%
Sometimes	4%	4%	4%	5%	5%
Usually	18%	17%	18%	20%	19%
Always	77%	79%	77%	75%	75%
P-value	N/A	0.00	0.76	0.01	0.04
In the last 12 months, how often did this provider listen carefully to your child?					
Never	0%	0%	0%	1%	1%
Sometimes	2%	2%	3%	3%	3%
Usually	12%	12%	14%	15%	15%
Always	85%	85%	83%	82%	82%
P-value	N/A	0.01	0.87	0.01	0.01
Did this provider tell you that you needed to do anything to follow up on the care your child got during the visit?					
No	29%	31%	34%	32%	31%
Yes	71%	69%	66%	68%	69%
P-value	N/A	0.01	0.00	0.13	0.79
Did this provider give you enough information about what you needed to do to follow up on your child's care?					
No	1%	1%	2%	1%	2%
Yes	99%	99%	98%	99%	98%
P-value	N/A	0.12	0.12	0.74	0.08
In the last 12 months, did you call this provider's office to get an appointment for your child for an illness, injury, or condition that needed care right away?					
No	29%	32%	44%	38%	36%
Yes	71%	68%	56%	62%	64%
P-value	N/A	0.00	0.00	0.00	0.48

Question and Response Options	2018	2019	2020	2021	2022
In the last 12 months, when you called this provider's office for an appointment for care your child needed right away, how often did you get an appointment as soon as your child needed?					
Never	1%	1%	1%	2%	2%
Sometimes	7%	7%	8%	10%	11%
Usually	20%	20%	22%	25%	26%
Always	72%	72%	69%	64%	62%
P-value	N/A	0.00	0.18	0.00	0.00
In the last 12 months, did you make any appointments for a check-up or routine care for your child with this provider?					
No	6%	7%	9%	8%	8%
Yes	94%	93%	91%	92%	92%
P-value	N/A	0.00	0.00	0.04	0.59
In the last 12 months, when you made an appointment for a check-up or routine care for your child with this provider, how often did you get an appointment as soon as your child needed?					
Never	1%	1%	1%	1%	1%
Sometimes	8%	8%	8%	10%	10%
Usually	24%	24%	25%	28%	29%
Always	68%	68%	66%	62%	60%
P-value	N/A	0.00	0.06	0.00	0.00
Did this provider's office give you information about what to do if your child needed care during evenings, weekends, or holidays?					
No	13%	14%	17%	17%	17%
Yes	87%	86%	83%	83%	83%
P-value	N/A	0.00	0.01	0.00	0.00
In the last 12 months, did you call this provider's office with a medical question about your child during regular office hours?					
No	44%	45%	46%	39%	40%
Yes	56%	55%	54%	61%	60%
P-value	N/A	0.00	0.00	0.00	0.00
In the last 12 months, when you called this provider's office during regular office hours, how often did you get an answer to your medical question that same day?					
Never	1%	1%	2%	2%	2%
Sometimes	6%	6%	8%	9%	9%

Question and Response Options	2018	2019	2020	2021	2022
Usually	21%	21%	25%	27%	27%
Always	71%	71%	66%	62%	62%
P-value	N/A	0.00	0.23	0.00	0.00
In the last 12 months, how often did this provider explain things about your child's health in a way that was easy to understand?					
Never	1%	1%	1%	1%	1%
Sometimes	3%	3%	4%	4%	4%
Usually	14%	14%	17%	17%	18%
Always	81%	82%	79%	78%	77%
P-value	N/A	0.00	0.10	0.00	0.00
In the last 12 months, how often did this provider listen carefully to you?					
Never	1%	1%	1%	1%	1%
Sometimes	3%	2%	3%	3%	4%
Usually	12%	12%	15%	15%	16%
Always	84%	85%	81%	81%	80%
P-value	N/A	0.00	0.03	0.00	0.00
In the last 12 months, how often did this provider seem to know the important information about your child's medical history?					
Never	1%	1%	1%	1%	1%
Sometimes	4%	4%	5%	5%	5%
Usually	18%	18%	19%	20%	20%
Always	77%	77%	75%	74%	73%
P-value	N/A	0.00	0.59	0.00	0.00
In the last 12 months, how often did this provider show respect for what you had to say?					
Never	1%	1%	1%	1%	1%
Sometimes	2%	2%	3%	3%	3%
Usually	11%	10%	11%	13%	12%
Always	87%	87%	85%	84%	84%
P-value	N/A	0.00	0.98	0.00	0.01
In the last 12 months, how often did this provider spend enough time with your child?					
Never	1%	1%	1%	1%	1%

Question and Response Options	2018	2019	2020	2021	2022
Sometimes	5%	5%	5%	5%	6%
Usually	19%	18%	20%	20%	21%
Always	76%	76%	74%	73%	72%
P-value	N/A	0.01	0.89	0.08	0.01
How would you rate this provider's knowledge about your child as a person – special abilities, concerns, fears?					
Very poor	0%	0%	1%	1%	1%
Poor	1%	1%	1%	1%	1%
Fair	4%	4%	4%	4%	4%
Good	13%	13%	13%	14%	14%
Very good	27%	27%	28%	29%	29%
Excellent	54%	55%	53%	51%	51%
P-value	N/A	0.02	0.28	0.01	0.02
In the last 12 months, did your child see a specialist for a particular health problem?					
No	65%	67%	70%	68%	65%
Yes	35%	33%	30%	32%	35%
P-value	N/A	0.29	0.00	0.28	0.01
In the last 12 months, how often did the provider named in the prior question seem informed and up-to-date about the care your child got from specialists?					
Never	0.03	0.03	0.03	0.03	0.03
Sometimes	0.08	0.08	0.08	0.09	0.09
Usually	0.25	0.24	0.25	0.27	0.26
Always	0.64	0.65	0.65	0.60	0.62
P-value	N/A	0.03	0.22	0.00	0.21
In the last 12 months, did your child take any prescription medicine?					
No	43%	44%	56%	52%	48%
Yes	57%	56%	44%	48%	52%
P-value	N/A	0.00	0.00	0.00	0.36
In the last 12 months, how often did you and someone from this provider's office talk about all the prescription medicines your child was taking?					
Never	6%	6%	7%	7%	7%
Sometimes	12%	12%	13%	13%	13%

Question and Response Options	2018	2019	2020	2021	2022
Usually	20%	20%	21%	21%	21%
Always	62%	62%	58%	59%	58%
P-value	N/A	0.01	0.01	0.71	0.18
In the last 12 months, did your child get care from more than one kind of health care provider or use more than one kind of health care service?					
No	67%	65%	71%	68%	65%
Yes	33%	35%	29%	32%	35%
P-value	N/A	0.00	0.00	0.17	0.00
In the last 12 months, did you need help from anyone in this provider's office to manage your child's care among these different providers and services?					
No	53%	57%	56%	53%	53%
Yes	47%	43%	44%	47%	47%
P-value	N/A	0.02	0.12	0.22	0.31
In the last 12 months, did you get the help you needed from this provider's office to manage your child's care among these different providers and services?					
No	3%	3%	3%	4%	4%
Yes, somewhat	15%	15%	15%	16%	17%
Yes, definitely	81%	82%	82%	81%	80%
P-value	N/A	0.56	0.65	0.91	0.24
In the last 12 months, did the provider named in Question 1 order a blood test, x-ray, or other test for your child?					
No	56%	57%	60%	55%	55%
Yes	44%	43%	40%	45%	45%
P-value	N/A	0.37	0.00	0.06	0.02
In the last 12 months, when this provider ordered a blood test, x-ray, or other test for your child, how often did someone from this provider's office follow up to give you these results?					
Never	5%	5%	5%	6%	7%
Sometimes	8%	8%	8%	9%	10%
Usually	19%	18%	19%	20%	21%
Always	68%	69%	67%	64%	63%
P-value	N/A	0.00	0.23	0.01	0.00
Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?					

Question and Response Options	2018	2019	2020	2021	2022
0 Worst provider possible	0%	0%	0%	0%	0%
1	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%
4	0%	0%	0%	1%	1%
5	2%	2%	2%	2%	2%
6	2%	2%	2%	2%	2%
7	4%	4%	5%	5%	5%
8	14%	13%	14%	15%	15%
9	20%	20%	20%	21%	21%
10 Best provider possible	57%	58%	56%	54%	53%
P-value	N/A	0.00	0.30	0.03	0.00
Would you recommend this provider to your family and friends?					
Definitely not	1%	1%	1%	1%	2%
Probably not	1%	1%	1%	1%	1%
Not sure	4%	4%	4%	5%	5%
Probably yes	18%	17%	19%	20%	21%
Definitely yes	76%	76%	75%	73%	71%
P-value	N/A	0.00	0.44	0.02	0.00
In the last 12 months, did you and anyone in this provider's office talk about your child's learning ability?					
No	41%	40%	43%	43%	43%
Yes	59%	60%	57%	57%	57%
P-value	N/A	0.00	0.03	0.11	0.45
In the last 12 months, did you and anyone in this provider's office talk about the kinds of behaviors that are normal for your child at this age?					
No	29%	28%	32%	30%	31%
Yes	71%	72%	68%	70%	69%
P-value	N/A	0.00	0.00	0.81	0.88
In the last 12 months, did you and anyone in this provider's office talk about how your child's body is growing?					
No	16%	17%	19%	17%	18%

Question and Response Options	2018	2019	2020	2021	2022
Yes	84%	83%	81%	83%	82%
P-value	N/A	0.28	0.00	0.33	0.85
In the last 12 months, did you and anyone in this provider's office talk about your child's moods and emotions?					
No	31%	29%	32%	30%	31%
Yes	69%	71%	68%	70%	69%
P-value	N/A	0.00	0.01	0.17	0.77
In the last 12 months, did you and anyone in this provider's office talk about things you can do to keep your child from getting injured?					
No	37%	36%	40%	38%	40%
Yes	63%	64%	60%	62%	60%
P-value	N/A	0.00	0.00	0.73	0.18
In the last 12 months, did anyone in this provider's office give you information about how to keep your child from getting injured?					
No	42%	40%	43%	43%	44%
Yes	58%	60%	57%	57%	56%
P-value	N/A	0.00	0.05	0.06	0.24
In the last 12 months, did you and anyone in this provider's office talk about how much time your child spends on a computer and in front of a TV?					
No	34%	32%	35%	35%	34%
Yes	66%	68%	65%	65%	66%
P-value	N/A	0.00	0.43	0.07	0.92
In the last 12 months, did you and anyone in this provider's office talk about how much or what kind of food your child eats?					
No	16%	16%	18%	19%	18%
Yes	84%	84%	82%	81%	82%
P-value	N/A	0.00	0.37	0.01	0.72
In the last 12 months, did you and anyone in this provider's office talk about how much or what kind of exercise your child gets?					
No	25%	25%	27%	28%	27%
Yes	75%	75%	73%	72%	73%
P-value	N/A	0.01	0.19	0.02	0.76
In the last 12 months, did you and anyone in this provider's office talk about how your child gets along with others?					

Question and Response Options	2018	2019	2020	2021	2022
No	28%	28%	31%	30%	28%
Yes	72%	72%	69%	70%	72%
P-value	N/A	0.12	0.00	0.15	0.00
In the last 12 months, did you and anyone in this provider's office talk about whether there are any problems in your household that might affect your child?					
No	43%	40%	45%	43%	43%
Yes	57%	60%	55%	57%	57%
P-value	N/A	0.00	0.00	0.75	0.97
In the last 12 months, did you and anyone in this provider's office talk about specific goals for your child's health?					
No	38%	36%	39%	38%	38%
Yes	62%	64%	61%	62%	62%
P-value	N/A	0.00	0.04	0.42	0.49
In the last 12 months, did anyone in this provider's office ask you if there are things that make it hard for you to take care of your child's health?					
No	60%	56%	57%	55%	52%
Yes	40%	44%	43%	45%	48%
P-value	N/A	0.86	0.18	0.07	0.00
In the last 12 months, how often were the front office staff at this provider's office as helpful as you thought they should be?					
Never	2%	1%	2%	2%	2%
Sometimes	8%	7%	8%	9%	9%
Usually	26%	26%	28%	28%	29%
Always	65%	65%	63%	62%	61%
P-value	N/A	0.00	0.45	0.08	0.00
In the last 12 months, how often did the front office staff at this provider's office treat you with courtesy and respect?					
Never	1%	1%	1%	1%	1%
Sometimes	5%	5%	5%	6%	6%
Usually	19%	19%	20%	20%	21%
Always	75%	76%	74%	73%	72%
P-value	N/A	0.01	0.88	0.32	0.00
Did your child have a telehealth visit with a primary care provider?					

Question and Response Options	2018	2019	2020	2021	2022
No	N/A	N/A	68%	71%	81%
Yes	N/A	N/A	32%	29%	19%
P-value	N/A	N/A	N/A	0.04	0.00
Was this most recent telehealth visit by video or by phone?					
By phone	N/A	N/A	51%	53%	61%
By video	N/A	N/A	49%	47%	39%
P-value	N/A	N/A	N/A	0.38	0.03
Were you and/or your child and the provider able to see (for a video visit) and/or hear (for a video or phone visit) each other clearly throughout the visit?					
No	N/A	N/A	1%	1%	1%
Yes, somewhat	N/A	N/A	14%	9%	12%
Yes, definitely	N/A	N/A	85%	91%	87%
P-value	N/A	N/A	N/A	0.09	0.62
Were you and/or your child able to communicate all of your child's healthcare needs to the provider?					
No	N/A	N/A	1%	1%	1%
Yes, somewhat	N/A	N/A	5%	11%	15%
Yes, definitely	N/A	N/A	83%	88%	83%
P-value	N/A	N/A	N/A	0.13	0.40
Using any number from 0 to 10, where 0 is the worst visit possible and 10 is the best visit possible, what number would you use to rate your child's most recent telehealth visit?					
0 Worst visit possible	N/A	N/A	0%	0%	0%
1	N/A	N/A	0%	0%	0%
2	N/A	N/A	0%	0%	0%
3	N/A	N/A	0%	0%	0%
4	N/A	N/A	1%	1%	1%
5	N/A	N/A	4%	4%	4%
6	N/A	N/A	3%	3%	3%
7	N/A	N/A	7%	7%	7%
8	N/A	N/A	16%	15%	15%
9	N/A	N/A	20%	20%	20%
10 Best visit possible	N/A	N/A	47%	48%	49%

Question and Response Options	2018	2019	2020	2021	2022
P-value	N/A	N/A	N/A	0.99	0.58
Would you recommend a telehealth visit to your family and friends if they had a similar health care need?					
No	N/A	N/A	5%	5%	4%
Yes, somewhat	N/A	N/A	30%	32%	26%
Yes, definitely	N/A	N/A	66%	63%	70%
P-value	N/A	N/A	N/A	0.26	0.16
Would you like to have a telehealth visit option in the future?					
No	N/A	N/A	32%	34%	33%
Yes, somewhat	N/A	N/A	37%	36%	37%
Yes, definitely	N/A	N/A	31%	29%	30%
P-value	N/A	N/A	N/A	0.41	0.95
In general, how would you rate your child's overall health?					
Excellent	46%	48%	47%	45%	45%
Very good	36%	35%	36%	37%	37%
Good	15%	14%	15%	16%	16%
Fair	2%	2%	2%	2%	2%
Poor	0%	0%	0%	0%	0%
P-value	N/A	0.00	0.10	0.05	0.14
In general, how would you rate your child's overall mental or emotional health?					
Excellent	47%	46%	43%	42%	43%
Very good	31%	31%	32%	32%	32%
Good	17%	17%	19%	19%	19%
Fair	5%	5%	6%	6%	6%
Poor	1%	1%	1%	1%	1%
P-value	N/A	0.00	0.16	0.00	0.08
In the last 12 months, was your family ever homeless?					
No	N/A	98%	98%	98%	97%
Yes	N/A	2%	2%	2%	3%
P-value	N/A	N/A	0.40	0.68	0.01

Question and Response Options	2018	2019	2020	2021	2022
In the last 12 months, how often were you worried or stressed about having enough money to pay your rent/mortgage?					
Never	N/A	49%	52%	52%	54%
Sometimes	N/A	38%	36%	36%	35%
Usually	N/A	7%	6%	6%	6%
Always	N/A	6%	5%	5%	5%
P-value	N/A	N/A	0.42	0.50	0.00
In the last 12 months, how often were you worried or stressed about having enough money to buy nutritious meals?					
Never	N/A	61%	64%	63%	62%
Sometimes	N/A	30%	28%	29%	29%
Usually	N/A	5%	4%	4%	5%
Always	N/A	4%	3%	4%	4%
P-value	N/A	N/A	0.00	0.44	0.64
How easy is it for you to access the internet for a healthcare visit?					
Very easy	N/A	N/A	72%	75%	72%
Somewhat easy	N/A	N/A	20%	19%	20%
Somewhat difficult	N/A	N/A	5%	5%	5%
Very difficult	N/A	N/A	1%	1%	1%
I do not have access to the internet	N/A	N/A	1%	1%	1%
P-value	N/A	N/A	N/A	0.18	0.69
In general, how comfortable are you using a smartphone, computer, tablet or other device to access the internet?					
Very comfortable	N/A	N/A	78%	81%	79%
Somewhat comfortable	N/A	N/A	18%	16%	18%
Somewhat uncomfortable	N/A	N/A	2%	2%	2%
Very uncomfortable	N/A	N/A	1%	1%	1%
P-value	N/A	N/A	N/A	0.22	0.88
Do you have a cell phone?					
No	N/A	N/A	1%	0%	1%
Yes	N/A	N/A	99%	100%	99%
P-value	N/A	N/A	N/A	0.45	0.87

Question and Response Options	2018	2019	2020	2021	2022
How often do you worry about having enough cell phone minutes or data?	N/A	N/A	N/A	N/A	N/A
Never	N/A	N/A	75%	74%	73%
Sometimes	N/A	N/A	17%	18%	18%
Usually	N/A	N/A	3%	3%	4%
Always	N/A	N/A	4%	5%	5%
P-value	N/A	N/A	N/A	0.69	0.66
Has a provider ever told you that your child had: Asthma					
No	N/A	82%	84%	85%	85%
Yes	N/A	18%	16%	15%	15%
P-value	N/A	N/A	0.74	0.13	0.00
Has a provider ever told you that your child had: Attention Disorder such as ADD or ADHD					
No	N/A	86%	87%	86%	87%
Yes	N/A	14%	13%	14%	13%
P-value	N/A	N/A	0.46	0.37	0.08
Has a provider ever told you that your child had: Anxiety					
No	N/A	87%	87%	87%	87%
Yes	N/A	13%	13%	13%	13%
P-value	N/A	N/A	0.87	0.20	0.66
Has a provider ever told you that your child had: Depression					
No	N/A	90%	90%	90%	91%
Yes	N/A	10%	10%	10%	9%
P-value	N/A	N/A	0.90	0.22	0.08

For cells containing “N/A”, the related question was not asked in all years (i.e., results are only present for some of the years, not all five 2018-2022)

Appendix H: Measures Calculated from MassHealth Administrative Data

This appendix lists the measures calculated from MassHealth administrative data (member enrollment, provider, claims, and encounter files) covered in Domains 2 and 3. The measures are grouped by research questions (RQs). The appendix covers all administrative measures included in the EDD and identifies those covered in the interim report (IR) and lists those planned for inclusion in the Summative Report (SR); the measures included in the IR will also be included in the Summative Report. The methods used to analyze these measures are covered in **Section 2.2.2**. We studied the overall managed care eligible population, i.e., those eligible to enrolled in ACOs, MCOs, and Primary Care Clinician program (PCC) (~1.41 million members as of 12/31/2022), and the major subpopulations that are the targets of Demonstration reforms. The primary population of interest was ACO members (~1.18 million). We also study the ~104,000 MCO members who are not directly exposed to most DSRIP program components; MCO members are expected to serve as a comparison group in analyses conducted for the Summative Independent Evaluation report. Although the primary care clinician (PCC) program is not a focus of the Demonstration, as the third sector comprising the MassHealth managed care eligible population we included PCC members as part of the overall managed care eligible population. Our approach limited the study population to members enrolled for at least 320 days in a calendar year, therefore our study population is smaller than total MassHealth enrollment at any point in time.

Domain 2 Measures

1- RQ5
   a. Oral Health Evaluation (IR)
   b. Developmental Screening (IR)
   c. Adolescent Well Care (SR)
   d. Lead screening (SR)
   e. Initiation of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment (IR)
   f. Engagement of Alcohol, Opioid, or Other Drug Abuse or Dependence Treatment (IR)
   g. BH CP Engagement in 90 Days (SR)
   h. LTSS CP Engagement in 90 Days (SR)

Measure: Oral Health Evaluation **Steward: American Dental Association on behalf of the Dental Quality Alliance (#2517)** **MassHealth ACO quality measure** **NQF Endorsed: Yes**	
Description	Percentage of enrolled children under age 18 years who received a comprehensive or periodic oral evaluation within the reporting year
Numerator	Number of enrolled children under age 18 years who received a comprehensive or periodic oral evaluation as a dental service
Denominator	Number of enrolled children under age 18 years
Data Sources	Medicaid claims/encounters
National Benchmark	None

Measure: Developmental Screening **Steward: National Committee for Quality Assurance (#1448)** **MassHealth ACO monitoring measure** **NQF Endorsed: No; Recommended for use in the Child Core Set for Medicaid**	
Description	The percentage of children ages two and three years who had a developmental screening performed
Numerator	Children who had documentation of a developmental screening (screening for risk of developmental, behavioral, and social delays) using a standardized tool by their second, and third birthdays
Denominator	Children with a visit who turned two or three years of age
Data Sources	Medicaid claims/encounters
National Benchmark	None

Measure: Adolescent Wellcare **Steward: National Committee for Quality Assurance** **MassHealth ACO monitoring measure** **NQF Endorsed: No; Recommended for use in the Child Core Set for Medicaid**	
Description	Percentage of adolescents ages 12 to 21 who had at least one comprehensive well-care visit with a primary care practitioner (PCP) or an obstetric/gynecologic (OB/GYN) practitioner during the measurement year
Numerator	At least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year. The practitioner does not have to be the practitioner assigned to the adolescent
Denominator	The eligible population
Data Sources	Medicaid claims/encounters data
National Benchmark	2016 Medicaid HMO = 50.6% Source: https://www.ncqa.org/hedis/measures/child-and-adolescent-well-care-visits

Measure: Lead Screening **Steward: National Committee for Quality Assurance** **MassHealth ACO monitoring measure** **NQF Endorsed: No; Recommended for use by NCQA**	
Description	Among children who turn two (2) years of age as of December 31st of the measurement year, the percentage with at least one lead venous or capillary blood test on or before the child's second (2nd) birthday.
Numerator	Children should have at least one (1) lead venous or capillary blood test on or before their second (2nd) birthday
Denominator	Children who turn two (2) years of age as of December 31st of the measurement year
Data Sources	Medicaid claims/encounters
National Benchmark	2016 Medicaid HMO = 67.6% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-table-of-contents/lead-screening

Measure: Initiation of Alcohol, Opioid or Other Drug Abuse or Dependence Treatment (Adults) **Steward: National Committee for Quality Assurance (#0004)** **NQF Endorsed: Yes**	
Description	The percentage of patients who initiate treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization within 14 days of diagnosis
Numerator	Initiation of AOD treatment through an inpatient admission, outpatient visit, intensive outpatient encounter or partial hospitalization within 14 days of the index episode start date
Denominator	Patients age 18 years of age and older who were diagnosed with a new episode of alcohol or other drug dependence (AOD) during the

Measure: Initiation of Alcohol, Opioid or Other Drug Abuse or Dependence Treatment (Adults) **Steward: National Committee for Quality Assurance (#0004)** **NQF Endorsed: Yes**	
	first 10 and ½ months of the measurement year (e.g., January 1-November 15)
Data Sources	Medicaid claims/encounters data, analytics vendor extract
National Benchmark	Initiation: 2016 Medicaid HMO = 40.8% Engagement: 2016 Medicaid HMO = 12.5% http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-tableof-contents/alcohol-treatment

Measure: Engagement of Alcohol, Opioid or Other Drug Abuse or Dependence Treatment (Adults) **Steward: National Committee for Quality Assurance (#0004)** **NQF Endorsed: Yes**	
Description	The percentage of patients who initiated treatment and who had two or more additional services with a diagnosis of AOD within 30 days of the initiation visit
Numerator	Initiation of AOD treatment and two or more inpatient admissions, outpatient visits, intensive outpatient encounters or partial hospitalizations with any AOD diagnosis within 30 days after the date of the Initiation encounter (inclusive)
Denominator	Patients age 18 years of age and older who were diagnosed with a new episode of alcohol or other drug dependence (AOD) during the first 10 and ½ months of the measurement year (e.g., January 1-November 15)
Data Sources	Medicaid claims/encounters data, analytics vendor extract
National Benchmark	Initiation: 2016 Medicaid HMO = 40.8% Engagement: 2016 Medicaid HMO = 12.5% http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-tableof-contents/alcohol-treatment

Measure: BH CP Engagement in 90 Days **Steward: MassHealth** **MassHealth ACO and CP quality measure** **NQF Endorsed: No**	
Description	Percentage of enrollees 18 to 64 years of age who engaged with a BH Community Partner and received a completed treatment plan within 3 months (92 days) of Community Partner assignment
Numerator	ACO attributed members 18 to 64 years of age, who were assigned to a BH CP on or between October 3rd of the year prior to the measurement year and October 2nd of the measurement year, and who had documentation of engagement within 90 days of assignment

Measure: BH CP Engagement in 90 Days Steward: MassHealth MassHealth ACO and CP quality measure NQF Endorsed: No	
Denominator	ACO attributed members 18 to 64 years of age who were assigned to a BH CP on or between October 3rd of the year prior to the measurement year and October 2nd of the measurement year
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: LTSS CP Engagement in 90 Days Steward: MassHealth MassHealth ACO and CP quality measure NQF Endorsed: No	
Description	Percentage of enrollees 3 to 64 years of age who engaged with a LTSS Community Partner and received a completed care plan within 3 months (92 days) of Community Partner assignment
Numerator	ACO attributed members 3 to 64 years of age, who were assigned to a LTSS CP on or between October 3rd of the year prior to the measurement year and October 2nd of the measurement year, and who had documentation of engagement within 90 calendar days of assignment
Denominator	ACO attributed members 3 to 64 years of age who were assigned to a LTSS CP on or between October 3rd of the year prior to the measurement year and October 2nd of the measurement year
Data Sources	Medicaid claims/encounters, analytics vendor extract
National Benchmark	None

2- RQ6

a. Adult Access to Preventive/Ambulatory Health Services (IR)
b. Asthma Medication Ratio (SR)
c. Primary Care Provider Visit (Younger Children) (IR)
d. Primary Care Provider Visit (Older Children) (IR)
e. Annual Primary Care Visit (adults) (IR)
f. Annual Primary Care Visit (BH CP Enrollees) (IR)
g. Annual Primary Care Visit (LTSS CP Enrollees) (IR)
h. ED Boarding of Members with SMI/SUD Conditions (IR)

Measure: Adult Access to Preventive/Ambulatory Health Services Steward: National Committee on Quality Assurance NQF Endorsed: No	
Description	This measure is used to assess the percentage of members 20 years and older who had an ambulatory or preventive care visit. Medicaid members who had an ambulatory or preventive care visit during the measurement year

Measure: Adult Access to Preventive/Ambulatory Health Services **Steward: National Committee on Quality Assurance** **NQF Endorsed: No**	
Numerator	One or more ambulatory or preventive care visits during the measurement year
Denominator	Members age 20 years and older as of December 31 of the measurement year
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Asthma Medication Ratio **Steward: National Committee for Quality Assurance** **MassHealth ACO quality measure (#1800)** **NQF Endorsed: Yes**	
Description	The percentage of patients 5–64 years of age who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year
Numerator	The number of patients who have a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year
Denominator	All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year: • At least one emergency department visit with asthma as the principal diagnosis • At least one acute inpatient encounter with asthma as the principal diagnosis • At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits. • At least four asthma medication dispensing events for any controller medication or reliever medication
Data Sources	Medicaid claims/encounters
National Benchmark	2016 Medicaid HMO = 61.1% Source: http://www.ncqa.org/report-cards/

Primary Care Provider Visit (Younger Children) **Steward: National Committee on Quality Assurance** **NQF Endorsed: No; Recommended as part of the Child Core Set for Medicaid**	
Description	Percentage of children and adolescents ages 25 months to age 6 who had a visit with a primary care practitioner (PCP)
Numerator	One or more visits with a PCP (Ambulatory Visits Value Set) during the measurement year.

Primary Care Provider Visit (Younger Children) **Steward: National Committee on Quality Assurance** **NQF Endorsed: No; Recommended as part of the Child Core Set for Medicaid**	
Denominator	The eligible population
Data Sources	Medicaid claims/encounters data
National Benchmark	2015 Medicaid HMO = 90.2% Source: https://www.ncqa.org/Portals/0/PublicComment/HEDIS-AdHoc/5.%20Child%20and%20Adolescent%20Access.pdf?ver=2017-07-13-092457-440

Primary Care Provider Visit (Older Children) **Steward: National Committee on Quality Assurance** **NQF Endorsed: No; Recommended as part of the Child Core Set for Medicaid**	
Description	Percentage of children and adolescents ages 7 to 11 and 12 to 19 who had a visit with a primary care practitioner (PCP)
Numerator	One or more visits with a PCP (Ambulatory Visits Value Set) during the measurement year or the year prior to the measurement year
Denominator	The eligible population
Data Sources	Medicaid claims/encounters data
National Benchmark	2015 Medicaid HMO = 90.2% Source: https://www.ncqa.org/Portals/0/PublicComment/HEDIS-AdHoc/5.%20Child%20and%20Adolescent%20Access.pdf?ver=2017-07-13-092457-440

Annual Primary Care Visit (Adults) **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description	Percentage of enrollees 18 to 64 years of age who had an annual primary care visit in the measurement year
Numerator	Number of enrollees who had at least one primary care visit during the measurement year
Denominator	Eligible population of adults 18 to 64 years of age as of December 31st

Annual Primary Care Visit (BH CP Enrollees) **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description	Percentage of BH CP enrollees 18 to 64 years of age who had an annual primary care visit in the measurement year
Numerator	Number of BH CP enrollees who had at least one primary care visit during the measurement year
Denominator	Number of BH CP enrollees 18 to 64 years of age as of December 31st

Annual Primary Care Visit (LTSS CP Enrollees) **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description	Percentage of LTSS CP enrollees 18 to 64 years of age who had an annual primary care visit in the measurement year
Numerator	Number of LTSS CP enrollees who had at least one primary care visit during the measurement year
Denominator	Number of LTSS CP enrollees 18 to 64 years of age as of December 31st

ED Boarding of Adults with Serious Mental Illness (SMI) and/or Substance Use Disorder (SUD) **Steward: NA** **NQF Endorsed: No**	
Description	The number of days spend boarding in the ED among members with SMI or SUD
Numerator	The number of ED boarding days among members with SMI or SUD condition with an arrival date and discharge date separated by one or more days (a minimum duration in the ED of 24 hours)
Denominator	Enrollees 18 to 64 years of age as of December 31 of the measurement year with a diagnosis of serious mental illness and/or substance use disorder

3- RQ7
   a. Gap in HIV Medical Visits (IR)
   b. Antidepressant Medication Management (IR)
   c. Continuity of Care for Children with Complex Medical Conditions (Continuity of Primary Care for Children with Medical Complexity) (SR)
   d. Antidepressant Medication Management: Chronic

Measure: Gap in HIV Medical Visits **Steward: Health Research and Services Administration (#2080)** **NQF Endorsed: Yes**	
Description	Percentage of patients, regardless of age, with a diagnosis of HIV who did not have a medical visit in the last 6 months of the measurement year A medical visit is any visit in an outpatient/ambulatory care setting with a nurse practitioner, physician, and/or a physician assistant who provides comprehensive HIV care
Numerator	Number of patients in the denominator who did not have a medical visit in the last 6 months of the measurement year
Denominator	Number of patients, regardless of age, with a diagnosis of HIV who had at least one medical visit in the first 6 months of the measurement year.
Data Sources	Medicaid claims/encounters
National Bank	None

Measure: Antidepressant Medication Management: Acute Steward: National Committee on Quality Assurance (#0105) NQF Endorsed: Yes	
Description	The percentage of patients 18 years of age and older with a diagnosis of major depression and were treated with antidepressant medication, and who remained on an antidepressant medication treatment for at least 84 days (12 weeks).
Numerator	Adults 18 years of age and older who were treated with antidepressant medication, had a diagnosis of major depression, and who remained on an antidepressant medication treatment
Denominator	Patients 18 years of age and older with a diagnosis of major depression and were newly treated with antidepressant medication.
Data Sources	Medicaid claims/encounters
National Bank	None

Measure: Continuity of Care for Children with Complex Medical Conditions (Continuity of Primary Care for Children with Medical Complexity) Steward: Seattle Children's (#3153) NQF Endorsed: Yes	
Description	This measure assesses the percentage of children with medical complexity age 1 to 17 years old who have a Bice-Boxerman continuity of care index of >=0.5 in the primary care setting over a 12-month period.
Numerator	Number of eligible children (1) who have a Bice-Boxerman COC index >=0.50 in the primary care setting during the measurement year. 1. Eligible children are defined as children who are continuously enrolled for 12 months with no more than a 30-day gap in enrollment. Children with a gap greater than 30 days are excluded because of the potential for them to be enrolled in a different health plan at that time. In such cases, the child's administrative data for the health plan being measured would be incomplete and thus might not reflect the health plan's true performance on the measure. The timeframe of 30 days as the length of the gap was chosen to be consistent with the month-to-month eligibility assessments used by many Medicaid health plans.
Denominator	Children with medical complexity (1) who are 1-17 years old (2) and who have had >= 4 primary care visits (3) during the measurement year. 1. Children with medical complexity are defined as children who are classified by the Pediatric Medical Complexity algorithm, Version 2 (PMCA-V2) as having no chronic illness or non-complex chronic illness. 2. Children must be >=1 year and <=17 years of age on the last day of the measurement year. 3. Research has shown that stability of the COC index increases as the number of visits increases (i.e. less subject to significant change as a result of minor variations in care dispersion).

Measure: Continuity of Care for Children with Complex Medical Conditions (Continuity of Primary Care for Children with Medical Complexity) Steward: Seattle Children's (#3153) NQF Endorsed: Yes	
Data Sources	Medicaid claims/encounters
National Benchmark	None

Measure: Antidepressant Medication Management Steward: National Committee on Quality Assurance (#0105) NQF Endorsed: Yes	
Description	The percentage of patients 18 years of age and older with a diagnosis of major depression and were treated with antidepressant medication, and who remained on an antidepressant medication treatment. Two rates are reported. Effective Continuation Phase Treatment. The percentage of patients who remained on an antidepressant medication for at least 180 days (6 months).
Numerator	Adults 18 years of age and older who were treated with antidepressant medication, had a diagnosis of major depression, and who remained on an antidepressant medication treatment
Denominator	Patients 18 years of age and older with a diagnosis of major depression and were newly treated with antidepressant medication
Data Sources	Medicaid claims/encounters data
National Benchmark	Acute Phase Treatment: 2016 Medicaid HMO = 53.1% Continuation Phase Treatment: 2016 Medicaid HMO = 38%

4- RQ8

a. Multiple Antipsychotic Use in Children (IR)
b. Follow-up Care for Children Prescribed ADHD Medication (Initiation and Maintenance Phases) (SR)
c. Metabolic Monitoring for Children and Adolescents on Antipsychotics (SR)
d. Annual Treatment Plan Completion (BH CP) (SR)
e. Annual Care Plan Completion (LTSS CP) (SR)

Measure: Multiple Antipsychotic Use in Children Steward: National Committee on Quality Assurance MassHealth ACO monitoring measure NQF Endorsed: No; Recommended as part of the Child Core Set for Medicaid	
Description	Percentage of children and adolescents ages 1 to 17 who were treated with antipsychotic medications and who were on two or more concurrent antipsychotic medications for at least 90 consecutive days during the measurement year
Numerator	Beneficiaries on two or more concurrent antipsychotic medications for at least 90 consecutive days during the measurement year
Denominator	The eligible population
Data Sources	Medicaid claims/encounters

Measure: Multiple Antipsychotic Use in Children **Steward: National Committee on Quality Assurance** **MassHealth ACO monitoring measure** **NQF Endorsed: No; Recommended as part of the Child Core Set for Medicaid**	
National Benchmark	2016 Medicaid HMO = 2.4% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-carequality/2017-table-of-contents/use-of-multiple-concurrent-antipsychotics-in-childrenand-adolescents

Measure: Follow-up Care for Children Prescribed ADHD Medication (Initiation and Maintenance Phases) **Steward: National Committee on Quality Assurance (#0108)** **MassHealth ACO quality measure (initiation phase)** **NQF Endorsed: Yes**	
Description	Percentage of children newly prescribed attention-deficit/hyperactivity disorder (ADHD) medication who had at least three follow-up care visits within a 10-month period, one of which was within 30 days of when the first ADHD medication was dispensed. Two rates are reported. Initiation Phase: Percentage of children ages 6 to 12 as of the Index Prescription Start Date (IPSD) with an ambulatory prescription dispensed for ADHD medication, who had one follow-up visit with practitioner with prescribing authority during the 30-day Initiation Phase. Maintenance Phase: Percentage of children who remained on ADHD medication for at least 210 days and who, in addition to the visit in the Initiation Phase, had at least two additional follow-up visits with a practitioner within 270 days (9 months) after the Initiation Phase ended.
Numerator	Initiation Phase: Patients who had at least one face-to-face visit with a practitioner with prescribing authority within 30 days after the IPSD. Maintenance Phase: Patients who had at least one face-to-face visit with a practitioner with prescribing authority during the Initiation Phase, and at least two follow-up visits during the Continuation and Maintenance Phase. One of the two visits during the Continuation and Maintenance Phase may be a telephone visit with a practitioner.
Denominator	Initiation Phase: Children 6-12 years of age who were dispensed an ADHD medication during the Intake Period and who had a visit during the measurement period. Maintenance Phase: Children 6-12 years of age who were dispensed an ADHD medication during the Intake Period and who remained on the medication for at least 210 days out of the 300 days following the IPSD, and who had a visit during the measurement period.
Data Sources	Medicaid claims/encounters data
National Benchmark	Initiation: 2016 Medicaid HMO = 44.5%

Measure: Follow-up Care for Children Prescribed ADHD Medication (Initiation and Maintenance Phases) **Steward: National Committee on Quality Assurance (#0108)** **MassHealth ACO quality measure (initiation phase)** **NQF Endorsed: Yes**	
	Maintenance: 2016 Medicaid HMO = 54.5% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-table-of-contents/adhd

Measure: Metabolic Monitoring for Children and Adolescents on Antipsychotics **Steward: National Committee on Quality Assurance (#2800)** **MassHealth ACO quality measure** **NQF Endorsed: Yes**	
Description	The percentage of children and adolescents 1–17 years of age who had two or more antipsychotic prescriptions and had metabolic testing.
Numerator	Children and adolescents who received glucose and cholesterol tests during the measurement year.
Denominator	Children and adolescents who had ongoing use of antipsychotic medication (at least two prescriptions).
Data Sources	Medicaid claims/encounters data
National Benchmark	2016 Medicaid HMO = 33.3% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-table-of-contents/metabolic-monitoring-for-children-and-adolescents-on-antipsychotics

Measure: Annual Treatment Plan Completion (BH CP) **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description	Description Percentage of BH CP enrollees 18 to 64 years of age who received a completed a treatment plan within the measurement year
Numerator	Enrollees 18 to 64 years of age who completed a treatment plan
Denominator	Denominator Enrollees 18 to 64 years of age
Data Sources	Medicaid claims/encounters, analytics vendor extract

Measure: Annual Care Plan Completion (LTSS CP) **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description	Percentage of LTSS CP enrollees 3 to 64 years of age who received a completed a care plan within the measurement year
Numerator	Enrollees 3 to 64 years of age who completed a care plan
Denominator	Enrollees 3 to 64 years of age
Data Sources	Medicaid claims/encounters, analytics vendor extract

Measure: Annual Care Plan Completion (LTSS CP) **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
National Benchmark	None

5- RQ9

a. Cardiovascular Monitoring for People With Cardiovascular Disease and Schizophrenia (Replaced Cholesterol Testing for Members Using Antipsychotics Measure from the Evaluation Design Document) (IR)
b. Diabetes Screening for People with Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications (SSD) (SR)
c. Cholesterol Testing for Adult Members Using Antipsychotics (SR)
d. Follow-up with CP (BH and LTSS Enrollees) after any Hospitalization within 3 Days (IR)
e. Follow-up with BH CP after Emergency Department Visit (IR)
f. Follow-up after Emergency Department for Mental Illness (7 days) (IR)
g. Follow-up after Hospitalization for Mental Illness (7 days) (IR)
h. Physician Visit within 30 Days of Hospital Discharge (IR)

Measure: Cardiovascular Monitoring for People with Cardiovascular Disease and Schizophrenia (Adults)	
Description	The percentage of members 18–64 years of age with schizophrenia and cardiovascular disease, who had an LDL-C test during the measurement year
Numerator	An LDL-C test performed during the measurement year, as identified by claim/encounter or automated laboratory data
Denominator	The eligible population of members 18–64 years of age with schizophrenia and cardiovascular disease

Measure: Diabetes Screening for People with Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications (SSD) **Steward: National Committee on Quality Assurance (#1932)** **MassHealth ACO quality measure** **NQF Endorsed: Yes**	
Description	The percentage of patients 18 – 64 years of age with schizophrenia or bipolar disorder, who were dispensed an antipsychotic medication and had a diabetes screening test during the measurement year.
Numerator	A diabetes screening test during the measurement year
Denominator	The eligible population of members 18–64 years of age with schizophrenia and cardiovascular disease or bipolar disorder who are using antipsychotic medications
National Benchmark	2016 Medicaid HMO = 80.7% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-carequality/2017-table-of-contents/schizophrenia
National Benchmark	2016 Medicaid HMO = 80.7%

Measure: Diabetes Screening for People with Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications (SSD) **Steward: National Committee on Quality Assurance (#1932)** **MassHealth ACO quality measure** **NQF Endorsed: Yes**	
	Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-table-of-contents/schizophrenia

Measure: Cholesterol Testing for Members Using Antipsychotics **Steward: National Committee on Quality Assurance** **NQF Endorsed: No**	
Description	Percentage of members age 18 to 64 with a filled prescription for second generation antipsychotic medication in the prior year who had at least one LDL-C screening performed within 180 days of last prescription fill
Numerator	Among the patients 18 to 64 years old who were dispensed a second generation antipsychotic medication in the prior year who had at least one LDL-C screening performed within 180 days of last prescription fill
Denominator	Patients ages 18 to 64 with a filled prescription for second generation antipsychotic medication in the prior year
Data Sources	Medicaid claims/encounters data

Measure: Follow-up with CP (BH and LTSS Enrollees) after any Hospitalization within 3 Days **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description Percentage of acute or post-acute stays for enrollees 18 to 64 years of age where the	Description Percentage of acute or post-acute stays for enrollees 18 to 64 years of age where the member received follow-up from the CP within 3 business days of discharge
Numerator	Numerator Enrollees 18 to 64 years of age who received follow-up care from the CP within 3 business days of discharge
Denominator	Enrollees 18 to 64 years of age who were hospitalized in the measurement year

Measure: Follow-up with BH CP or Provider after Emergency Department Visit **Steward: MassHealth** **MassHealth CP quality measure** **NQF Endorsed: No**	
Description	Percentage of ED visits for enrollees 18 to 64 years of age where the member received follow-up within 7 days of ED discharge
Numerator	Enrollees 18 to 64 years of age who received follow-up care from a BH CP or provider after an ED visit
Denominator	Enrollees 18 to 64 years of age who had an ED visit in the measurement year
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Follow-Up After Emergency Department Visit for Mental Illness Steward: National Committee for Quality Assurance (#3489) NQF Endorsed: Yes	
Description	The percentage of ED visits for members 6 years of age and older with a principal diagnosis of mental illness or intentional self-harm, who had a follow-up visit for mental illness. Two rates are reported: • The percentage of ED visits for which the member received follow-up within 30 days of the ED visit (31 total days). • The percentage of ED visits for which the member received follow-up within seven days of the ED visit (eight total days).
Numerator	The numerator consists of two rates: • 30-day follow-up: The percentage of ED visits for which the member received follow-up within 30 days of the ED visit (31 total days). • 7-day follow-up: The percentage of ED visits for which the member received follow-up within seven days of the ED visit (eight total days).
Denominator	ED visits for members 6 years of age and older with a principal diagnosis of mental illness or intentional self-harm on or between January 1 and December 1 of the measurement year.
Data Sources	Medicaid claims/encounters data
National Benchmark	2021 Medicaid HMO Follow-up within seven days = 40.1% 2021 Medicaid HMO Follow-up within 30 days = 53.4% Source: https://www.ncqa.org/hedis/measures/follow-up-after-emergency-department-visit-for-mental-illness/

Measure: Follow-up after Hospitalization for Mental Illness (7 Days) Steward: MassHealth ACO and CP Performance Measure NQF Endorsed: No	
Description	The percentage of discharges for members 6 to 64 years of age who were hospitalized for treatment of selected mental illness diagnoses and who received a follow-up visit with a mental health practitioner within 7 days of discharge
Numerator	ACO attributed members 6 to 64 years of age as of the date of discharge who had a follow-up visit with a mental health practitioner within 7 days after discharge
Denominator	ACO attributed members 6 to 64 years of age as of the date of discharge
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Physician Visit within 30 Days of Hospital Discharge **Steward: None** **NQF Endorsed: No**	
Description	The percentage of discharges for members 18 to 64 years of age who were hospitalized for treatment of selected mental illness diagnoses and who received a follow-up visit with a mental health practitioner within 30 days of discharge
Numerator	ACO attributed members 18 to 64 years of age as of the date of discharge who had a follow-up visit within 30 days of hospital discharge
Denominator	ACO attributed members 18 to 64 years of age as of the date of discharge
Data Sources	Medicaid claims/encounters data
National Benchmark	None

6- RQ10

a. Imaging for low back pain (IR)
b. Abdomen CT Combined Studies (IR)
c. Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis (SR)
d. Pre-operative Chest Radiography (SR)
e. Head Imaging For Syncope (SR)
f. CT/MRI for Headache (SR)
g. CT without Ultrasound for Childhood Appendicitis (SR)
h. Strep Test with Antibiotic Dispensing for Childhood Pharyngitis (IR)
i. Rate of Primary Care Visits (Adult And Pediatric) (IR)
j. Rate of Primary Care Visits (Adults with SMI or SUD Conditions) (IR)
k. Rate of Primary Care Visits (Adults with DM) (IR)
l. Post-acute Care Utilization (Overall) (IR)
m. Post-acute Care Utilization (Institutional) (IR)
n. Post-acute Care Utilization (Home Health) (IR)
o. Post-acute Care Utilization (Overall) Adults with SMI or SUD Conditions (IR)
p. Post-acute Care Utilization (Institutional) Adults with SMI or SUD Conditions (IR)
q. Post-acute Care Utilization (Home Health) Adults with SMI or SUD Conditions (IR)
r. Post-acute Care Utilization (Overall) Adults with DM (IR)
s. Post-acute Care Utilization (Institutional) Adults with DM (IR)
t. Post-acute care Utilization (Home Health) Adults with DM (IR)
u. Branded Medication Utilization for Hyperlipidemia (SR)
v. Community Hospital Admissions (SR)

Measure: Low Back Pain Imaging **Steward: National Committee on Quality Assurance (#0312)** **NQF Endorsed: No; Recommended for use in the CMS Medicare Shared Savings Program**	
Description	Percentage of patients at least 18 years of age with a diagnosis of back pain for whom the physician ordered imaging studies during the six weeks after pain onset, in the absence of “red flags” (overuse measure, lower performance is better)

Measure: Low Back Pain Imaging **Steward: National Committee on Quality Assurance (#0312)** **NQF Endorsed: No; Recommended for use in the CMS Medicare Shared Savings Program**	
Numerator	The number of patients with an order for or report on an imaging study during the six weeks after pain onset
Denominator	Patients at least 18 years of age with new onset back pain lasting six weeks or less
National Benchmark	2016 Medicaid HMO = 70.5% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-carequality/2017-table-of-contents/low-back-pain

Measure: Abdomen CT Combined Studies **Steward: None** **NQF Endorsed: No**	
Description	This measure calculates the percentage of abdomen and abdominopelvic computed tomography (CT) studies that are performed without and with contrast, out of all abdomen and abdominopelvic CT studies performed (those without contrast, those with contrast, and those with both) at each facility
Numerator	Of studies identified in the denominator, number of abdomen and abdominopelvic studies with and without contrast (combined studies)
Denominator	The number of abdomen and abdominopelvic studies performed with contrast, without contrast, or both without and with contrast
Data Sources	Medicaid claims/encounters
National Bank	None

Measure: Avoidance of Antibiotic Treatment in Adults With Acute Bronchitis **Steward: National Committee on Quality Assurance (#0058)** **NQF Endorsed: Yes**	
Description	The percentage of adults 18–64 years of age with a diagnosis of acute bronchitis who were not dispensed an antibiotic prescription.
Numerator	Patients who were dispensed antibiotic medication on or three days after the index episode start date (a higher rate is better). The measure is reported as an inverted rate (i.e. 1-numerator/denominator) to reflect the number of people that were not dispensed an antibiotic.
Denominator	All patients 18 years of age as of January 1 of the year prior to the measurement year to 64 years as of December 31 of the measurement year with an outpatient or ED visit with any diagnosis of acute bronchitis during the Intake Period (January 1–December 24 of the measurement year)
Data Sources	Medicaid claims/encounters data
National Benchmark	2016 Medicaid HMO = 30.4% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-carequality/ 2017-table-of-contents/acute-bronchitis

Measure: Pre-operative Chest Radiography **Steward: Choosing Wisely** **NQF Endorsed: No; Recommended for use in the Child Core Set for Medicaid**	
Description	Percentage of patients receiving a chest x-ray within 30 days prior to low or intermediate risk non-cardiothoracic surgery
Numerator	The number of patients who receive a chest x-ray within 30 days prior to low/intermediate risk non-cardiothoracic surgery
Denominator	Patients at least 18 years of age who undergo low to intermediate risk non-cardiothoracic surgery
Data Sources	Medicaid claims/encounters
National Benchmark	None

Measure: Head Imaging For Syncope **Steward: Choosing Wisely** **NQF Endorsed: No; Recommended by the AAFP**	
Description	Percentage of patients receiving a CT or MRI of the head or brain following a syncope event
Numerator	The number of patients who receive a CT or MRI of the head or brain following a syncope event
Denominator	Patients at least 18 years of age who have a syncope event
Data Sources	Medicaid claims/encounters
National Benchmark	None

Measure: CT/MRI for Headache **Steward: National Committee on Quality Assurance** **NQF Endorsed: No**	
Description	Percentage of patients who receive a CT or MRI of the head or brain after having headache or migraine
Numerator	The number of patients who receive a CT or MRI of the head or brain after having a headache or migraine
Denominator	Patients 18 to 64 who have a diagnosis of headache
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: CT without Ultrasound for Childhood Appendicitis **Steward: Choosing Wisely** **NQF Endorsed: No**	
Description	Percentage of children age 1-18 with a diagnosis of appendicitis who had a CT scan, but not an ultrasound, within 30 days prior to the diagnosis
Numerator	The number of children age 1-18 with a diagnosis of appendicitis who had a CT scan without ultrasound within 30 days prior to diagnosis

Measure: CT without Ultrasound for Childhood Appendicitis Steward: Choosing Wisely NQF Endorsed: No	
Denominator	All patients 1-18 with a diagnosis of appendicitis
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Strep Test with Antibiotic Dispensing for Childhood Pharyngitis Steward: National Committee on Quality Assurance (#0002) NQF Endorsed: No	
Description	The percentage of children 2–18 years of age who were diagnosed with pharyngitis, dispensed an antibiotic and received a group A streptococcus (strep) test for the episode. A higher rate represents better performance (i.e., appropriate testing)
Numerator	A group A streptococcus test (Group A Strep Tests Value Set) in the seven-day period from three days prior to the Index Episode Start Date (IESD) through three days after the IESD
Denominator	Children age 2 years as of July 1 of the year prior to the measurement year to 18 years as of June 30 of measurement year who had an outpatient or ED visit with only a diagnosis of pharyngitis and were dispensed an antibiotic for the episode of care during the 6 months prior to through the 6 months after the beginning of the measurement year
Data Sources	Medicaid claims/encounters data
National Benchmark	2016 Medicaid HMO = 66.5% Source: http://www.ncqa.org/report-cards/health-plans/state-of-health-carequality/2017-table-of-contents/pharyngitis

Measure: Rate of Primary Care Visits (Adult and Pediatric) Steward: None NQF Endorsed: No	
Description	Rate of primary care visits for adult and pediatric members
Numerator	All visits on or between January 1 and December 31 of the measurement year with a PCP or OB/GYN
Denominator	ACO attributed members ages 2 to 64 years of age as of December 31 of the measurement year

Measure: Rate of Primary Care Visits (Adults with SMI or SUD) Steward: None NQF Endorsed: No	
Description	Rate of primary care visits for adult (18-64) members
Numerator	All visits on or between January 1 and December 31 of the measurement year with a PCP or OB/GYN
Denominator	ACO attributed members ages 2 to 64 years of age as of December 31 of the measurement year and diagnosed with SMI or SUD

Measure: Rate of Primary Care Visits (Adults with DM) **Steward: None** **NQF Endorsed: No**	
Description	Rate of primary care visits for adult (18-64) members
Numerator	All visits on or between January 1 and December 31 of the measurement year with a PCP or OB/GYN
Denominator	ACO attributed members ages 2 to 64 years of age as of December 31 of the measurement year and diagnosed with DM

Measure: Post-acute Care Utilization (Overall), Adults **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute care utilization overall and by type for members in MCEs, ACOs, and MCOs
Numerator	Number of discharges where the person used any post-acute care service (inpatient rehab, nursing facility, or home care)
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31)

Measure: Post-acute Care Utilization (Institutional), Adults **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute institutional care utilization overall and by type for members in MCEs, ACOs, and MCOs
Numerator	Number of discharges where the person was discharged to any institutional post-acute care service (inpatient rehab or nursing facility
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31)

Measure: Post-acute Care Utilization (Home Health), Adults **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute home health care utilization overall and by type for members in MCEs, ACOs, and MCOs
Numerator	Number of discharges where the person was discharged to home health service (inpatient rehab or nursing facility
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31)

Measure: Post-acute Care Utilization (Overall), Adults with SMI or SUD Conditions **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute care utilization overall and by type for members with SMI or SUD conditions in MCEs, ACOs, and MCOs

Measure: Post-acute Care Utilization (Overall), Adults with SMI or SUD Conditions **Steward: None** **NQF Endorsed: No**	
Numerator	Number of discharges where the person with SMI or SUD conditions used any post-acute care service (inpatient rehab, nursing facility, or home care)
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31) among members with SMI or SUD

Measure: Post-acute Care Utilization (Institutional), Adults with SMI or SUD Conditions **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute institutional care utilization overall and by type for members with SMI or SUD condition in MCEs, ACOs, and MCOs
Numerator	Number of discharges where the person with SMI or SUD condition was discharged to any institutional post-acute care service (inpatient rehab or nursing facility
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31) among members with SMI or SUD

Measure: Post-acute Care Utilization (Home Health), Adults with SMI or SUD Conditions **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute home health care utilization overall and by type for adult members with SMI or SUD in MCEs, ACOs, and MCOs
Numerator	Number of discharges where an adult member with SMI or SUD was discharged to any home health service
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31) among members with SMI or SUD

Measure: Post-acute Care Utilization (Overall), Adults with DM (IR) **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute care utilization overall and by type for adult members with DM in MCEs, ACOs, and MCOs
Numerator	Number of discharges where an adult member with DM was discharged to any post-acute care service
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31) among adult members with DM

Measure: Post-acute Care Utilization (Institutional), Adults with DM (IR) **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute institutional care utilization overall and by type for adult members with DM in MCEs, ACOs, and MCOs
Numerator	Number of discharges where an adult member with DM was discharged to any institutional post-acute care service (inpatient rehab or nursing facility
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31) among adult members with DM

Measure: Post-acute Care Utilization (Home Health), Adults with DM (IR) **Steward: None** **NQF Endorsed: No**	
Description	Rate of post-acute home health care utilization overall and by type for adult members with DM in MCEs, ACOs, and MCOs
Numerator	Number of discharges where an adult member with DM was discharged to any home health service
Denominator	The number of eligible index hospital stays (discharges) during the study period (between January 1 and December 31) among adult members with DM

Measure: Branded Prescribing: Hyperlipidemia **Steward: none** **NQF Endorsed: No**	
Description	Rate of branded medication utilization for members with hyperlipidemia among adults aged 18-64 years as of December 31st of the measurement year who were managed care eligible for at least 320 days in the measurement year
Numerator	All claims for branded medications for hyperlipidemia
Denominator	All members with a diagnosis of hyperlipidemia.
Data Sources	Administrative
National Benchmark	None

Measure: Community Hospital Admissions **Steward: none** **NQF Endorsed: No**	
Description	Percentage of Acute Unplanned Hospital Admissions to Community Hospitals: 1) overall, and 2) for pneumonia among adults aged 18-64 who were continuously enrolled during the measurement year.
Numerator	1. Acute unplanned admissions that occurred in a community hospital (see attached list)

Measure: Community Hospital Admissions **Steward: none** **NQF Endorsed: No**	
	2. Acute Unplanned Admissions for pneumonia that occurred in a community hospital (see attached list)
Denominator	1. All Acute Unplanned Admissions 2. Acute Unplanned Admissions for pneumonia a. Diagnosis codes in the first position on the claim from (https://www2.ccwdata.org/documents/10280/86658989/chr-cond-algo-pneumonia.pdf
Data Sources	Administrative
National Benchmark	None

Domain 3 Measures

1- RQ11
   a. All Cause Inpatient Admissions (IR)
   b. All Cause Hospital Readmissions, Adult (IR)
   c. All Cause Hospital Readmissions, Pediatric (IR)
   d. All Cause ED Visits, Adults (IR)
   e. Primary Care Sensitive ED Visits (IR)
   f. Acute Unplanned Admissions Adult (Chronic ACSCs) (IR)
   g. Acute Unplanned Admissions Adult (Acute ACSCs) (IR)
   h. Acute Unplanned Admissions Among Adults With Diabetes (IR)
   i. Pediatric ED Visits (All-Cause) (IR)
   j. Pediatric Hospitalizations (All-Cause) (IR)
   k. Pediatric Asthma Admissions (IR)
   l. Pediatric Readmissions (IR)
   m. Unplanned Hospital Readmissions Within 30 Days (IR)
   n. All Cause Readmissions Among BH CP Members (IR)
   o. All Cause Readmissions Among LTSS CP Members (IR)
   p. ED Visits For Adults With SMI, Addiction, Or Co-Occurring Conditions (IR)
   q. Acute Unplanned Hospital Admissions For Adults With Mental Illness and/or Substance Use Disorder (IR)
   r. NICU Hospitalizations (SR)
   s. Community Tenure: Members Using LTSS (SR)
   t. Long-Term Nursing Home Admissions (SR)

Measure: All Cause Inpatient Admissions **Steward: MassHealth** **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
Description	Rate of all-cause acute hospital admissions (or observation stays)
Numerator	The number of acute inpatient admissions from any cause
Denominator	The person-time contributed by members in the population of interest during the measurement period
Data Sources	Medicaid claims/encounters data
National Benchmark	None

All Cause Hospital Readmissions (Adult)	
Description	Rate of readmissions (or observation stays) for members age 18 to age 64
Numerator	The outcome measure is the observed number of readmissions for members between 18 and 64 years of age at risk for admissions
Denominator	The expected rate of readmissions for members between 18 and 64 years of age when adjusting for case mix

All Cause Hospital Readmissions (Pediatric) **Steward: MassHealth** **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
Description	Rate of pediatric readmissions (or observation stays) for members ages 2 to age 17
Numerator	The outcome measure is the observed number of pediatric readmissions for members 2 to 17 at risk for admissions
Denominator	The expected rate of readmissions for members under 18 years of age when adjusting for case mix
Data Sources	Medicaid claims/encounter data
National Benchmark	None

Measure: All Cause ED Visits, Adults **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
Description	Rate of all cause ED visits for enrollees 18 to 64 years of age
Numerator	The number of ED visits
Denominator	Enrollees 18 to 64 years of age as of December 31 of the measurement year
Data Sources	Medicaid claims/encounter data
National Benchmark	None

Primary Care Sensitive ED Visits, Adults and Children **NQF Endorsed: No**	
Description	Rate of primary care sensitive ED visits for enrollees 2 to 64 years of age
Numerator	The number of primary care sensitive ED visits
Denominator	Enrollees 2 to 64 years of age as of December 31 of the measurement year
Data Sources	Medicaid claims/encounter data
National Benchmark	None

Measure: Acute Unplanned Admissions for Chronic Ambulatory Care Sensitive Conditions (Chronic ACSCs) – Adults **NQF Endorsed: No**	
Description	Rate of acute unplanned hospital admissions for chronic ACSCs
Numerator	The number of acute unplanned hospital admissions for chronic ACSCs
Denominator	Enrollees 18 to 64 years of age as of December 31 of the measurement year

Measure: Acute Unplanned Admissions for Chronic Ambulatory Care Sensitive Conditions (Chronic ACSCs) – Adults **NQF Endorsed: No**	
Data Sources	Medicaid claims/encounter data
National Benchmark	None

Measure: Acute Unplanned Admissions for Acute Ambulatory Care Sensitive Conditions (ACSCs) (Acute ACSCs) –Adults **NQF Endorsed: No**	
Description	Rate of admissions for members with acute ACSCs
Numerator	The outcome measure is the observed number of acute unplanned hospital admissions for adults with acute ACSCs (or observation stays) per 1,000-member months at risk for admissions
Denominator	The expected number of admissions (or observation stays) for members 18 to 65 years of age when adjusting for the ACO case mix
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Acute Unplanned Hospital Admissions for Adults with Diabetes **Steward: Agency for Healthcare Research and Quality (#0272)** **MassHealth ACO quality measure** **NQF Endorsed: Yes**	
Description	Rate of acute unplanned hospital admissions (or observation stays) for members with diabetes
Numerator	The number of acute unplanned inpatient admissions from any cause
Denominator	Enrollees 18 to 64 years of age as of December 31 of the measurement year with a diagnosis of diabetes
Data Sources	Medicaid claims/encounters data
National Benchmark	2013 National Overall Population: 68.94 admissions / 100,000 admissions Source: https://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V60-ICD09/Version_60_Benchmark_Tables_PQI.pd

Measure: Pediatric ED Visits, (All Cause) **NQF Endorsed: No**	
Description	Rate of all-cause pediatric ED visits
Numerator	The number of all cause ED visits
Denominator	Enrollees 2 to 17 years of age as of December 31 of the measurement year

Measure: Pediatric ED Visits, (All Cause) **NQF Endorsed: No**	
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Pediatric Hospitalizations, All Cause **NQF Endorsed: No**	
Description	Rate of acute unplanned hospital admissions (and observation stays) for
Numerator	The observed number of all-cause acute unplanned hospitalizations
Denominator	Enrollees 2 to 17 years of age as of December 31 of the measurement year
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Pediatric Readmissions **Steward: MassHealth** **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
Description	Rate of pediatric readmissions (or observation stays) for members under age 18
Numerator	The outcome measure is the observed number of pediatric readmissions for members under 18 per 1,000-member months at risk for admissions
Denominator	The expected rate of readmissions for members under 18 years of age when adjusting for case mix
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Pediatric Asthma Admissions **Steward: Agency for Healthcare Research and Quality** **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
Description	Admissions with a principal diagnosis of asthma per 100,000 population, ages 2 through 17 years.
Numerator	Discharges, for patients ages 2 through 17 years, with a principal ICD-9-CM diagnosis code for asthma.
Denominator	Population ages 2 through 17 years in metropolitan area (1) or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the

Measure: Pediatric Asthma Admissions **Steward: Agency for Healthcare Research and Quality** **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
	patient residence, not the metropolitan area or county of the hospital where the discharge occurred.
Data Sources	Medicaid claims/encounters data
National Benchmark	National Population 2014 = 41.13 admissions / 100,000 admissions

Measure: Unplanned Hospital Readmissions within 30 Days (overall) **Steward: National Committee on Quality Assurance (#1768)** **MassHealth ACO quality measure** **NQF Endorsed: Yes**	
Description	For beneficiaries ages 18 to 64, the number of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days and the predicted probability of an acute readmission. Data are reported in the following categories: • Count of Index Hospital Stays (IHS) (denominator) • Count of 30-Day Readmissions (numerator) • Expected Readmissions Rate
Numerator	All acute inpatient discharges on or between January 1 and December 1 of the measurement yea
Denominator	The eligible population
Data Sources	Medicaid claims/encounters data
National Benchmark	Medicare Shared Savings Program 2018-19 Benchmark 50th Percentile: 14.91 Medicare Shared Savings Program 2018-19 Benchmark 90th Percentile: 14.27

Measure: All Cause Readmissions among BH CP Members **Steward: MassHealth** **MassHealth CP monitoring measure** **NQF Endorsed: No**	
Description	The rate of acute unplanned hospital readmissions within 30 days of discharge for BH CP enrollees 18 to 64 years of age
Numerator	The outcome measure is the observed number of all-cause readmissions among BH CP members per 1,000-member months at risk for admissions
Denominator	The expected number of readmissions among BH CP members when adjusting for the ACO case mix
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: All Cause Readmissions among LTSS CP Members **Steward: MassHealth** **MassHealth CP monitoring measure** **NQF Endorsed: No**	
Description	The rate of acute unplanned hospital readmissions within 30 days of discharge for LTSS CP enrollees 18 to 64 years of age
Numerator	The outcome measure is the observed number of all-cause readmissions among BH CP members per 1,000 member months at risk for admissions
Denominator	The expected number of readmissions among BH CP members when adjusting for the ACO case mix
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: ED Visits for Adults with SMI, Addiction, or Co-occurring Conditions **Steward: MassHealth** **MassHealth ACO quality measure** **NQF Endorsed: No**	
Description	Rate of ED visits for members 18 to 64 years of age identified with a diagnosis of serious mental illness and/or substance addiction
Numerator	The expected number of admissions (or observation stays) for members with mental illness and/or SUD and/or co-occurring conditions when adjusting for the ACO case mix
Denominator	The expected number of admissions (or observation stays) for members with mental illness and/or SUD and/or co-occurring conditions when adjusting for the ACO case mix
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Acute Unplanned Hospital Admissions For Adults with Mental Illness and/or Substance Addiction **Steward: NA** **NQF Endorsed: No**	
Description	Rate of acute hospital admissions (or observation stays) for members 18 to 64 years of age identified with a diagnosis of serious mental illness and/or substance addiction
Numerator	The number of hospital admissions for adults with SMI and/or SUD
Denominator	The person-time contributed by members in the population of interest during the measurement period
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: NICU Hospitalizations **Steward: MassHealth** **MassHealth ACO monitoring measure** **NQF Endorsed: No**	
Description	Rate of NICU hospitalizations per 1,000 live births
Numerator	The outcome measure is the observed number of NICU hospitalizations per 1,000-member months at risk
Denominator	The expected rate of NICU hospitalizations for members when adjusting for case mix
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Measure: Community Tenure: BH and LTSS CP Members **Steward: MassHealth** **MassHealth CP monitoring measure** **NQF Endorsed: No**	
Description	The rate of eligible days CP enrollees 18 to 64 years of age resided in their home or in a community setting without utilizing acute or post-acute inpatient services
Numerator	Numerator The number of days CP enrollees 18-64 years of age resided in their home or in a community setting without utilizing acute or post-acute inpatient services
Denominator	The person-time contributed by members in the population of interest during the measurement period

Measure: Long-Term Nursing Home Admissions **Steward: MassHealth** **NQF Endorsed: No**	
Description	The rate of long-term (>100 days) nursing home admissions
Numerator	The number of long-term nursing home admissions for MassHealth members 18-64 years of age
Denominator	The person-time contributed by members in the population of interest during the measurement period
Data Sources	Medicaid claims/encounters data
National Benchmark	None

Domain 4 Measures

RQ13

Measure: Total Cost Of Care (Adult And Pediatric) **NQF Endorsed: No**	
Description	The Total Cost of Care for adult and pediatric members in MCOs, ACOs, and MCOs ages 0 to 64 as of December 31 of the measurement year
Numerator	Identify all claims/encounters on or between January 1 and December 31 of the measurement year: 1. Limit to paid claims, and claims that are not 2. Sum the value of “AMT_PAID_FINAL” by member for all claims/encounters during the measurement year.
Denominator	MCEs, ACOs, and MCOs attributed members ages 0 to 64 years of age as of December 31 of the measurement year
Data Sources	Administrative
National Benchmark	None

Appendix I: Cost and Utilization of Selected Health Services

Table I-1 Differences in Cost of Care of Selected Services for ACO versus MCO/PCC Enrollees, Adults

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	469,551	453,410	453,695	583,242	740,157	849,420
Cost of Adult Emergency Department Visits						
Observed costs attributed to ACO members, $	479.2	423.2	353.3	278.8	266.5	263.9
ACO vs. MCO/PCC, aDiff (95% CI)	33.9 (24.0, 43.8)	-1.6 (-10.1, 6.9)	2.1 (-5.7, 9.9)	-1.5 (-8.6, 5.7)	5.5 (-0.7, 11.7)	16.2 (11.0, 21.4)
Cost of Adult Hospital Home Health						
Observed costs attributed to ACO members, $	51.5	95.8	94.9	83.2	67.8	67.3
ACO vs. MCO/PCC, aDiff (95% CI)	0 (-4.3, 4.3)	28.9 (23.2, 34.6)	21.8 (9.3, 34.4)	29.4 (23.5, 35.2)	24.1 (19.0, 29.3)	29.4 (24.7, 34.0)
Cost of Adult Hospital Outpatient Diagnostics, Imaging, and Lab						
Observed costs attributed to ACO members, $	391.5	367.2	230.4	203.1	220.9	210.6
ACO vs. MCO/PCC, aDiff (95% CI)	16.2 (0.2, 32.2)	15.5 (0.1, 31)	3.8 (-12.1, 19.7)	2.6 (-13.8, 19.1)	-5.0 (-23.6, 13.4)	-0.6 (-16, 14.9)
Cost of Adult Inpatient Maternal Health Hospitalizations[a]						
Observed costs attributed to ACO members, $	169.7	143.7	155.2	173.7	144.5	142.2
ACO vs. MCO/PCC, aDiff (95% CI)	-7.9 (-17.0, 1.2)	-17.3 (-25.7, -8.9)	9.1 (0.8, 17.4)	0.1 (-9.1, 9.3)	-8.7 (-16.2, 1.2)	5.5 (-1.4, 12.3)
Cost of Adult Inpatient Physical Health Hospitalizations[a]						
Observed costs attributed to ACO members, $	18.6	23.2	27.6	27.6	23.1	21.4
ACO vs. MCO/PCC, aDiff (95% CI)	0.1 (-3.4, 3.6)	-7.7 (-12.9, -2.4)	-4.2 (-9.9, 1.6)	-3.5 (-9.6, 2.7)	-5.4 (-11.9, 1.0)	-2.5 (-6.5, 1.4)
Cost of Adult Inpatient Surgery[a]						
Observed costs attributed to ACO members, $	352.5	212.9	291.2	281.4	284.4	249.8
ACO vs. MCO/PCC, aDiff (95% CI)	37.6 (4.9, 70.3)	7.4 (-23.5, 38.3)	17.0 (18.2, 52.2)	-29.4 (69.4, 10.5)	-6.3 (51.4, 38.8)	-1.3 (27.8, 25.3)

[a] Does not include professional services costs.

Table I-2 Differences in Cost of Care of Selected Outpatient Services for ACO versus MCO/PCC Enrollees, Adults

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	503,250	474,672	462,219	592,098	739,555	849,037
Cost for Adult's BH Initiative Diversionary						
Observed costs attributed to ACO members, $	53.1	35.8	17.1	20.1	21.1	18.6
ACO vs. MCO/PCC, aDiff (95% CI)	2.6 (-3.3, 8.4)	2.5 (-2.0, 7.0)	-2.4 (-6.1, 1.2)	0.2 (-3.2, 3.6)	-3.9 (-10.6, 2.8)	1.9 (-0.8, 4.6)
Office and Home Services non-BH Costs						
Observed costs attributed to ACO members, $	440.5	492.8	492.4	428.1	445.9	414.0
ACO vs. MCO/PCC, aDiff (95% CI)	47.4 (42.2, 52.7)	107.3 (103.0, 111.6)	95.7 (91.0, 100.4)	85.7 (81.1, 90.3)	120.3 (112.5, 128.1)	103.8 (99.8, 107.9)
Office and Home Services BH Costs						
Observed costs attributed to ACO members, $	127.1	131.1	150.2	147.3	142.5	156.9
ACO vs. MCO/PCC, aDiff (95% CI)	5.4 (2.6, 8.1)	-18.1 (-21.1, -15.0)	-2.5 (-5.9, 0.8)	3.9 (0.7, 7.1)	9.5 (4.7, 14.3)	19.7 (16.7, 22.6)
Outpatient BH General Costs						
Observed costs attributed to ACO members, $	405.6	379.1	450.1	408.6	414.9	500.1
ACO vs. MCO/PCC, aDiff (95% CI)	-22.4 (-39.8, -4.9)	-29.5 (-44.6, -14.4)	-64.9 (-85.1, -44.8)	-48.5 (-65.6, -31.5)	-70.1 (-96.0, -44.2)	-67.6 (-82.6, -52.6)
Outpatient BH Diversionary Costs						
Observed costs attributed to ACO members, $	73.6	91.9	139.5	42.9	36.6	34.3
ACO vs. MCO/PCC, aDiff (95% CI)	6.6 (1.8, 11.4)	1.9 (-3.8, 7.6)	20.1 (10.5, 29.7)	-4.7 (-9.0, -0.4)	-19.1 (-30.0, -8.3)	-4.5 (-8.7, -0.3)
Hospital Outpatient BH Costs						
Observed costs attributed to ACO members, $	10.2	9.1	8.2	12.3	13.7	11.3
ACO vs. MCO/PCC, aDiff (95% CI)	-1.8 (-4.2, 0.6)	-2.7 (-4.3, -1.2)	0.5 (-0.7, 1.6)	2.9 (1.8, 4.0)	-0.1 (-3.9, 3.7)	-1.4 (-3.6, 0.8)
Outpatient Lab-Imaging-Diagnostic Costs						
Observed costs attributed to ACO members, $	290.2	294.4	316.0	285.7	272.5	245.9
ACO vs. MCO/PCC, aDiff (95% CI)	10.8 (5.8, 15.8)	-7.8 (-13.5, -2.0)	-24.5 (-30.5, -18.5)	-16.5 (-22.3, -10.6)	-5.9 (-13.0, 1.3)	-2.8 (-6.4, 0.8)
Outpatient Home Health Costs						
Observed costs attributed to ACO members, $	6.2	13.0	7.4	6.3	8.0	7.6
ACO vs. MCO/PCC, aDiff (95% CI)	3.3 (-0.1, 6.6)	4.8 (0.3, 9.2)	-0.9 (-5.8, 4.1)	0 (-4.2, 4.3)	0.3 (-8.7, 9.3)	-3.6 (-9.9, 2.7)
Outpatient LTC Costs						
Observed costs attributed to ACO members, $	937.5	1112.2	1239.3	1048.1	860.7	803.5

ACO vs. MCO/PCC, aDiff (95% CI)	47.5 (-20.2, 115.2)	7.1 (-63.2, 77.4)	-83.9 (-168.5, 0.7)	-68.2 (-149.5, 13.2)	-202.4 (-283.5, -121.4)	-35.1 (-93.0, 22.8)
Cost for Outpatient Substance Use Disorder Services						
Observed costs attributed to ACO members, $	123.7	119.9	127.0	263.4	306.1	405.9
ACO vs. MCO/PCC, aDiff (95% CI)	-1.3 (-6.7, 4.0)	-22.1 (-27.8, -16.5)	-31.2 (-37.3, -25.0)	-63.7 (-80.7, -46.7)	-167.4 (-210.7, -124.1)	-87.6 (-110.6, -64.6)
Outpatient Surgery Costs						
Observed costs attributed to ACO members, $	212.5	303.0	351.8	244.4	279.6	261.8
ACO vs. MCO/PCC, aDiff (95% CI)	29.1 (18.1, 40.2)	45.7 (35.7, 55.7)	-5.3 (-19.6, 9.0)	8.6 (-2.8, 20.1)	24.7 (8.6, 40.8)	11.8 (2.7, 20.8)
Hospital Outpatient (no urgent care) Costs						
Observed costs attributed to ACO members, $	502.0	596.1	642.2	494.4	542.2	531.5
ACO vs. MCO/PCC, aDiff (95% CI)	31.2 (11.0, 51.3)	72.6 (35.7, 109.5)	36.2 (3.2, 69.2)	48.1 (20.9, 75.2)	109.5 (71.0, 148.0)	26.5 (0.2, 52.8)

Table I-3 Differences in Cost of Care of Selected Services for ACO versus MCO/PCC Enrollees, Children

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	372,044	379,441	372,368	440,029	471,906	497,740
Cost of Child Emergency Department Visits						
Observed costs attributed to ACO members, $	162.5	143.6	135.1	79.6	105.6	139.6
ACO vs. MCO/PCC, aDiff (95% CI)	15.7 (12.5, 18.9)	13.2 (10.4, 16.1)	27.9 (25.4, 30.5)	14.0 (12.0, 16.1)	26.0 (23.2, 28.8)	35.4 (32.5, 38.4)
Cost of Child Hospital Home Health						
Observed costs attributed to ACO members, $	12.0	4.6	6.8	5.3	5.7	7.2
ACO vs. MCO/PCC, aDiff (95% CI)	-5.8 (-17.7, 6.1)	-37.4 (-58.5, 16.2)	-49.8 (-79.1, -20.5)	1.1 (-1.3, 3.5)	1.5 (-1.2, 4.2)	2.7 (-0.8, 6.1)
Cost of Child Hospital Outpatient Diagnostics, Imaging, and Lab						
Observed costs attributed to ACO members, $	68.0	74.8	58.4	55.3	70.5	68.7

	2017 Baseline	2018	2019	2020	2021	2022
ACO vs. MCO/PCC, aDiff (95% CI)	-0.2 (-4.3, 3.9)	10.3 (-2.7, 23.3)	8.8 (-9.4, 27.1)	11.8 (0.5, 23.1)	5.1 (-0.1, 10.2)	13.1 (1.7, 24.4)
Cost of Child Inpatient Maternal Health Hospitalizations[a]						
Observed costs attributed to ACO members, $	2.2	2.0	1.9	2.0	2.2	1.6
ACO vs. MCO/PCC, aDiff (95% CI)	0 (-1.2, 1.2)	0.6 (-0.3,1.4)	1.4 (0.8, 2.1)	1.7 (1.1, 2.4)	1.8 (1.1, 2.5)	0.4 (-0.5, 1.3)
Cost of Child Inpatient Physical Health Hospitalizations[a]						
Observed costs attributed to ACO members, $	5.5	4.2	4.8	3.6	3.9	5.1
ACO vs. MCO/PCC, aDiff (95% CI)	0.6 (-1.5, 2.7)	-2.7 (-5.1, -0.4)	-2.8 (-5.6, -0.1)	-3.4 (-6.7, 0)	-1.2 (-3.8, 1.5)	-1.4 (-4.2, 1.4)
Cost of Child Inpatient Surgery[a]						
Observed costs attributed to ACO members, $	54.5	65.6	89.2	82.4	79.0	102.0
ACO vs. MCO/PCC, aDiff (95% CI)	7.4 (9.4, 24.3)	43.5 (24.7, 62.3)	61.1 (27.8, 94.4)	52.9 (24.7, 81.2)	48.1 (30.3, 66.0)	69.9 (51.8, 88.0)

[a] Does not include professional services costs.

Table I-4 Differences in Cost of Care of Selected Outpatient Services for ACO versus MCO/PCC Enrollees, Children

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	355,400	383,677	377,214	441,439	473,579	499,704
Office and Home Services non-BH Costs						
Observed costs attributed to ACO members, $	396.7	382.1	339.0	264.0	304.2	327.0
ACO vs. MCO/PCC, aDiff (95% CI)	47.6 (43.9, 51.3)	58.6 (55.4, 61.8)	49.8 (46.5, 53.1)	39.3 (36.5, 42.1)	33.6 (28.6, 38.6)	55.7 (52.2, 59.2)
Office and Home Services BH Costs						
Observed costs attributed to	43.2	42.3	44.5	39.2	46.9	49.3

	2017 Baseline	2018	2019	2020	2021	2022
ACO members, $						
ACO vs. MCO/PCC, aDiff (95% CI)	1.8 (0.4, 3.2)	2.3 (1.0, 3.6)	2.9 (1.5, 4.4)	1.9 (0.6, 3.3)	2.3 (-0.1, 4.6)	-2.9 (-5.2, -0.7)
Outpatient BH General Costs						
Observed costs attributed to ACO members, $	349.3	338.0	327.0	307.6	300.7	384.0
ACO vs. MCO/PCC, aDiff (95% CI)	-72.5 (-93.1, 51.9)	-56.1 (-73.0, -39.2)	-74.5 (-94.5, -54.4)	-62.1 (-82.2, -41.9)	-34.8 (-57.0, -12.5)	-109.2 (-129.2, -89.2)
Outpatient BH Diversionary Costs						
Observed costs attributed to ACO members, $	15.2	18.9	21.2	4.0	3.4	3.1
ACO vs. MCO/PCC, aDiff (95% CI)	5.9 (3.9, 7.9)	4.0 (1.7, 6.3)	5.0 (2.4, 7.7)	2.4 (1.9, 2.9)	5.3 (4.1, 6.5)	2.2 (1.7, 2.8)
Hospital Outpatient BH Costs						
Observed costs attributed to ACO members, $	2.8	1.7	1.7	5.8	8.5	7.2
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (0.3, 1.8)	-0.2 (-0.8, 0.3)	0.5 (0, 0.9)	4.3 (3.8, 4.9)	5.8 (4.8, 6.8)	4.2 (2.8, 5.6)
Outpatient Lab-Imaging-Diagnostic Costs						
Observed costs attributed to ACO members, $	46.9	45.1	51.3	50.2	78.9	82.1
ACO vs. MCO/PCC, aDiff (95% CI)	5.2 (3.7, 6.7)	3.4 (1.0, 5.8)	6.3 (4.6, 8.0)	5.4 (2.8, 8.1)	7.8 (5.3, 10.3)	12.9 (10.8, 15.0)
Outpatient Home Health Costs						
Observed costs attributed to ACO members, $	3.0	2.5	3.0	3.5	5.2	8.7
ACO vs. MCO/PCC, aDiff (95% CI)	-0.8 (-4.6, 3.0)	-19.6 (-34.1, -5.1)	-17.7 (-30.7, -4.7)	-0.7 (-5.6, 4.2)	-6.9 (-22.7, 8.8)	1.9 (-5.0, 8.7)
Outpatient LTC Costs						
Observed costs attributed to	66.7	73.0	85.3	86.5	87.2	89.0

	2017 Baseline	2018	2019	2020	2021	2022
ACO members, $						
ACO vs. MCO/PCC, aDiff (95% CI)	4.7 (-5.7, 15.2)	0 (-10.7, 10.6)	-1.9 (-15.6, 11.8)	-3.2 (-19.1, 12.7)	-5.3 (-31.9, 21.3)	-5.9 (-22.0, 10.2)
Outpatient Surgery Costs						
Observed costs attributed to ACO members, $	108.3	134.1	147.1	104.0	118.2	122.9
ACO vs. MCO/PCC, aDiff (95% CI)	16.6 (7.6, 25.6)	29.7 (14.7, 44.7)	24.9 (12.1, 37.7)	-2.6 (-13.8, 8.6)	-6.5 (-28.4, 15.3)	0.8 (-9.2, 10.8)
Hospital Outpatient (no urgent care) Costs						
Observed costs attributed to ACO members, $	173.5	191.9	209.7	152.4	184.2	215.1
ACO vs. MCO/PCC, aDiff (95% CI)	20.6 (13.5, 27.8)	49.1 (36.1, 62.1)	56.5 (44.6, 68.4)	10.9 (-14.2, 36.1)	76.6 (59.9, 93.3)	33.4 (19.0, 47.8)

Table I-5 Differences in Utilization of Care of Selected Services for ACO versus MCO/PCC Enrollees, Adults

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	452,711	451,679	435,579	566,828	710,865	818,271
Utilization of Adult Emergency Department Visits						
Utilization/1,000	1,151.7	1,128.6	1,167.5	932.6	907.2	837.6
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.1)
Utilization of Adult Hospital Home Health						
Utilization/1,000	1,207.9	820.8	867.0	775.3	623.5	539.3
ACO vs. MCO/PCC, aDiff (95% CI)	1.4 (1.2, 1.6)	0.9 (0.8, 1.0)	0.9 (0.8, 1.1)	1.0 (0.9, 1.2)	1.1 (0.9, 1.2)	1.1 (0.9, 1.3)
Utilization of Adult Hospital Outpatient Diagnostics, Imaging, and Lab						
Utilization/1,000	1,616.5	1,598.6	1,651.9	1,332.9	1,512.1	1,366.3
ACO vs. MCO/PCC, aDiff (95% CI)	0.9 (0.9, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	0.9 (0.9, 0.9)	0.9 (0.9, 1.0)	1.0 (1.0, 1.0)
Utilization of Adult LTSS (inpatient claim type)[a]						
Utilization/1,000	37,602.7	37,191.4	39,838.8	35,585.0	33,059.1	30,212.8

	2017 Baseline	2018	2019	2020	2021	2022
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	0.9 (0.9, 0.9)	0.9 (0.9, 0.9)	0.9 (0.9, 0.9)
Utilization of Adult Inpatient Maternal Health Hospitalizations[a]						
Utilization/1,000	32.7	30.1	32.7	34.2	30.2	30.8
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (1.0, 1.1)	0.9 (0.9, 1.0)	1.0 (1.0, 1.1)	1.0 (1.0, 1.1)	0.9 (0.9, 1.0)	1.0 (1.0, 1.0)
Utilization of Adult Inpatient Physical Health Hospitalizations[a]						
Utilization/1,000	70.8	75.9	77.3	68.6	58.9	50.5
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (1.0, 1.0)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)	0.9 (0.8, 0.9)	0.8 (0.8, 0.9)	0.8 (0.8, 0.9)
Utilization of Adult Inpatient Surgery[a]						
Utilization/1,000	26.4	19.2	26.7	23.4	22.4	19.5
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (0.9, 1.0)	1.0 (0.9, 1.1)	1.0 (0.9, 1.1)	0.8 (0.7, 0.9)	0.8 (0.8, 0.9)	0.8 (0.8, 0.9)

[a] Does not include professional services costs.

Table I-6 Differences in Utilization of Care of Selected Outpatient Services for ACO versus MCO/PCC Enrollees, Adults

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	445,985	453,233	445,688	577,626	712,480	820,281
Utilization for Adult BH Initiative Diversionary						
Utilization/1,000	97.8	163.9	77.7	139.6	85.4	67.8
ACO vs. MCO/PCC, aIRR (95% CI)	1.1 (0.9, 1.3)	1.1 (0.9, 1.3)	1.0 (0.8, 1.3)	1.3 (1.0, 1.6)	1.2 (0.9, 1.5)	1.4 (1.1, 1.8)
Inpatient Behavioral Health Utilization						
Utilization/1,000	411.2	468.9	536.9	462.1	353.4	340.1
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (0.9, 1.0)	0.7 (0.7, 0.8)	0.8 (0.7, 0.8)	0.8 (0.7, 0.9)	0.8 (0.7, 0.8)	0.9 (0.8, 1.0)
Office and Home Services non-BH Utilization						
Utilization/1,000	4,590.1	4,713.9	4,820.9	4,239.1	4,458.6	4,021.0
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (1.0, 1.0)	1.1 (1.1, 1.1)	1.1 (1.1, 1.1)	1.1 (1.0, 1.1)	1.1 (1.0, 1.1)	1.0 (1.0, 1.1)
Office and Home Services BH Utilization						
Utilization/1,000	1,577.1	1,507.6	1,615.9	1,507.6	1,289.1	1,166.5
ACO vs. MCO/PCC, aIRR (95% CI)	0.9 (0.9, 0.9)	0.8 (0.8, 0.8)	0.8 (0.8, 0.8)	0.8 (0.8, 0.8)	0.8 (0.8, 0.8)	0.8 (0.8, 0.8)

	2017 Baseline	2018	2019	2020	2021	2022
Outpatient BH General Utilization						
Utilization/1,000	3,924.9	3,952.2	4,335.7	4,349.3	3,797.5	3,311.3
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)	0.9 (0.9, 0.9)
Outpatient BH Diversionary Utilization						
Utilization/1,000	890.8	827.8	1,193.6	212.2	105.3	93.2
ACO vs. MCO/PCC, aIRR (95% CI)	1.4 (1.3, 1.6)	1.1 (1.0, 1.2)	1.3 (1.2, 1.5)	1.0 (0.9, 1.1)	0.8 (0.7, 0.9)	0.8 (0.7, 0.9)
Hospital Outpatient BH Utilization						
Utilization/1,000	33.0	34.5	52.5	65.8	71.3	63.9
ACO vs. MCO/PCC, aIRR (95% CI)	0.5 (0.4, 0.5)	0.6 (0.5, 0.6)	1.2 (1.0, 1.4)	1.3 (1.2, 1.5)	1.0 (0.8, 1.2)	1.0 (0.8, 1.3)
Outpatient Lab-Imaging-Diagnostic Utilization						
Utilization/1,000	3,811.7	3,792.6	3,956.6	3,007.3	3,248.7	2,883.7
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (1.0, 1.0)	0.9 (0.9, 1.0)	1.0 (1.0, 1.0)	0.9 (0.9, 0.9)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Outpatient Home Health Utilization						
Utilization/1,000	36.3	77.2	41.7	39.0	36.7	34.9
ACO vs. MCO/PCC, aIRR (95% CI)	1.6 (1.0, 2.8)	1.9 (1.3, 2.9)	1.1 (0.6, 1.9)	1.2 (0.7, 1.9)	1.1 (0.7, 1.8)	1.2 (0.8, 1.9)
Outpatient LTC Utilization						
Utilization/1,000	5,376.5	6,322.2	7,260.1	5,852.9	4,873.6	5,101.8
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (1.0, 1.1)	1.1 (1.0, 1.1)	1.0 (1.0, 1.1)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)	1.0 (1.0, 1.1)
Utilization for Outpatient Substance Use Disorder Services						
Utilization/1,000	7,681.3	7,362.2	7,965.4	8,494.5	7,307.2	6,760.5
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (0.9, 1.0)	0.9 (0.9, 0.9)	0.9 (0.9, 0.9)	0.7 (0.7, 0.8)	0.7 (0.7, 0.7)	0.7 (0.7, 0.7)
Outpatient Urgent Care Utilization						
Utilization/1,000	127.9	127.2	125.7	87.9	96.3	88.1
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (1.0, 1.0)	1.1 (1.0, 1.1)	1.1 (1.0, 1.1)	1.0 (0.9, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)

Table I-7 Differences in Utilization of Care of Selected Services for ACO versus MCO/PCC Enrollees, Children

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	372,040	379,437	372,366	440,024	471,901	497,735
Utilization of Child Emergency Department Visits						
Utilization/1,000	517.6	509.4	496.8	300.8	379.9	471.8
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (0.9, 1.0)	1.0 (1.0, 1.1)	1.0 (1.0, 1.0)
Utilization of Child Hospital Home Health						
Utilization/1,000	145.3	83.5	90.9	80.6	73.3	69.6
ACO vs. MCO/PCC, aDiff (95% CI)	1.1 (0.8, 1.5)	0.7 (0.5, 1.0)	0.8 (0.5, 1.1)	1.3 (0.8, 2.0)	1.0 (0.5, 2.1)	1.4 (0.8, 2.3)
Utilization of Child Hospital Outpatient Diagnostics, Imaging, and Lab						
Utilization/1,000	469.8	461.6	475.4	397.4	602.7	504.9
ACO vs. MCO/PCC, aDiff (95% CI)	0.9 (0.9, 0.9)	0.9 (0.9, 1.0)	1.0 (1.0, 1.0)	0.9 (0.8, 0.9)	0.8 (0.7, 0.8)	0.9 (0.8, 0.9)
Utilization of Child LTSS (inpatient claim type)[a]						
Utilization/1,000	15,711.1	16,102.7	16,969.4	14,817.7	15,096.5	14,404.2
ACO vs. MCO/PCC, aDiff (95% CI)	0.9 (0.9, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Utilization of Child Inpatient Maternal Health Hospitalizations[a]						
Utilization/1,000	0.5	0.4	0.4	0.4	0.4	0.4
ACO vs. MCO/PCC, aDiff (95% CI)	1.0 (0.7, 1.5)	1.0 (0.7, 1.6)	2.5 (1.3, 4.8)	1.7 (1.0, 3.0)	1.5 (0.8, 2.9)	1.0 (0.6, 1.9)
Utilization of Child Inpatient Physical Health Hospitalizations[a]						
Utilization/1,000	12.7	11.9	12.1	9.3	11.3	14.6
ACO vs. MCO/PCC, aDiff (95% CI)	1.1 (1.0, 1.2)	1.1 (1.0, 1.2)	1.2 (1.1, 1.4)	1.1 (0.9, 1.3)	1.1 (0.9, 1.3)	1.2 (1.0, 1.3)
Utilization of Child Inpatient Surgery[a]						
Utilization/1,000	3.8	3.2	3.7	3.9	4.1	4.3
ACO vs. MCO/PCC, aDiff (95% CI)	1.1 (1.0, 1.3)	1.1 (1.0, 1.3)	1.1 (0.9, 1.3)	1.2 (1.0, 1.5)	1.1 (0.8, 1.4)	1.6 (1.3, 2.0)

a Does not include professional services costs.

Table I-8 Differences in Utilization of Care of Selected Outpatient Services for ACO versus MCO/PCC Enrollees, Children

	2017 Baseline	2018	2019	2020	2021	2022
Number of Observations (ACOs, MCO, PCCP) included in the model	355,397	383,677	377,214	441,436	473,579	499,704
Utilization for Children's BH Initiative Diversionary						
Utilization/1,000	3,722.7	3,859.1	4,331.9	4,229.9	3,593.5	3,076.5
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)	1.0 (1.0, 1.1)	0.9 (0.9, 1.0)	0.9 (0.9, 1.0)	1.0 (0.9, 1.0)
Inpatient Behavioral Health Utilizations						
Utilization/1,000	51.8	59.6	86.1	98.1	85.4	96.8
ACO vs. MCO/PCC, aIRR (95% CI)	1.1 (0.8, 1.6)	0.9 (0.7, 1.1)	0.9 (0.7, 1.2)	1.0 (0.7, 1.2)	1.1 (0.7, 1.7)	0.9 (0.7, 1.2)
Office and Home Services BH Utilizations						
Utilization/1,000	369.5	360.6	393.7	355.5	355.9	341.0
ACO vs. MCO/PCC, aIRR (95% CI)	0.9 (0.9, 0.9)	0.9 (0.9, 1.0)	0.9 (0.9, 0.9)	0.9 (0.9, 0.9)	0.8 (0.8, 0.8)	0.9 (0.8, 0.9)
Office and Home Services non-BH Utilizations						
Utilization/1,000	3,599.9	3,460.9	3,188.8	2,419.2	2,855.6	2,993.5
ACO vs. MCO/PCC, aIRR (95% CI)	0.9 (0.9, 0.9)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	0.9 (0.9, 0.9)	0.9 (0.9, 1.0)
Outpatient BH General Utilizations						
Utilization/1,000	3,166.3	3,100.9	3,071.4	2,928.2	2,528.5	2,239.6
ACO vs. MCO/PCC, aIRR (95% CI)	0.9 (0.9, 0.9)	0.9 (0.9, 1.0)	0.9 (0.9, 0.9)	0.9 (0.9, 0.9)	0.9 (0.8, 0.9)	0.9 (0.9, 0.9)
Outpatient BH Diversionary Utilizations						
Utilization/1,000	109.4	156.5	221.4	57.6	73.7	66.5
ACO vs. MCO/PCC, aIRR (95% CI)	1.8 (1.5, 2.3)	1.4 (1.2, 1.6)	1.8 (1.5, 2.2)	4.3 (3.0, 6.3)	5.4 (2.6, 11.0)	4.7 (2.3, 9.8)
Hospital Outpatient BH Utilizations						
Utilization/1,000	6.5	9.3	16.0	31.4	42.5	33.5
ACO vs. MCO/PCC, aIRR (95% CI)	0.5 (0.4, 0.7)	0.6 (0.5, 0.8)	1.3 (1.0, 1.7)	4.9 (3.6, 6.6)	4.5 (2.7, 7.3)	3.2 (2.3, 4.3)
Outpatient Lab-Imaging-Diagnostic Utilizations						
Utilization/1,000	1,154.8	1,126.5	1,129.6	822.5	1,278.7	1,241.9

	2017 Baseline	2018	2019	2020	2021	2022
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.1)	1.0 (1.0, 1.1)	1.1 (1.1, 1.1)
Outpatient Home Health Utilizations						
Utilization/1,000	26.2	31.3	27.5	18.3	21.1	32.5
ACO vs. MCO/PCC, aIRR (95% CI)	0.9 (0.6, 1.5)	0.7 (0.5, 1.1)	0.6 (0.4, 1.0)	0.9 (0.5, 1.8)	0.6 (0.2, 1.4)	0.7 (0.5, 1.1)
Outpatient LTC Utilizations						
Utilization/1,000	1,076.2	1,162.7	1,330.4	1,250.9	1,181.1	1,148.4
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (0.9, 1.2)	1.0 (0.9, 1.2)	1.0 (0.9, 1.2)	1.0 (0.9, 1.2)	1.1 (0.9, 1.3)	1.0 (0.9, 1.2)
Outpatient Urgent Care Utilizations						
Utilization/1,000	45.2	42.6	42.6	30.2	32.7	34.9
ACO vs. MCO/PCC, aIRR (95% CI)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)	0.9 (0.9, 1.0)	0.9 (0.8, 0.9)	0.9 (0.8, 1.0)	1.0 (0.9, 1.0)

Appendix J: Supplemental Analyses for ACOs

Table J-1 Subgroup Analyses Among MassHealth Members Continuously Enrolled and Managed Care Eligible During 2017-2022

Measure	2017 (Baseline)	2018	2019	2020	2021	2022
TCOC, n	**183,421**	**183,421**	**183,421**	**183,421**	**183,421**	**183,421**
ACO[a] Observed, $	$11,074	$11,780	$12,649	$12,904	$14,534	$15,627
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	-13 (-336, 310)	-289 (-610, 31)	-93 (-469, 283)	-98 (-497, 300)	17 (-392, 427)	188 (-258, 633)
DiD estimate, absolute scale	Reference	-276.26	-79.81	-85.02	30.46	200.95
All Cause ED Visits, n	**183,421**	**183,421**	**183,421**	**183,421**	**183,421**	**183,421**
ACO[a] Observed, %	97.45	96.39	92.67	74.42	77.67	75.18
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.06 (1.03,1.08)	0.98 (0.96, 1.01)	1.03 (1.00, 1.06)	1.10 (1.07, 1.14)	1.14 (1.10, 1.18)	1.13 (1.10, 1.17)
DiD estimate, ratio scale	Reference	0.93	0.98	1.04	1.08	1.07
Inpatient Admission, n	**183,421**	**183,421**	**183,421**	**183,421**	**183,421**	**183,421**
ACO[a] Observed, %	16.05	15.41	15.13	14.44	14.94	14.86
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.03 (0.99, 1.08)	0.94 (0.90, 0.98)	1.00 (0.95, 1.05)	1.05 (0.99, 1.10)	1.04 (0.98, 1.10)	1.04 (0.98, 1.10)
DiD estimate, ratio scale	Reference	0.91	0.96	1.01	1.00	1.01

Table J-2 Subgroup Analysis Among Adults Enrolled in Small[a] ACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	37,410	31,021	34,764	34,529	31,630	41,431	50,362	55,120
ACO[b] Observed, $ per person	$8,544	$9,425	$10,266	$11,738	$11,884	$10,451	$10,669	$10,374
ACO[b] vs. MCO/PCCP, cost difference (95% CI)[c]	761 (488, 1,073)	1224 (876, 1,573)	982 (652, 1,312)	1198 (844, 1,551)	255 (-139, 649)	-87 (-430, 256)	-459 (-931, 12)	414 (120, 707)
DiD estimate	Ref.	Ref.	Ref.	209	-734	-1076	-1448	-576
Unplanned hospital admissions, n	37,410	31,021	34,764	34,529	31,630	41,431	50,362	55,120
ACO[b] Observed, admissions per 100 enrollees	16.2	15.2	17.1	16.7	15.8	14.7	13.5	11.9
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.05 (1.00, 1.10)	1.09 (1.03, 1.15)	1.04 (0.98, 1.09)	0.99 (0.94, 1.04)	0.87 (0.83, 0.92)	0.94 (0.90, 0.99)	0.99 (0.91, 1.07)	0.94 (0.90, 0.99)
DiD estimate	Ref.	Ref.	Ref.	0.94	0.83	0.89	0.93	0.89
ED visits, n	37,410	31,021	34,764	34,529	31,630	41,431	50,362	55,120
ACO[b] Observed, ED visits per 100 enrollees	83.2	77.5	92.0	89.1	84.8	67.6	67.7	61.6
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.01 (0.98, 1.04)	0.98 (0.94, 1.01)	1.02 (0.99, 1.05)	0.99 (0.96, 1.02)	0.96 (0.94, 0.99)	0.97 (0.95, 1.00)	1.10 (1.05, 1.15)	1.03 (1.00, 1.06)
DiD estimate	Ref.	Ref.	Ref.	0.99	0.96	0.97	1.10	1.03
Primary care sensitive ED visits, n	37,410	31,021	34,764	34,529	31,630	41,431	50,362	55,120

Measure	2015	2016	2017	2018	2019	2020	2021	2022
ACO[b] Observed, PC-sensitive ED visits per 100 enrollees	36.0	34.9	40.6	31.3	26.8	19.9	17.7	16.8
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.05 (1.01, 1.09)	1.00 (0.97, 1.04)	1.05 (1.02, 1.08)	0.78 (0.76, 0.81)	0.69 (0.66, 0.72)	0.71 (0.69, 0.74)	0.76 (0.72, 0.81)	0.76 (0.74, 0.79)
DiD estimate	Ref.	Ref.	Ref.	0.76	0.66	0.69	0.74	0.74
Readmissions, n	37,410	31,021	34,764	34,529	31,630	41,431	50,362	55,120
ACO[b] Observed, % of admissions	15.5	16.0	18.5	18.7	18.5	17.4	16.4	16.2
ACO[b] vs. MCO/PCCP, OR (95% CI)[c]	0.90 (0.78,1.04)	0.90 (0.77, 1.05)	1.03 (0.90, 1.18)	0.96 (0.84, 1.09)	0.86 (0.75, 0.99)	0.78 (0.68, 0.89)	0.79 (0.64, 0.98)	0.90 (0.78, 1.03)
DiD estimate	Ref.	Ref.	Ref.	1.01	0.91	0.83	0.84	0.95

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO

[b] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[c] aIRRs and aORs from propensity-weighted generalized linear models

Table J-3 Subgroup Analysis Among Adults Enrolled in Medium[a] Sized ACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	102,615	88,021	99,433	90,753	95,937	121,826	154,085	172,306
ACO[b] Observed, $ per person	$7,568	$8,041	$8,696	$9,438	$10,586	$9,100	$8,876	$8,401
ACO[b] vs. MCO/PCCP, cost difference (95% CI)[c]	-328 (-502, -155)	-370 (-589, -151)	-705 (-914, -496)	-1,092 (-1,322, -862)	-1,172 (-1,440, -904)	-1,603 (-1,837, -1,368)	-1,787 (-2,120, -1,454)	-1,601 (-1,798, -1,404)
DiD estimate	Ref.	Ref.	Ref.	-159	-239	-670	-854	-668
Unplanned hospital admissions, n	102,615	88,021	99,433	90,753	95,937	121,826	154,085	172,306
ACO[b] Observed, admissions per 100 enrollees	14.0	12.1	13.6	12.9	13.7	11.7	10.8	9.9
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.91 (0.88, 0.95)	0.87 (0.83, 0.91)	0.83 (0.80, 0.86)	0.78 (0.75, 0.81)	0.78 (0.75, 0.81)	0.77 (0.74, 0.80)	0.76 (0.72, 0.80)	0.80 (0.78, 0.83)
DiD estimate	Ref.	Ref.	Ref.	0.89	0.90	0.88	0.87	0.92
ED visits, n	102,615	88,021	99,433	90,753	95,937	121,826	154,085	172,306
ACO[b] Observed, ED visits per 100 enrollees	67.1	64.9	80.1	78.2	76.6	59.7	58.3	54.2
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.82 (0.80, 0.84)	0.82 (0.80, 0.84)	0.88 (0.87, 0.90)	0.86 (0.84, 0.88)	0.86 (0.84, 0.88)	0.85 (0.83, 0.87)	0.89 (0.86, 0.92)	0.90 (0.89, 0.92)
DiD estimate	Ref.	Ref.	Ref.	1.02	1.02	1.00	1.06	1.07

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	102,615	88,021	99,433	90,753	95,937	121,826	154,085	172,306
ACO[b] Observed, PC-sensitive ED visits per 100 enrollees	26.0	28.4	35.6	33.8	32.4	22.7	21.0	19.8
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.76 (0.74, 0.78)	0.81 (0.79, 0.84)	0.91 (0.88, 0.93)	0.82 (0.81, 0.84)	0.81 (0.79, 0.83)	0.79 (0.77, 0.81)	0.90 (0.87, 0.94)	0.87 (0.85, 0.89)
DiD estimate	Ref.	Ref.	Ref.	1.00	0.97	0.96	1.09	1.06
Readmissions, n	102,615	88,021	99,433	90,753	95,937	121,826	154,085	172,306
ACO[b] Observed, % of admissions	16.0	16.2	16.0	16.6	17.1	15.8	15.3	15.8
ACO[b] vs. MCO/PCCP, OR (95% CI)[c]	0.94 (0.84, 1.06)	0.92 (0.81, 1.04)	0.89 (0.79, 0.99)	0.86 (0.77, 0.96)	0.84 (0.75, 0.94)	0.72 (0.65, 0.81)	0.80 (0.68, 0.94)	0.89 (0.79, 0.99)
DiD estimate	Ref.	Ref.	Ref.	0.94	0.91	0.79	0.87	0.97

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO

[b] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[c] aIRRs and aORs from propensity-weighted generalized linear models

Table J-4 Subgroup Analysis Among Adults Enrolled in Large[a] ACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	231,432	199,097	223,720	212,632	223,261	290,557	371,564	417,045
ACO[b] Observed, $ per person	$8,148	$8,572	$9,852	$10,601	$11,606	$10,115	$9,944	$9,649
ACO[b] vs. MCO/PCCP, cost difference (95% CI)[c]	285 (139, 432)	224 (31, 416)	437 (252, 622)	-18 (-213, 177)	-109 (-345, 127)	-211 (-423, 2)	-239 (-554, 76)	182 (0, 363)
DiD estimate	Ref.	Ref.	Ref.	-673	-764	-865	-894	-473
Unplanned hospital admissions, n	231,432	199,097	223,720	212,632	223,261	290,557	371,564	417,045
ACO[b] Observed, admissions per 100 enrollees	16.6	14.4	16.8	16.5	17.7	15.2	13.5	12.2
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.08 (1.05, 1.11)	1.04 (1.00, 1.08)	1.01 (0.98, 1.05)	0.98 (0.95, 1.01)	0.99 (0.96, 1.02)	0.98 (0.95, 1.02)	0.98 (0.93, 1.03)	1.01 (0.98, 1.04)
DiD estimate	Ref.	Ref.	Ref.	0.94	0.95	0.94	0.94	0.97
ED visits, n	231,432	199,097	223,720	212,632	223,261	290,557	371,564	417,045
ACO[b] Observed, ED visits per 100 enrollees	88.0	79.8	92.8	91.7	92.7	73.6	70.6	64.5
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.07 (1.05, 1.09)	1.01 (0.99, 1.03)	1.03 (1.01, 1.05)	1.01 (0.99, 1.03)	1.04 (1.02, 1.06)	1.05 (1.03, 1.07)	1.08 (1.04, 1.11)	1.09 (1.08, 1.11)
DiD estimate	Ref.	Ref.	Ref.	0.97	1.00	1.01	1.04	1.05

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	231,432	199,097	223,720	212,632	223,261	290,557	371,564	417,045
ACO[b] Observed, PC-sensitive ED visits per 100 enrollees	36.7	36.1	41.6	39.2	39.1	28.1	24.8	23.0
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.09 (1.06, 1.11)	1.04 (1.02, 1.07)	1.07 (1.05, 1.09)	0.97 (0.95, 0.99)	0.98 (0.96, 1.00)	1.01 (0.99, 1.03)	1.04 (1.01, 1.08)	1.06 (1.04, 1.08)
DiD estimate	Ref.	Ref.	Ref.	0.91	0.92	0.95	0.98	0.99
Readmissions, n	231,432	199,097	223,720	212,632	223,261	290,557	371,564	417,045
ACO[b] Observed, % of admissions	16.9	17.4	19.8	20.6	21.6	23.1	20.8	19.6
ACO[b] vs. MCO/PCCP, OR (95% CI)[c]	1.01 (0.92, 1.10)	1.00 (0.91, 1.11)	1.14 (1.04, 1.24)	1.10 (1.01, 1.20)	1.10 (1.00, 1.20)	1.11 (1.01, 1.22)	1.14 (0.99, 1.32)	1.17 (1.06, 1.29)
DiD estimate	Ref.	Ref.	Ref.	1.05	1.04	1.06	1.09	1.11

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO

[b] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[c] aIRRs and aORs from propensity-weighted generalized linear models

Table J-5 Subgroup Analysis Among Adults Enrolled in ACPPs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	210,682	180,289	205,945	193,677	202,767	260,371	325,846	364,477
ACO[a] Observed, $ per person	$8,023	$8,514	$9,468	$10,469	$11,394	$9,663	$9,594	$9,197
ACO[a] vs. MCO/PCCP, cost difference (95% CI)[b]	139 (-10, 289)	140 (-50, 331)	59 (-126, 244)	-172 (-371, 26)	-446 (-682, -210)	-1081 (-1,290, -871)	-1061 (-1,371, -751)	-866 (-1,042, -690)
DiD estimate	Ref.	Ref.	Ref.	-2	-4	-10	-10	-8
Unplanned hospital admissions, n	210,682	180,289	205,945	193,677	202,767	260,371	325,846	364,477
ACO[a] Observed, admissions per 100 enrollees	15.6	13.7	15.7	15.3	15.9	13.9	12.7	11.4
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.02 (0.99, 1.05)	0.99 (0.95, 1.02)	0.95 (0.92, 0.98)	0.90 (0.87, 0.93)	0.88 (0.85, 0.91)	0.89 (0.86, 0.92)	0.89 (0.85, 0.93)	0.90 (0.88, 0.93)
DiD estimate	Ref.	Ref.	Ref.	0.92	0.89	0.90	0.90	0.92
ED visits, n	210,682	180,289	205,945	193,677	202,767	260,371	325,846	364,477
ACO[a] Observed, ED visits per 100 enrollees	80.0	74.5	90.2	89.6	88.1	70.0	67.5	61.9
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.98 (0.96, 1.00)	0.94 (0.92, 0.96)	1.00 (0.98, 1.02)	0.98 (0.97, 1.00)	0.98 (0.96, 1.00)	0.98 (0.96, 1.01)	1.02 (0.99, 1.05)	1.02 (1.01, 1.04)
DiD estimate	Ref.	Ref.	Ref.	1.01	1.01	1.01	1.05	1.05

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	210,682	180,289	205,945	193,677	202,767	260,371	325,846	364,477
ACO[a] Observed, PC-sensitive ED visits per 100 enrollees	33.0	33.3	40.2	35.2	33.3	23.9	21.2	20.3
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.97 (0.95, 0.99)	0.96 (0.94, 0.98)	1.03 (1.01, 1.05)	0.86 (0.84, 0.87)	0.82 (0.80, 0.84)	0.83 (0.81, 0.85)	0.91 (0.88, 0.94)	0.89 (0.87, 0.91)
DiD estimate	Ref.	Ref.	Ref.	0.87	0.83	0.84	0.92	0.90
Readmissions, n	210,682	180,289	205,945	193,677	202,767	260,371	325,846	364,477
ACO[a] Observed, % of admissions	16.4	16.6	18.4	18.6	18.8	18.6	17.3	17.0
ACO[a] vs. MCO/PCCP, OR (95% CI)[b]	0.97 (0.88, 1.06)	0.94 (0.85, 1.05)	1.04 (0.96, 1.14)	0.97 (0.89, 1.05)	0.92 (0.84, 1.01)	0.86 (0.78, 0.94)	0.88 (0.76, 1.01)	0.96 (0.87, 1.05)
DiD estimate	Ref.	Ref.	Ref.	0.98	0.94	0.87	0.89	0.97

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

Table J-6 Subgroup Analysis Among Adults Enrolled in PCACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	152,226	130,917	144,972	135,721	143,375	185,707	241,422	270,648
ACO[a] Observed, $ per person	$7,980	$8,450	$9,678	$10,191	$11,253	$10,081	$9,818	$9,550
ACO[a] vs. MCO/PCCP, cost difference (95% CI)[b]	137 (-23, 297)	129 (-85, 343)	307 (105, 508)	-291 (-503, -80)	-284 (-539, -29)	52 (-180, 285)	-186 (-523, 150)	440 (241, 640)
DiD estimate	Ref.	Ref.	Ref.	-2	-1	0	-1	2
Unplanned hospital admissions, n	152,226	130,917	144,972	135,721	143,375	185,707	241,422	270,648
ACO[a] Observed, admissions per 100 enrollees	16.1	14.1	16.2	15.8	17.2	14.7	12.9	11.8
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.05 (1.02, 1.08)	1.01 (0.98, 1.05)	0.98 (0.95, 1.02)	0.95 (0.92, 0.99)	0.98 (0.95, 1.02)	0.98 (0.94, 1.01)	0.96 (0.91, 1.01)	1.01 (0.98, 1.05)
DiD estimate	Ref.	Ref.	Ref.	0.94	0.97	0.96	0.94	1.00
ED visits, n	152,226	130,917	144,972	135,721	143,375	185,707	241,422	270,648
ACO[a] Observed, ED visits per 100 enrollees	84.8	77.4	88.7	86.1	87.4	69.2	67.0	61.5
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.04 (1.02, 1.06)	0.98 (0.96, 1.00)	0.99 (0.97, 1.01)	0.96 (0.94, 0.98)	0.99 (0.97, 1.01)	1.01 (0.99, 1.03)	1.04 (1.00, 1.07)	1.07 (1.05, 1.09)
DiD estimate	Ref.	Ref.	Ref.	0.96	0.99	1.00	1.03	1.06

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	152,226	130,917	144,972	135,721	143,375	185,707	241,422	270,648
ACO[a] Observed, PC-sensitive ED visits per 100 enrollees[b]	35.2	35.1	39.9	39.8	40.4	29.0	26.0	23.6
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.04 (1.02, 1.07)	1.02 (1.00, 1.04)	1.03 (1.01, 1.06)	1.00 (0.98, 1.02)	1.03 (1.01, 1.06)	1.06 (1.04, 1.09)	1.10 (1.06, 1.13)	1.10 (1.08, 1.13)
DiD estimate	Ref.	Ref.	Ref.	0.97	1.00	1.03	1.06	1.07
Readmissions, n	152,226	130,917	144,972	135,721	143,375	185,707	241,422	270,648
ACO[a] Observed, % of admissions	16.7	17.4	19.3	20.9	23.5	25.8	23.4	21.6
ACO[a] vs. MCO/PCCP, OR (95% CI)[b]	0.99 (0.90, 1.10)	1.00 (0.90, 1.11)	1.09 (1.00, 1.20)	1.12 (1.01, 1.25)	1.22 (1.09, 1.36)	1.26 (1.13, 1.40)	1.43 (1.21, 1.69)	1.33 (1.19, 1.48)
DiD estimate	Ref.	Ref.	Ref.	1.09	1.18	1.22	1.39	1.29

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

Table J-7 Subgroup Analysis Among Children Enrolled in Small[a] ACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	14,215	10,375	11,714	11,369	11,707	14,456	15,848	16,540
ACO[b] Observed, $ per person	$2,751	$2,863	$2,897	$2,883	$2,955	$2,655	$2,816	$2,963
ACO[b] vs. MCO/PCCP, cost difference (95% CI)[c]	-447 (-614, -280)	-440 (-666, -215)	-453 (-692, -215)	-507 (-752, -261)	-757 (-1045, -469)	-811 (-1034, -588)	-976 (-1365, -586)	-953 (-1201, -706)
DiD estimate	Ref.	Ref.	Ref.	-60	-310	-364	-529	-507
Unplanned hospital admissions, n	14,215	10,375	11,714	11,369	11,707	14,456	15,848	16,540
ACO[b] Observed, admissions per 100 enrollees	2.6	2.0	2.5	2.0	2.0	1.5	1.5	2.0
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.00 (0.85, 1.17)	0.94 (0.76, 1.17)	1.11 (0.91, 1.35)	1.00 (0.80, 1.24)	1.02 (0.84, 1.24)	0.85 (0.68, 1.06)	0.88 (0.66, 1.17)	0.93 (0.77, 1.12)
DiD estimate	Ref.	Ref.	Ref.	0.98	1.00	0.84	0.86	0.91
ED visits, n	14,215	10,375	11,714	11,369	11,707	14,456	15,848	16,540
ACO[b] Observed, ED visits per 100 enrollees	44.7	43.4	50.4	52.6	48.2	26.1	30.7	38.4
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.98 (0.95, 1.02)	0.98 (0.93, 1.02)	1.04 (1.00, 1.08)	1.08 (1.04, 1.13)	1.10 (1.05, 1.14)	0.97 (0.92, 1.02)	0.97 (0.91, 1.04)	1.00 (0.96, 1.04)
DiD estimate	Ref.	Ref.	Ref.	1.09	1.10	0.97	0.97	1.00

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	14,215	10,375	11,714	11,369	11,707	14,456	15,848	16,540
ACO[b] Observed, PC-sensitive ED visits per 100 enrollees	19.0	20.1	24.2	22.0	19.6	8.7	9.6	13.9
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.97 (0.92, 1.02)	1.00 (0.94, 1.06)	1.10 (1.05, 1.15)	0.92 (0.87, 0.97)	0.84 (0.79, 0.89)	0.69 (0.64, 0.74)	0.80 (0.73, 0.88)	0.80 (0.75, 0.84)
DiD estimate	Ref.	Ref.	Ref.	0.90	0.82	0.68	0.78	0.78
Readmissions, n	14,215	10,375	11,714	11,369	11,707	14,456	15,848	16,540
ACO[b] Observed, % of admissions	2.2	5.8	9.2	4.9	9.4	8.1	6.6	6.2
ACO[b] vs. MCO/PCCP, OR (95% CI)[c]	0.27 (0.08, 0.89)	0.86 (0.32, 2.28)	1.05 (0.50, 2.19)	0.47 (0.22, 1.01)	0.75 (0.34, 1.64)	0.51 (0.24, 1.07)	0.81 (0.17, 3.84)	0.78 (0.39, 1.54)
DiD estimate	Ref.	Ref.	Ref.	0.64	1.03	0.70	1.11	1.07

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO

[b] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[c] aIRRs and aORs from propensity-weighted generalized linear models

Table J-8 Subgroup Analysis Among Children Enrolled in Medium[a] Sized ACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	70,244	54,858	76,632	72,801	78,074	89,758	97,209	101,407
ACO[b] Observed, $ per person	$2,983	$2,968	$3,084	$3,017	$3,263	$2,925	$3,166	$3,329
ACO[b] vs. MCO/PCCP, cost difference (95% CI)[c]	-209 (-328, -90)	-300 (-448, -153)	-237 (-362, -111)	-372 (-508, -237)	-480 (-651, -309)	-498 (-674, -322)	-665 (-954, -377)	-496 (-699, -292)
DiD estimate	Ref.	Ref.	Ref.	-124	-231	-249	-417	-247
Unplanned hospital admissions, n	70,244	54,858	76,632	72,801	78,074	89,758	97,209	101,407
ACO[b] Observed, admissions per 100 enrollees	2.5	2.1	2.0	1.8	1.8	1.3	1.5	1.9
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.94 (0.86, 1.04)	0.96 (0.85, 1.08)	0.92 (0.83, 1.01)	0.90 (0.80, 1.00)	0.91 (0.82, 1.01)	0.79 (0.68, 0.90)	0.91 (0.78, 1.07)	0.84 (0.76, 0.93)
DiD estimate	Ref.	Ref.	Ref.	0.95	0.97	0.84	0.97	0.90
ED visits, n	70,244	54,858	76,632	72,801	78,074	89,758	97,209	101,407
ACO[b] Observed, ED visits per 100 enrollees	44.2	42.3	47.5	47.0	42.4	25.0	30.9	38.9
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.97 (0.95, 0.99)	0.95 (0.93, 0.97)	0.97 (0.95, 0.99)	0.97 (0.95, 0.99)	0.95 (0.93, 0.97)	0.91 (0.88, 0.94)	1.00 (0.96, 1.04)	0.99 (0.97, 1.01)
DiD estimate	Ref.	Ref.	Ref.	1.00	0.98	0.94	1.04	1.03

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	70,244	54,858	76,632	72,801	78,074	89,758	97,209	101,407
ACO[b] Observed, PC-sensitive ED visits per 100 enrollees	17.5	19.5	22.5	21.3	20.3	10.9	12.0	16.8
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	0.87 (0.85, 0.90)	0.96 (0.93, 1.00)	1.01 (0.98, 1.03)	0.89 (0.87, 0.92)	0.85 (0.82, 0.87)	0.86 (0.83, 0.89)	1.02 (0.97, 1.07)	0.95 (0.92, 0.97)
DiD estimate	Ref.	Ref.	Ref.	0.94	0.90	0.91	1.08	1.00
Readmissions, n	70,244	54,858	76,632	72,801	78,074	89,758	97,209	101,407
ACO[b] Observed, % of admissions	7.0	6.3	8.0	7.3	7.5	11.5	7.5	7.5
ACO[b] vs. MCO/PCCP, OR (95% CI)[c]	0.82 (0.53, 1.26)	1.09 (0.59, 2.02)	1.34 (0.82, 2.19)	0.74 (0.47, 1.15)	0.67 (0.43, 1.04)	1.11 (0.71, 1.73)	1.11 (0.48, 2.56)	0.80 (0.50, 1.30)
DiD estimate	Ref.	Ref.	Ref.	0.68	0.62	1.02	1.02	0.74

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO

[b] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[c] aIRRs and aORs from propensity-weighted generalized linear models

Table J-9 Subgroup Analysis Among Children Enrolled in Large[a] ACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	223,047	173,758	236,256	233,269	257,174	302,583	329,718	342,308
ACO[b] Observed, $ per person	$3,215	$3,227	$3,401	$3,382	$3,623	$3,170	$3,512	$3,742
ACO[b] vs. MCO/PCCP, cost difference (95% CI)[c]	33 (-75, 141)	-35 (-159, 89)	48 (-58, 154)	14 (-105, 133)	37 (-122, 197)	-30 (-182, 121)	-91 (-378, 196)	164 (3, 325)
DiD estimate	Ref.	Ref.	Ref.	-2	22	-46	-106	148
Unplanned hospital admissions, n	223,047	173,758	236,256	233,269	257,174	302,583	329,718	342,308
ACO[b] Observed, admissions per 100 enrollees	2.7	2.4	2.4	2.2	2.2	1.8	1.9	2.2
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.05 (0.97, 1.12)	1.08 (0.98, 1.18)	1.07 (0.99, 1.16)	1.13 (1.04, 1.23)	1.14 (1.05, 1.24)	1.09 (0.97, 1.22)	1.18 (1.02, 1.35)	1.08 (0.99, 1.18)
DiD estimate	Ref.	Ref.	Ref.	1.06	1.07	1.02	1.10	1.02
ED visits, n	223,047	173,758	236,256	233,269	257,174	302,583	329,718	342,308
ACO[b] Observed, ED visits per 100 enrollees	50.1	47.0	49.9	49.8	45.4	26.1	32.1	39.5
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.10 (1.08, 1.12)	1.06 (1.04, 1.08)	1.03 (1.01, 1.04)	1.03 (1.02, 1.05)	1.03 (1.01, 1.05)	0.99 (0.96, 1.01)	1.05 (1.02, 1.08)	1.04 (1.02, 1.07)
DiD estimate	Ref.	Ref.	Ref.	0.97	0.97	0.93	0.99	0.98

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	223,047	173,758	236,256	233,269	257,174	302,583	329,718	342,308
ACO[b] Observed, PC-sensitive ED visits per 100 enrollees	21.1	22.5	24.3	24.0	23.5	11.8	13.5	18.0
ACO[b] vs. MCO/PCCP, aIRR (95% CI)[c]	1.07 (1.05, 1.09)	1.12 (1.10, 1.15)	1.10 (1.08, 1.12)	1.02 (1.00, 1.04)	1.01 (0.99, 1.04)	0.98 (0.95, 1.01)	1.10 (1.06, 1.15)	1.06 (1.03, 1.09)
DiD estimate	Ref.	Ref.	Ref.	0.93	0.92	0.89	1.00	0.97
Readmissions, n	223,047	173,758	236,256	233,269	257,174	302,583	329,718	342,308
ACO[b] Observed, % of admissions	7.1	7.2	7.9	8.4	9.8	10.3	7.5	8.7
ACO[b] vs. MCO/PCCP, OR (95% CI)[c]	0.76 (0.54, 1.09)	1.13 (0.68, 1.89)	1.29 (0.87, 1.91)	0.91 (0.65, 1.30)	0.96 (0.66, 1.40)	0.86 (0.60, 1.22)	0.72 (0.35, 1.52)	0.90 (0.58, 1.39)
DiD estimate	Ref.	Ref.	Ref.	0.86	0.91	0.81	0.68	0.85

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] ACO size is based on an approximation of the number of covered lives in all risk contracts as reported to the HPC in ACO

[b] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[c] aIRRs and aORs from propensity-weighted generalized linear models

Table J-10 Subgroup Analysis Among Adults Enrolled in ACPPs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	188,177	146,949	201,553	195,422	218,811	256,727	280,310	290,906
ACO[a] Observed, $ per person	$3,240	$3,284	$3,465	$3,368	$3,600	$3,199	$3,447	$3,632
ACO[a] vs. MCO/PCCP, cost difference (95% CI)[b]	48 (-63, 159)	-3 (-129, 123)	113 (3, 224)	-7 (-127, 114)	-73 (-232, 86)	-209 (-362, -55)	-385 (-664, -105)	-236 (-396, -76)
DiD estimate	Ref.	Ref.	Ref.	-59	-126	-261	-437	-289
Unplanned hospital admissions, n	188,177	146,949	201,553	195,422	218,811	256,727	280,310	290,906
ACO[a] Observed, admissions per 100 enrollees	2.7	2.3	2.4	2.1	2.1	1.6	1.8	2.1
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.03 (0.96, 1.11)	1.04 (0.95, 1.14)	1.06 (0.98, 1.14)	1.05 (0.96, 1.14)	1.05 (0.97, 1.15)	0.93 (0.83, 1.05)	1.05 (0.91, 1.21)	0.94 (0.86, 1.02)
DiD estimate	Ref.	Ref.	Ref.	1.01	1.01	0.90	1.01	0.90
ED visits, n	188,177	146,949	201,553	195,422	218,811	256,727	280,310	290,906
ACO[a] Observed, ED visits per 100 enrollees	47.2	44.9	48.7	48.7	43.8	25.2	31.0	38.6
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.04 (1.02, 1.05)	1.01 (0.99, 1.03)	1.00 (0.98, 1.01)	1.00 (0.99, 1.02)	0.98 (0.97, 1.00)	0.93 (0.90, 0.95)	1.01 (0.98, 1.05)	0.98 (0.96, 1.00)
DiD estimate	Ref.	Ref.	Ref.	0.99	0.97	0.91	1.00	0.97

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	188,177	146,949	201,553	195,422	218,811	256,727	280,310	290,906
ACO[a] Observed, PC-sensitive ED visits per 100 enrollees[b]	19.2	20.9	23.1	21.9	20.7	10.4	11.6	16.3
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	0.97 (0.94, 0.99)	1.03 (1.01, 1.06)	1.04 (1.02, 1.06)	0.92 (0.90, 0.94)	0.87 (0.85, 0.89)	0.83 (0.80, 0.86)	0.97 (0.93, 1.01)	0.92 (0.90, 0.94)
DiD estimate	Ref.	Ref.	Ref.	0.91	0.86	0.82	0.96	0.91
Readmissions, n	188,177	146,949	201,553	195,422	218,811	256,727	280,310	290,906
ACO[a] Observed, % of admissions	6.9	6.6	8.7	8.0	9.4	9.8	7.7	8.1
ACO[a] vs. MCO/PCCP, OR (95% CI)[b]	0.76 (0.53, 1.09)	1.03 (0.62, 1.73)	1.43 (0.96, 2.12)	0.81 (0.57, 1.15)	0.88 (0.61, 1.29)	0.83 (0.58, 1.19)	0.91 (0.44, 1.90)	0.83 (0.54, 1.28)
DiD estimate	Ref.	Ref.	Ref.	0.75	0.82	0.77	0.85	0.77

Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

Table J-11 Subgroup Analysis Among Children Enrolled in PCACOs: Baseline (2015-2017) and Demonstration Period (2018-2022) Observed and Comparative Performance for TCOC and Select Healthcare Utilization Measures

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Total cost of care, n	118,002	91,138	122,450	121,507	128,022	149,548	161,962	168,849
ACO[a] Observed, $ per person	$2,980	$2,941	$3,053	$3,144	$3,382	$2,925	$3,349	$3,607
ACO[a] vs. MCO/PCCP, cost difference (95% CI)[b]	-193 (-306, -80)	-289 (-424, -154)	-281 (-392, -170)	-225 (-358, -93)	-153 (-332, 26)	-70 (-235, 95)	-54 (-369, 261)	345 (153, 537)
DiD estimate	Ref.	Ref.	Ref.	29	102	184	200	600
Unplanned hospital admissions, n	118,002	91,138	122,450	121,507	128,022	149,548	161,962	168,849
ACO[a] Observed, admissions per 100 enrollees	2.6	2.3	2.2	2.2	2.2	1.8	1.8	2.1
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.01 (0.93, 1.09)	1.06 (0.95, 1.17)	1.01 (0.92, 1.10)	1.11 (1.01, 1.21)	1.14 (1.04, 1.25)	1.15 (1.02, 1.30)	1.18 (1.02, 1.37)	1.17 (1.07, 1.28)
DiD estimate	Ref.	Ref.	Ref.	1.08	1.11	1.12	1.16	1.14
ED visits, n	118,002	91,138	122,450	121,507	128,022	149,548	161,962	168,849
ACO[a] Observed, ED visits per 100 enrollees	50.6	47.4	50.4	50.3	46.5	27.0	33.1	40.6
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.12 (1.10, 1.14)	1.07 (1.05, 1.09)	1.04 (1.03, 1.06)	1.05 (1.03, 1.07)	1.07 (1.05, 1.09)	1.04 (1.02, 1.07)	1.07 (1.03, 1.11)	1.11 (1.08, 1.13)
DiD estimate	Ref.	Ref.	Ref.	0.97	0.99	0.97	0.99	1.03

Measure	2015	2016	2017	2018	2019	2020	2021	2022
Primary care sensitive ED visits, n	118,002	91,138	122,450	121,507	128,022	149,548	161,962	168,849
ACO[a] Observed, PC-sensitive ED visits per 100 enrollees[b]	21.9	23.2	25.1	25.6	26.0	13.4	15.5	19.8
ACO[a] vs. MCO/PCCP, aIRR (95% CI)[b]	1.12 (1.09, 1.14)	1.17 (1.13, 1.20)	1.15 (1.12, 1.17)	1.10 (1.08, 1.13)	1.14 (1.11, 1.17)	1.13 (1.10, 1.17)	1.23 (1.18, 1.28)	1.20 (1.17, 1.23)
DiD estimate	Ref.	Ref.	Ref.	0.97	1.00	0.99	1.08	1.05
Readmissions, n	118,002	91,138	122,450	121,507	128,022	149,548	161,962	168,849
ACO[a] Observed, % of admissions	6.9	7.5	6.6	7.9	8.7	13.1	5.9	9.0
ACO[a] vs. MCO/PCCP, OR (95% CI)[b]	0.75 (0.50, 1.12)	1.24 (0.70, 2.19)	1.03 (0.66, 1.62)	0.99 (0.65, 1.51)	0.89 (0.58, 1.37)	1.06 (0.71, 1.59)	0.53 (0.22, 1.26)	0.98 (0.59, 1.64)
DiD estimate	Ref.	Ref.	Ref.	0.98	0.88	1.06	0.52	0.98

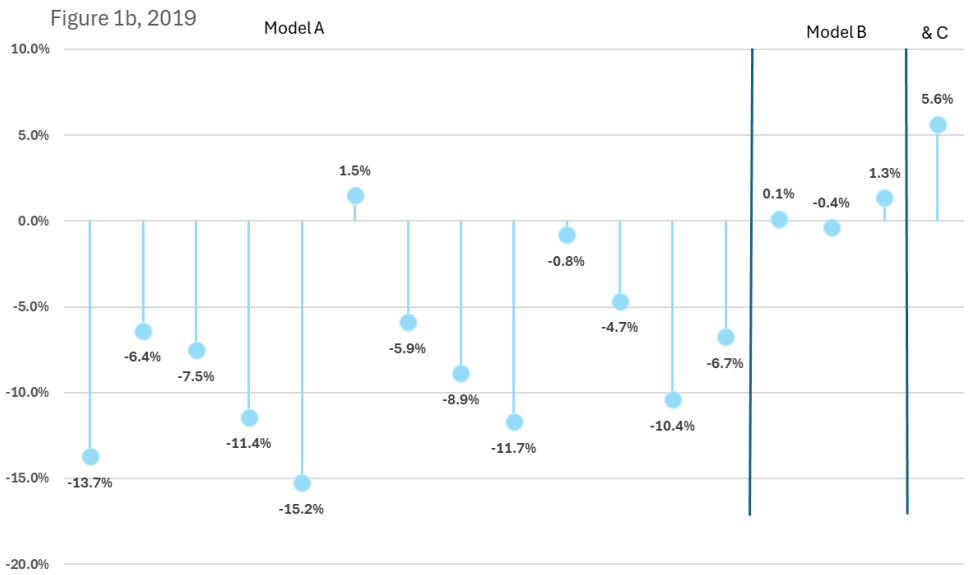
Abbreviations: ACO (accountable care organization), MCO (managed care organization), PCCP (primary care clinician plan), aOR (adjusted odds ratio), N/A (not available), OR (odds ratio); CI (confidence interval)

[a] During the baseline period (2015-2017) prior to the launch of the ACO program, MassHealth members were attributed to the ACO or MCO/PCCP groups based on where they would have been assigned had the ACO Program been in operation at that time.

[b] aIRRs and aORs from propensity-weighted generalized linear models

Appendix K: Tables and Figures for Domains 4 and 5

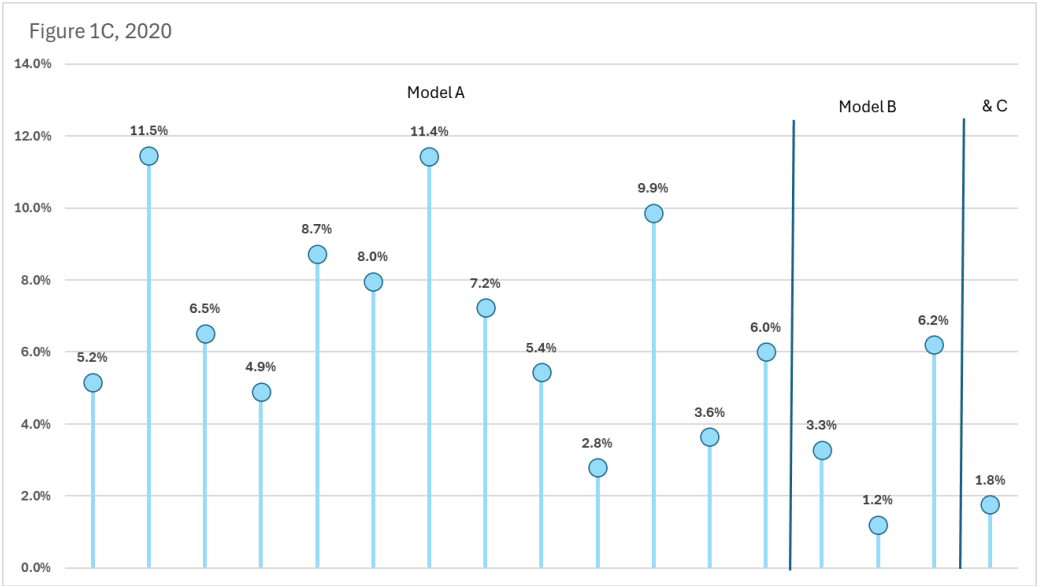
Figure K-1 Percentage Differences between ACO Expenditures Covered by Shared Risk Arrangements and Capitated Payments[a] for Model A ACOs and TCOC Benchmarks[b] for Model B and C ACOs, 2019



[a] Includes core medical, HCV high-cost drugs, non-HCV high-cost drugs, CBHI, ABA, and SUD

[b] Includes core medical and HCV high-cost drugs

Figure K-2 Percentage Differences between ACO Expenditures Covered by Shared Risk Arrangements and Capitated Payments[a] for Model A ACOs and TCOC Benchmarks[b] for Model B and C ACOs, 2020



[a] Includes core medical, HCV high-cost drugs, non-HCV high-cost drugs, CBHI, ABA, and SUD

[b] Includes core medical and HCV high-cost drugs

Table K-1 Total Capitation (Model A ACOs) or Total Cost of Care (TCOC) Benchmark (Model B+C ACOs) for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and Percentages of Total by Category, 2019

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	RC-II Adult Capitation / Benchmark (%)	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	SUD: Gain Capitation / Benchmark (%)	High Cost Drugs: Capitation / Benchmark (%)
Model A-1	$801,884	68.62%	23.99%	2.64%	0.86%	2.17%	0.73%	1.00%
Model A-2	$148,334	72.81%	18.79%	1.88%	1.50%	3.30%	0.87%	0.85%
Model A-3	$110,359	66.00%	26.83%	2.76%	0.74%	2.10%	0.81%	0.77%
Model A-4	$118,124	67.84%	25.52%	2.98%	0.59%	1.50%	0.83%	0.74%
Model A-5	$101,061	65.31%	28.52%	2.38%	0.59%	1.56%	0.97%	0.67%
Model A-6	$152,713	90.68%	0.00%	1.75%	1.56%	4.15%	0.71%	1.15%
Model A-7	$277,492	68.06%	23.44%	2.13%	1.15%	3.17%	0.78%	1.27%
Model A-8	$226,807	80.12%	10.85%	1.84%	1.86%	3.61%	0.75%	0.97%
Model A-9	$142,605	72.18%	18.25%	1.97%	1.47%	4.02%	0.87%	1.23%
Model A-10	$149,485	67.04%	23.33%	2.05%	1.54%	3.95%	0.83%	1.26%
Model A-11	$346,875	82.41%	0.74%	0.14%	4.26%	10.33%	0.10%	2.02%
Model A-12	$201,075	59.47%	33.39%	2.72%	0.54%	1.74%	1.09%	1.05%
Model A-13	$149,025	65.89%	25.77%	2.31%	0.98%	3.05%	0.83%	1.18%
Model B-1	$703,659	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
Model B-2	$657,921	75.51%	24.49%	N/A	N/A	N/A	N/A	N/A
Model B-3	$682,126	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
Model C	$102,874	54.74%	45.26%	N/A	N/A	N/A	N/A	N/A

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	RC-II Adult Capitation / Benchmark (%)	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	SUD: Gain Capitation / Benchmark (%)	High Cost Drugs: Capitation / Benchmark (%)
ACO Program	$5,072,417	79.49%	15.28%	1.20%	0.84%	2.10%	0.42%	0.66%

Table K-2 Total Capitation (Model A ACOs) or Total Cost of Care (TCOC) Benchmark (Model B+C ACOs) for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and Percentages of Total by Category, 2020

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	SUD: Gain Capitation / Benchmark (%)	High Cost Drugs: Capitation / Benchmark (%)
Model A-1	$989,889	93.29%	1.44%	0.88%	2.04%	1.42%	0.92%
Model A-2	$172,536	91.64%	0.97%	1.69%	3.31%	1.59%	0.80%
Model A-3	$133,744	93.24%	1.46%	0.82%	2.17%	1.51%	0.80%
Model A-4	$142,508	93.99%	1.59%	0.64%	1.47%	1.59%	0.72%
Model A-5	$129,389	94.49%	1.26%	0.57%	1.41%	1.69%	0.58%
Model A-6	$181,672	90.09%	0.96%	1.76%	4.26%	1.49%	1.44%
Model A-7	$321,439	91.92%	1.14%	1.24%	3.13%	1.50%	1.07%
Model A-8	$269,292	91.23%	0.93%	2.04%	3.49%	1.40%	0.91%
Model A-9	$178,037	91.11%	1.02%	1.48%	3.79%	1.58%	1.02%
Model A-10	$180,837	90.71%	1.16%	1.59%	3.74%	1.64%	1.17%
Model A-11	$431,562	81.94%	0.08%	4.73%	10.48%	0.23%	2.55%
Model A-12	$223,242	93.27%	1.49%	0.57%	1.75%	2.11%	0.81%
Model A-13	$171,993	92.07%	1.23%	1.07%	3.08%	1.58%	0.97%

ACO	Total Capitation / Benchmark	Core Medical: Capitation / Benchmark (%)	HCV: Gain Capitation / Benchmark (%)	ABA: Gain Capitation / Benchmark (%)	CBHI: Gain Capitation / Benchmark (%)	SUD: Gain Capitation / Benchmark (%)	High Cost Drugs: Capitation / Benchmark (%)
Total Model A	$3,526,140	91.14%	1.12%	1.59%	3.63%	1.38%	1.14%
ACO	**Total Capitation / Benchmark**	**RC I Child Benchmark (%)**	**RC I Adult Benchmark (%)**	**RC II Child Benchmark (%)**	**RC II Adult Benchmark (%)**	**RC IX and RC X Benchmark (%)**	
Model B-1	$810,150	15.64%	24.45%	2.41%	29.68%	27.82%	
Model B-2	$729,701	18.79%	21.73%	3.61%	28.46%	27.42%	
Model B-3	$715,871	17.67%	20.72%	3.94%	26.78%	30.90%	
Model C	$95,574	1.77%	23.48%	0.34%	28.69%	45.73%	
ACO Program	$5,877,437						

Table K-3 Total Spending[a] for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and by Category, 2019

ACO	Total Spending	Core Medical: Spending (%)	RC-II Adult Spending (%)	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUDI: Gain Spending (%)	High Cost Drugs: Spending (%)
Model A-1	$911,992	64.89%	25.46%	4.63%	0.57%	2.33%	1.73%	0.38%
Model A-2	$157,821	70.95%	21.73%	1.30%	1.16%	3.58%	0.81%	0.48%
Model A-3	$118,649	66.25%	28.01%	3.10%	0.50%	1.38%	0.72%	0.05%
Model A-4	$131,630	66.09%	28.93%	1.84%	0.53%	1.49%	0.68%	0.44%
Model A-5	$116,468	61.31%	33.94%	1.91%	0.25%	0.99%	0.85%	0.74%
Model A-6	$150,439	90.15%	0.00%	1.66%	3.13%	3.21%	0.64%	1.21%
Model A-7	$293,891	67.23%	25.37%	2.14%	1.18%	2.33%	0.84%	0.90%

ACO	Total Spending	Core Medical: Spending (%)	RC-II Adult Spending (%)	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUDI: Gain Spending (%)	High Cost Drugs: Spending (%)
Model A-8	$246,897	78.57%	13.18%	1.79%	0.72%	4.27%	0.97%	0.49%
Model A-9	$159,301	74.63%	21.02%	1.67%	0.37%	1.70%	0.26%	0.35%
Model A-10	$150,687	66.24%	24.36%	1.59%	1.76%	3.72%	0.45%	1.88%
Model A-11	$363,080	79.58%	0.72%	0.01%	5.71%	11.19%	0.08%	2.72%
Model A-12	$221,975	61.94%	33.30%	1.17%	0.94%	0.92%	0.41%	1.31%
Model A-13	$159,064	67.36%	25.19%	2.12%	1.01%	2.78%	0.58%	0.96%
Model B-1	$702,933	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
Model B-2	$660,482	76.67%	23.33%	N/A	N/A	N/A	N/A	N/A
Model B-3	$672,922	100.00%	N/A	N/A	N/A	N/A	N/A	N/A
Model C	$97,068	55.35%	44.65%	N/A	N/A	N/A	N/A	N/A
ACO Program	$5,315,298	78.19%	16.34%	1.45%	0.87%	2.06%	0.54%	0.55%

[a] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

Table K-4 Total Spending[a] for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and by Category, 2020

ACO	Total Spending	Core Medical: Spending (%)	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUDI: Gain Spending (%)	High Cost Drugs: Spending (%)
Model A-1	$938,848	93.31%	1.47%	0.65%	2.05%	2.01%	0.51%
Model A-2	$152,751	91.85%	0.63%	1.61%	3.99%	1.23%	0.70%
Model A-3	$125,025	96.01%	0.72%	0.82%	1.59%	0.76%	0.10%
Model A-4	$135,530	96.07%	0.68%	0.63%	1.31%	0.75%	0.57%
Model A-5	$118,106	95.80%	1.30%	0.26%	1.02%	1.24%	0.38%

ACO	Total Spending	Core Medical: Spending (%)	HCV: Gain Spending (%)	ABA: Gain Spending (%)	CBHI: Gain Spending (%)	SUDI: Gain Spending (%)	High Cost Drugs: Spending (%)
Model A-6	$167,200	90.62%	0.51%	3.50%	3.42%	0.80%	1.14%
Model A-7	$284,660	93.79%	0.68%	1.29%	2.24%	0.98%	1.02%
Model A-8	$249,833	91.26%	0.80%	0.74%	4.89%	1.50%	0.81%
Model A-9	$168,361	96.84%	0.51%	0.38%	1.30%	0.22%	0.76%
Model A-10	$175,793	91.76%	0.50%	1.34%	3.23%	0.44%	2.74%
Model A-11	$388,980	77.50%	0.03%	6.46%	10.75%	0.09%	5.17%
Model A-12	$215,116	95.86%	0.67%	0.55%	0.80%	0.53%	1.59%
Model A-13	$161,671	93.24%	0.88%	1.38%	2.82%	0.76%	0.92%

ACO	Total Spending	RC I Child Benchmark (%)	RC I Adult Benchmark (%)	RC II Child Benchmark (%)	RC II Adult Benchmark (%)	RC IX and RC X Benchmark (%)
Model B-1	$783,514	16.14%	25.45%	2.09%	29.95%	26.38%
Model B-2	$720,961	17.65%	21.82%	3.58%	29.82%	27.14%
Model B-3	$671,499	17.70%	21.05%	3.93%	27.00%	30.32%
Model C	$93,889	2.13%	23.19%	0.43%	27.72%	46.53%
ACO Program	$5,551,738					

[a] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

Table K-5 Shared Savings/Losses and Differences between Total Capitation (Model A ACOs) or TCOC Benchmark (Model B+C ACOs) and Total Expenditures for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and by Category, 2019

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	RC-II Adult Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)	High Cost Drugs: Gain or Loss (%)
Model A-1	$801,884	$911,992	-13.73%	-3.51%	-10.22%	-5.18%	-4.96%	-2.63%	0.21%	-0.48%	-1.24%	0.56%
Model A-2	$148,334	$157,821	-6.40%	-2.63%	-3.77%	-2.67%	-4.33%	0.50%	0.27%	-0.50%	0.01%	0.33%
Model A-3	$110,359	$118,649	-7.51%	-3.35%	-4.16%	-5.22%	-3.29%	-0.57%	0.20%	0.62%	0.04%	0.71%
Model A-4	$118,124	$131,630	-11.43%	-4.12%	-7.32%	-5.80%	-6.72%	0.93%	-0.01%	-0.16%	0.07%	0.26%
Model A-5	$101,061	$116,468	-15.24%	-4.35%	-10.90%	-5.34%	-10.60%	0.17%	0.29%	0.42%	-0.01%	-0.18%
Model A-6	$152,713	$150,439	1.49%	1.22%	0.27%	1.87%	0.00%	0.12%	-1.52%	0.98%	0.08%	-0.04%
Model A-7	$277,492	$293,891	-5.91%	-2.67%	-3.24%	-3.15%	-3.43%	-0.13%	-0.10%	0.70%	-0.12%	0.31%
Model A-8	$226,807	$246,897	-8.86%	-3.60%	-5.26%	-5.41%	-3.50%	-0.11%	1.08%	-1.03%	-0.31%	0.43%
Model A-9	$142,605	$159,301	-11.71%	-6.03%	-5.68%	-11.19%	-5.23%	0.11%	1.06%	2.12%	0.58%	0.84%
Model A-10[d]	$149,485	$150,687	-0.80%	-0.11%	-0.69%	0.27%	-1.23%	0.44%	-0.23%	0.19%	0.38%	-0.63%
Model A-11	$346,875	$363,080	-4.67%	-0.80%	-3.87%	-0.88%	-0.02%	0.13%	-1.72%	-1.38%	0.01%	-0.83%
Model A-12	$201,075	$221,975	-10.39%	-5.25%	-5.15%	-8.91%	-3.37%	1.43%	-0.50%	0.72%	0.64%	-0.40%
Model A-13	$149,025	$159,064	-6.74%	-3.48%	-3.25%	-6.01%	-1.12%	0.04%	-0.10%	0.08%	0.21%	0.16%
Model B-1	$703,659	$702,933	0.10%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	RC-II Adult Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)	High Cost Drugs: Gain or Loss (%)
Model B-2	$657,921	$660,482	-0.39%	0.18%	0.89%	-1.46%	1.07%	0.00%	0.00%	0.00%	0.00%	0.00%
Model B-3	$682,126	$672,922	1.35%	0.74%	0.61%	1.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Model C	$102,874	$97,068	5.64%	1.21%	4.28%	2.51%	3.13%	0.00%	0.00%	0.00%	0.00%	0.00%
ACO Program	$5,072,417	$5,315,298	-4.79%	-1.55%	-3.07%[e]	-2.45%	-1.84%	-0.31%	-0.07%	-0.05%	-0.15%	0.09%

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk sharing arrangements described in **Table 2.1-D1.3** and adjustments based on each ACO's quality score

[d] The sum of risk sharing amounts for the plan and MassHealth for this ACO are $5.421 million less than the difference between the total capitation minus total spending because MassHealth caps the amount of shared risk payments at $0 when ACOs would shift from shared losses to shared savings because of price normalization

[e] With the addition of the $5.421 million in savings that were capped as described in footnote (d) of this table, this total would equal -0.68%

Table K-6 Shared Savings/Losses and Differences between Total Capitation (Model A ACOs) or TCOC Benchmark (Model B+C ACOs) and Total Expenditures for Services with Risk-Sharing Arrangements among each of the 17 MassHealth ACOs, Overall and by Category, 2020

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)	High Cost Drugs: Gain or Loss (%)
Model A-1	$989,889	$938,848	5.16%	1.21%	3.94%	4.79%	0.05%	0.27%	0.10%	-0.49%	0.44%
Model A-2	$172,536	$152,751	11.47%	3.37%	8.10%	10.32%	0.42%	0.27%	-0.22%	0.50%	0.18%

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)	High Cost Drugs: Gain or Loss (%)
Model A-3	$133,744	$125,025	6.52%	1.71%	4.80%	3.49%	0.78%	0.06%	0.68%	0.80%	0.71%
Model A-4	$142,508	$135,530	4.90%	1.60%	3.25%	2.63%	0.95%	0.04%	0.22%	0.88%	0.18%
Model A-5	$129,389	$118,106	8.72%	3.51%	5.21%	7.05%	0.08%	0.33%	0.48%	0.55%	0.23%
Model A-6	$181,672	$167,200	7.97%	2.82%	5.14%	6.69%	0.49%	-1.46%	1.11%	0.75%	0.39%
Model A-7	$321,439	$284,660	11.44%	2.05%	9.40%	8.86%	0.54%	0.10%	1.14%	0.64%	0.16%
Model A-8	$269,292	$249,833	7.23%	2.90%	4.33%	6.57%	0.19%	1.35%	-1.05%	0.01%	0.16%
Model A-9	$178,037	$168,361	5.44%	-0.59%	6.02%	-0.46%	0.54%	1.13%	2.56%	1.37%	0.30%
Model A-10[d]	$180,837	$175,793	2.79%	0.38%	2.41%	1.51%	0.67%	0.29%	0.60%	1.21%	-1.50%
Model A-11	$431,562	$388,980	9.87%	1.56%	8.31%	12.08%	0.05%	-1.10%	0.79%	0.15%	-2.11%
Model A-12	$223,242	$215,116	3.64%	-0.29%	3.93%	0.90%	0.84%	0.04%	0.98%	1.59%	-0.72%
Model A-13	$171,993	$161,671	6.00%	1.16%	4.84%	4.42%	0.40%	-0.22%	0.43%	0.87%	0.10%

ACO	Total Capitation /Benchmark in Thousands	Total Spending in thousands	Difference: Gain or Loss (%)	Total plan share post-risk sharing and quality adjustment: Gain or Loss (%)	Total EOHHS share post-risk sharing and quality adjustment: Gain or Loss (%)	RC I Child Benchmark: Gain or Loss (%)	RC I Adult Benchmark: Gain or Loss (%)	RC II Child Benchmark: Gain or Loss (%)	RC II Adult Benchmark: Gain or Loss (%)	RC IX and RC X Benchmark: Gain or Loss (%)
Model B-1	$810,150	$783,514	3.29%	1.23%	2.06%	0.03%	-0.16%	0.39%	0.72%	2.30%

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Total EOHHS share post-risk sharing and quality adjustment: Gain or Loss[c] (%)	Core Medical: Gain or Loss (%)	HCV: Gain or Loss (%)	ABA: Gain or Loss (%)	CBHI: Gain (Loss)	SUD: Gain (Loss)	High Cost Drugs: Gain or Loss (%)
Model B-2	$729,701	$720,961	1.20%	0.00%	0.00%	1.35%	0.17%	0.07%	-1.00%	0.60%	
Model B-3	$715,871	$671,499	6.20%	2.70%	3.50%	1.06%	0.97%	0.25%	1.46%	2.45%	
Model C	$95,574	$93,889	1.76%	0.24%	1.21%	-0.32%	0.70%	-0.09%	1.46%	0.01%	
ACO Program	$5,877,437	$5,551,738	5.54%	1.42%	3.96%[e]						

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk sharing arrangements described in **Table 2.1-D1.3** and adjustments based on each ACO's quality score

[d] The sum of risk sharing amounts for the plan and MassHealth for this ACO are $5.421 million less than the difference between the total capitation minus total spending because MassHealth caps the amount of shared risk payments at $0 when ACOs would shift from shared losses to shared savings because of price normalization

[e] With the addition of the $5.421 million in savings that were capped as described in footnote (d) of this table, this total would equal -0.68%

Table K-7 Quality Scores by ACO and Changes in Shared Savings or Losses from based on Quality Score Adjustments, 2019

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c]	Plan share difference before and after quality adjustment Gain or Loss[c] (%)	State share difference before and after quality adjustment Gain or Loss[c] (%)
Model A-1	$801,884	$911,992	-13.73%	-4.35%	-9.38%	0.960	-3.51%	-10.22%	0.84%	-0.84%
Model A-2	$148,334	$157,821	-6.40%	-3.04%	-3.36%	0.669	-2.63%	-3.77%	0.41%	-0.41%

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing and-post quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c]	Plan share difference before and after quality adjustment Gain or Loss[c] (%)	State share difference before and after quality adjustment Gain or Loss[c] (%)
Model A-3	$110,359	$118,649	-7.51%	-4.20%	-3.32%	1.000	-3.35%	-4.16%	0.84%	-0.84%
Model A-4	$118,124	$131,630	-11.43%	-4.84%	-6.59%	0.746	-4.12%	-7.32%	0.72%	-0.72%
Model A-5	$101,061	$116,468	-15.24%	-5.02%	-10.22%	0.672	-4.35%	-10.90%	0.67%	-0.67%
Model A-6	$152,713	$150,439	1.49%	1.85%	-0.36%	0.665	1.22%	0.27%	-0.63%	0.63%
Model A-7	$277,492	$293,891	-5.91%	-3.16%	-2.75%	0.769	-2.67%	-3.24%	0.49%	-0.49%
Model A-8	$226,807	$246,897	-8.86%	-4.35%	-4.51%	0.858	-3.60%	-5.26%	0.75%	-0.75%
Model A-9	$142,605	$159,301	-11.71%	-7.36%	-4.34%	0.902	-6.03%	-5.68%	1.33%	-1.33%
Model A-10[d]	$149,485	$150,687	-0.80%	-0.13%	-0.68%	0.689	-0.11%	-0.69%	0.01%	-0.01%
Model A-11	$346,875	$363,080	-4.67%	-0.93%	-3.74%	0.722	-0.80%	-3.87%	0.13%	-0.13%
Model A-12	$201,075	$221,975	-10.39%	-6.05%	-4.34%	0.668	-5.25%	-5.15%	0.81%	-0.81%
Model A-13	$149,025	$159,064	-6.74%	-4.35%	-2.38%	0.992	-3.48%	-3.25%	0.87%	-0.87%
Model B-1	$703,659	$702,933	0.10%	0.00%	0.00%	0.856	0.00%	0.00%	0.00%	0.00%
Model B-2	$657,921	$660,482	-0.39%	0.24%	0.83%	0.745	0.18%	0.89%	-0.06%	0.06%
Model B-3	$682,126	$672,922	1.35%	1.15%	0.20%	0.642	0.74%	0.61%	-0.41%	0.41%
Model C	$102,874	$97,068	5.64%	1.50%	3.98%	0.805	1.21%	4.28%	-0.29%	0.29%
ACO Model	$5,072,417	$5,315,298	-4.79%	-1.82%	-2.80%[e]	0.786	-1.55%	-3.07%	0.27%	-0.27%

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk sharing arrangements described in **Table 2.1-D1.3** and adjustments based on each ACO's quality score

[d] The sum of risk sharing amounts for the plan and MassHealth for this ACO are $5.421 million less than the difference between the total capitation minus total spending because MassHealth caps the amount of shared risk payments at $0 when ACOs would shift from shared losses to shared savings because of price normalization

[e] With the addition of the $5.421 million in savings that were capped as described in footnote (d) of this table, this total would equal -0.68%

Table K-8 Quality Scores by ACO and Changes in Shared Savings or Losses from based on Quality Score Adjustments, 2020

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing andpost quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c]	Plan share difference before and after quality adjustment Gain or Loss[c] (%)	State share difference before and after quality adjustment Gain or Loss[c] (%)
Model A-1	$989,889	$938,848	5.16%	1.25%	3.91%	0.972	1.21%	3.94%	-0.03%	0.03%
Model A-2	$172,536	$152,751	11.47%	3.55%	7.92%	0.949	3.37%	8.10%	-0.18%	0.18%
Model A-3	$133,744	$125,025	6.52%	1.72%	4.80%	0.990	1.71%	4.80%	-0.02%	0.00%
Model A-4	$142,508	$135,530	4.90%	1.64%	3.25%	0.971	1.60%	3.25%	-0.05%	0.00%
Model A-5	$129,389	$118,106	8.72%	3.76%	4.96%	0.934	3.51%	5.21%	-0.25%	0.25%
Model A-6	$181,672	$167,200	7.97%	2.82%	5.14%	1.000	2.82%	5.14%	0.00%	0.00%
Model A-7	$321,439	$284,660	11.44%	2.26%	9.18%	0.904	2.05%	9.40%	-0.21%	0.21%
Model A-8	$269,292	$249,833	7.23%	2.93%	4.29%	0.990	2.90%	4.33%	-0.03%	0.03%
Model A-9	$178,037	$168,361	5.44%	-0.74%	6.17%	0.980	-0.59%	6.02%	0.15%	-0.15%
Model A-10[d]	$180,837	$175,793	2.79%	0.38%	2.41%	0.993	0.38%	2.41%	0.00%	0.00%
Model A-11	$431,562	$388,980	9.87%	1.65%	8.22%	0.949	1.56%	8.31%	-0.09%	0.09%
Model A-12	$223,242	$215,116	3.64%	-0.35%	3.99%	0.942	-0.29%	3.93%	0.06%	-0.06%

ACO	Total Capitation /Benchmark[a] in Thousands	Total Spending[b] in thousands	Difference: Gain or Loss (%)	Total plan share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and before equality adjustment: Gain or Loss[c] (%)	Quality Score	Total plan share post risk sharing andpost quality adjustment: Gain or Loss[c] (%)	Total state share post risk sharing and-post quality adjustment: Gain or Loss[c]	Plan share difference before and after quality adjustment Gain or Loss[c] (%)	State share difference before and after quality adjustment Gain or Loss[c] (%)
Model A-13	$171,993	$161,671	6.00%	1.16%	4.84%	1.000	1.16%	4.84%	0.00%	0.00%
Model B-1	$810,150	$783,514	3.29%	1.28%	2.00%	0.959	1.23%	2.06%	-0.05%	0.05%
Model B-2	$729,701	$720,961	1.20%	0.00%	0.00%	0.973	0.00%	0.00%	0.00%	0.00%
Model B-3	$715,871	$671,499	6.20%	2.88%	3.32%	0.938	2.70%	3.50%	-0.18%	0.18%
Model C	$95,574	$93,889	1.76%	0.28%	1.17%	0.862	0.24%	1.21%	-0.04%	0.04%
ACO Model	$5,877,437	$5,551,738	5.54%	1.48%	3.90%[e]	0.959	1.42%	3.96%	-0.06%	0.06%

[a] This column is the denominator for all percentages presented in the other columns of the table

[b] Expenditure values have been price normalized for plans receiving shared losses payments from MassHealth

[c] Shared savings and losses amounts reflect risk sharing arrangements described in **Table 2.1-D1.3** and adjustments based on each ACO's quality score

[d] The sum of risk sharing amounts for the plan and MassHealth for this ACO are $5.421 million less than the difference between the total capitation minus total spending because MassHealth caps the amount of shared risk payments at $0 when ACOs would shift from shared losses to shared savings because of price normalization

[e] With the addition of the $5.421 million in savings that were capped as described in footnote (d) of this table, this total would equal -0.

Appendix L: Tables for Domain 6

Table L-1 Select Characteristics of Adult FSP Enrollees and Referred but Not Enrolled Comparison Group Members

Population Characteristic	Nutrition Services[a] n=21,666		Nutrition Comparison[b] n=2,219		Tenancy Preservation[a] n=8,667		Tenancy Comparison[b] n=1,020	
Age at Start Date- mean (SD), median	35.7 (18.9)	38.0	33.4 (19.1)	33.7	38.8 (16.8)	40.7	38.4 (17.4)	40.6
Race Ethnicity- n, %								
Non-Hispanic Black	3,790	17.5%	401	18.1%	1,450	16.7%	124	12.2%
Non-Hispanic White	5,545	25.6%	889	40.1%	3,051	35.2%	330	32.4%
Native American	66	0.3%	Suppressed	<5%	36	0.4%	Suppressed	<5%
Asian/Pacific Islander	368	1.7%	Suppressed	<5%	102	1.2%	Suppressed	<5%
Hispanic	8,356	38.6%	439	19.8%	2,628	30.3%	370	36.3%
Missing	3,541	16.3%	457	20.6%	1,400	16.2%	185	18.1%
Education- n, %								
Child	4,660	21.5%	557	25.1%	1,082	12.5%	128	12.6%
Less than High School	2,849	13.2%	153	6.9%	1,272	14.7%	125	12.3%
High School Graduate	5,615	25.9%	452	20.4%	3,009	34.7%	307	30.1%
Some College/Associates Degree	2,075	9.6%	145	6.5%	966	11.2%	114	11.2%
Bachelors Degree or Higher	805	3.7%	64	2.9%	322	3.7%	39	3.8%
Missing	4,325	20.0%	750	33.8%	1,676	19.3%	236	23.1%
Other	1,337	6.2%	98	4.4%	340	3.9%	71	7.0%

Population Characteristic	Nutrition Services[a] n=21,666		Nutrition Comparison[b] n=2,219		Tenancy Preservation[a] n=8,667		Tenancy Comparison[b] n=1,020	
Gender- n, %								
Women	12,617	58.2%	1,218	54.9%	4,774	55.1%	534	52.4%
Men	8,283	38.2%	971	43.8%	3,685	42.5%	440	43.1%
Other	188	0.9%	11	0.5%	70	0.8%	Suppressed	<5%
Missing	578	2.7%	19	0.9%	138	1.6%	Suppressed	<5%
Language- n, %								
English	12,961	59.8%	1,701	76.7%	6,283	72.5%	678	66.5%
Spanish	6,432	29.7%	367	16.5%	1,759	20.3%	297	29.1%
Other	2,273	10.5%	151	6.8%	625	7.2%	45	4.4%
Employment- n, %								
Student	5,064	23.4%	597	26.9%	1,123	13.0%	141	13.8%
Employed Full Time	1,959	9.0%	178	8.0%	838	9.7%	108	10.6%
Employed Part Time	1,979	9.1%	190	8.6%	808	9.3%	102	10.0%
Not in Labor Force	2,957	13.7%	234	10.6%	1,568	18.1%	148	14.5%
Unemployed	7,415	34.2%	548	24.7%	3,630	41.9%	365	35.8%
Prefer Not to Say/Other	2,292	10.6%	472	21.3%	700	8.0%	156	15.3%
Cost and Utilization 6-Months Baseline- mean (SD), median								
TCOC, $ (SD)	13,270.3 (24,772.5)	4,732.8	11,906.9 (22,542.1)	3,304.7	16,504.2 (30,224.3)	6,481.2	12,965.6 (22,491.2)	3,845.0
Emergency Department Admissions	0.3 (1.0)	0	0.2 (0.9)	0	0.4 (1.4)	0	0.4 (1.4)	0

Population Characteristic	Nutrition Services[a] n=21,666		Nutrition Comparison[b] n=2,219		Tenancy Preservation[a] n=8,667		Tenancy Comparison[b] n=1,020	
Inpatient Hospitalizations	0.5 (1.9)	0	0.6 (1.9)	0	0.9 (2.8)	0	0.9 (2.7)	0
Primary Care Visits	5.0 (5.1)	4	3.8 (4.2)	3	5.6 (5.9)	4	4.3 (4.6)	3
NSS - mean (SD), median	0.9 (3.5)	0.3	0.6 (3.5)	0.0	0.7 (2.9)	0.2	0.7 (2.9)	0.4
Homeless- n, %	1,393	6.4%	154	6.9%	3,228	37.2%	319	31.3%
At Risk of Homelessness- n, %	3,284	15.2%	253	11.4%	5,925	68.4%	706	69.2%
Nutrition Deficiency- n, %	21,587	99.6%	2,219	100%	4,132	47.7%	491	48.1%

[a] 3,765 members fell into both the nutrition and tenancy preservation services groups
[b] 169 members are in both the nutrition and tenancy preservation comparison groups.

Table L-2 Select Characteristics of Pediatric FSP Enrollees and Referred but Not Enrolled Comparison Group Members

Population Characteristic	Nutrition Services[b] n= 5,409		Nutrition Comparison[b] n= 634		Tenancy Preservation[b] n=1,259		Tenancy Comparison[b] n=160	
Age at Start Date- mean (SD), median	9.4 (4.9)	9.4	9.4 (5.0)	9.3	8.8 (4.8)	8.3	9.1 (4.7)	9
Race Ethnicity- n, %								
Non-Hispanic Black	867	16.0%	140	22.1%	186	14.8%	22	13.8%
Non-Hispanic White	674	12.5%	186	29.3%	208	16.5%	26	16.3%
Hispanic	2,807	51.9%	103	16.3%	591	46.9%	77	48.1%
Missing	999	18.5%	199	31.4%	258	20.5%	35	21.9%
Gender- n, %								

Population Characteristic	Nutrition Services[b] n= 5,409		Nutrition Comparison[b] n= 634		Tenancy Preservation[b] n=1,259		Tenancy Comparison[b] n=160	
Female	2,258	41.8%	275	43.4%	509	40.4%	63	39.4%
Male	2,913	53.9%	357	56.3%	706	56.1%	90	56.3%
Language- n, %								
English	2,740	50.7%	479	75.6%	776	61.6%	103	64.4%
Spanish	2,016	37.3%	93	14.7%	356	28.3%	53	33.1%
6-months Prior to Start Date- mean (SD), median								
Total Costs of Care, in dollars	6,321.8 (18,811.3)	1,298.7	5,629.6 (12,949.4)	1,309.9	7,667.4 (24,549.6)	1,558.4	3,993.0 (7,687.9)	1,129.8
Emergency Department Admissions	0.2 (0.6)	0	0.3 (0.9)	0	0.2 (0.7)	0	0.2 (0.6)	0
Inpatient Hospitalizations	0.1 (0.9)	0	0.1 (1.1)	0	0.2 (0.9)	0	0.2 (1.6)	0
Primary Care Visits	2.6 (2.9)	2	2.6 (2.9)	2	2.8 (3.2)	2	2.0 (2.3)	1
NSS- mean (SD), median	1.1 (3.3)	0.5	0.6 (2.6)	0	1.5 (3.3)	0.9	1.1 (2.5)	1
Homeless- n, %	120	2.2%	15	2.4%	269	21.4%	27	16.9%
At Risk of Homelessness- n, %	526	9.7%	51	8.0%	1,050	83.4%	134	83.8%
Nutrition Deficiency- n, %	5,400	99.8%	634	100%	595	47.3%	92	57.5%

[a] Comparison group is drawn from ACO members referred but not enrolled in Flexible Services. Data includes Q1 of 2023 and excludes infants <1 year old.
[b] 529 members fell into both the nutrition and tenancy preservation services groups; 29 members are in both the nutrition and tenancy preservation comparison groups.

Table L-3 Select Weighted Characteristics of BH CP Enrollees and Referred but Not Enrolled Comparison Group Members, 2019-2022

	2019		2020		2021		2022	
Variable	**MCO/PCC Not CP**	**ACO + BH CP**	**MCO/PCC Not CP**	**ACO + BH CP**	**MCO/PCC Not CP**	**ACO + BH CP**	**MCO/PCC Not CP**	**ACO + BH CP**
Number of members (weighted)	14,151	7,751	14,532	7,951	5,445	6,313	15,431	13,039
BH CP Assignment Group, %								
Highest need BH diagnosis	36.7	36.7	35.3	35.3	31.3	31.3	28.7	28.7
High need BH diagnosis	62.6	62.6	63.6	63.6	63.8	63.8	57.8	57.8
SUD diagnosis	59.4	59.4	57.5	57.5	52.8	52.8	58.5	58.5
Baseline utilization, %								
Hospital admissions%								
1 admission	16.3	16.3	15.5	15.5	14.7	14.7	14.2	14.2
2 admissions	5.8	5.8	6.4	6.4	5.0	5.0	5.5	5.5
3 admissions	3.4	3.4	3.1	3.1	2.5	2.5	2.9	2.9
4 admissions	1.7	1.7	1.5	1.5	1.3	1.3	1.5	1.5
5 or more admissions	4.3	4.3	3.9	3.9	3.9	3.9	3.3	3.3
Baseline ED Visits, %								
1 visit	20.4	20.4	20.4	20.4	21.9	21.9	21.5	21.5
2 visit	14.9	14.9	13.6	13.6	12.6	12.6	13.4	13.4
3 visit	9.9	9.9	9.1	9.1	8.0	8.0	8.2	8.2
4 visit	6.3	6.3	6.5	6.5	5.1	5.1	4.8	4.8
5 or more visit	20.8	20.8	20.5	20.5	16.0	16.0	14.0	14.0

	2019		2020		2021		2022	
Baseline TCOC, mean $	33,323	33,323	33,268	33,268	31,520	31,520	33,035	33,035
NSS, mean	1.07	1.07	1.07	1.07	1.04	1.04	1.02	1.02
Disability Status, %								
Client of DMH	5.3	5.3	4.8	4.8	4.2	4.2	4.3	4.3
Client of DDS and not DMH	3.1	3.1	3.2	3.2	2.5	2.5	2.7	2.7
Other Disability	40.9	40.9	38.4	38.4	39.9	39.9	30.6	30.6
Housing Status, %								
Homeless	10.1	10.1	8.6	8.6	8.6	8.6	6.5	6.5
3+ addresses and not homeless	14.2	14.2	11.1	11.1	12.6	12.6	11.1	11.1

Table L-4 Select Weighted Characteristics of LTSS CP Enrollees and Referred but Not Enrolled Comparison Group Members, 2019-2022

	2019		2020		2021		2022	
Variable	**MCO/PCC Not CP**	**ACO + LTSS CP**	**MCO/PCC Not CP**	**ACO + LTSS CP**	**MCO/PCC Not CP**	**ACO + LTSS CP**	**MCO/PCC Not CP**	**ACO + LTSS CP**
Number of members (weighted)	43,111	2,723	39,938	2,743	15,079	2,276	43,396	3,324
Baseline TCOC, mean $	45,002	45,002	40,280	40,280	33,730	33,730	40,273	40,273
>$300 LTSS spending for at least 3 consecutive months, %	73.8	73.8	59.9	59.9	50.6	50.6	46.4	46.4
Baseline LTSS Spending, %	16,803	16,803	13,581	13,581	11,721	11,721	11,861	11,861
NSS, mean	1.33	1.33	1.32	1.32	1.16	1.16	1.34	1.34
Disability Status, %								
Client of DMH	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.6
Client of DDS and not DMH	28.3	28.3	29.1	29.1	20.2	20.2	20.9	20.9

Other Disability	55.3	55.3	45.5	45.5	44.6	44.6	39.1	39.1
Housing Status, %								
Homeless	1.6	1.6	1.4	1.4	2.0	2.0	1.6	1.6
3+ addresses and not homeless	10.5	10.5	8.4	8.4	10.6	10.6	8.9	8.9

Appendix M: Supplemental Analyses for the FS Program

Analyses of Adult Members with Behavioral Health (BH) Conditions Receiving FS Program Tenancy Preservation Supports Versus Adult Members with BH Conditions Assessed as Eligible That Did Not Receive FS Program Tenancy Preservation Supports

These analyses are specific to Adult FS program enrollees (≥18) diagnosed with a BH condition (defined as DxCG identified conditions of drug abuse, alcohol abuse, personality disorders, other mental health disorders, psychosis, eating disorders, mood and anxiety disorders, suicide attempts, bipolar disorders, major depression, depression, anxiety disorders, other anxiety, or was referred to the Flexible Services tenancy preservation service because of a BH condition) whose first period of FS enrollment was in tenancy preservation services. The comparison group comprised adult ACO members with a BH condition who were referred but did not receive FS tenancy preservation supports. These analyses focused on the first uninterrupted period of continuous enrollment for each member receiving FS tenancy preservation supports, with start dates ranging from January 2020 to March 2023. Subgroup analyses were performed among FS enrollees who started their FS enrollment during performance years (PY) 3 through 4 and PY5 to evaluate program effects both during and after the early FS implementation period and the peak of the COVID-19 pandemic.

Table M-1 Population Characteristics of Adults with Behavioral Health (BH) Conditions receiving Flexible Services Tenancy Preservation Supports and Comparison Group Members, 2020-2022

Population Characteristic	Tenancy Preservation n=6,581		Comparison n=733	
Age at Start Date- mean (SD), median[a]	43.8 (12.1)	44.3	43.6 (12.7)	44.6
Race Ethnicity- n, %				
Non-Hispanic Black	1,102	16.8%	95	13.0%
Non-Hispanic White	2,743	41.7%	294	40.1%
Native American	33	0.5%	3	0.4%
Asian/Pacific Islander	67	1.0%	5	0.7%
Hispanic	1,649	25.1%	207	28.2%
Missing	987	15.0%	129	17.6%
Education- n, %[b]				
Less than High School	1,103	16.8%	101	13.8%
High School Graduate	2,616	39.8%	248	33.8%
Some College/Associates Degree	875	13.3%	97	13.2%
Bachelors Degree or Higher	286	4.4%	34	4.6%
Missing	1,435	21.8%	194	26.5%
Other	215	3.3%	47	6.4%
Gender- n, %				
Female	3,768	57.3%	398	54.3%
Male	2,668	40.5%	299	40.8%
Other	54	0.8%	3	0.4%
Missing	91	1.4%	33	4.5%
Language- n, %				
English	5,124	77.9%	530	72.3%

Spanish	1,070	16.3%	169	23.1%
Other	387	5.9%	34	4.6%
Employment- n, %				
Student	61	0.9%	15	2.1%
Employed Full Time	693	10.5%	72	9.8%
Employed Part Time	662	10.1%	66	9.0%
Not in Labor Force	1,351	20.5%	135	18.4%
Unemployed	3,223	49.0%	318	43.4%
Prefer Not to Say/Other	591	9.0%	127	17.3%
6-months Prior to Start Date- mean (SD), median				
Total Costs of Care, in dollars	18,951.7 (31,685.0)	8,577.8	16,068.3 (24,783.4)	5,924.0
Emergency Department Admissions	1.3 (2.5)	0	1.4 (3.0)	0
Inpatient Hospitalizations	1.1(3.1)	0	1.1 (3.0)	0
Primary Care Visits	6.2 (6.4)	5	5.0 (5.0)	4
NSS7- mean (SD), median	0.5 (2.8)	0	0.6 (3.1)	0.2
DxCG- mean (SD), median	9.7 (10.0)	6.3	8.4 (9.5)	4.9
Homeless- n, %	2,774	42.2%	272	37.1%
At Risk of Homelessness- n, %	4,216	64.1%	464	63.3%
Nutrition Deficiency- n, %	3,094	47.0%	314	42.8%
Enrolled with a CP- n, %	2,585	39.3%	218	29.7%
COVID-19 infection in year prior- n,%	631	9.6	56	7.6

[a] 23 exposed members and 8 comparison group members missing age

[b] 51 tenancy preservation members and 12 members in the comparison group coded as "child" in the education variable

Table M-2 Comparisons of TCOC, Inpatient Admissions, ED Visits, and Primary Care Visits Among Adult Members with Behavioral Health (BH) Conditions Receiving FS Program Tenancy Preservation Supports Versus Adult Members with BH Conditions Assessed as Eligible That Did Not Receive FS Program Tenancy Preservation Supports

Flexible Services Program Domain	Population	Outcome	Sample Size[a]	Estimate (95% CI)[b]
Tenancy Preservation	Adult BH Participants during full waiver period	Total costs of care, $	Treatment: N=6,581 Comparison: N=733	-2,207[c] (-4,411, -2)
Tenancy Preservation	Adult BH Participants during COVID (PY3 and PY4)	Total costs of care, $	Treatment: N=3,366 Comparison: N= 368	284 (-3,115, 3,682)
Tenancy Preservation	Adult BH Participants post COVID in PY5 (2022-2023)	Total costs of care, $	Treatment: N=3,215 Comparison: N=365	-4,724[c] (-7,509, -1,940)
Tenancy Preservation	Adult BH Participants during full waiver period	Inpatient hospitalizations, incidence rate ratio	Treatment: N=6,581 Comparison: N=733	0.85[c] (0.72, 0.99)

Tenancy Preservation	Adult BH Participants during COVID (PY3 and PY4)	Inpatient hospitalizations, incidence rate ratio	Treatment: N=3,366 Comparison: N= 368	0.86 (0.70, 1.06)
Tenancy Preservation	Adult BH Participants post COVID in PY5 (2022-2023)	Inpatient hospitalizations, incidence rate ratio	Treatment: N=3,215 Comparison: N=365	0.76[c] (0.59, 0.99)
Tenancy Preservation	Adult BH Participants during full waiver period	Emergency department admissions, incidence rate ratio	Treatment: N=6,581 Comparison: N=733	0.83[c] (0.72, 0.96)
Tenancy Preservation	Adult BH Participants during COVID (PY3 and PY4)	Emergency department admissions, incidence rate ratio	Treatment: N=3,366 Comparison: N= 368	0.92 (0.76-1.13)
Tenancy Preservation	Adult BH Participants post COVID in PY5 (2022-2023)	Emergency department admissions, incidence rate ratio	Treatment: N=3,215 Comparison: N=365	0.75[c] (0.62, 0.91)
Tenancy Preservation	Adult BH Participants during full waiver period	Primary Care-Sensitive ED Visits, incidence rate ratio	Treatment: N=6,581 Comparison: N=733	0.76[c] (0.63, 0.91)
Tenancy Preservation	Adult BH Participants during COVID (PY3 and PY4)	Primary Care-Sensitive ED Visits, incidence rate ratio	Treatment: N=3,366 Comparison: N= 368	0.91 (0.67, 1.23)
Tenancy Preservation	Adult BH Participants post COVID in PY5 (2022-2023)	Primary Care-Sensitive ED Visits, incidence rate ratio	Treatment: N=3,215 Comparison: N=365	0.62[c] (0.48, 0.80)
Tenancy Preservation	Adult BH Participants during full waiver period	Primary Care Visits, incidence rate ratio	Treatment: N=6,581 Comparison: N=733	1.01 (0.99, 1.04)
Tenancy Preservation	Adult BH Participants during COVID (PY3 and PY4)	Primary Care Visits, incidence rate ratio	Treatment: N=3,366 Comparison: N= 368	1.02 (0.98, 1.06)
Tenancy Preservation	Adult BH Participants post COVID in PY5 (2022-2023)	Primary Care Visits, incidence rate ratio	Treatment: N=3,215 Comparison: N=365	0.98 (0.94, 1.01)

Abbreviations: aIRR (adjusted incidence rate ratio), N/E (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department), FS (Flexible Services)

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting FS and during FS Program enrollment. Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and year of enrollment in the FS program; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS7), experiencing food insecurity, and enrollment with a CP; 3) histories of health care utilization including medical risk score (DxCG) and medication use (RxCG) in the year prior to FSP start dates, COVID-19 infection diagnosed in the year prior to the start date, plus total costs of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to FSP start date; and, 4) diagnostic histories from claims in the year prior to FSP stat date, including cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders , suicide attempts, psychoses, eating disorders, dipolar disorder, depression, anxiety, other mental health conditions, high-risk

pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, miscarriage, or a noted disability. ; and 5) random effects for MassHealth region For primary-care sensitive ED visit analyses, history of primary-care sensitive ED visits in the year prior to FSP start dates was incorporated into the model in place of history of ED visits in the year prior to FSP start dates.

[b] Comparison groups are comprised of adult members with a BH condition who were referred but did not receive tenancy preservation supports. Some members who serve in the nutrition treatment group may be in the tenancy preservation comparison group if they were referred to tenancy preservation services and not enrolled or referred to both tenancy preservation and nutrition services but received nutrition services first.

[c] $p<0.05$

Table M-3 Crude Rates of Total Costs of Care and Healthcare Utilization among Flexible Services Program Participants and Comparison Group Members

Flexible Services Domain	Outcome	Pre-Period Measurement, Mean (SD)	Program Period Measurement, Mean (SD)	Estimate (95% CI)[b]
Housing	Total Costs of Care	Treatment: $16,504 (30,224) Comparison: $12,965 (22,491)	Treatment: $10,960 (30,788) Comparison: $9,890 (26,995)	-$2,468 (-4,541, -649)
Housing	Inpatient Hospitalizations	Treatment: 0.93 (2.80) Comparison: 0.87 (2.69)	Treatment: 0.50 (2.00) Comparison: 0.62 (3.00)	0.85 (0.79, 0.91)
Housing	ED Visits	Treatment: 1.14 (2.24) Comparison: 1.10 (2.60)	Treatment: 0.62 (1.69) Comparison: 0.75 (3.09)	0.88 (0.83, 0.93)
Housing	Primary Care Sensitive ED Visits	Treatment: 0.40 (0.89) Comparison: 0.42 (1.13)	Treatment: 0.22 (0.68) Comparison: 0.26 (0.86)	0.91 (0.80, 1.02)
Nutrition	Total Costs of Care	Treatment: $13,100 (24,772) Comparison: $12,057 (22,542)	Treatment: $9,528 (26,575) Comparison: $9,773 (23,837)	-$1,400 (-2,396, -405)
Nutrition	Inpatient Hospitalizations	Treatment: 0.53 (1.89) Comparison: 0.56 (1.89)	Treatment: 0.32 (1.51 Comparison: 0.58 (3.07)	0.69 (0.66, 0.74)
Nutrition	ED Visits	Treatment: 0.78 (1.01) Comparison: 0.74 (0.94)	Treatment: 0.49 (1.12) Comparison: 0.60 (1.23)	0.86 (0.82, 0.90)
Nutrition	Primary Care Sensitive ED Visits	Treatment: 0.30 (0.78) Comparison: 0.22 (0.70)	Treatment: 0.19 (0.64) Comparison: 0.15 (0.62)	0.97 (0.94, 0.99)
Medically Tailored Meals	Total Costs of Care	Treatment: $16,306 (27,758) Comparison: $12,155 (22,638)	Treatment: $12,531 (28,492) Comparison: $9,973 (23,746)	-$1,694 (-3,133, -256)
Medically Tailored Meals	Inpatient Hospitalizations	Treatment: 0.62 (1.71) Comparison: 0.57 (1.91)	Treatment: 0.39 (1.81) Comparison: 0.56 (3.07)	0.74 (0.69, 0.79)

Medically Tailored Meals	ED Visits	Treatment: 0.90 (1.82) Comparison: 0.93 (1.89)	Treatment: 0.74 (2.18) Comparison: 1.01 (2.76)	0.72 (0.64, 0.78)
Medically Tailored Meals	Primary Care Sensitive ED Visits	Treatment: 0.31 (0.68) Comparison: 0.22 (0.70)	Treatment: 0.18 (0.68) Comparison: 0.15 (0.62)	0.92 (0.81, 1.04)

This table reports unadjusted healthcare utilization rates and total costs of care in the 6 months prior to FS enrollment and during FS enrollment for both participants and the comparison group. Crude rates reflect analyses without any of the covariates used in the propensity score models for the FS analyses described in Domain 6.

Table M-4 Comparisons of TCOC, Inpatient Admissions, and ED Visits Among Members Receiving FS Program Nutrition Supports Versus Members Assessed as Eligible That Did Not Receive FS Program Nutrition Supports, Stratified by Adult and Children Members

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
Adults	PY3-PY5	TCOC, $	Treatment: N=15,557 Comparison: N=1,497	-$1,178 (-2,759, 402)
Children	PY3-PY5	TCOC, $	Treatment: N=4.846 Comparison: N=611	$234 (-1,111, 1,579)
Adults	PY3-PY5	Inpatient hospitalization, aIRR	Treatment: N=15,557 Comparison: N=1,497	0.78 (0.67, 0.91)[c]
Children	PY3-PY5	Inpatient hospitalization, aIRR	Treatment: N=4.846 Comparison: N=611	0.68 (0.23, 1.99)
Adults	PY3-PY5	ED visits, aIRR	Treatment: N=15,557 Comparison: N=1,497	0.85 (0.78, 0.94)[c]
Children	PY3-PY5	ED visits, aIRR	Treatment: N=4.846 Comparison: N=611	1.09 (0.84, 1.41)
Adults	PY3-PY5	Primary care sensitive ED visits, aIRR	Treatment: N=15,557 Comparison: N=1,497	0.97 (0.82, 1.16)
Children	PY3-PY5	Primary care sensitive ED visits, aIRR	Treatment: N=4.846 Comparison: N=611	1.00 (0.95, 1.04)

Abbreviations: aIRR (adjusted incidence rate ratio), NE (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department), FS (Flexible Services).

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting the FS Program and during FS Program enrollment. Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights

applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The adult propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and employment; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS7), experiencing food insecurity, having a disability, and participating on the Community Partners program; 3) histories of health care utilization including a diagnosis-based medical complexity summary score (DxCG) and a pharmacy-based medical complexity summary score (RxCG) in the year prior to the FS Program start date, plus total costs of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to the FS Program start date; 4) diagnostic histories from claims in the year prior to the FS Program start date, including cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders, suicide attempts, psychoses, eating disorders, bipolar disorder, depression, anxiety, other mental health conditions, high-risk pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, miscarriage, and COVID-19 diagnosis; and 5) random effects for ACO.

The children propensity score model included the same components as the adult model, except that diagnostic histories were limited to asthma, hypertension, nutritional deficiency, excess weight, mood and anxiety disorders, depression, major depression, bipolar disorder, and other mental health conditions.

[b] Comparison groups comprised members who were referred but not enrolled. There are distinct comparison groups for housing and nutrition, but they are not mutually exclusive. It's possible to be in both the nutrition and housing comparison groups. In addition, some members serve in the housing treatment group and nutrition comparison group, and vice versa, depending on which programs they were referred to and which programs ultimately contacted and enrolled them in services.

[c] P<0.05

Table M-5 Comparisons of TCOC, Inpatient Admissions, and ED Visits Among Members Receiving FS Program Tenancy Preservation Supports Versus Members Assessed as Eligible That Did Not Receive FS Program Tenancy Preservation Supports, Stratified by Adult and Children Members

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
Adult	PY3-PY5	Total costs of care, $	Treatment: N=7,408 Comparison: N= 860	-2,123[c] (-4,138.3, -137.0)
Children	PY3-PY5	Total costs of care, $	Treatment: N=1,259 Comparison: N=160	1,439.3 (-1027.1, 3,905.7)
Adult	PY3-PY5	Inpatient hospitalizations, incidence rate ratio	Treatment: N=7,408 Comparison: N=860	0.84[c] (0.71, 0.99)
Children	PY3-PY5	Inpatient hospitalizations, incidence rate ratio	Treatment: N=1,259 Comparison: N=160	0.39 (0.07, 2.06)
Adult	PY3-PY5	Emergency department admissions, incidence rate ratio	Treatment: N=7,408 Comparison: N=860	0.69[c] (0.51, 0.92)
Children	PY3-PY5	Emergency department admissions, incidence rate ratio	Treatment: N=1,259 Comparison: N=160	0.83 (0.43, 1.60)
Adult	PY3-PY5	Primary Care-Sensitive ED Visits, incidence rate ratio	Treatment: N=7,408 Comparison: N=860	0.75[c] (0.63, 0.89)
Children	PY3-PY5	Primary Care-Sensitive ED	Treatment: N=1,259	0.87 (0.50, 1.54)

		Visits, incidence rate ratio	Comparison: N=160	

Abbreviations: aIRR (adjusted incidence rate ratio), N/E (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department), FS (Flexible Services).

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting the FS Program and during FS Program enrollment. Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The adult propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and employment; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS7), experiencing food insecurity, having a disability, and participating on the Community Partners program; 3) histories of health care utilization including a diagnosis-based medical complexity summary score (DxCG) and a pharmacy-based medical complexity summary score (RxCG) in the year prior to the FS Program start date, plus total costs of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to the FS Program start date; 4) diagnostic histories from claims in the year prior to the FS Program start date, including cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders, suicide attempts, psychoses, eating disorders, bipolar disorder, depression, anxiety, other mental health conditions, high-risk pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, miscarriage, and COVID-19 diagnosis; and 5) random effects for MassHealth region.

The children propensity score model included the same components as the adult model, except that diagnostic histories were limited to asthma, hypertension, nutritional deficiency, excess weight, mood and anxiety disorders, depression, major depression, bipolar disorder, and other mental health conditions.

[b] Comparison groups comprised members who were referred but not enrolled. There are distinct comparison groups for tenancy preservation and nutrition, but they are not mutually exclusive. It's possible to be in both the nutrition and tenancy preservation comparison groups. In addition, some members serve in the tenancy preservation treatment group and nutrition comparison group, and vice versa, depending on which programs they were referred to and which programs ultimately contacted and enrolled them in services.

[c] $P<0.05$

Table M-6 Comparisons of TCOC, Inpatient Admissions, and ED Visits Among Members Receiving FS Program Nutrition Supports for >90 days Versus Members Assessed as Eligible That Did Not Receive FS Program Nutrition Supports, Stratified by Adult and Child Members

Population	Time Period	Outcome[a]	Sample Size[b]	Estimate (95% CI)[c]
Adult	PY3-PY5	Total costs of care, $	Treatment: N=8,641 Comparison: N= 894	-2,502[c] (-4,641, -1,157)
Children	PY3-PY5	Total costs of care, $	Treatment: N=3,165 Comparison: N=393	$729 (-977, 2,436)
Adult	PY3-PY5	Inpatient hospitalizations, incidence rate ratio	Treatment: N=8,641 Comparison: N= 894	0.75[c] (0.64, 0.87)
Children	PY3-PY5	Inpatient hospitalizations, incidence rate ratio	Treatment: N=3,165 Comparison: N=393	0.96 (0.40, 2.27)
Adult	PY3-PY5	Emergency department admissions, incidence rate ratio	Treatment: N=8,641 Comparison: N= 894	0.82[c] (0.76, 0.90)
Children	PY3-PY5	Emergency department admissions, incidence rate ratio	Treatment: N=3,165 Comparison: N=393	1.11 (0.85, 1.45)
Adult	PY3-PY5	Primary Care Visits, incidence rate ratio	Treatment: N=8,641 Comparison: N= 894	1.00 (0.98, 1.01)
Children	PY3-PY5	Primary Care Visits, incidence rate ratio	Treatment: N=3,165 Comparison: N=393	1.04, (0.99, 1.09)

Abbreviations: aIRR (adjusted incidence rate ratio), N/E (not estimable), PY (performance year), TCOC (total cost of care), ED (emergency department), FS (Flexible Services).

[a] Baseline differences between groups were weighted to zero. Models report the change (i.e., difference-in-difference) between treatment and comparison group outcome measurements during the six months prior to starting the FS Program and during FS Program enrollment. Estimates are generated from generalized estimating equations with overlap weights created from propensity scores. With overlap weights applied, treatment and comparison groups have perfect covariate balance on all measures included in the propensity score model. The adult propensity score model included 1) demographics including age, gender, race/ethnicity, education, employment, language, and employment; 2) social risk indicators including experiencing homelessness, at risk of homelessness, neighborhood socio-economic risk score (NSS7), experiencing food insecurity, having a disability, and participating on the Community Partners program; 3) histories of health care utilization including a diagnosis-based medical complexity summary score (DxCG) and a pharmacy-based medical complexity summary score (RxCG) in the year prior to the FS Program start date, plus total costs of care, emergency department admissions, inpatient hospitalizations, and primary care visits in the 6-months prior to the FS Program start date; 4) diagnostic histories from claims in the year prior to the FS Program start date, including cancer, diabetes, obesity, coronary artery disease, congestive heart failure, acute myocardial infarction, hypertension, stroke, hemodialysis, chronic kidney disease, chronic obstructive pulmonary disease, HIV / AIDS, asthma, drug abuse, alcohol abuse, tobacco use, personality disorders, mood and anxiety disorders, suicide attempts, psychoses, eating disorders, bipolar disorder, depression, anxiety, other mental health conditions, high-risk pregnancy, completed pregnancy with complications, completed pregnancy with normal delivery, active pregnancy, miscarriage, and COVID-19 diagnosis; and 5) random effects for ACO.

The children propensity score model included the same components as the adult model, except that diagnostic histories were limited to asthma, hypertension, nutritional deficiency, excess weight, mood and anxiety disorders, depression, major depression, bipolar disorder, and other mental health conditions.

[b] Comparison groups comprised members who were referred but not enrolled. There are distinct comparison groups for tenancy preservation and nutrition, but they are not mutually exclusive. It's possible to be in both the nutrition and tenancy preservation comparison groups. In addition, some members serve in the tenancy preservation treatment group and nutrition comparison group, and vice versa, depending on which programs they were referred to and which programs ultimately contacted and enrolled them in services.

[c] $P<0.05$

Appendix N: CHA DSRIP ACO Performance Measures

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
Measure Slate 1: Behavioral Health and Primary Care Integration															
1	Depression Response at 6 Months - Progress Towards Remission (across all core primary care sites)	NQF 1884	17.42%	No external benchmark; hospital-specific improvement target = 45%	Gap to Goal (10%) or attainment at target	20.18%	16.56%	19.40%	17.75%	20.48%	15.91%	20.48%	15.91%	14.07%	11.01%
2	Depression Response at 12 Months - Progress Towards Remission (across all core primary care sites)	NQF 1885	N/A	No external benchmark; hospital-specific improvement target = 45%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	26.24%	28.12%	25.21%	27.19%	24.25%	27.19%	24.25%	19.64%	19.10%
3	Primary Care Provider confidence in management of depression, measured through annual survey	PCMH	N/A	No external benchmark; hospital specific improvement target = 90%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	56.63%	59.97%	55.10%	58.59%	N/A - unable to report due to COVID	58.59%	N/A - unable to report due to COVID	48.71%	56.25%
4	Primary Care Provider confidence in management of substance use disorders, measured through annual survey	PCMH	N/A	No external benchmark; hospital specific improvement target = 70%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	31.33%	35.20%	25.51%	29.96%	N/A - unable to report due to COVID	29.96%	N/A - unable to report due to COVID	22.89%	18.75%
5	Screening and Brief Intervention for Alcohol Use for adults (across all core primary care sites)	NQF 2152	70.00%	No external benchmark; hospital specific improvement target = 65%	Gap to Goal (10%) or attainment at target	65.00%	73.06%	65.00%	70.81%	65.00%	70.65%	65.00%	70.65%	56.01%	56.19%
6	Screening and Brief Intervention for Drug Use for adults (across all core primary care sites)	NQF 2152, adapted to include substance use	N/A	No external benchmark; hospital specific improvement target = 65%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	85.12%	65.00%	82.14%	65.00%	81.85%	65.00%	81.85%	63.85%	65.96%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
7	Patients on Chronic Opioid Therapy with a Controlled Substance Agreement (across all core primary care sites)	N/A	36.71%	No external benchmark; hospital-specific improvement target = 80%	Gap to Goal (10%) or attainment at target	41.04%	52.48%	55.23%	61.84%	63.66%	71.28%	63.66%	71.28%	70.12%	72.01%
8	Patients on Chronic Opioid Therapy with urine drug screening (across all core primary care sites)	N/A	34.48%	No external benchmark; hospital-specific improvement target = 80%	Gap to Goal (10%) or attainment at target	39.03%	42.91%	46.62%	44.88%	48.39%	55.95%	48.39%	55.95%	32.14%	44.18%
9	Patients with chronic pain who had functional assessment (across all core primary care sites)	NQF 0050, adapted to include all chronic pain conditions	N/A	No external benchmark; hospital specific improvement target = 50%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	1.95%	6.76%	13.21%	16.89%	32.72%	16.89%	32.72%	22.77%	28.93%
10	Screening and Brief Intervention for Alcohol and Drug Use for adolescents (across all core primary care sites)	NQF 2152, adapted to expand to new age range for adolescents	N/A	No external benchmark; hospital specific improvement target = 50%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	3.35%	8.02%	13.42%	17.08%	15.43%	17.08%	15.43%	20.81%	22.33%
11	Maternal Depression Screening (across all core primary care sites)	NQF 1401	N/A	No external benchmark; hospital specific improvement target = 75%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	30.37%	34.83%	57.34%	59.11%	57.96%	59.11%	57.96%	48.49%	51.97%
Measure Slate 2: Comprehensive Systems for Treating Mental Health and Substance Use Conditions															
1	Controlling high blood pressure for people with serious mental illness (for BH Home population)	NQF 2602	75.28%	MA Medicaid (HEDIS) 2015 75th percentile: 65.09% (proxy benchmark from NQF 0018 for overall population)	Gap to Goal (10%) or attainment at target	65.09%	75.86%	65.09%	74.71%	65.09%	71.99%	65.09%	71.99%	53.16%	49.78%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
2	Proportion of patients with identified opioid use disorder accessing medication-assisted treatment (MAT)	N/A	N/A	No external benchmark; Hospital target = 50.00%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	30.81%	32.73%	37.70%	38.93%	37.44%	38.93%	37.44%	40.87%	48.60%
3	Hospitalized patients screened within 72 hours of admission using a validated screening tool for unhealthy alcohol use (all public hospital system inpatient psychiatric discharges, age 18 and above)	NQF 1661 SUB-1	63.10%	Joint Commission (2014) 75th percentile = 94.20%	Gap to Goal (10%) or attainment at target	66.21%	70.93%	73.26%	70.98%	73.30%	73.48%	73.30%	73.48%	79.08%	77.15%
4	Alcohol use brief intervention provided or offered (during public hospital system psychiatric hospitalization, age 18 and above)	NQF 1663 SUB-2	N/A	Joint Commission (2014) average = 48.20%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	93.08%	48.20%	93.75%	48.20%	97.76%	48.20%	97.76%	48.20%	89.71%
5	Follow-up after hospitalization for mental illness (for BH Home population) – 7 days for public hospital system hospitalizations	NQF 0576 (7-day)	53.01%	National (HEDIS) Medicaid 2015 90th percentile = 63.85%	Gap to Goal (10%) or attainment at target	54.09%	54.37%	55.32%	46.61%	48.33%	56.44%	48.33%	56.44%	58.28%	48.22%
6	Transition record with specified elements received by discharged patients(for public hospital system psychiatric hospitalizations)	NQF 0647	N/A	MA IPFQR-HBIPS 2014 average = 83.27%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	0	8.33%	21.41%	27.60%	67.46%	27.60%	67.46%	55.29%	48.21%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
7	Access to public hospital system ambulatory mental health care: Scheduled intakes within 14 days of referral (for in-network referrals)	N/A	N/A	National Medicaid (HEDIS) 2015 90th percentile = 48.10%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	24.33%	26.71%	22.07%	24.67%	59.45%	24.67%	59.45%	29.33%	18.47%
8	Increase number of synchronous and asynchronous tele-consultations with psychiatrists	N/A	219	No external benchmark; Hospital target = 400 per year	Gap to Goal (10%) or attainment at target	237	391	391.90	743	400	1873	400	1873	400	646
9	Diabetes screening for people with Schizophrenia or Bipolar Disorder who are using antipsychotic medications (for active primary care patients and BH home patients)	NQF 1932	N/A	MA Medicaid (HEDIS) 2015 90th percentile = 86.96%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	77.89%	78.80%	75.02%	76.21%	77.93%	76.21%	77.93%	71.76%	75.99%
10	Cardiovascular health screening for people with Schizophrenia or Bipolar Disorder who are prescribed antipsychotic medications (for active primary care patients and BH home patients)	NQF 1927	N/A	No external benchmark; hospital-specific target = 75.00%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	55.48%	57.43%	54.21%	56.29%	55.56%	56.29%	55.56%	51.51%	59.23%
11	Diabetes Monitoring for People with Diabetes and Schizophrenia (for active primary care patients and BH home patients)	NQF 1934	N/A	National (HEDIS) Medicaid 2014 90th percentile = 76.67%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	73.55%	73.86%	75.95%	76.02%	71.58%	76.02%	71.58%	64.30%	71.33%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
12	Screening for metabolic disorders (psychiatric inpatient discharges on routinely-scheduled antipsychotic screened during/before stay)	CMS IPFQR	N/A	No external benchmark	Improvement over CY 2017 baseline	N/A-Baseline Report	64.26%	65.55%	66.01%	67.47%	69.98%	67.47%	69.98%	70.96%	79.93%
13	Increase the percentage of BH Home target population patients who have a care plan (care plans may include CHA coordinated care plan and/or ACO behavioral health community partner care plan)	NCQA Medical Home	36.33%	NCQA 2014 Medical Home Standard = 75.00%	Gap to Goal (10%) or attainment at target	40.20%	52.00%	54.30%	38.89%	42.50%	56.00%	42.50%	56.00%	47.60%	50.91%
Measure Slate 3: Referral Management and Integrated Care Management															
1	Overall Reduce proportion of Emergency Department Outmigration to Non-Public Hospital System Facilities within specific payer	Customized Measure: Claims based (units of service)	N/A	No external benchmark; hospital specific improvement target = 25%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	31.27%	30.64%	33.46%	32.61%	38.01%	32.61%	38.01%	40.30%	42.03%
2	Overall Reduce proportion of Inpatient Outmigration to Non-Public Hospital System Facilities within specific payer contracts	Customized Measure: Claims based (units of service)	N/A	No external benchmark; hospital specific improvement target = 50%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	69.24%	67.32%	61.56%	60.40%	66.41%	60.40%	66.41%	62.60%	71.47%
3	Overall Reduce proportion of out-of-network Medical & Surgical specialty referrals (outpatient)	Customized Measure	10.99%	No external benchmark; hospital specific improvement target = 10%	Gap to Goal (10%) or attainment at target	10.89%	11.23%	11.11%	10.01%	10.01%	9.85%	10.01%	9.85%	8.58%	8.49%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
4	Selected Public Hospital Primary Care Practice(s) Initiative: Primary care reduce proportion of out-of-network Medical & Surgical specialty referrals (outpatient) referrals	Customized Measure	N/A	No external benchmark; hospital specific improvement target = 10%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	13.17%	12.85%	11.44%	11.30%	10.16%	11.30%	10.16%	8.25%	10.32%
5	Reduce the proportion of out-of-network referrals for selected specialty care areas within the public hospital system: (SFY 2018 will continue Gastroenterology) (SFYs 2019 – 2020 will be a 2nd Specialty Area) (SFYs 2021 – 2022 will be a 3rd Specialty Area)	Customized Measure	4.97%	No external benchmark; hospital specific improvement target (Gastroenterology = 6%; Applicable to SFY 2018) New Specialty Target will be submitted with baseline data for each new specialty	Gap to Goal (10%) or attainment at target	6.00%	5.55%	Baseline	12.67%	12.40%	13.10%	12.40%	13.10%	Pay for Reporting	5.10%
6	Completed appointments per FTE or total number of completed appointments for selected specialties within the public hospital system: (SFY 2018 will continue Gastroenterology) (SFYs 2019 – 2020 will be a 2nd Specialty Area) (SFYs 2021 – 2022 will be a 3rd Specialty Area)	Customized Measure	1,516.60	No external benchmark; hospital specific improvement target (Gastroenterology = 1300 appointments per FTE; Applicable to SFY 2018) New Specialty Target will be submitted with baseline data for each new specialty	Gap to Goal (10%) or attainment at target	1,300.00	1567.27	Baseline	1,265.33	1,268.80	1222.74 (Propose using the March 2020 measurement period ending result of 1333.62) COVID	1,268.80	1222.74 (Propose using the March 2020 measurement period ending result of 1333.62) COVID	Pay for Reporting	1,340.54

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
7	Time to first appointment: percentage of referrals to scheduled within 60 days for selected specialties within the public hospital system: (SFY 2018 will continue Gastroenterology) (SFYs 2019 – 2020 will be a 2nd Specialty Area) (SFYs 2021 – 2022 will be a 3rd Specialty Area)	Customized Measure	53.42%	No external benchmark; hospital specific improvement target (Gastroenterology=50%; Applicable to SFY 2018) New Specialty Target will be submitted with baseline data for each new specialty	Gap to Goal (10%) or attainment at target	50.00%	64.69%	Baseline	36.71%	37.04%	26.55%	37.04%	26.55%	90%	100.00%
8	Increase the # of E-Consults referrals made by public hospital primary care providers to defined public hospital specialists	Customized Measure	N/A	No external benchmark; hospital specific improvement over SFY 2018 baseline	Defined improvement over SFY 2018 baseline	N/A-Baseline Report	590	649	1,265	708	1963	708	1963	708	2,232
9	Demonstrate improvement in colorectal cancer screening rates (for active pubic hospital primary care patients)	NQF 0034	71.31%	National (HEDIS) Commercial 2014 90th percentile = 72%	Gap to Goal (10%) or attainment at target	71.38%	73.91%	72.00%	74.13%	72.00%	72.14%	72.00%	72.14%	60.25%	64.20%
10	Improvement in inpatient discharge referral rate to in-network skilled nursing facilities for Medical/Surgical inpatients discharged from the public hospital system	Numerator: Discharges to In- Network SNFs Denominator: Medical/ Surgical Inpatient Discharges from the Public Hospital System to all SNFs	N/A	No external benchmark; hospital specific improvement target= 75%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	59.30%	60.87%	66.83%	67.65%	68.93%	67.65%	68.93%	74.90%	79.97%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
11	Improvement in inpatient discharge referral rate to in network Visiting Nurse Association (VNAs) Medical/Surgical inpatients discharged from the public hospital system	Numerator: Discharges to In- Network VNAs Denominator: Medical/ Surgical Inpatient Discharges from the Public Hospital System to all VNAs	N/A	No external benchmark; hospital specific improvement target = 80%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	72.58%	73.32%	76.24%	76.62%	77.13%	76.62%	77.13%	Replacement measure below	Replacement measure below
Proposed Replacement for #11	Replacement for PY22: % Hospital to Home patients who had a follow up provider visit post discharge (30 day)		No external benchmark; hospital specific improvement target = 45%	Gap to Goal (10%) or attainment at target	N/A	July 1, 2020-June 30 2021	N/A	N/A	N/A	N/A	N/A (newly implement replacement measure in FY22)	N/A	N/A (newly implement replacement measure in FY22)	45%	60.01%
12	% of patient appointments at which the AVS was printed for the patient at the conclusion of their medical specialty appointment at the public hospital system	MU P220	N/A	No external benchmark; hospital specific improvement	Gap to Goal (10%) or attainment at target: Target 90%	N/A-Baseline Report	91.38%	90.00%	90.88%	90.00%	89.58%	90.00%	89.58%	87.69%	91.98%
13	% of patient appointments at which the AVS was printed for the patient at the conclusion of their surgical appointment at the public hospital system	MU P220	N/A	No external benchmark; hospital specific improvement	Gap to Goal (10%) or attainment at target: Target 90%	N/A-Baseline Report	87.40%	87.66%	90.22%	90.00%	89.57%	90.00%	89.57%	89.60%	91.35%
Measure Slate 4: Evidence-Based Practices for Medical Management of Chronic Conditions															
1	The percentage of active primary care patients 40 years of age and older with a new diagnosis of COPD or newly	NQF 0577	N/A	2015 90th percentile National Medicaid = 47.0%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	34.37%	35.63%	39.72%	40.45%	34.50%	40.45%	34.50%	29.28%	26.16%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
	active COPD, who received appropriate spirometry testing to confirm the diagnosis														
2	Percentage of active primary care patients aged 18 years and older with a diagnosis of COPD and who have an FEV1/FVC < 60% and have symptoms who were prescribed an inhaled bronchodilator.	NQF 102	N/A	2015 90th percentile National Medicaid= 90.0%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	91.97%	90.00%	90.34%	90.00%	92.31%	90.00%	92.31%	92.01%	89.08%
3	Improve the percentage of patients with COPD who received patient education for COPD by a member of their inpatient care team prior to discharge (across public hospital's inpatient hospital campuses)	Customized Measure	74.53%	No external benchmark; hospital specific improvement target = 85%	Gap to Goal (10%) or attainment at target	75.58%	88.18%	85.00%	86.70%	85.00%	87.76%	85.00%	87.76%	80.50%	89.50%
4	Improve the percentage of patients with CHF who received patient education for CHF by a member of their inpatient care team prior to discharge (across public hospital's inpatient hospital campuses)	Customized Measure	86.62%	No external benchmark; hospital specific improvement target = 85%	Gap to Goal (10%) or attainment at target	85.00%	94.66%	85.00%	91.50%	85.00%	88.99%	85.00%	88.99%	88.24%	89.58%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
5	Diabetes: HbA1c Control- % of active primary care patients ages 18 to 75 with diabetes whose most recent HbA1c control is <8.0%	NQF 0575	N/A	2015 90th percentile National Medicaid: 59.0%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	63.10%	59.00%	62.55%	59.00%	66.79%	59.00%	66.79%	56.90%	61.93%
6	Comprehensive Diabetes Care: Eye Exam (retinal) performed (for active primary care patients)	NQF 0055	N/A	2015 90th percentile National Medicaid: 68.0%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	52.19%	53.77%	53.43%	54.89%	56.19%	54.89%	56.19%	48.89%	45.23%
7	Improve the proportion of active primary care patients 18-75 years of age with diabetes with poorly controlled Hemoglobin HbA1C (most recent >=8.0%) who have a care plan	NCQA	48.31%	No external benchmark; hospital specific improvement Target = 75%	Gap to Goal (10%) or attainment at target	50.98%	57.57%	59.31%	53.76%	55.88%	53.17%	55.88%	53.17%	18.08%	6.80%
8	Percentage of high risk diabetic primary care patients receiving enhanced diabetes management services, including nursing-led patient education and self-management coaching, pharmacist-led medication management services, or other care team member support.	Customized Measure (denominator linked to NQF 0575)	N/A	No external benchmark; hospital specific improvement target	Improvement over SFY 2018 baseline SFY 19: Improve 2% over SFY 2018 baseline SFY 20: Improve 4% over SFY 2018 baseline SFY 21: Improve 6% over SFY 2018 baseline SFY 22: Improve 8% over SFY 2018 baseline	N/A-Baseline Report	4.66%	4.75%	27.28%	4.85%	28.67%	4.85%	28.67%	5.03%	29.83%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
9	Percentage of high risk hypertensive primary care patients receiving enhanced hypertension management services, including nursing-led patient education and self-management coaching, pharmacist-led medication management services, or other care team member support.	Customized Measure	N/A	No external benchmark; hospital specific improvement target	Improvement over SFY 2018 baseline SFY 19: Improve 2% over SFY 2018 baseline SFY 20: Improve 4% over SFY 2018 baseline SFY 21: Improve 6% over SFY 2018 baseline SFY 22: Improve 8% over SFY 2018 baseline	N/A-Baseline Report	7.69%	7.84%	10.16%	8.00%	12.51%	8.00%	12.51%	8.31%	12.07%
10	Hospitalization Follow-up: The percentage of discharges for patients 18 years of age and older (with any of the following conditions Diabetes, Hypertension COPD, and/or CHF) who were discharged to home from public hospital's medical/surgical inpatient services and who had an outpatient visit within 7 days or contact within 2 days with a care team member documented in EMR	Customized Measure	N/A	No external benchmark; hospital specific improvement target = 80%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	72.96%	73.66%	72.62%	73.36%	55.88%	73.36%	55.88%	40.52%	43.77%

#	Measure Name	Measure Steward #	Baseline or Prior Period Result, if applicable	Benchmark	Improvement Methodology	FY18 Target	FY18 Results	FY19 Target	FY19 Result	FY20 Target	FY20 Result	FY21 Target[a]	FY21 Result[a]	FY22 Target	FY22 Result
11	% of active primary care patients 3 years and older with the following conditions: Diabetes, Pediatric Asthma, Hypertension, COPD, and CHF, for whom a public hospital follow-up contact or visit is completed within seven calendar days post ED discharge	Customized Measure	N/A	No external benchmark; hospital specific improvement target =50%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	49.89%	49.90%	53.02%	50.00%	46.08%	50.00%	46.08%	28.57%	29.89%
12	Screening for Depression in active primary care patients 18 years and older with Diabetes, HTN, CHF, and/or COPD	Approximate Match- NQF 0418 (Adjusted for Chronic Conditions at high risk)	N/A	No external benchmark; hospital specific improvement target = 80%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	64.37%	65.93%	64.65%	66.19%	62.97%	66.19%	62.97%	44.00%	52.54%
13	Co-morbid Conditions: Depression Follow-Up in active primary care patients with Diabetes, HTN, CHF, and/or COPD	Customized Measure	N/A	No external benchmark; hospital specific improvement target = 60%	Gap to Goal (10%) or attainment at target	N/A-Baseline Report	12.34%	17.11%	10.98%	15.88%	10.01%	15.88%	10.01%	12.21%	6.93%

[a] Note that, as directed by EOHHS, FY20 data was used for FY21 reporting due to COVID pandemic.

Green = Measure achieved

Orange = Measure not achieved

Appendix O: Tables for Goal 5

Table O-1 Interrupted time series model, Follow-up within seven days and within 30 days after discharge from the ED for AOD, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value		Estimate	Risk Ratio	95% CI	P-value
Within seven days						**Within 30 days**			
Intercept	-1.6576					-1.2749			
Time	0.0073	1.01	1.00 - 1.02	0.1118		0.0036	1.00	1.00 - 1.01	0.3809
Phase 1	-0.1460	0.86	0.75 - 0.99	0.0355		-0.0738	0.93	0.82 - 1.05	0.231
Time after Phase 1	0.0593	1.06	1.01 - 1.11	0.0158		0.0500	1.05	1.01 - 1.10	0.0224
Phase 2	-0.0448	0.96	0.86 - 1.06	0.4067		-0.0158	0.98	0.90 - 1.08	0.7424
Time after Phase 2	-0.0780	0.92	0.88 - 0.97	0.0014		-0.0640	0.94	0.90 - 0.98	0.0031
Age	0.0017	1.00	1.00 - 1.00	0.0425		0.0013	1.00	1.00 - 1.00	0.0947
Female	-0.0259	0.97	0.93 - 1.02	0.2305		0.0125	0.99	0.95 - 1.03	0.5272
DxCG	0.0151	1.02	1.01 - 1.02	<.0001		0.0211	1.02	1.02 - 1.02	<.0001

Table O-2 Interrupted time series model, SUD outpatient visits MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value		Estimate	Risk Ratio	95% CI	P-value
SUD						**OUD**			
Intercept	-1.6035					-1.2562			
Time	-0.0001	1.00	1.00 - 1.00	0.8908		0.0071	1.01	1.01 - 1.01	<.0001
Phase 1	0.3499	1.42	1.40 - 1.43	<.0001		0.3153	1.37	1.36 - 1.38	<.0001
Time after Phase 1	-0.0247	0.98	0.97 - 0.98	<.0001		-0.0304	0.97	0.97 - 0.97	<.0001
Phase 2	0.0114	1.01	1.00 - 1.02	0.0013		0.0264	1.03	1.02 - 1.03	<.0001
Time after Phase 2	0.0225	1.02	1.02 - 1.03	<.0001		0.0186	1.02	1.02 - 1.02	<.0001
Age	0.0036	1.00	1.00 - 1.00	<.0001		-0.0005	1.00	1.00 - 1.00	0.004
Female	0.1879	1.21	1.2 - 1.22	<.0001		0.1476	1.16	1.15 - 1.17	<.0001
DxCG	0.0056	1.01	1.01 - 1.01	<.0001		0.0044	1.00	1.00 - 1.00	<.0001

Table O-3 Interrupted time series model, SOAP utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-4.1452				-3.2477			
Time	-0.0053	0.99	0.99 - 1.00	0.0694	0.0091	1.01	1.00 - 1.01	0.0017
Phase 1	-0.0014	1.00	0.92 - 1.09	0.9736	-0.0107	0.99	0.91 - 1.08	0.8085
Time after Phase 1	-0.0839	0.92	0.89 - 0.95	<.0001	-0.0953	0.91	0.88 - 0.94	<.0001
Phase 2	0.0417	1.04	0.97 - 1.12	0.2693	0.0644	1.07	0.99 - 1.15	0.0916
Time after Phase 2	0.0529	1.05	1.02 - 1.09	0.0006	0.0515	1.05	1.02 - 1.09	0.0013
Age	-0.0135	0.99	0.99 - 0.99	<.0001	-0.0293	0.97	0.97 - 0.97	<.0001
Female	-0.0214	0.98	0.95 - 1.01	0.1894	-0.0352	0.97	0.93 - 1.00	0.0626
DxCG	0.0172	1.02	1.02 - 1.02	<.0001	0.0178	1.02	1.02 - 1.02	<.0001

Table O-4 ITS model, MOUD utilization among MassHealth members with an OUD diagnosis, CY2015 - CY2022

99	Estimate	Risk Ratio	95% CI	P-value
Intercept	-1.2083			
Time	0.0074	1.01	1.01 - 1.01	<.0001
Phase 1	0.3918	1.48	1.46 - 1.50	<.0001
Time after Phase 1	-0.0723	0.93	0.93 - 0.93	<.0001
Phase 2	0.1278	1.14	1.13 - 1.15	<.0001
Time after Phase 2	0.0677	1.07	1.07 - 1.07	<.0001
Age	-0.0048	1.00	0.99 - 1.00	<.0001
Female	0.0057	1.01	0.99 - 1.02	0.5257
DxCG	-0.0022	1.00	1.00 - 1.00	<.0001

Table O-5 ITS model, MOUD utilization among MassHealth members with an OUD diagnosis, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value
Intercept	-1.2083			
Time	0.0074	1.01	1.01 - 1.01	<.0001
Phase 1	0.3918	1.48	1.46 - 1.50	<.0001
Time after Phase 1	-0.0723	0.93	0.93 - 0.93	<.0001
Phase 2	0.1278	1.14	1.13 - 1.15	<.0001
Time after Phase 2	0.0677	1.07	1.07 - 1.07	<.0001
Age	-0.0048	1.00	0.99 - 1.00	<.0001
Female	0.0057	1.01	0.99 - 1.02	0.5257
DxCG	-0.0022	1.00	1.00 - 1.00	<.0001

Table O-6 Interrupted time series model, CSS utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value		Estimate	Risk Ratio	95% CI	P-value
	SUD					OUD			
Intercept	-3.0740					-1.6737			
Time	0.0122	1.01	1.01 - 1.02	<.0001		0.0267	1.03	1.02 - 1.03	<.0001
Phase 1	-0.0604	0.94	0.9 - 0.99	0.0139		-0.0573	0.94	0.91 - 0.98	0.0067
Time after Phase 1	-0.0155	0.98	0.97 - 1.00	0.0607		-0.0322	0.97	0.95 - 0.98	<.0001
Phase 2	0.0569	1.06	1.02 - 1.10	0.0038		0.0559	1.06	1.02 - 1.09	0.0009
Time after Phase 2	-0.0122	0.99	0.97 – 1.00	0.1343		-0.0060	0.99	0.98 - 1.01	0.4095
Age	-0.0136	0.99	0.99 - 0.99	<.0001		-0.0354	0.97	0.96 - 0.97	<.0001
Female	-0.5310	0.59	0.58 - 0.60	<.0001		-0.4666	0.63	0.61 - 0.64	<.0001
DxCG	0.0227	1.02	1.02 - 1.02	<.0001		0.0209	1.02	1.02 - 1.02	<.0001

Table O-7 Interrupted time series model, ATS utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-2.8884				-1.4822			
Time	-0.0048	1.00	0.99 - 1.00	0.0132	0.0100	1.01	1.01 - 1.01	<.0001
Phase 1	0.1508	1.16	1.11 - 1.21	<.0001	0.1129	1.12	1.08 - 1.16	<.0001
Time after Phase 1	0.0347	1.04	1.02 - 1.05	<.0001	0.0188	1.02	1.01 - 1.03	0.0029
Phase 2	0.0694	1.07	1.04 - 1.11	<.0001	0.0719	1.07	1.04 - 1.11	<.0001
Time after Phase 2	-0.0566	0.94	0.93 - 0.96	<.0001	-0.0510	0.95	0.94 - 0.96	<.0001
Age	-0.0117	0.99	0.99 - 0.99	<.0001	-0.0334	0.97	0.97 - 0.97	<.0001
Female	-0.5662	0.57	0.56 - 0.58	<.0001	-0.5078	0.6	0.59 - 0.61	<.0001
DxCG	0.0207	1.02	1.02 - 1.02	<.0001	0.0190	1.02	1.02 - 1.02	<.0001

Table O-8 ITS model, inpatient withdrawal management utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-4.3843				-4.6030			
Time	0.0166	1.02	1.01 - 1.02	<.0001	0.0555	1.06	1.05 - 1.07	<.0001
Phase 1	0.1475	1.16	1.12 - 1.20	<.0001	-0.1585	0.85	0.75 - 0.97	0.0176
Time after Phase 1	-0.0405	0.96	0.95 - 0.97	<.0001	-0.0942	0.91	0.87 - 0.95	<.0001
Phase 2	0.1922	1.21	1.16 - 1.27	<.0001	0.2600	1.30	1.17 - 1.44	<.0001
Time after Phase 2	0.0039	1.00	0.98 - 1.02	<.0001	0.0257	1.03	0.98 - 1.07	0.2707
Age	0.0162	1.01	1.01 - 1.02	0.4865	-0.0283	0.97	0.97 - 0.97	<.0001
Female	-0.0246	0.67	0.66 - 0.69	<.0001	-0.4298	0.65	0.62 - 0.68	<.0001
DxCG	1.0515	1.04	1.04 - 1.04	<.0001	0.0292	1.03	1.03 - 1.03	<.0001

Table O-9 Interrupted time series model, Outpatient withdrawal management utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	- 10.9341				- 9.9781			
Time	0.0637	1.07	0.92 - 1.23	0.3960	0.0864	1.09	0.96 - 1.24	0.1976
Phase 1	0.9904	2.69	1.03 - 7.04	0.0434	0.1791	1.2	0.38 - 3.76	0.7593
Time after Phase 1	- 0.0084	0.99	0.76 - 1.29	0.9495	0.0408	1.04	0.76 - 1.44	0.8035
Phase 2	0.1477	1.16	0.73 - 1.83	0.5258	- 0.1694	0.84	0.41 - 1.73	0.6435
Time after Phase 2	- 0.1526	0.86	0.69 - 1.07	0.1803	- 0.1565	0.86	0.63 - 1.16	0.3145
Age	0.0061	1.01	0.99 - 1.02	0.4622	- 0.0201	0.98	0.96 - 1.00	0.1047
Female	- 0.6658	0.51	0.3 - 0.88	0.0158	- 1.5691	0.21	0.10 - 0.44	<.0001
DxCG	0.0040	1.00	0.99 - 1.02	0.6040	0.0213	1.02	1.01 - 1.04	0.0019

Table O-10 ITS model, RC utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	- 10.2550				- 5.2680			
Time	1.2228	3.40	3.10 - 3.73	<.0001	0.3052	1.36	1.25 - 1.48	<.0001
Phase 2	0.2575	1.29	1.16 - 1.44	<.0001	0.3204	1.38	1.26 - 1.5	<.0001
Time after Phase 2	- 1.1679	0.31	0.28 - 0.34	<.0001	- 0.2584	0.77	0.71 - 0.84	<.0001
Age	- 0.0032	1.00	1.00 - 1.00	0.0005	- 0.0203	0.98	0.98 - 0.98	<.0001
Female	- 0.0320	0.97	0.91 - 1.03	0.2748	0.0073	1.01	0.95 - 1.07	0.8049
DxCG	0.0181	1.02	1.02 - 1.02	<.0001	0.0151	1.02	1.01 - 1.02	<.0001

Table O-11 ITS model, RSN utilization among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	- 5.9463				- 4.3114			
Time	0.3778	1.46	1.36 - 1.56	<.0001	0.2974	1.35	1.27 - 1.43	<.0001
Phase 2	0.2452	1.28	1.2 - 1.36	<.0001	0.2762	1.32	1.25 - 1.39	<.0001
Time after Phase 2	- 0.4112	0.66	0.62 - 0.71	<.0001	- 0.3230	0.72	0.68 - 0.77	<.0001
Age	- 0.0031	1.00	1.00 – 1.00	<.0001	- 0.0208	0.98	0.98 - 0.98	<.0001
Female	- 0.0544	0.95	0.91 - 0.98	0.0065	- 0.0055	0.99	0.95 - 1.04	0.7956
DxCG	0.0161	1.02	1.01 - 1.02	<.0001	0.0135	1.01	1.01 - 1.02	<.0001

Table O-12 ITS model, high dose opioid use among MassHealth members without cancer, who were prescribed opioids, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value
Intercept	2.0776			
Time	- 0.0351	0.97	0.94 - 0.99	0.0091
Phase 1	- 0.4706	0.62	0.41 - 0.95	0.0283
Time after Phase 1	0.2051	1.23	1.06 - 1.42	0.0049
Phase 2	- 0.1022	0.90	0.66 - 1.23	0.5191
Time after Phase 2	- 0.2100	0.81	0.70 - 0.93	0.0036
Age	- 0.0901	0.91	0.76 - 1.10	0.3442
DxCG	0.1602	1.17	1.13 - 1.23	0

Table O-13 ITS model, Any overdose and opioid overdose among MassHealth members, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
Any overdose					**Opioid overdose**			
Intercept	- 5.6888				- 5.7229			
Time	0.0601	1.06	1.06 - 1.07	<.0001	0.0175	1.02	1.01 - 1.02	<.0001
Phase 1	- 0.0492	0.95	0.89 - 1.02	0.1606	0.0709	1.07	0.98 - 1.17	0.1111
Time after Phase 1	- 0.1056	0.90	0.88 - 0.92	<.0001	- 0.0707	0.93	0.90 - 0.96	<.0001
Phase 2	0.1595	1.17	1.10 - 1.25	<.0001	0.1925	1.21	1.13 - 1.31	<.0001
Time after Phase 2	0.0218	1.02	1.00 - 1.05	0.0755	0.0186	1.02	0.99 - 1.05	0.2252
Age	0.0025	1.00	1.00 - 1.00	<.0001	0.0045	1.00	1.00 - 1.01	<.0001
DxCG	- 0.5398	0.58	0.56 - 0.61	<.0001	- 0.9382	0.39	0.37 - 0.41	<.0001

Table O-14 ITS model, Fatal overdose and fatal opioid overdose among MassHealth members, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95 % CI	P-value	Estimate	Risk Ratio	95 % CI	P-value
Any overdose					**Opioid overdose**			
Intercept	- 8.8114				- 8.8105			
Time	0.0215	1.02	1.01 - 1.03	<.0001	0.0214	1.02	1.01 - 1.03	<.0001
Phase 1	0.0560	1.06	0.91 - 1.23	0.4783	0.0606	1.06	0.91 - 1.24	0.4433
Time after Phase 1	- 0.0682	0.93	0.88 - 0.99	0.0132	- 0.0707	0.93	0.88 - 0.98	0.0104
Phase 2	0.0753	1.08	0.95 - 1.22	0.2322	0.0830	1.09	0.96 - 1.23	0.1888
Time after Phase 2	0.0543	1.06	1.00 - 1.11	0.0461	0.0568	1.06	1.00 - 1.12	0.0374
Age	0.0208	1.02	1.02 - 1.02	<.0001	0.0207	1.02	1.02 - 1.02	<.0001
Female	- 1.0966	0.33	0.32 - 0.35	<.0001	- 1.0999	0.33	0.32 - 0.35	<.0001
DxCG	0.0466	1.05	1.04 - 1.05	<.0001	0.0465	1.05	1.04 - 1.05	<.0001

Table O-15 ITS model, Fatal overdose and fatal opioid overdose among MassHealth members, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95 % CI	P-value	Estimate	Risk Ratio	95 % CI	P-value
Any overdose					**Opioid overdose**			
Intercept	- 8.8114				- 8.8105			
Time	0.0215	1.02	1.01 - 1.03	<.0001	0.0214	1.02	1.01 - 1.03	<.0001
Phase 1	0.0560	1.06	0.91 - 1.23	0.4783	0.0606	1.06	0.91 - 1.24	0.4433
Time after Phase 1	- 0.0682	0.93	0.88 - 0.99	0.0132	- 0.0707	0.93	0.88 - 0.98	0.0104
Phase 2	0.0753	1.08	0.95 - 1.22	0.2322	0.0830	1.09	0.96 - 1.23	0.1888
Time after Phase 2	0.0543	1.06	1.00 - 1.11	0.0461	0.0568	1.06	1.00 - 1.12	0.0374
Age	0.0208	1.02	1.02 - 1.02	<.0001	0.0207	1.02	1.02 - 1.02	<.0001
Female	- 1.0966	0.33	0.32 - 0.35	<.0001	- 1.0999	0.33	0.32 - 0.35	<.0001
DxCG	0.0466	1.05	1.04 - 1.05	<.0001	0.0465	1.05	1.04 - 1.05	<.0001

Table O-16 ITS model, total Medicaid cost of care among MassHealth members, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
SUD – Medicaid					**OUD – Medicaid**			
Intercept	6.4097				6.7393			
Time	0.0015	1.00	1.00 – 1.00	<.0001	0.0130	1.01	1.01 – 1.01	<.0001
Phase 1	0.0046	1.00	1.00 – 1.01	0.3303	-0.0371	0.96	0.95 – 0.98	<.0001
Time after Phase 1	0.0085	0.99	0.99 – 0.99	<.0001	-0.0026	1.00	0.99 – 1.00	0.3612
Phase 2	0.0190	1.02	1.01 – 1.03	<.0001	0.0137	1.01	1.00 – 1.03	0.0416
Time after Phase 2	0.0045	1.00	1.00 – 1.01	0.0036	-0.0142	0.99	0.98 – 0.99	<.0001
Age	0.0127	1.01	1.01 – 1.01	<.0001	0.0117	1.01	1.01 – 1.01	<.0001
Female	0.1089	1.12	1.11 – 1.12	<.0001	0.0318	1.03	1.02 – 1.04	<.0001
DxCG	0.0271	1.03	1.03 – 1.03	<.0001	0.0337	1.03	1.03 – 1.04	<.0001

Table O-17 ITS model, SUD-related Medicaid cost of care among MassHealth members, CY2015 – CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
SUD – Medicaid					**OUD – Medicaid**			
Intercept	5.1,000				6.1749			
Time	0.0234	1.02	1.02 – 1.03	<.0001	0.0351	1.04	1.03 – 1.04	<.0001
Phase 1	- 0.0414	0.96	0.92 – 1.00	0.0341	- 0.1132	0.89	0.87 – 0.91	<.0001
Time after Phase 1	- 0.0095	0.99	0.98 – 1.00	0.1485	- 0.0090	0.99	0.98 – 1	0.0137
Phase 2	0.0993	1.10	1.07 – 1.14	<.0001	0.0333	1.03	1.01 – 1.05	0.0005
Time after Phase 2	- 0.0093	0.99	0.98 – 1.00	0.1499	- 0.0151	0.99	0.98 – 0.99	<.0001
Age	0.0034	1.00	1.00 – 1.00	<.0001	- 0.0230	0.98	0.98 – 0.98	<.0001
Female	- 0.3602	0.70	0.68 – 0.71	<.0001	- 0.1734	0.84	0.83 – 0.85	<.0001
DxCG	0.0293	1.03	1.03 – 1.03	<.0001	0.0083	1.01	1.01 – 1.01	<.0001

Table O-18 ITS model, non-SUD-related Medicaid cost of care among MassHealth members, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
SUD – Medicaid					**OUD – Medicaid**			
Intercept	6.1718				6.4309			
Time	-0.0006	1.00	1.00 - 1.00	0.1433	0.0111	1.01	1.01 - 1.01	<.0001
Phase 1	0.0022	1.00	0.99 - 1.01	0.6792	-0.0347	0.97	0.94 - 0.99	0.0076
Time after Phase 1	-0.0010	1.00	1.00 - 1.00	0.5883	-0.0024	1.00	0.99 - 1.01	0.5953
Phase 2	0.0015	1.00	0.99 - 1.01	0.7223	0.0076	1.01	0.98 - 1.03	0.5363
Time after Phase 2	-0.0044	1.00	0.99 - 1.00	0.0111	-0.0148	0.99	0.98 - 0.99	0.0013
Age	0.0144	1.01	1.01 - 1.01	<.0001	0.0161	1.02	1.02 - 1.02	<.0001
Female	0.1650	1.18	1.17 - 1.19	<.0001	0.0341	1.03	1.01 - 1.06	0.0012
DxCG	0.0288	1.03	1.03 - 1.03	<.0001	0.0403	1.04	1.04 - 1.04	<.0001

Table O-19 ITS model, 30-day readmission among MassHealth members with any SUD and OUD diagnoses

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-1.8754				-1.7925			
Time	0.0159	1.02	1.01 – 1.02	<.0001	0.0195	1.02	1.01 – 1.03	<.0001
Phase 1	-0.2376	0.79	0.72 – 0.87	<.0001	-0.2872	0.75	0.68 – 0.83	<.0001
Time after Phase 1	0.0805	1.08	1.05 – 1.12	<.0001	0.0862	1.09	1.06 – 1.12	<.0001
Phase 2	0.0096	1.01	0.95 – 1.07	0.7563	0.0053	1.01	0.94 – 1.07	0.8682
Time after Phase 2	-0.1075	0.9	0.87 - 0.93	<.0001	-0.1183	0.89	0.86 - 0.92	<.0001
Age	-0.0105	0.99	0.99 - 0.99	<.0001	-0.0083	0.99	0.99 - 0.99	<.0001
Female	-0.2802	0.76	0.73 - 0.78	<.0001	-0.2852	0.75	0.73 - 0.78	<.0001
DxCG	0.0084	1.01	1.01 - 1.01	<.0001	0.0091	1.01	1.01 - 1.01	<.0001

Table O-20 ITS model, 90-day readmission among MassHealth members with any SUD and OUD diagnoses

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	- 1.4615				- 1.3342			
Time	0.0082	1.01	1.00 - 1.02	0.0431	0.0077	1.01	1.00 - 1.02	0.0606
Phase 2	0.1464	1.16	1.11 - 1.21	<.0001	0.1249	1.13	0.99 - 1.00	<.0001
Time after Phase 2	- 0.0235	0.98	0.97 - 0.99	<.0001	- 0.0231	0.98	0.76 - 0.81	<.0001
Age	- 0.0076	0.99	0.99 - 0.99	<.0001	- 0.0055	0.99	1.00 - 1.00	<.0001
Female	- 0.2326	0.79	0.77 - 0.81	<.0001	- 0.2443	0.78	1.01 - 1.01	<.0001
DxCG	0.0084	1.01	1.01 - 1.01	<.0001	1.008032	2.74	1.01 - 1.01	<.0001

Table O-21 ITS model, MOUD prescribers/100 MassHealth members with any SUD and OUD diagnoses

Parameter	Estimate	Risk Ratio	95% CI	P-value		Estimate	Risk Ratio	95% CI	P-value
SUD						**OUD**			
Intercept	1.0701					1.4524			
Time	0.0432		0.0079 - 0.0785	0.0164		0.1547		0.0965 - 0.2128	<.0001
Phase 1	0.3741		-0.1911 - 0.9393	0.1945		0.6629		- 0.2686 - 1.5945	0.1631
Time after Phase 1	-0.0643		-0.2563 - 0.1276	0.5113		- 0.1998		- 0.5161 - 0.1166	0.2159
Phase 2	0.4634		0.0468 - 0.88	0.0292		0.9085		0.2219 - 1.5951	0.0095
Time after Phase 2	0.0665		-0.1235 - 0.2566	0.4926		0.1688		- 0.1444 - 0.4821	0.2908

Table O-22 ITS model, Inpatient visits per 1,000 m-q among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-3.7390				-3.5603			
Time	0.0051	1.01	1.00 - 1.01	<.0001	-0.0015	1.00	1.00 - 1.00	0.3019
Phase 1	0.0307	1.03	1.00 - 1.06	0.0395	0.0454	1.05	1.01 - 1.09	0.0241
Time after Phase 1	-0.0243	0.98	0.97 - 0.99	<.0001	-0.0103	0.99	0.98 - 1.00	0.116
Phase 2	0.1300	1.14	1.11 - 1.17	<.0001	0.1080	1.11	1.07 - 1.16	<.0001
Time after Phase 2	0.0059	1.01	1.00 - 1.02	0.2286	-0.0034	1.00	0.98 - 1.01	0.5983
Age	0.0217	1.02	1.02 - 1.02	<.0001	0.0196	1.02	1.02 - 1.02	<.0001
Female	0.0181	1.02	1.00 - 1.04	0.0846	0.0194	1.02	0.98 - 1.06	0.2749
DxCG	0.0419	1.04	1.04 - 1.04	<.0001	0.0446	1.05	1.04 - 1.05	<.0001

Table O-23 ITS model, ED visits/1,000 m-q among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-0.5509				-0.4867			
Time	-0.0051	0.99	0.99 - 1.00	<.0001	-0.0066	0.99	0.99 - 1.00	<.0001
Phase 1	0.0008	1.00	0.98 - 1.02	0.9246	0.0024	1.00	0.98 - 1.02	0.8208
Time after Phase 1	0.0041	1.00	1.00 - 1.01	0.1573	0.0053	1.01	1.00 - 1.01	0.1347
Phase 2	0.0098	1.01	1.00 - 1.02	0.194	0.0217	1.02	1.00 - 1.04	0.0155
Time after Phase 2	-0.0110	0.99	0.98 - 0.99	0.0001	-0.0146	0.99	0.98 - 0.99	<.0001
Age	-0.0088	0.99	0.99 - 0.99	<.0001	-0.0058	0.99	0.99 - 1.00	<.0001
Female	0.0751	1.08	1.07 - 1.09	<.0001	-0.0223	0.98	0.96 - 0.99	0.0105
DxCG	0.0251	1.03	1.02 - 1.03	<.0001	0.0274	1.03	1.03 - 1.03	<.0001

Table O-24 ITS model, Outpatient visits/1,000 m-q among MassHealth members with any SUD and OUD diagnoses, CY2015 - CY2022

Parameter	Estimate	Risk Ratio	95% CI	P-value	Estimate	Risk Ratio	95% CI	P-value
	SUD				OUD			
Intercept	-0.1271				0.1934			
Time	0.0047	1.00	1.00 - 1.01	<.0001	0.0119	1.01	1.01 - 1.01	<.0001
Phase 1	-0.0085	0.99	0.98 - 1.00	0.0825	-0.0080	0.99	0.98 - 1.00	0.1816
Time after Phase 1	-0.0162	0.98	0.98 - 0.99	<.0001	-0.0240	0.98	0.97 - 0.98	<.0001
Phase 2	0.0356	1.04	1.03 - 1.04	<.0001	0.0408	1.04	1.03 - 1.05	<.0001
Time after Phase 2	0.0064	1.01	1.00 - 1.01	<.0001	0.0024	1.00	1.00 - 1.01	0.2377
Age	0.0145	1.01	1.01 - 1.01	<.0001	0.0119	1.01	1.01 - 1.01	<.0001
Female	0.3141	1.37	1.36 - 1.38	<.0001	0.2552	1.29	1.28 - 1.30	<.0001
DxCG	0.0155	1.02	1.02 - 1.02	<.0001	0.0134	1.01	1.01 - 1.01	<.0001

Appendix P: ICD Codes for Goal 5

Appendix P provides specific ICD-9 and ICD-10 codes for all measures used in the Goal 5 evaluation.

Within this document:

- A.5.1.1: SUD Definition and ICD Codes
- A.5.1.2: OUD Definition and ICD Codes
- A.5.1.3: SUD Services
- A.5.1.4: Overdose ICD Codes

Base case definition: For each calendar quarter, identify all members in the specified age range who had two or more outpatient or ED visits or one or more inpatient visits, with one of the following codes at any time from one year prior to the first day in the calendar quarter through one year after the first day of the calendar quarter. ICD 9 codes will appear on claims/encounters prior to October 2015, and ICD-10 codes will appear on claims after that date:

Table P-1 SUD ICD-9 and ICD-10 Codes

SUD ICD-9 Codes								
2910	30303	5710	30482	30540	30572	30463	29289	30590
2911	30390	5711	30483	30541	30573	5712	2929	30591
2912	30391	30402	30490	30542	30433	5713	30400	30592
2913	30392	30403	30491	30543	30440	76071	30401	30593
2914	30393	30410	30492	30550	30441	9800	30420	64830
2915	30500	30411	30493	30551	30442	2920	30421	64831
2918	30501	30412	30520	30552	30443	29211	30422	64832
29181	30502	30413	30521	30553	30450	29212	30423	64833
29182	30503	30470	30522	30560	30451	2922	30430	64834
9189	3575	30471	30523	30561	30452	29281	30431	65550
2919	4255	30472	30530	30562	30453	29282	30432	65551

30300	5353	30473	30531	30563	30460	29283	30581	65553
30301	53530	30480	30532	30570	30461	29284	30582	76072
30302	53531	30481	30533	30571	30462	29285	30583	76073
76075	7795	96500	96501	96502	96509	V6542	30580	

SUD ICD-10 codes							
F1010	F1229	F15251	F19282	F10281	F13229	O355XX1	O99310
F1011	F1290	F15259	F19288	F10282	F13230	O355XX2	O99311
F10120	F12920	F15280	F1929	F10288	F13231	O355XX3	O99312
F10121	F12921	F15281	F1990	F1029	F13232	O355XX4	O99313
F10129	F12922	F15282	F19920	F10920	F13239	O355XX5	O99314
F1014	F12929	F15288	F19921	F10921	F1324	O355XX9	O99315
F10150	F12950	F1529	F19922	F10929	F13250	O99320	P043
F10151	F12951	F1590	F19929	F1094	F13251	O99321	Q860
F10159	F12959	F15920	F19930	F10950	F13259	O99322	F1110
F10180	F12980	F15921	F19931	F10951	F1326	O99323	F1111
F10181	F12988	F15922	F19932	F10959	F1327	O99324	F11120
F10182	F1299	F15929	F19939	F1096	F13280	O99325	F11121
F10188	F1310	F1593	F1994	F1097	F13281	P0441	F11122
F1019	F1311	F1594	F19950	F10980	F13282	P0449	T408X1A
F1020	F13120	F15950	F19951	F10981	F13288	P961	T408X1D
F1021	F13121	F15951	F19959	F10982	F1329	P962	T408X1S
F10220	F13129	F15959	F1996	F10988	F1390	T400X1A	T408X3A
F10221	F1314	F15980	F1997	F1099	F13920	T400X1D	T408X3D
F10229	F13150	F15981	F19980	G621	F13921	T400X1S	T408X3S

F10230	F13151	F15982	F19981	I426	F13929	T400X3A	T408X4A
F10231	F13159	F15988	F19982	K2920	F13930	T400X3D	T408X4D
F10232	F13180	F1599	F19988	K2921	F13931	T400X3S	T408X4S
F10239	F13181	F1610	F1999	K700	F13932	T400X4A	T408X5A
F1024	F13182	F1611	F550	K7010	F13939	T400X4D	T408X5D
F10250	F13188	F16120	F551	K7011	F1394	T400X4S	T408X5S
F10251	F1319	F16121	F552	K702	F13950	T400X5A	T40901A
F10259	F1320	F16122	F553	K7030	F13951	T400X5D	T40901D
F1026	F1321	F16129	F554	K7031	F13959	T400X5S	T40901S
F1027	F13220	F1614	F558	K7040	F1396	T400X6A	T40903A
F10280	F11959	F1424	F1829	F1397	O355XX0	F1624	T40903D
F18121	F11981	F14250	F1890	F1514	T400X6D	F16250	T40903S
F18129	F11982	F14251	F18920	F15150	T400X6S	F16251	T40904A
F1814	F11988	F14259	F18921	F15151	T401X1A	F16151	T40904D
F18150	F1199	F14280	F18929	F15159	T401X1D	F16159	T40995A
F18151	F1210	F14281	F1894	F15180	T401X1S	F16180	T40995D
F18159	F1211	F14282	F18950	F15181	T401X3A	F16183	T40995S
F1817	F12120	F14288	F18951	F15182	T401X3D	F16188	T40996A
F18180	F12121	F1429	F18959	F15188	T401X3S	F1619	T40996D
F18188	F12122	F1490	F1897	F1519	T401X4A	F1620	T40996S
F11129	F12129	F14920	F18980	F1520	T401X4D	F1621	T40993D
F1114	F12150	F14921	F18988	F1521	T401X4S	F14121	T40993S
F11150	F12151	F14922	F1899	F15220	T401X5A	F14122	T40994A
F11151	F12159	F14929	F1910	F15221	T401X5D	F14129	T40994D
F11159	F12180	F1494	F1911	F15222	T401X5S	F1414	T40994S

F11181	F12188	F14950	F19120	F15229	T405X1A	F14150	T407X6S
F11182	F1219	F14951	F19121	F1523	T405X1D	F1699	T407X6D
F11188	F1220	F14959	F19122	F1524	T405X1S	F1810	F11951
F1119	F1221	F14980	F19129	F15250	T405X3A	F1811	F1423
F1120	F12220	F14981	F1914	F16988	T405X3D	F13980	F18288
F1121	F12221	F14982	F19150	F1920	T405X3S	F13981	F16259
F11220	F12222	F14988	F19151	F1921	T405X4A	F13982	F16229
F11221	F12229	F1499	F19159	F19220	T405X4D	F13988	T407X6A
F11222	F12250	F1510	F1916	F19221	T405X4S	F1399	T407X6D
F11229	F12251	F1511	F1917	F19222	T405X5A	F1410	F11950
F1123	F12259	F15120	F19180	F15129	T405X5D	F1411	F14229
F1124	F12280	F15121	F19181	F16280	T405X5S	F14120	F18280
F11250	F12288	F15122	F19182	F16283	T405X6A	O99310	K709
F11251	F13221	F16150	F19229	F16288	T405X6D	O99311	F16221
F11259	F14151	F18120	F19230	F1629	T405X6S	O99312	T407X5S
F11281	F14159	F1819	F19231	F1690	T407X1A	O99313	T407X6D
F11282	F14180	F1820	F19232	F16920	T407X1D	O99314	F1194
F11288	F14181	F1821	F19239	F16921	T407X1S	O99315	F14222
F1129	F14182	F18220	F1924	F16929	T407X3A	P043	F1827
F1190	F14188	F18221	F19250	F1694	T407X3D	Q860	F19281
F11920	F1419	F18229	F19251	F16950	T407X3S	F1110	F16220
F11921	F1420	F1824	F19259	F16951	T407X4A	F1111	T407X5D
F11922	F1421	F18250	F1926	F16959	T407X4D	F11120	T407X6S
F11929	F14220	F18251	F1927	F16980	T407X4S	F11121	
F1193	F14221	F18259	F19280	F16983	T407X5A	F11122	

A.5.1.2 OUD Definition

Base case definition: For each calendar quarter, identify all members in the specified age range who had two or more outpatient or ED visits, or one or more inpatient visits, with one of the following codes at any time from one year prior to the first day in the calendar quarter through one year after the first day of the calendar quarter. ICD 9 codes will appear on claims/encounters prior to October 2015, and ICD-10 codes will appear on claims after that date:

Table P-2 OUD ICD-9 and ICD-10 Codes

OUD ICD-9 codes					
304.00	304.01	304.02	304.03	304.7	304.71
304.72	304.73	305.00	305.01	305.02	305.03

OUD ICD-10 codes							
F1110	F1111	F11120	F11121	F11122	F11129	F1114	F11150
F11151	F11159	F11181	F11182	F11188	F1119	F1120	F1121
F11220	F11221	F11222	F11229	F11922	F11929	F1193	F1194
F11950	F11951	F11959	F11981	F11982	F11988	F1199	F1123
F1124	F11250	F11251	F11259	F11281	F11282	F11288	F1129
F1190	F11920	F11921					

A.5.1.3 SUD services

CPT/HCPCS/Revenue Codes for ASAM 3.7 Acute Treatment Services, by plan		
MCE	REV CODE	HCPCS
AllWays Health Partners	136, 128	H0011 (Modifiers TF, HD, HH, HO, TH) H0018

HNE	EATS - (1002)	
MBHP	EATS - (1002)	
UHC SCO	128, 136	H0011/13 H0018
FALLON/ BMCHP (Beacon)	1002	H0011;H0011 - HE (Pregnancy Enhanced)
SWH	1002	H0011
TUFTS	1001; 1002	H0011, H0011 (MODIFIERS HH AND HD); H0037 (HH)
CCA	1002	H0011, H0011-HD

CPT/HCPCS/Revenue Codes for ASAM 3.5 Clinical stabilization services, by plan		
MCE	REV CODE	HCPCS
AllWays Health Partners	1002	H0010
HNE	907	
MBHP	907	
UHC SCO	1002	H0019/H2036
FALLON/ BMCHP (Beacon)	1002	H0010; H0011 -TF (Youth)
SWH	1002	H0010
TUFTS	1002	H0010
CCA	0907	H0010

CPT/HCPCS/Revenue Codes for SUD outpatient visit, by plan	
MCE	HCPCS
AllWays Health Partners	H0005; H0033; H0047
HNE	(H0014)
MBHP	(H0014); VBP Code: Intake-Routine (T1015 TF); VBP Code: Phase One (T1012 TG); VBP Code: Phase Two (T1012 TF); VBP Code: Phase Three (T1012 HF)
UHC SCO	H0004, H0005, H0020, H0033
FALLON/ BMCHP (Beacon)	90791,90792, 90832, 90834,90837, 90839, 90840,99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 90833(Add-On), 90836(Add-On), 90853, 90847
SWH	Any OP service with SUD diagnosis
TUFTS	90785; 90791; 90792; 90832; 90833; 90834; 90836; 90837; 90839; 90840; 90846; 90847; 90849; 90853; 90882; 90887; 99201; 99203; 99204; 99205; 99211; 99212; 99213; 99214; 99215
CCA	99201-99205, 99211-99215, 99241-99245, 99412 90833-90838, G0469, G0470, S9484, 90791, 90792, 90832, 90834, 90837, 90846, 90847, 90887, 90882, 90839, 90840, 90849 90853, H0032, 96372, H0004, H0004-HD, H0005, H0005-HD, T1006, T1006-HD, H0038-HF, H0006-HD, H1005, H1005-HQ

CPT/HCPCS codes for recovery support navigator, by plan	
MCE	HCPCS
AllWays Health Partners	H2015-HF
HNE	(H2015 HF)
MBHP	(H2015 HF)
UHC SCO	2015HF
FALLON/ BMCHP (Beacon)	H2015 -HF
SWH	H2015-HF
TUFTS	H2015-HF
CCA	H2015-HF H2015-HG

CPT/HCPCS codes for recovery coach, by plan	
MCE	HCPCS
AllWays Health Partners	H2016-HM
HNE	(H2016 HM)
MBHP	(H2016 HM)
UHC SCO	H0038HF
FALLON/ BMCHP (Beacon)	H2016 - HM
SWH	H2016-HM
TUFTS	H2016-HM
CCA	H2016-HM

HCPCS/CPT codes for outpatient withdrawal management, by plan	
MCE	HCPCS
AllWays Health Partners	H0014
HNE	initial 15 minutes (97810 HF) each additional 15 minutes (97811 HF)
MBHP	initial 15 minutes (97810 HF) each additional 15 minutes (97811 HF)
UHC SCO	97810 HF and 97811 HF H0014
FALLON/ BMCHP (Beacon)	97810 - HF; 97811 -HF H0014
SWH	(97810HF, 97811HF) H0014
TUFTS	H0014; 97810; 97811 H0014
CCA	97810, 97811 H0014

A.5.1.4 Overdose

Any overdose

ICD9 codes:
960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, E850, E851, E852, E853, E854, E855, E856, E857, E858, 9600, 9601, 9602, 9603, 9604, 9605, 9606, 9607, 9608,9609,9610, 9611, 9612, 9613, 9614, 9615, 9616, 9617, 9618, 9619, 9620, 9621, 9622, 9623, 9624, 9625, 9626, 9627, 9628, 9629, 9630, 9631, 9632, 9633, 9634, 9635, 9636, 9637, 9638, 9639, 9640, 9641, 9642, 9643, 9644, 9645, 9646, 9647, 9648, 9649, 9650, 9651, 9652, 9653, 9654, 9655, 9656, 9657, 9658, 9659, 9660, 9661, 9662, 9663, 9664, 9665, 9666, 9667, 9668, 9669, 9670, 9671, 9672, 9673, 9674, 9675, 9676, 9677, 9678, 9679, 9680, 9681, 9682, 9683, 9684, 9685, 9686, 9687, 9688, 9689, 9690, 9691, 9692, 9693, 9694, 9695, 9696, 9697, 9698, 9699, 9700, 9701, 9702, 9703, 9704, 9705, 9706, 9707, 9708, 9709, 9710, 9711, 9712, 9713, 9714, 9715, 9716, 9717, 9718, 9719, 9720, 9721, 9722, 9723, 9724, 9725, 9726, 9727, 9728, 9729, 9730, 9731, 9732, 9733, 9734, 9735, 9736, 9737, 9738, 9739, 9740, 9741, 9742, 9743, 9744, 9745, 9746, 9747, 9748, 9749, 9750, 9751, 9752, 9753, 9754,

9755, 9756, 9757, 9758, 9759, 9760, 9761, 9762, 9763, 9764, 9765, 9766, 9767, 9768, 9769, 9770, 9771, 9772, 9773, 9774, 9775, 9776, 9777, 9778, 9779, 9780, 9781, 9782, 9783, 9784, 9785, 9786, 9787, 9788, 9789, 9790, 9791, 9792, 9793, 9794, 9795, 9796, 9797, 9798, 9799, E8500, E8501, E8502, E8503, E8504, E8505, E8506, E8507, E8508, E8509, E8510, E8511, E8512, E8513, E8514, E8515, E8516, E8517, E8518, E8519, E8520, E8521, E8522, E8523, E8524, E8525, E8526, E8527, E8528, E8529, E8530, E8531, E8532, E8533, E8534, E8535, E8536, E8537, E8538, E8539, E8540, E8541, E8542, E8543, E8544, E8545, E8546, E8547,E8548, E8549, E8550, E8551, E8552, E8553, E8554, E8555, E8556, E8557, E8558, E8559, E8560,E8561, E8562, E8563, E8564, E8565, E8566, E8567, E8568, E8569, E8570, E8571, E8572, E8573,E8574, E8575, E8576, E8577, E8578, E8579, E8580, E8581, E8582, E8583, E8584, E8585, E8586, E8587, E8588, E8589

ICD 10 codes:
T4271XA, T4272XA, T4273XA, T4274XA, T458X1A, T458X2A, T458X3A, T458X4A, T4591XA, T4592XA, T4593XA, T4594XA, T460X1A, T460X2A, T460X3A, T460X4A, T461X1A, T461X2A, T461X3A, T461X4A, T462X1A, T462X2A, T462X3A, T462X4A, T463X1A, T463X2A, T463X3A, T463X4A, T464X1A, T464X2A, T464X3A, T464X4A, T465X1A, T465X2A, T465X3A, T465X4A, T466X1A, T466X2A, T466X3A, T466X4A, T467X1A, T467X2A, T467X3A, T467X4A, T476X1A, T476X2A, T476X3A, T476X4A, T477X1A, T477X2A, T477X3A, T477X4A, T478X1A, T478X2A, T478X3A, T478X4A, T4791XA, T4792XA, T4793XA, T4794XA, T480X1A, T480X2A, T480X3A, T480X4A, T481X1A, T481X2A, T481X3A, T481X4A, T48201A, T48202A, T48203A, T48204A, T48291A, T48292A, T48293A, T48294A, T483X1A, T483X2A, T483X3A, T483X4A, T484X1A, T484X2A, T484X3A, T484X4A, T485X1A, T485X2A, T485X3A, T485X4A, T48991A, T48992A, T48993A, T48994A, T50901A, T50902A, T50903A, T50904A, T50B11A, T50B12A, T50B13A, T50B14A

Opioid overdose

ICD9: 96500,96501,96502,96509,E8500,E8501,E8502,

ICD 10: T400X1A,T400X1A, T400X1D, T400X1S, T400X2A, T400X2D, T400X2S, T400X3A,T400X3D,T400X3S, T400X4A, T400X4D, T400X4S, T401X1A, T401X1D, T401X1S, T401X2A,T401X2D, T401X2S, T401X3A, T401X3D, T401X3S, T401X4A, T401X4D, ,T402X1A, T402X1D, T402X1S, T402X2A, T402X2D, T402X2S, T402X3A, T402X3D,T402X3S, T402X4A, T402X4D, T402X4S, T403X1A, T403X1D, T403X1S, T403X2A,T403X2D, T403X2S, T403X3A, T403X3D, T403X3S, T403X4A, T403X4D, T403X4S,T404X1A, T404X1D, T404X1S, T404X2A, T404X2D, T404X2S, T404X3A, T404X3D,T404X3S, T404X4A, T404X4D, T404X4S, T40601A, T40601D, T40601S, T40602A,T40602D, T40602S, T40603A, T40603D, T40603S, T40604A, T40604D, T40604S

Overdose deaths

Any overdose
Underlying cause of death = X40, X41, X42, X43, X44, X60, X61, X62, X63, X64, X85, Y10, Y11, Y12, Y13, Y14

Opioid overdose
Underlying cause of death = X40, X41, X42, X43, X44, X60, X61, X62, X63, X64, X85, Y10, Y11, Y12, Y13, Y14
and any of contributing cause of death = T40.0, T40.1, T40.2, T40.4, T40.6)

Appendix Q: Original Hypotheses – Refinement of PE

Original hypotheses – Refinement of PE

RQ1. What is the effect of the 2017-2022 **Demonstration's refinement of provisional eligibility?**

H1. The 2017-2022 Demonstration's refinement of PE will decrease the number of individuals deemed provisionally eligible for MassHealth based on self-attestation of eligibility factors but were not ultimately able to verify MassHealth eligibility relative to trends before the effective date of the 2017-2022 Demonstration.

H2. The 2017-2022 Demonstration's refinement of PE will decrease costs to MassHealth by reducing MassHealth expenditures for individuals who are deemed provisionally eligible for MassHealth during the PE period but cannot verify their MassHealth eligibility within 90 days, relative to trends before the effective date of the 2017-2022 Demonstration.

Appendix R: Investigation comparing different data sources to identify individuals with PE

Per our approved EDD[247], we intended to use MMIS data fed from the HIX/IES system for the **H1** and **H2** analysis. However, the PE information based on eligibility action reasons (i.e., the action reason code with opening and closing dates of an individual's eligibility status) in MMIS was only captured from 2018 onwards, which was after the 2017-2022 Demonstration started. Therefore, we could not perform the pre- and post-PE refinement comparison using MMIS data to determine the impact of the PE policy.

Early in the 2017-2022 Demonstration, we explored the usability of the Daily Data Extract (DDE) from the Optum Reporting system, which is a replication of the HIX hCentive Operational Database[248] where the HIX/IES is hosted. While the DDE contains member data, we found that the DDE database is used for operational purposes and is not set up in a way that supported our evaluation purpose. The DDE data are a 'snapshot' in time, reflecting the data only at the time it is extracted. All data can be overwritten, including a PE flag, at any time for various reasons, thus changing data values from any point in time. No historical records are retained after data are overwritten; thus, we could not retrieve historical data to determine the prior PE populations over time.

As a result of the preliminary analyses described above, for the IESR, we further examined the MMIS and DDE data sources to compare the results and determine the best source to create PE population estimates. We spent considerable time investigating the MMIS and the DDE systems to understand better the utility of each data source for the PE analysis, as both systems have limitations in accurately capturing trends in PE populations over time.

One approach we investigated was to develop an algorithm to create weekly snapshots of the DDE data in real-time to capture historical data and minimize overwritten data as much as possible. We took each weekly snapshot and appended it to the previous weeks' snapshots to create a usable dataset. However, even with this method, we were limited in identifying the PE populations before the Demonstration; using DDE, we could only create the estimate of PE populations over time beginning in July 2021 (when we started to capture this data on a weekly basis) to begin showing the changes. Another approach was to continue investigating the MMIS data and refining a detailed algorithm using eligibility start and end dates, and action reason codes to identify PE population estimates using the MMIS data beginning in late 2018.

After a thorough investigation, we concluded that the primary data source for identifying PE population estimates would be MMIS data, as we originally intended. The MMIS data appeared to be more accurate for capturing the PE population since historical enrollment information was available, and we were able to use the data to estimate the PE population who had unverified information at the end of each quarter.

[2] See MassHealth website for full Evaluation Design Document (EDD): https://www.mass.gov/doc/ma-independentevaluation-design-1-31-19-0/download

[3] The HIX hCentive is propriety and restricted from reporting, so the Optum reporting system is an alternative.

We also determined that we could only report on the post-implementation period since the MMIS system could not capture the information needed before the policy change to conduct a pre-post analysis. Further, since the DDE was the only data source available for pre-implementation analyses, we could not do a comparable analysis pre- (DDE) and post- (MMIS) implementation. Therefore, the hypotheses were updated to assess trends after the July 1, 2018, refinement of PE requirements under the 2017-2022 Demonstration.

Appendix S: PE Detailed Tables for Goal 7

Table S-1 Number and Percentage of Individuals with Provisional Eligibility, by Quarter, Q4 2018 – Q4 2022

Year	Quarter	Total PE per Q N (%)	Total MH population per Q
Q42018	4	139,888 (7.2)	1,953,504
CY2019	1	474,793 (24.8)	1,915,234
	2	333,157 (17.5)	1,907,682
	3	236,733 (12.2)	1,940,145
	4	199,910 (10.3)	1,935,507
CY2020	1	356,692 (18.6)	1,914,199
	2	132,261 (6.9)	1,913,994
	3	169,891 (8.6)	1,972,438
	4	174,805 (8.6)	2,030,969
CY2021	1	477,731 (23.0)	2,072,991
	2	264,876 (12.5)	2,116,037
	3	271,975 (12.5)	2,178,082
	4	154,905 (7.0)	2,227,173
CY2022	1	379,609 (16.7)	2,266,857
	2	125,760 (5.5)	2,303,262
	3	133,553 (5.7)	2,357,190
	4	125,288 (5.2)	2,406,442

Data source: MMIS Data

Table S-2 Number and Percentage of Individuals with PE with Unverified MassHealth Eligibility, by Quarter, Q4 2018 – Q4 2022

Year	Quarter	Unverified N (%)	Total PE per Q
Q2018	4	140,85 (10.1)	139,888
CY2019	1	75,185 (15.8)	474,793
	2	105,351 (31.6)	333,157
	3	72,043 (30.4)	236,733
	4	55,177 (27.6)	199,910
CY2020	1	81,494 (22.8)	356,692
	2	26,444 (20.0)	132,261
	3	39,187 (23.1)	169,891
	4	55,653 (31.8)	174,805
CY2021	1	175,495 (36.7)	477,731
	2	100,327 (37.9)	264,876
	3	83,182 (30.6)	271,975
	4	6,168 (4.0)	154,905
CY2022	1	40,954 (10.8)	379,609
	2	5,261 (4.2)	125,760

Year	Quarter	Unverified N (%)	Total PE per Q
	3	3,738 (2.8)	133,553
	4	2,124 (1.7)	125,288

Data source: Mega Extract MMIS Data

Table S-3 PMPM Cost for Individuals with PE and Unverified MassHealth Eligibility, by Year, CY2019-CY2022

Year	PMPM Cost for Unverified ($)
CY2019	563.93
CY2020	497.53
CY2021	482.62
CY2022	477.98

Data source: Mega Extract MMIS Data

CY2019 includes Q4 2018 as part of the baseline