Arizona Health Care Cost Containment System

Arizona Section 1115 Waiver Evaluation

Interim Evaluation Report, Appendices

April 2022

This demonstration is operated under a Section 1115 Research and Demonstration Waiver initially approved by the Centers for Medicare & Medicaid Services (CMS) on September 30, 2016.

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Appendix A Evaluation Design Plan

Appendix A contains the Arizona Health Care Cost Containment System (AHCCCS) Section 1115 waiver demonstration evaluation design plan.

Arizona Health Care Cost Containment System

Arizona's Section 1115 Waiver Independent Evaluation – Design Plan

AHCCCS Complete Care (ACC), Arizona Long Term Care System (ALTCS), Comprehensive Medical and Dental Program (CMDP), Regional Behavioral Health Authority (RBHA), Prior Quarter Coverage (PQC), and Targeted Investments (TI)

July 2020

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1. Background

The Centers for Medicare & Medicaid Services (CMS) and federal law set standards for the minimum care states must provide Medicaid-eligible populations, while also giving states an opportunity to design and test their own strategies for funding and providing health care services. Section 1115 of the Social Security Act permits states to test innovative demonstration projects and evaluate state-specific policy changes to increase efficiency and reduce costs. On September 30, 2016, CMS approved Arizona's request to extend its Section 1115 demonstration project, Arizona Health Care Cost Containment System (AHCCCS). The demonstration extension was approved for an additional five years effective October 1, 2016, through September 30, 2021.[1-1] The following six Section 1115 waiver programs have been implemented or extended:

- AHCCCS Complete Care (ACC)
- Arizona Long Term Care System (ALTCS)
- Comprehensive Medical and Dental Program (CMDP)
- Regional Behavioral Health Authority (RBHA)
- Prior Quarter Coverage (PQC) Waiver
- Targeted Investments (TI)

Additional Components

AHCCCS Works

AHCCCS had additionally received approval for and intended to implement AHCCCS Works during the current demonstration period. However, in October 2019, AHCCCS announced a delay in implementation citing ongoing litigation nationally.[1-2] An evaluation design plan has been drafted for this component as Appendix G if the demonstration is implemented.

AHCCCS CARE

AHCCCS describes the Choice Accountability Responsibility Engagement (CARE) program in its approved special terms and conditions (STCs), describing a planned implementation date of January 2017. The AHCCCS CARE program would have required Group VIII expansion beneficiaries to make monthly contributions into AHCCCS CARE accounts, providing certain incentives for timely payment and completion of "healthy targets"

[1-1] CMS Approval Letter. Centers for Medicare & Medicaid Services. https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/Health-Care-Cost-Containment-System/az-hccc-demo-ext-09302016.pdf. Accessed on: Sept 23, 2019.

[1-2] AHCCCS Letter to CMS, RE: Implementation of AHCCCS Works, October 17, 2019; https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/Health-Care-Cost-Containment-System/az-hccc-postponement-ltr-ahcccs-works-10172019.pdf. Accessed on: July 6, 2020.

under a separate but related program.[1-3] However, AHCCCS has not, and does not intend to implement the CARE program. As a result, this component is not included in either the evaluation design plan or the evaluation reports.

Descriptions, goals, and populations for each waiver program are described below.

ACC

On November 26, 2018, AHCCCS submitted a request to amend the Special Terms and Conditions (STCs) of the previously approved Section 1115 demonstration waiver to "reflect the delivery system changes that resulted from the ACC managed care contract award."[1-4]

Throughout recent years, AHCCCS has made strides to integrate behavioral health and physical health care among its Medicaid beneficiaries. These integration efforts included a statewide integrated contract with the implementation of the ACC contract on October 1, 2018. AHCCCS streamlined services for beneficiaries by transitioning them to seven new ACC integrated health care plans with member outreach and communication planning began in 2017. On October 1, 2018, AHCCCS transitioned approximately 1.5 million AHCCCS beneficiaries into ACC managed care plans that provide integrated physical and behavioral health care services. Specifically, the ACC plans serve AHCCCS Acute Care Program enrollees except for adults determined to have a serious mental illness (SMI) and foster children enrolled in CMDP.

The ACC contract was awarded to seven health plans across three geographical service areas (GSAs): Northern Arizona, Central Arizona, and Southern Arizona. Contractors under ACC are responsible for provision of integrated physical and behavioral health care for adults who are not determined to have an SMI (excluding beneficiaries enrolled with Department of Economic Security/Division of Developmental Disabilities [DES/DDD]), children with and without special health care needs (excluding beneficiaries enrolled with DES/DDD and Department of Child Safety/CMDP), and beneficiaries determined to have an SMI who opt out and transfer to an ACC for the provision of physical health services.

As part of the ACC contract, health plans are expected to "develop specific strategies to promote the integration of physical and behavioral health service delivery and care integration activities."[1-5] Such strategies include the following:

- Implementing care coordination and care management best practices for physical and behavioral health care
- Proactive identification of beneficiaries for engagement in care management
- Providing the appropriate level of care management/coordination of services to beneficiaries with comorbid physical health and behavioral health conditions and collaborating on an ongoing basis with both the member and other individuals involved in the member's care

[1-3] AHCCCS Special Terms and Conditions, updated September 13, 2019; https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/az-hccc-ca.pdf. Accessed on: July 6, 2020.
[1-4] AHCCCS Letter to CMS, RE: Arizona's 1115 Waiver: AHCCCS Complete Care Technical Clarification, November 26, 2018; https://www.azahcccs.gov/Resources/Downloads/ACC_TechnicalAmendmentCorrection_11262018.pdf. Accessed on: Aug 22, 2019.
[1-5] AHCCCS Complete Care contract #YH19-0001, Section D; https://www.azahcccs.gov/Resources/Downloads/ContractAmendments/ACC/YH190001_ACC_AMD6.pdf. Accessed on: Aug 22, 2019.

- Ensuring continuity and coordination of physical and behavioral health services and collaboration/communication among physical and behavioral health care providers
- Operating a single member services toll-free telephone line, and a single nurse triage line, both available to all beneficiaries for physical health and behavioral health services
- Developing strategies to encourage beneficiaries to utilize integrated service settings
- Considering the behavioral health and physical health care needs of beneficiaries during network development and contracting practices that consider providers and settings with an integrated service delivery model to improve member care and health outcomes
- Developing organizational structure and operational systems and practices that support the delivery of integrated services for physical and behavioral health care

ALTCS

In 1988, the original Section 1115 Research and Demonstration Waiver was amended to allow Arizona to implement a capitated long-term care program for the elderly, beneficiaries with physical disabilities, and beneficiaries with intellectual or developmental disabilities—the ALTCS program. ALTCS provides acute care, long-term care, behavioral care, and home- and community-based services to Medicaid beneficiaries at risk for institutionalization. Services are provided through contracted prepaid, capitated arrangements with managed care organizations (MCOs). MCOs that contracted with the state under ALTCS provide care to eligible beneficiaries who are elderly and/or physically disabled (EPD). These plans are referred as ALTCS-EPD health plans. ALTCS also contracts with DES/DDD. MCOs that contracted with DES/DDD, referred to as ALTCS-DDD health plans, provide care to Medicaid beneficiaries with intellectual/developmental disabilities (DD).[1-6]

There were no substantive policy changes upon renewal of the demonstration; therefore, outcomes should not substantively change between pre-renewal and post-renewal. However, on October 1, 2019, behavioral health for beneficiaries with DD were transitioned into ALTCS-DDD health plans.[1-7] Behavioral services, along with physical health services and certain Long Term Services and Supports (LTSS) (i.e., nursing facilities, emergency alert system services, and rehabilitative physical therapy for beneficiaries 21 years of age and older), are subcontracted by DES/DDD to managed care organizations called DDD health plans. Therefore, part of this waiver evaluation will assess changes in rates attributable to this integration of behavioral and physical care.

The goals of the ALTCS program are to ensure that beneficiaries are living in the most integrated setting and actively engaged and participating in community life. The ALTCS program's goals are to improve the quality of and access to care for ALTCS program beneficiaries, the quality of life for ALTCS program beneficiaries, and ALTCS program beneficiary satisfaction.

CMDP

CDMP operates as an acute care health plan under contract with Arizona's Medicaid Agency, AHCCCS, for children who are determined Medicaid eligible and in the custody of the Arizona Department of Child Safety

[1-6] Arizona's Section 1115 Waiver Demonstration Annual Report. https://www.azahcccs.gov/Resources/Downloads/FY2018AnnualReportCMS.pdf. Accessed on: Sep 27, 2019.
[1-7] DDD Health Plans. https://des.az.gov/services/disabilities/developmental-disabilities/new-ddd-health-plans. Accessed on: Sep 30, 2019.

(DCS). CMDP provides medical and dental services for children in foster homes; the custody of DCS and placed with a relative, or placed in a certified adoptive home prior to the entry of the final order of adoption, or in an independent living program as provided in Arizona Revised Statutes (A.R.S) § 8-521; or in the custody of a probation department and placed in out of home care. CMDP is administered by DCS and complies with AHCCCS regulations to cover children in foster care who are eligible for Medicaid services.[1-8]

The CMDP promotes the well-being of Arizona's children in foster care by ensuring, in partnership with the foster care community, the provision of appropriate and quality health care services. The CMDP's primary objectives are to proactively respond to the unique health care needs of Arizona's children in foster care, ensure the provision of high quality, clinically appropriate, and medically necessary health care, in the most cost-effective manner, and promote continuity of care and support caregivers, custodians, and guardians through integration and coordination of services. CMDP staff assist and support providers through a range of activities, including but not limited to the management of beneficiaries who do not follow through on appointments and/or treatment; facilitating clean claims for authorized services within 30 days, providing information regarding referrals to CMDP registered providers; assisting with beneficiary referrals to community programs; and coordinating medical care for at-risk children.

Behavioral health services for CMDP children are anticipated to be covered through a RBHA until April 1, 2021. After this date, AHCCCS intends to integrate behavioral health coverage into the CMDP plans to further simplify health care coverage and encourage better care coordination.

RBHA

As part of this demonstration renewal, adult AHCCCS beneficiaries with an SMI continue to receive acute care and behavioral health services through a geographically designated RBHA contracted with AHCCCS.[1-9]

Historically, RBHAs provided coverage for behavioral health services for all AHCCCS beneficiaries with few exceptions.[1-10] In March 2013, AHCCCS awarded Mercy Maricopa Integrated Care (MMIC) the RBHA contract for Maricopa County, Arizona's most populous county, to take effect April 2014. As part of this contract, MMIC provided integrated physical and behavioral health care coverage for individuals with an SMI in Maricopa county. In October 2015, RBHA contractors statewide began providing integrated care for their beneficiaries with an SMI.[1-11, 1-12] On October 1, 2018, AHCCCS conducted its largest care integration initiative by transitioning all acute care beneficiaries who do not have an SMI to seven ACC integrated health care plans, which provided coverage for physical and behavioral health care. Following the implementation of the ACC integration, the RBHAs provided specific services for several well-defined populations:

- Integrated physical and behavioral health services for beneficiaries determined to have an SMI

[1-8] CMDP Provider Manual, 2018, https://dcs.az.gov/sites/default/files/DCS-PamphletsandFlyers/CMDP-1711-ProviderManual2018.pdf. Accessed on: Sept 24, 2019.
[1-9] Ibid.
[1-10] These exceptions include ALTCS elderly and physically disabled.
[1-11] "Supportive Service Expansion for Individuals with Serious Mental Illness: A Case Study of Mercy Maricopa Integrated Care," *NORC*, August 18, 2017. Available at: https://news.aetna.com/wp-content/uploads/2018/02/NORC-Mercy-Maricopa-Case-Study-FINAL-v-2.pdf. Accessed on: Sept 26, 2019.
[1-12] Draft Data Quality Strategy Assessment and Performance Improvement Report, *AHCCCS*, July 1, 2018. Available at: https://www.azahcccs.gov/PlansProviders/Downloads/DraftQualityStrategyJuly2018.pdf. Accessed on: Sept 26, 2019.

- Behavioral health services for beneficiaries in the custody of the Department of Child Safety (DCS) and enrolled in DCS/CMDP
- Behavioral health services for ALTCS beneficiaries enrolled with the DES/DDD

Beginning October 1, 2019, AHCCCS intends to integrate behavioral and physical health care for the DES/DDD population covered through ALTCS (ALTCS-DD). Beneficiaries enrolled in CMDP will transition to integrated behavioral and physical health care services care under the CMDP waiver beginning October 1, 2020. Due to these integration initiatives, the focus of this evaluation will be on assessing outcomes among adult beneficiaries with an SMI only. Measures and outcomes for the other populations will be included in the respective waiver evaluation design plans—measures for children covered by CMDP will be included in the evaluation design plan for CMDP and measures for ALTCS-DD beneficiaries will be included in the evaluation design plan for ALTCS.

PQC Waiver

On January 18, 2019, CMS approved Arizona's requests to amend its Section 1115 Demonstration project to waive PQC retroactive eligibility. PQC allows individuals who are applying for Title XIX coverage retroactive coverage for up to three months prior to the month of application as long as the individual remained eligible for Medicaid during that time. The amendment will allow AHCCCS to limit retroactive coverage to the month of application, which is consistent with the AHCCCS historical waiver authority prior to January 2014. [1-13] The amendment will allow AHCCCS to implement the waiver no earlier than April 1, 2019, with an anticipated effective date of July 1, 2019, with the demonstration approved from January 18, 2019, through September 30, 2021.[1-14] The demonstration will apply to all Medicaid beneficiaries, except for pregnant women, women who are 60 days or less postpartum, and infants and children under 19 years of age. AHCCCS will provide outreach and education to eligible members, current beneficiaries, and providers to inform those that may be impacted by the change.

The goals of the demonstration are to encourage beneficiaries to obtain and maintain health coverage, even when healthy, or to obtain health coverage as soon as possible after becoming eligible, increase continuity of care by reducing gaps in coverage that occur when members "churn" (individuals moving on and off Medicaid repeatedly), and therefore, improve health outcomes and reduce costs to AHCCCS, ensuring the long term fiscal sustainability of the Arizona Medicaid program.

TI

On January 18, 2017, CMS approved the five-year TI demonstration program, effective January 18, 2017, through the expiration date of September 30, 2021.[1-15] The TI program provides a total of up to $300 million across the demonstration approval period to support the physical and behavioral health care integration and coordination for beneficiaries with behavioral health needs who are enrolled in AHCCCS. These beneficiaries include adults with

[1-13] Arizona Health Care Cost Containment System. Arizona Section 1115 Waiver Amendment Request: Proposal to Waive Prior Quarter Coverage. Apr 6, 2019. Available at: https://www.azahcccs.gov/Resources/Downloads/PriorQuarterCoverageWaiverToCMS_04062018.pdf. Accessed on: Jun 19, 2019.
[1-14] Centers for Medicare & Medicaid Services. CMS Approval Letter. Jan 18, 2019. Available at: https://www.azahcccs.gov/Resources/Downloads/CMSApprovalLetter.pdf. Accessed on: Jun 19, 2019.
[1-15] CMS Approval Letter. Centers for Medicare & Medicaid Services. https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/Health-Care-Cost-Containment-System/az-hccc-trgtd-invstmnts-prgrm-appvl-01182017.pdf. Accessed on: Aug 20, 2019.

behavioral health needs, children with behavioral health needs, including children with or at risk for Autism Spectrum Disorder (ASD), and children engaged in the child welfare system, and individuals transitioning from incarceration who are AHCCCS-eligible.

The TI program directs its managed care plans to make payments to certain providers and provide financial incentives to eligible Medicaid providers who meet certain benchmarks for integrating and coordinating physical and behavioral health care for Medicare beneficiaries pursuant to 42 CFR 438.6(c) and the 1115 Waiver. These payments are incorporated into the actuarially sound capitation rates, to incentivize providers to improve performance. The TI program's overall goals are to reduce fragmentation between acute care and behavioral health care, increase efficiencies in service delivery for members with behavioral health needs by improving integration at the provider level, and improve health outcomes for the affected populations.

This demonstration is funded by up to $300 million from multiple sources, which include a maximum of $90,824,900 from a CMS-approved time-limited expenditure from the Designated State Health Programs (DSHP). This one-time investment of DSHP funding will be phased down over the demonstration period and is meant to provide a short-term federal investment. AHCCCS and CMS expect that by the end of the demonstration, the care coordination will be supported through ongoing payment arrangements without the need for demonstration authority.[1-16] There are certain amounts of DSHP funds during years three through five of the TI Program that are designated "at risk". If the State does not meet certain performance requirements in a given demonstration year, the TI program will lose the amount of DSHP funds specified as "at risk" for that year. This would lower total TI program spending unless Intergovernmental Transfers (IGTs) are available to fill the gap.[1-17]

[1-16] Ibid.
[1-17] Ibid.

2. Evaluation Questions and Hypotheses

This section provides each program's logic model, hypotheses, and research questions, which focus on evaluating the impact of the Arizona Health Care Cost Containment System's (AHCCCS') waiver demonstration.

There are several concurrent programs and components to the AHCCCS waiver demonstration that may affect certain groups of beneficiaries. The logic models presented below depict each program's interaction between the demonstration components, the waiver programs and policy changes, and populations covered by AHCCCS.

Most AHCCCS beneficiaries in the managed care system have coverage through one of four different programs:

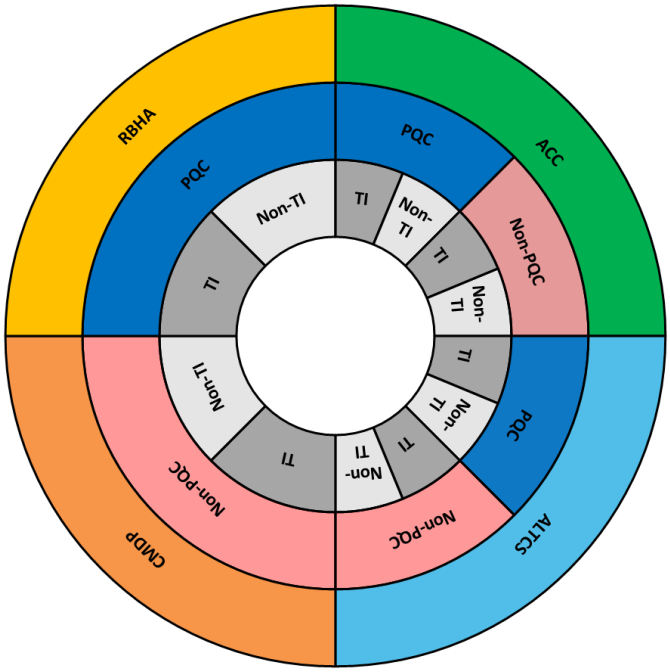
1. **AHCCCS Complete Care (ACC)**—Covers the following populations:
   a. Adults who are not determined to have a serious mental illness (SMI) (excluding beneficiaries enrolled with Department of Economic Security/Division of Developmental Disabilities [DES/DDD]);
   b. Children, including those with special health care needs (excluding beneficiaries enrolled with DES/DDD and Department of Child Safety [DCS]/Comprehensive Medical and Dental Program [CMDP]); and
   c. Beneficiaries determined to have an SMI who opt out of a Regional Behavioral Health Authority (RBHA) and transfer to an ACC for the provision of physical health services.
2. **Arizona Long Term Care System (ALTCS)**—Covers beneficiaries with an intellectual or developmental disability (ALTCS-DD) and beneficiaries who are elderly or physically disabled (ALTCS-EPD).
3. **Comprehensive Medical and Dental Program (CMDP)**—Covers beneficiaries in custody of the DCS.
4. **Regional Behavioral Health Authority (RBHA)**—Covers adult beneficiaries with an SMI.

The Prior Quarter Coverage (PQC) waiver impacts all adults on AHCCCS.[2-1] Therefore, evaluations that only cover children (i.e., CMDP) will not be affected by PQC, and evaluations that only cover adults (i.e., RBHA) will be impacted entirely by PQC (with few exceptions). The Targeted Investments (TI) program is designed to encourage participating practitioners to provide integrated care for their beneficiaries. This impacts all children and adult beneficiaries attributed or assigned to TI-participating practitioners; however, it does not impact beneficiaries who are not attributed or assigned to practitioners who are not participating in TI. Therefore, the TI program is expected to impact every eligibility category. Figure 2-1 illustrates that the populations covered by ACC, CMDP, ALTCS, and RBHA are mutually exclusive and that each of these may have a subset impacted by PQC and/or TI.

[2-1] Exceptions include children under the age of 19 and women who are pregnant or 60 days post-partum.

Figure 2-1: Population Relationships Across Waivers

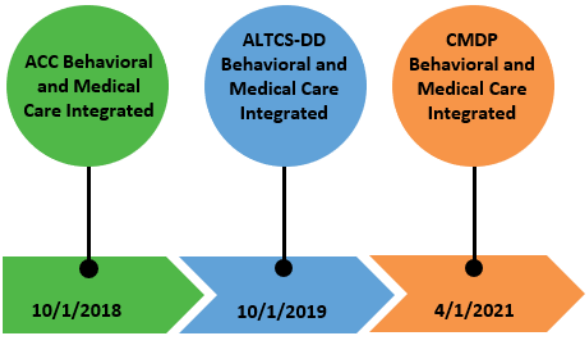
Note: The size of each segment does not represent population size.



The four broad populations, with few exceptions, are distinct and mutually exclusive. For example, beneficiaries with an SMI may opt-out of RBHA coverage and instead choose an ACC plan that is available in their region. Children in the custody DCS with an intellectual or developmental disability are covered through the ALTCS-DD program.

Prior to the demonstration renewal, RBHA provided behavioral health coverage for much of the AHCCCS population, while medical care was provided through other plans. Prior to and during the demonstration renewal period, AHCCCS has made several structural changes to care delivery by integrating behavioral and medical care at the payer level. This integration process began with the award of the Mercy Maricopa Integrated Care (MMIC) contract in 2013, effective April 2014. MMIC was a RBHA that, in addition to providing behavioral health coverage for most AHCCCS beneficiaries in central Arizona, provided integrated physical and behavioral health care coverage for adult beneficiaries with an SMI in Maricopa County. In October 2015, RBHA contractors statewide began providing integrated care for their beneficiaries with an SMI. On October 1, 2018, AHCCCS conducted its largest care integration initiative by transitioning all acute care beneficiaries who do not have an SMI to seven integrated health plans, which provided coverage for physical and behavioral health care. Beginning October 1, 2019, AHCCCS integrated behavioral and physical health care for the DES/DDD population covered through ALTCS-DD. Beneficiaries enrolled in CMDP will transition to integrated behavioral and physical health care services under the CMDP waiver beginning April 1, 2021. Figure 2-2 depicts a timeline of the payer-level integration of behavioral health and medical health care for the ACC, ALTCS-DD, and CMDP populations.

Figure 2-2: Timeline of Payer-Level Integration of Behavioral Health and Medical Health Care



ACC

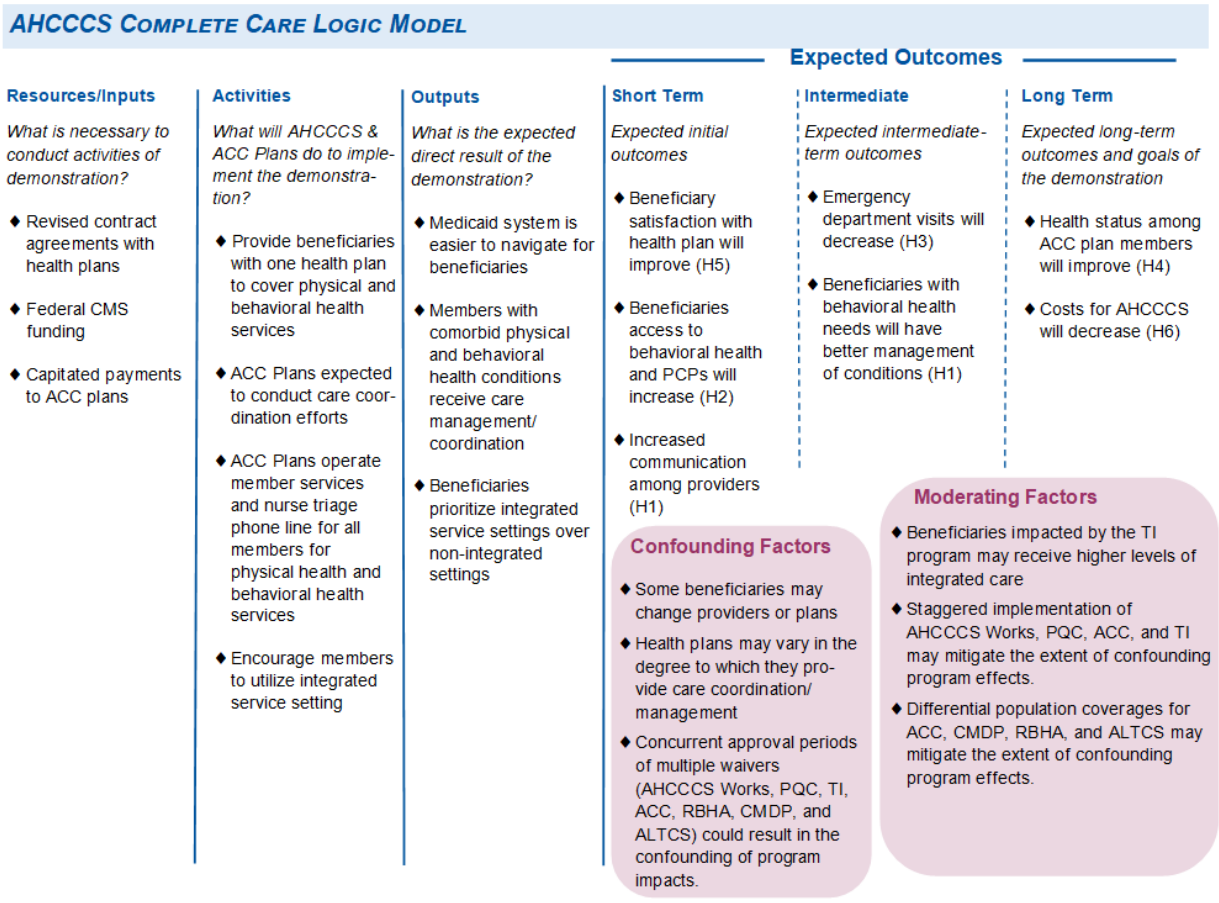
The overarching goals of the ACC delivery system are to reduce fragmentation of care by providing beneficiaries with a single health plan, payer, and provider network to cover their physical and behavioral health care. Additionally, health plans are expected to conduct and manage care coordination efforts among providers. In turn, this will make the Medicaid system easier to navigate, streamline care coordination, and ultimately improve a person's whole health outcomes.

The primary purpose of this evaluation is to determine whether the ACC demonstration waiver is achieving these goals. To develop hypotheses and research questions associated with these goals, AHCCCS created a logic model which relates the inputs and activities of the program (i.e., providing beneficiaries with a single health plan that covers both physical and behavioral care and requiring health plans to conduct care coordination efforts) to anticipated initial, intermediate, and long-term outcomes.

Logic Model

Figure 2-3 illustrates that, given resources to fund the ACC plans, beneficiaries will find the Medicaid system easier to navigate, those with physical and behavioral health comorbidities will receive care coordination/management, and beneficiaries will prioritize practices with integrated services over those with non-integrated services. With an easier to navigate Medicaid system, beneficiary satisfaction will improve. With better care coordination/management, beneficiaries with complex needs will see improved health outcomes, first shown by increased access to care and reduced utilization of emergency department visits. In the long term, this will improve beneficiaries' health and well-being while providing cost-effective care. Hypotheses associated with these outcomes are denoted in parentheses in the logic model (hypotheses descriptions can be found in Table 2-1).

Figure 2-3: ACC Logic Model



Hypotheses and Research Questions

To comprehensively evaluate the ACC demonstration waiver, six hypotheses will be tested using 18 research questions. Table 2-1 lists the six hypotheses.

Table 2-1: ACC Hypotheses

ACC Hypotheses	
1	Health plans encourage and/or facilitate care coordination among primary care practitioners (PCPs) and behavioral health practitioners.
2	Access to care will maintain or improve as a result of the integration of behavioral and physical care.
3	Quality of care will maintain or improve as a result of the integration of behavioral and physical care.
4	Beneficiary self-assessed health outcomes will maintain or improve as a result of the integration of behavioral and physical care.
5	Beneficiary satisfaction with their health care will maintain or improve as a result of the integration of behavioral and physical care.
6	The ACC program will provide cost-effective care.

Hypothesis 1 is designed to identify in detail the activities the plans conducted to further AHCCCS' goal of care integration by implementing strategies supporting care coordination and management. Barriers encountered during the transition to ACC and implementation of these strategies will also be a focus of Hypothesis 1. These research questions will be addressed through semi-structured key informant interviews with representatives from the ACC health plans and AHCCCS staff, as well as through beneficiary surveys and provider focus groups. The research questions and associated measures for Hypothesis 1 are presented in Table 2-2.

Table 2-2: Hypothesis 1 Research Questions and Measures

Hypothesis 1—Health plans encourage and/or facilitate care coordination among PCPs and behavioral health practitioners.	
Research Question 1.1: What care coordination strategies did the plans implement as a result of ACC?	
1-1	Health plans' reported care coordination activities
Research Question 1.2: Did the plans encounter barriers to implementing care coordination strategies?	
1-2	Health plans' reported barriers to implementing care coordination strategies
Research Question 1.3: Did the plans encounter barriers not related specifically to implementing care coordination strategies during the transition to ACC?	
1-3	Health plans' reported barriers not related specifically to implementing care coordination strategies during the transition to ACC
Research Question 1.4: Did AHCCCS encounter barriers related to the transition to ACC?	
1-4	AHCCCS' reported barriers before, during, and shortly following the transition to ACC
Research Question 1.5: Did providers encounter barriers related to the transition to ACC?	
1-5	Providers' reported barriers before, during, and shortly following the transition to ACC
Research Question 1.6: Do beneficiaries perceive their doctors to have better care coordination as a result of ACC?	
1-6	Percentage of beneficiaries who reported their doctor seemed informed about the care they received from other health providers

Hypothesis 2 will test whether access to care increased after integrating behavioral and physical health care into a single health plan. This hypothesis will be addressed using both claims/encounter data and beneficiary surveys. Where possible, rates will be calculated or reported both prior to and after the integration of care. The measures and associated research questions associated with Hypothesis 2 are presented in Table 2-3.

Table 2-3: Hypothesis 2 Research Questions and Measures

Hypothesis 2—Access to care will maintain or improve as a result of the integration of behavioral and physical care.	
Research Question 2.1: Do beneficiaries enrolled in an ACC plan have the same or better access to primary care services compared to prior to integrated care?	
2-1	Percentage of adults who accessed preventive/ambulatory health services
2-2	Percentage of children and adolescents who accessed PCPs
2-3	Percentage of beneficiaries under 21 with an annual dental visit
2-4	Percentage of beneficiaries who reported they received care as soon as they needed

Hypothesis 2—Access to care will maintain or improve as a result of the integration of behavioral and physical care.	
2-5	Percentage of beneficiaries who reported they were able to schedule an appointment for a checkup or routine care at a doctor's office or clinic as soon as they needed
2-6	Percentage of beneficiaries who reported they were able to schedule an appointment with a specialist as soon as they needed
Research Question 2.2: Do beneficiaries enrolled in an ACC plan have the same or better access to substance abuse treatment compared to prior to integrated care?	
2-7	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment
2-8	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment

The primary goal of the transition to ACC is to promote the health and wellness of its beneficiaries by improving quality of care, particularly among those with both physical and behavioral health conditions, which be assessed under Hypothesis 3. This hypothesis will be addressed using both claims/encounter data and beneficiary surveys. Where possible, rates will be calculated or reported both prior to and after integration of care. Table 2-4 describes the research questions and measures that AHCCCS will use to determine whether ACC is meeting the goal associated with Hypothesis 3.

Table 2-4: Hypothesis 3 Research Questions and Measures

Hypothesis 3—Quality of care will maintain or improve as a result of the integration of behavioral and physical care.	
Research Question 3.1: Do beneficiaries enrolled in an ACC plan have the same or higher rates of preventive or wellness services compared to prior to integrated care?	
3-1	Percentage of beneficiaries with a well-child visit in the first 15 months of life
3-2	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life
3-3	Percentage of beneficiaries with an adolescent well-care visit
3-4	Percentage of children two years of age with appropriate immunization status
3-5	Percentage of adolescents 13 years of age with appropriate immunizations
3-6	Percentage of adult beneficiaries who reported having a flu shot or nasal flu spray since July 1
Research Question 3.2: Do beneficiaries enrolled in an ACC plan have the same or better management of chronic conditions compared to prior to integrated care?	
3-7	Percentage of beneficiaries with persistent asthma who had a ratio of controller medications to total asthma medications of at least 50 percent
Research Question 3.3: Do beneficiaries enrolled in an ACC plan have the same or better management of behavioral health conditions compared to prior to integrated care?	
3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment
3-9	Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness
3-10	Percentage of beneficiaries with a follow-up visit after emergency department (ED) visit for mental illness
3-11	Percentage of beneficiaries with follow-up after ED visit for alcohol and other drug abuse or dependence

Hypothesis 3—Quality of care will maintain or improve as a result of the integration of behavioral and physical care.	
3-12	Percentage of beneficiaries with a screening for clinical depression and follow-up plan
3-13	Percentage of beneficiaries receiving mental health services (inpatient, intensive outpatient or partial hospitalization, outpatient, ED, or telehealth)
Research Question 3.4: Do beneficiaries enrolled in an ACC plan have the same or better management of opioid prescriptions compared to prior to integrated care?	
3-14	Percentage of adult beneficiaries who have prescriptions for opioids at a high dosage
3-15	Percentage of adult beneficiaries with concurrent use of opioids and benzodiazepines
Research Question 3.5: Do beneficiaries enrolled in an ACC plan have equal or lower ED or hospital utilization compared to prior to ACC?	
3-16	Number of ED visits per 1,000 member months
3-17	Number of inpatient stays per 1,000 member months
3-18	Percentage of adult inpatient discharges with an unplanned readmission within 30 days

One of the primary goals of the ACC is to provide higher quality care for its beneficiaries, ultimately leading to better health status, which will be evaluated under Hypothesis 4. To determine the overall health status among ACC beneficiaries, the independent evaluator will utilize two survey questions asking beneficiaries to report their overall health and overall mental or emotional health. The research questions and measures pertaining to Hypothesis 4 are listed in Table 2-5.

Table 2-5: Hypothesis 4 Research Questions and Measures

Hypothesis 4— Beneficiary self-assessed health outcomes will maintain or improve as a result of the integration of behavioral and physical care.	
Research Question 4.1: Do beneficiaries enrolled in an ACC plan have the same or higher overall health rating compared to prior to integrated care?	
4-1	Percentage of beneficiaries who reported a high rating of overall health
Research Question 4.2: Do beneficiaries enrolled in an ACC plan have the same or higher overall mental or emotional health rating compared to prior to integrated care?	
4-2	Percentage of beneficiaries who reported a high rating of overall mental or emotional health

Hypothesis 5 seeks to measure beneficiary satisfaction with the ACC plans. Table 2-6 presents the measures and survey questions that will be used to assess beneficiary satisfaction.

Table 2-6: Hypothesis 5 Research Questions and Measures

Hypothesis 5—Beneficiary satisfaction with their health care will maintain or improve as a result of the integration of behavioral and physical care.	
Research Question 5.1: Are beneficiaries equally or more satisfied with their health care as a result of integrated care?	
5-1	Percentage of beneficiaries who reported a high rating of health plan
5-2	Percentage of beneficiaries who reported a high rating of overall health care

Hypothesis 6 (Table 2-7) seeks to measure the cost-effectiveness of the ACC demonstration waiver. A long-term goal of the ACC is to provide cost-effective care for its beneficiaries. Because cost-effectiveness will not be evaluated solely based on the outcome of specific financial measurements, no specific measures are included under Hypothesis 6. The independent evaluator will calculate costs and savings associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs had the demonstration not been renewed or implemented. Program savings will be identified as reductions in administrative and/or service expenditures beyond those projected had the integration of care not been implemented. Additional non-monetary benefits (costs) will also be identified related to improvements (declines) in any of the above measures for which a monetary value cannot be assigned. The approach for assessing cost-effectiveness of the ACC is described in detail in the Cost-Effectiveness Analysis section.

Table 2-7: Hypothesis 6 Research Questions and Measures

Hypothesis 6—The ACC program provides cost-effective care.
Research Question 6.1: What are the costs associated with the integration of care under ACC?
Research Question 6.2: What are the benefits/savings associated with the integration of care under ACC?

ALTCS

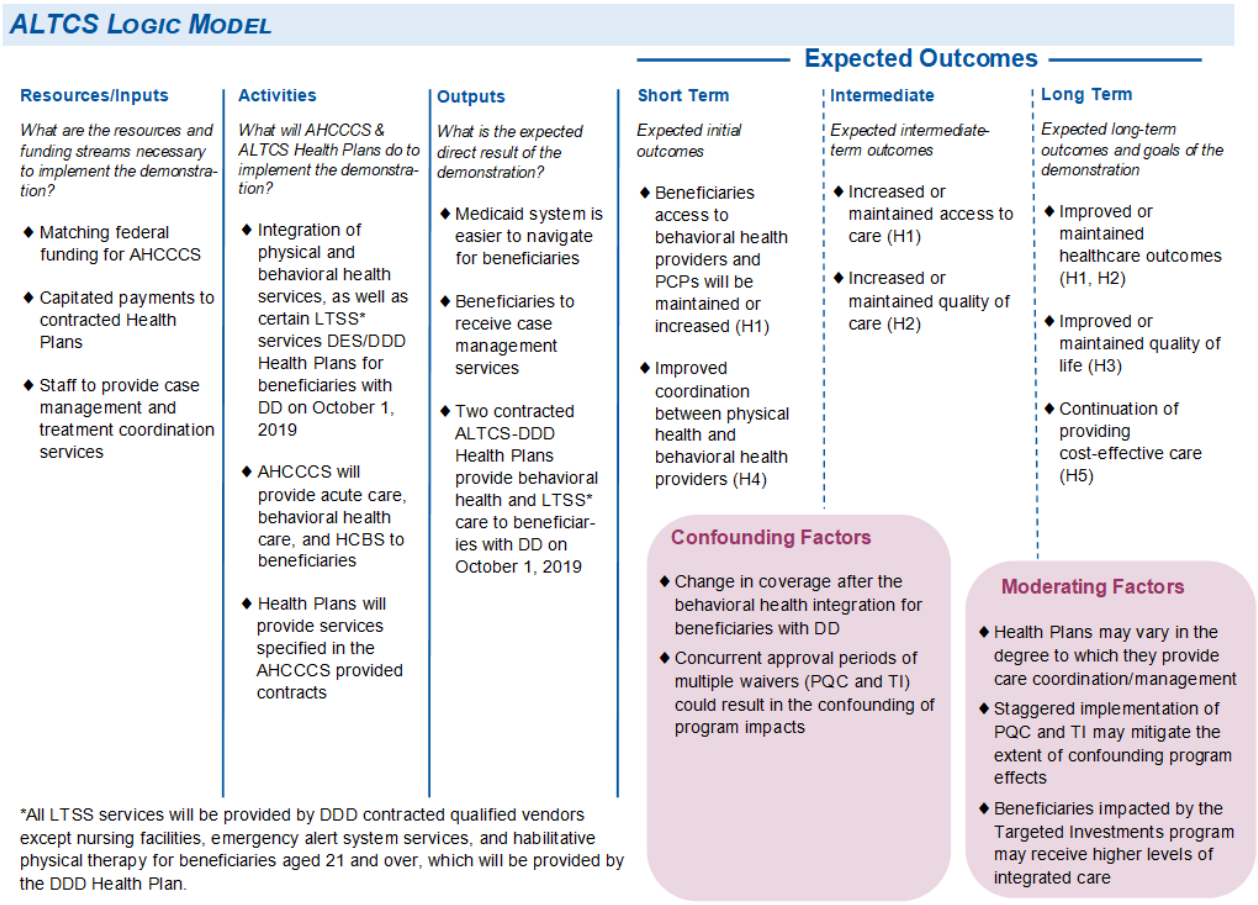
The goal of the ALTCS is to ensure beneficiaries who are elderly and/or have physical disabilities (EPD) or beneficiaries who have intellectual/developmental disabilities (DD) are living in the most integrated setting while remaining actively engaged in community life by providing physical health, long term care, behavioral health, and home- and community-based services (HCBS) to beneficiaries who are at risk for institutionalization.

The primary purpose of this evaluation is to determine whether the ALTCS demonstration waiver renewal is achieving these goals.

Logic Model

To develop hypotheses and research questions associated with these goals, AHCCCS developed a logic model which relates the inputs and activities of the program to anticipated initial, intermediate, and long-term outcomes, which are associated with the hypotheses to be tested. Figure 2-4 illustrates that, given resources to fund the ALTCS plans, beneficiaries will find the Medicaid system easier to navigate, beneficiaries will continue to receive case management, and beneficiaries will prioritize practices with integrated services over those with non-integrated services. With improvements to the navigation of the Medicaid system, beneficiary access to care will improve. With better case management, beneficiaries will see improved health outcomes, first shown by an increase in quality and access of care. In the long term, this will improve beneficiaries' health outcomes and well-being while providing cost-effective care.

Figure 2-4: ALTCS Program Logic Model



Hypotheses and Research Questions

To comprehensively evaluate the ALTCS Program demonstration waiver, five hypotheses will be tested using 19 research questions. Table 2-8 lists the five hypotheses.

Table 2-8: ALTCS Hypotheses

Hypotheses	
1	Access to care will maintain or improve over the waiver demonstration period.
2	Quality of care will maintain or improve over the wavier demonstration period.
3	Quality of life for beneficiaries will maintain or improve over the waiver demonstration period.
4	ALTCS encourages and/or facilitates care coordination among Primary Care Practitioners (PCPs) and behavioral health practitioners.
5	ALTCS provides cost-effective care.

Hypothesis 1 is designed to determine if access to care will be maintained or improved. The measures to test this hypothesis and answer the associated research questions are listed below in Table 2-9.

Table 2-9: Hypothesis 1 Research Questions and Measures

Hypothesis 1—Access to care will maintain or improve over the waiver demonstration period.	
Research Question 1.1: Do adult beneficiaries who are elderly and/or with a physical disability and adult beneficiaries with developmental disabilities (DD) have the same or higher access to care compared to baseline rates and out-of-state comparisons?	
1-1	Percentage of beneficiaries who accessed preventive/ambulatory health services
Research Question 1.2: Do child beneficiaries with DD have the same or higher rates of access to care compared to baseline rates and out-of-state comparisons?	
1-2	Percentage of children and adolescents who accessed primary care practitioners
1-3	Percentage of beneficiaries under 21 with an annual dental visit
Research Question 1.3: Do adult beneficiaries with DD have the same or improved rates of access to care as a result of the integration of care for beneficiaries with DD?	
1-4	Percentage of beneficiaries who have a primary care doctor or practitioner
1-5	Percentage of beneficiaries who had a complete physical exam in the past year
1-6	Percentage of beneficiaries who had a dental exam in the past year
1-7	Percentage of beneficiaries who had an eye exam in the past year
1-8	Percentage of beneficiaries who had an influenza vaccine in the past year

To determine if quality of care is maintained or increased, Hypothesis 2 will evaluate measures associated with preventative care, behavioral health care management, and utilization of care. The measures and associated research questions are presented in Table 2-10.

Table 2-10: Hypothesis 2 Research Questions and Measures

Hypothesis 2—Quality of care will maintain or improve over the wavier demonstration period.	
Research Question 2.1: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or higher rates of preventative care compared to baseline rates and out-of-state comparisons?	
2-1	Percentage of adult beneficiaries with a breast cancer screening
2-2	Percentage of adult beneficiaries with a cervical cancer screening
2-3	Percentage of beneficiaries with persistent asthma who had a ratio of controller medications to total asthma medications of at least 50 percent
Research Question 2.2: Do child beneficiaries with DD have the same or higher rates of preventative care compared to baseline rates and out-of-state comparisons?	
2-4	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life
2-5	Percentage of beneficiaries with an adolescent well-care visit
2-6	Percentage of beneficiaries with an influenza vaccine

Hypothesis 2—Quality of care will maintain or improve over the wavier demonstration period.	
Research Question 2.3: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or better management of behavioral health conditions compared to baseline rates and out-of-state comparisons?	
2-7	Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness
2-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment
2-9	Percentage of beneficiaries with a screening for depression and follow-up plan
2-10	Percentage of beneficiaries receiving mental health services (inpatient, intensive outpatient or partial hospitalization, outpatient, emergency department [ED], or telehealth)
Research Question 2.4: Do adult beneficiaries who are elderly and/or with a physical disability and adult beneficiaries with DD have the same or better management of prescriptions compared to baseline rates and out-of-state comparisons?	
2-11	Percentage of adult beneficiaries with monitoring for persistent medications
2-12	Percentage of beneficiaries with opioid use at high dosage
2-13	Percentage of beneficiaries with a concurrent use of opioids and benzodiazepines
Research Question 2.5: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or higher rates of utilization of care compared to baseline rates and out-of-state comparisons?	
2-14	Number of ED visits per 1,000 member months
2-15	Number of inpatient stays per 1,000 member months
2-16	Percentage of adult inpatient discharges with an unplanned readmission within 30 days

Hypothesis 3 evaluates if the quality of life for beneficiaries remain the same or improves. The measures and associated research questions are presented in Table 2-11.

Table 2-11: Hypothesis 3 Research Questions and Measures

Hypothesis 3—Quality of life for beneficiaries will maintain or improve over the waiver demonstration period.	
Research Question 3.1: Do beneficiaries have the same or higher rates of living in their own home as a result of the ALTCS waiver renewal?	
3-1	Percentage of beneficiaries residing in their own home
3-2	Type of residence for adult beneficiaries with DD
Research Question 3.2: Do adult beneficiaries have the same or higher rates of feeling satisfied with their living arrangements as a result of the integration of care for beneficiaries with DD?	
3-3	Percentage of beneficiaries who want to live somewhere else
3-4	Percentage of beneficiaries who believe services and supports help them live a good life
Research Question 3.3: Do adult beneficiaries have the same or higher rates of feeling engaged as a result of the integration of care for beneficiaries with DD?	
3-5	Percentage of beneficiaries able to go out and do things s/he likes to do in the community

Hypothesis 3—Quality of life for beneficiaries will maintain or improve over the waiver demonstration period.	
3-6	Percentage of beneficiaries who have friends who are not staff or family members
3-7	Percentage of beneficiaries who decide or has input in deciding their daily schedule

Hypothesis 4 measures if the provision of behavioral services for beneficiaries with DD was impacted during the integration by performing key informant interviews and provider focus groups. The research questions and measures pertaining to this hypothesis are listed in Table 2-12.

Table 2-12: Hypothesis 4 Research Questions and Measures

Hypothesis 4—ALTCS encourages and/or facilitates care coordination among PCPs and behavioral health practitioners.	
Research Question 4.1: Did Department of Economic Security/Division of Developmental Disabilities (DES/DDD) or its contracted plans encounter barriers during the integration of care for beneficiaries with DD?	
4-1	DES/DDD and its contracted plans' barriers during transition
Research Question 4.2: What care coordination strategies did DES/DDD and its contracted plans implement as a result of integration of care?	
4-2	DES/DDD and its contracted plans' care coordination activities
Research Question 4.3: Did DES/DDD or its contracted plans encounter barriers to implementing care coordination strategies?	
4-3	DES/DDD and its contracted plans' barriers to implementing care coordination strategies
Research Question 4.4: Did AHCCCS encounter barriers related to integration of care for beneficiaries with DD?	
4-4	AHCCCS' reported barriers before, during, and shortly after the integration of care
Research Question 4.5: Did providers encounter barriers related to integration of care for beneficiaries with DD?	
4-5	Providers' reported barriers before, during, and shortly after the integration of care

Hypothesis 5 seeks to measure the cost-effectiveness of the ALTCS demonstration waiver. A long-term goal of ALTCS is to provide cost-effective care for its beneficiaries. Because cost-effectiveness will not be evaluated solely based on the outcome of specific financial measurements, no specific measures are included under Hypothesis 5. The independent evaluator will calculate costs and savings associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs had the demonstration not be renewed. Program savings will be identified as reductions in administration and/or service expenditures beyond those projected had the integration of care not been implemented. Additional non-monetary benefits (costs) will also be identified related to improvements (declines) in any of the above measures in which a monetary value cannot be assigned. The approach for assessing cost-effectiveness of ALTCS is described in detail in the Methodology section and the research questions are listed in Table 2-13.

Table 2-13: Hypothesis 5 Research Questions and Measures

Hypothesis 5—ALTCS provides cost-effective care.
Research Question 5.1: What are the costs associated with the integration of care under ALTCS?
Research Question 5.2: What are the benefits/savings associated with the integration of care under ALTCS?

CMDP

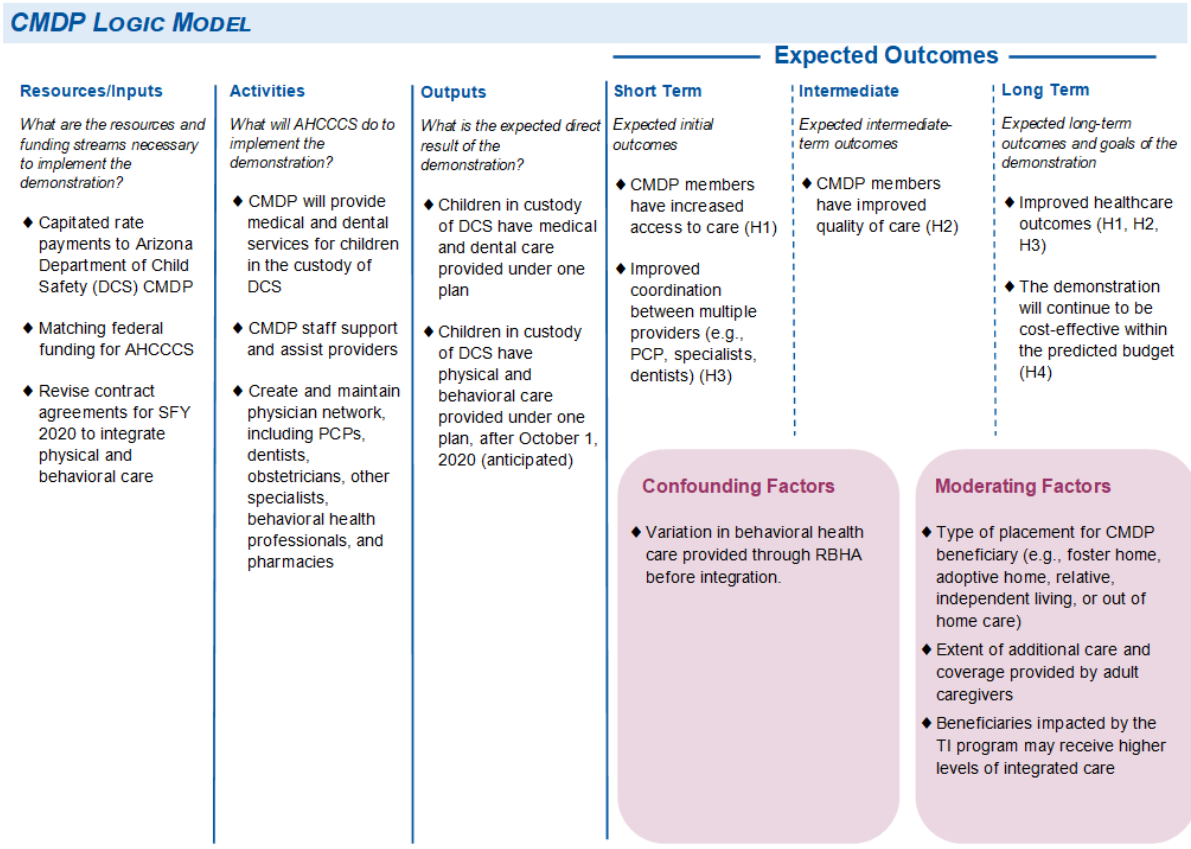
Through providing medical and dental care, the CMDP's goal is to promote the well-being of Arizona's children in foster care. Promoting well-being takes the form of providing quality and timely care for this population, therefore it is essential for the CMDP to work with foster parents, community members, health care providers, behavioral health care providers, specialists and coordinators to meet these goals.

The primary purpose of this evaluation is to determine whether the CMDP demonstration waiver is achieving these goals. To develop hypotheses and research questions associated with these goals, AHCCCS developed a logic model which relates the inputs and activities of the program (i.e., providing beneficiaries with timely immunizations and dental care) to anticipated initial, intermediate, and long-term outcomes, which are associated with hypotheses.

Logic Model

Figure 2-5 illustrates that, given the resources and contracting to fund the CMDP and integrate care, children in custody of the Arizona Department of Child Safety (DCS) will have medical and dental care provided under a single plan, and have physical and behavioral health care provided under a single plan after October 1, 2020. With improved access to and integration of care, children covered by the CMDP will experience improved health outcomes under a cost-effective care model. Hypotheses associated with these outcomes are denoted in parentheses in the logic model (hypotheses descriptions can be found in Table 2-14).

Figure 2-5: CMDP Logic Model



Hypotheses and Research Questions

To comprehensively evaluate the CMDP demonstration waiver, four hypotheses will be tested using 10 research questions. Table 2-14 lists the four hypotheses.

Table 2-14: CMDP Hypotheses

Hypotheses	
1	Access to care will be maintained or increase during the demonstration.
2	Quality of care for beneficiaries enrolled in CMDP will be maintained or improve during the demonstration.
3	CMDP encourages and/or facilitates care coordination among Primary Care Practitioners (PCPs) and behavioral health practitioners.
4	CMDP will provide cost-effective care.

Hypothesis 1 is designed to determine whether the CMDP activities during the demonstration maintain or improve beneficiary access to PCPs and specialists. Access to care will be assessed by focusing on beneficiaries' PCPs, dental utilization, and opportunities to make appointments. The hypothesis will be addressed using claims/encounter data and through beneficiary survey responses. The measures to test this hypothesis and answer the associated research question are listed below in Table 2-15.

Table 2-15: Hypothesis 1 Research Questions and Measures

Hypothesis 1—Access to care will be maintained or increase during the demonstration.	
Research Question 1.1: Do CMDP beneficiaries have the same or increased access to PCPs and specialists in the remeasurement period compared to the baseline?	
1-1	Percentage of children and adolescents with access to PCPs
1-2	Percentage of beneficiaries with an annual dental visit

Hypothesis 2 is designed to determine whether the CMDP activities during the demonstration maintain or improve the quality of care provided to beneficiaries. The research questions for this hypothesis will focus on preventive and wellness services; management of chronic conditions, mental health, and opioid prescriptions, and hospital utilization. This hypothesis will be addressed using both claims/encounter data and through beneficiary surveys. The measures and associated research questions are presented in Table 2-16.

Table 2-16: Hypothesis 2 Research Questions and Measures

Hypothesis 2—Quality of care for beneficiaries enrolled in CMDP will be maintained or improve during the demonstration.	
Research Question 2.1: Do CMDP beneficiaries have the same or higher rates of preventive or wellness services in the remeasurement period compared to the baseline?	
2-1	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life
2-2	Percentage of beneficiaries with an adolescent well-care visit
2-3	Percentage of children two years of age with appropriate immunization status
2-4	Percentage of adolescents 13 years of age with appropriate immunizations

Hypothesis 2—Quality of care for beneficiaries enrolled in CMDP will be maintained or improve during the demonstration.	
Research Question 2.2: Do CMDP beneficiaries have the same or better management of chronic conditions in the remeasurement period compared to the baseline?	
2-5	Percentage of beneficiaries ages 5 to 18 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
Research Question 2.3: Do CMDP beneficiaries have the same or better management of behavioral health conditions in the remeasurement period compared to the baseline?	
2-6	Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness
2-7	Percentage of children and adolescents on antipsychotics with metabolic monitoring
2-8	Percentage of beneficiaries with screening for depression and follow-up plan
2-9	Percentage of children and adolescents with use of multiple concurrent antipsychotics
2-10	Percentage of beneficiaries receiving mental health services (inpatient, intensive outpatient or partial hospitalization, outpatient, emergency department [ED], or telehealth)
Research Question 2.4: Do CMDP beneficiaries have the same or lower hospital utilization in the remeasurement period compared to the baseline?	
2-11	Number of ED visits per 1,000 member months
2-12	Number of inpatient stays per 1,000 member months

Hypothesis 3 (Table 2-17) is designed to identify in detail the activities CMDP conducted to further AHCCCS' goal of care integration through implementing strategies supporting care coordination and management. Barriers encountered during the transition to integrated care and implementing these strategies will also be a focus of Hypothesis 3. These research questions will be addressed through semi-structured key informant interviews with representatives from CMDP.

Table 2-17: Hypothesis 3 Research Questions and Measures

Hypothesis 3—CMDP encourages and/or facilitates care coordination among PCPs and behavioral health practitioners.	
Research Question 3.1: What barriers did CMDP anticipate/encounter during the integration?	
3-1	CMDP's anticipated/reported barriers during transition
Research Question 3.2: What care coordination strategies did CMDP plan/implement during integration?	
3-2	CMDP's planned/reported care coordination activities
Research Question 3.3: What barriers to implementing care coordination strategies did the CMDP anticipate/encounter?	
3-3	CMDP's anticipated/reported barriers to implementing care coordination strategies

Hypothesis 4 (Table 2-18) seeks to measure the cost-effectiveness of the CMDP. A goal of the CMDP is to provide cost-effective care for its beneficiaries. Because cost-effectiveness will not be evaluated solely based on the outcome of specific financial measurements, no specific measures are included under Hypothesis 4. The independent evaluator will calculate costs and savings associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs had the demonstration not been renewed or implemented. Program savings will be identified as reductions in administrative and/or

service expenditures beyond those projected had the integration of care not been implemented. Additional non-monetary benefits (costs) will also be identified related to improvements (declines) in any of the above measures for which a monetary value cannot be assigned. The approach for assessing cost-effectiveness of the CMDP is described in detail in the Cost-Effectiveness Analysis section.

Table 2-18: Hypothesis 4 Research Questions and Measures

Hypothesis 4—CMDP provides cost-effective care.
Research Question 4.1: What are the costs associated with the integration of care in the CMDP?
Research Question 4.2: What are the benefits/savings associated with the integration of care in the CMDP?

RBHA

By providing coordinated and integrated physical and behavioral health care to AHCCCS beneficiaries with an SMI, AHCCCS expects the RBHAs to improve access to primary care services, increase prevention, early identification, and intervention services and to reduce the incidence and impact of serious physical and mental illnesses and to improve the overall health and quality of life for their beneficiaries. Specifically, the RBHAs are expected to both conduct care coordination activities and provide care management activities to beneficiaries with an SMI in the top tier of high need/high cost.[2-2] The goals of care management are to identify high-risk beneficiaries with an SMI, effectively transition beneficiaries across levels of care, streamline, monitor, and adjust care plans based on progress and outcomes, reduce hospital admissions and emergency department and crisis service use, and provide beneficiaries with tools to self-manage care.[2-3]

The primary purpose of this evaluation is to determine whether the RBHAs are achieving these goals for its SMI population as part of AHCCCS' overarching Section 1115 demonstration waiver.

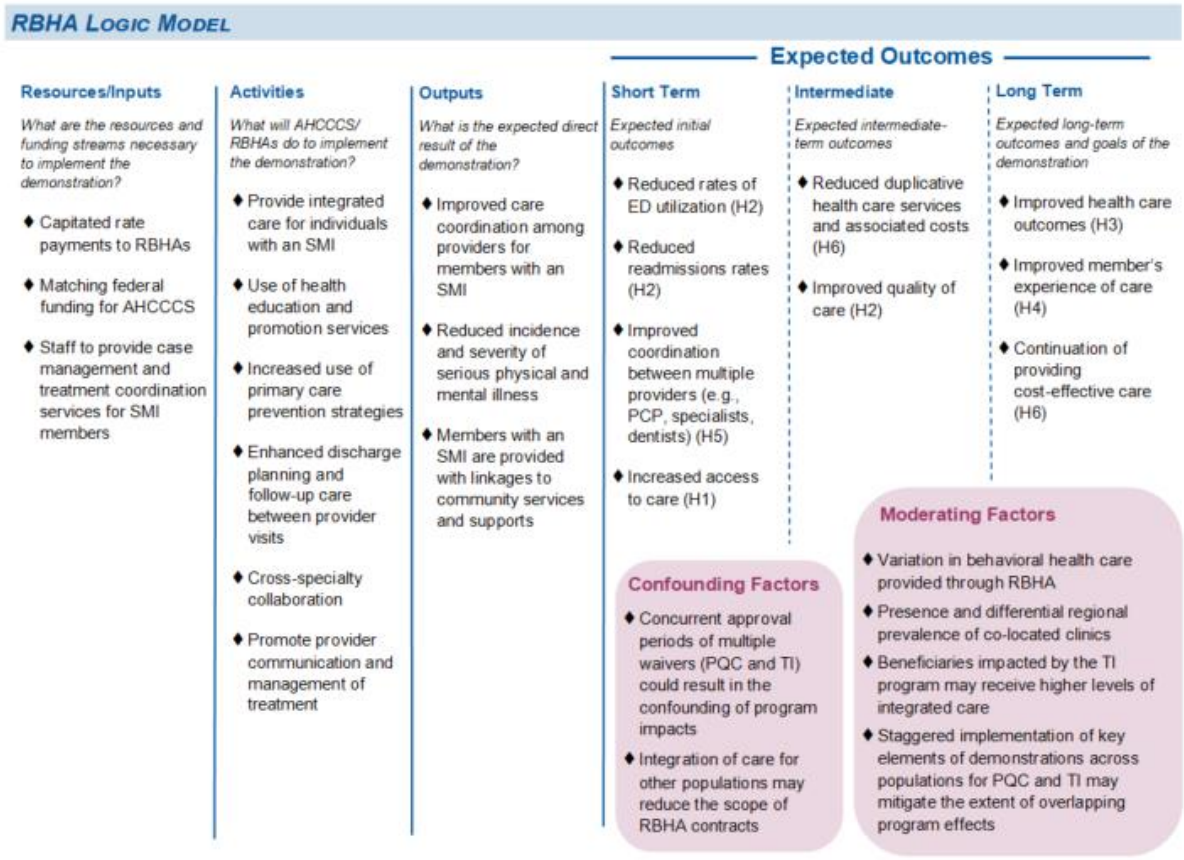
Logic Model

To develop hypotheses and research questions associated with these goals, AHCCCS created a logic model which relates the inputs and activities of the program to anticipated initial, intermediate, and long-term outcomes. Figure 2-6 shows that, given resources to fund the RBHAs, adult beneficiaries with an SMI will continue to receive care coordination/management, their providers will follow enhanced discharge planning guidelines and conduct cross-specialty collaboration, thereby promoting communication among providers. By integrating physical and behavioral health care, beneficiary satisfaction will be maintained or improve during the demonstration period. With better care coordination/management, beneficiaries will have equal or improved access to care and utilization of emergency department visits resulting in equal or better health outcomes, overall health, and satisfaction with their health care experiences. In the long term, this will improve beneficiaries' health and well-being while providing cost-effective care.

[2-2] AHCCCS Medical Policy Manual (AMPM) Policies 541 and 1020, respectively. Available at: AHCCCS Medical Policy Manual https://www.azahcccs.gov/shared/MedicalPolicyManual/. Accessed on: Oct 18, 2019.

[2-3] RBHA Contract YH17-0001 effective 10/01/2019, for Greater Arizona, available at: https://www.azahcccs.gov/Resources/Downloads/ContractAmendments/RBHAs/YH170001_GAZ_AMD11.pdf. Accessed on: Oct 18, 2019; and RBHA Contract YH17-0001 effective 10/01/2019, for Maricopa County, available at https://www.azahcccs.gov/Resources/Downloads/ContractAmendments/RBHAs/YH170001_MMIC_AMD11.pdf. Accessed on: Oct 18, 2019.

Figure 2-6: RBHA Program Logic Model



Hypotheses and Research Questions

To comprehensively evaluate the RBHA demonstration waiver, six hypotheses will be tested using 16 research questions. Table 2-19 lists the six hypotheses.

Table 2-19: RBHA Hypotheses

RBHA Hypotheses	
1	Access to care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or increase during the demonstration.
2	Quality of care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.
3	Health outcomes for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.
4	Adult beneficiary satisfaction in RBHA health plans will be maintained or improve over the waiver demonstration period.
5	RBHAs encourage and/or facilitate care coordination among primary care practitioners (PCPs) and behavioral health practitioners.

RBHA Hypotheses	
6	RBHAs will provide cost-effective care for beneficiaries with an SMI.

Hypothesis 1 will test whether access to care increased or was maintained throughout the demonstration renewal period. This hypothesis will be addressed using both claims/encounter data and beneficiary survey responses. The research question and measures associated with this hypothesis are listed in Table 2-20.

Table 2-20: Hypothesis 1 Research Questions and Measures

Hypothesis 1—Access to care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or increase during the demonstration.	
Research Question 1.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or increased access to primary care services compared to prior to the demonstration renewal?	
1-1	Percentage of adults who accessed preventive/ambulatory health services
1-2	Percentage of beneficiaries who reported they received care as soon as they needed
1-3	Percentage of beneficiaries who reported they were able to schedule an appointment for a checkup or routine care at a doctor's office or clinic as soon as they needed
1-4	Percentage of beneficiaries who reported they were able to schedule an appointment with a specialist as soon as they needed
Research Question 1.2: Do adult beneficiaries with an SMI enrolled in RBHA have the same or increased access to substance abuse treatment compared to prior to the demonstration renewal?	
1-5	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment
1-6	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment

The primary goal of providing integrated care for RHBA beneficiaries with an SMI is to promote health and wellness by improving the quality of care. Hypothesis 2 will test whether the quality of care provided to RBHA beneficiaries with an SMI improved or was maintained during the demonstration renewal period. This hypothesis will be addressed using both claims/encounter data and beneficiary survey responses. The research questions and measures associated with the hypothesis are presented in Table 2-21.

Table 2-21: Hypothesis 2 Research Questions and Measures

Hypothesis 2—Quality of care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.	
Research Question 2.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher rates of preventive or wellness services compared to prior to demonstration renewal?	
2-1	Percentage of beneficiaries who reported having a flu shot or nasal flu spray since July 1
Research Question 2.2: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of chronic conditions compared to prior to the demonstration renewal?	
2-2	Percentage of beneficiaries with persistent asthma who had a ratio of controller medications to total asthma medications of at least 50 percent
2-3	Percentage of beneficiaries with schizophrenia or bipolar disorder using antipsychotic medications who had a diabetes screening test

Hypothesis 2—Quality of care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.	
2-4	Percentage of beneficiaries with schizophrenia who adhered to antipsychotic medications
Research Question 2.3: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of behavioral health conditions compared to prior to the demonstration renewal?	
2-5	Percentage of beneficiaries who remained on antidepressant medication treatment
2-6	Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness
2-7	Percentage of beneficiaries with a follow-up visit after emergency department (ED) visit for mental illness
2-8	Percentage of beneficiaries with follow-up after ED visit for alcohol and other drug abuse or dependence
2-9	Percentage of beneficiaries with a screening for depression and follow-up plan
2-10	Percentage of beneficiaries receiving mental health services (total and by inpatient, intensive outpatient or partial hospitalization, outpatient, ED, or telehealth)
Research Question 2.4: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of opioid prescriptions compared to prior to the demonstration renewal?	
2-11	Percentage of beneficiaries who have prescriptions for opioids at a high dosage
2-12	Percentage of beneficiaries with concurrent use of opioids and benzodiazepines
Research Question 2.5: Do adult beneficiaries with an SMI enrolled in a RBHA have the same lower tobacco usage compared to prior to the demonstration renewal?	
2-13	Percentage of beneficiaries who indicated smoking cigarettes or using tobacco
Research Question 2.6: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or lower hospital utilization compared to prior to the demonstration renewal?	
2-14	Number of ED visits per 1,000 member months
2-15	Number of inpatient stays per 1,000 member months
2-16	Percentage of inpatient discharges with an unplanned readmission within 30 days

To determine the overall health status among RBHA beneficiaries with an SMI, the independent evaluator will utilize two survey questions asking beneficiaries to report their overall health and overall mental or emotional health. The measures and associated research questions are presented in Table 2-22.

Table 2-22: Hypothesis 3 Research Questions and Measures

Hypothesis 3—Health outcomes for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.	
Research Question 3.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher rating of health compared to prior to the demonstration renewal?	
3-1	Percentage of beneficiaries who reported a high rating of overall health
3-2	Percentage of beneficiaries who reported a high rating of overall mental or emotional health

Hypothesis 4 will measure beneficiary satisfaction and experience of care with the RBHAs, using three survey questions about their ratings of the health care received from the RBHAs and providers. Table 2-23 presents the measures and survey questions that will be used to measure these outcomes.

Table 2-23: Hypothesis 4 Research Questions and Measures

Hypothesis 4—Adult beneficiary satisfaction in RBHA health plans will be maintained or improve over the waiver demonstration period.	
Research Question 4.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher satisfaction in their health care compared to prior to the demonstration renewal?	
4-1	Percentage of beneficiaries who reported a high rating of overall health care
4-2	Percentage of beneficiaries who reported a high rating of health plan
Research Question 4.2: Do adult beneficiaries with an SMI enrolled in a RBHA perceive their doctors to have the same or better care coordination compared to prior to the demonstration renewal?	
4-3	Percentage of beneficiaries who reported their doctor seemed informed about the care they received from other health providers

While RBHAs provide integrated behavioral and physical care for their adult beneficiaries with an SMI throughout the demonstration renewal period, there have been changes to care delivery for other AHCCCS beneficiaries, namely the introduction of ACC in October 2018. Hypothesis 5 will consist of key informant interviews with health plan representatives, subject matter experts from AHCCCS, and providers to assess care coordination activities for the SMI population and identify any changes that could have resulted from the implementation of ACC. Table 2-24 presents the measures and research questions related to this hypothesis.

Table 2-24: Hypothesis 5 Research Questions and Measures

Hypothesis 5—RBHAs encourage and/or facilitate care coordination among PCPs and behavioral health practitioners.	
Research Question 5.1: What care coordination strategies are the RBHAs conducting for their SMI population?	
5-1	Health plans' reported care coordination activities for SMI population
Research Question 5.2: Have care coordination strategies for the SMI population changed as a result of ACC?	
5-2	Reported changes in health plans' care coordination strategies for SMI population
Research Question 5.3: What care coordination strategies is AHCCCS conducting for its SMI population?	
5-3	AHCCCS's reported care coordination strategies and activities for the SMI population served by the RBHAs
Research Question 5.4: What care coordination strategies and/or activities are providers conducting for their SMI patients served by the RBHAs?	
5-4	Providers' reported care coordination strategies and activities for their SMI patients

Hypothesis 6 (Table 2-25) will measure the cost-effectiveness of providing behavioral and physical care to beneficiaries with an SMI through the RBHAs. A long-term goal of the RBHAs is to provide cost-effective care for its beneficiaries. Because cost-effectiveness will not be evaluated solely based on the outcome of specific financial measurements, no specific measures are included under Hypothesis 5. The independent evaluator will calculate costs and savings associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs prior to demonstration renewal. Program savings will

be identified as reductions in administration and/or service expenditures beyond those projected prior to demonstration renewal. Additional non-monetary benefits (costs) will also be identified related to improvements (declines) in any of the above measures in which a monetary value cannot be assigned. The approach for assessing cost-effectiveness of the RBHAs is described in detail in the Cost-Effectiveness Analysis section.

Table 2-25: Hypothesis 6 Research Questions and Measures

Hypothesis 6—RBHAs will provide cost-effective care for beneficiaries with an SMI.
Research Question 6.1: What are the costs associated with providing care for beneficiaries with an SMI through the RBHAs?
Research Question 6.2: What are the benefits/savings associated with providing care for beneficiaries with an SMI through the RBHAs?

PQC

The overarching goals of the AHCCCS demonstration in waiving prior quarter coverage from three months of retroactive coverage to the month of enrollment are that members will be encouraged to obtain and continuously maintain health coverage, even when healthy; members will be encouraged to apply for Medicaid without delays, promoting continuity of eligibility and enrollment for improved health status; and Medicaid costs will be contained.[2-4] This will support the sustainability of the Medicaid program while more efficiently focusing resources on providing accessible high-quality health care and limiting the resource-intensive process associated with PQC eligibility.

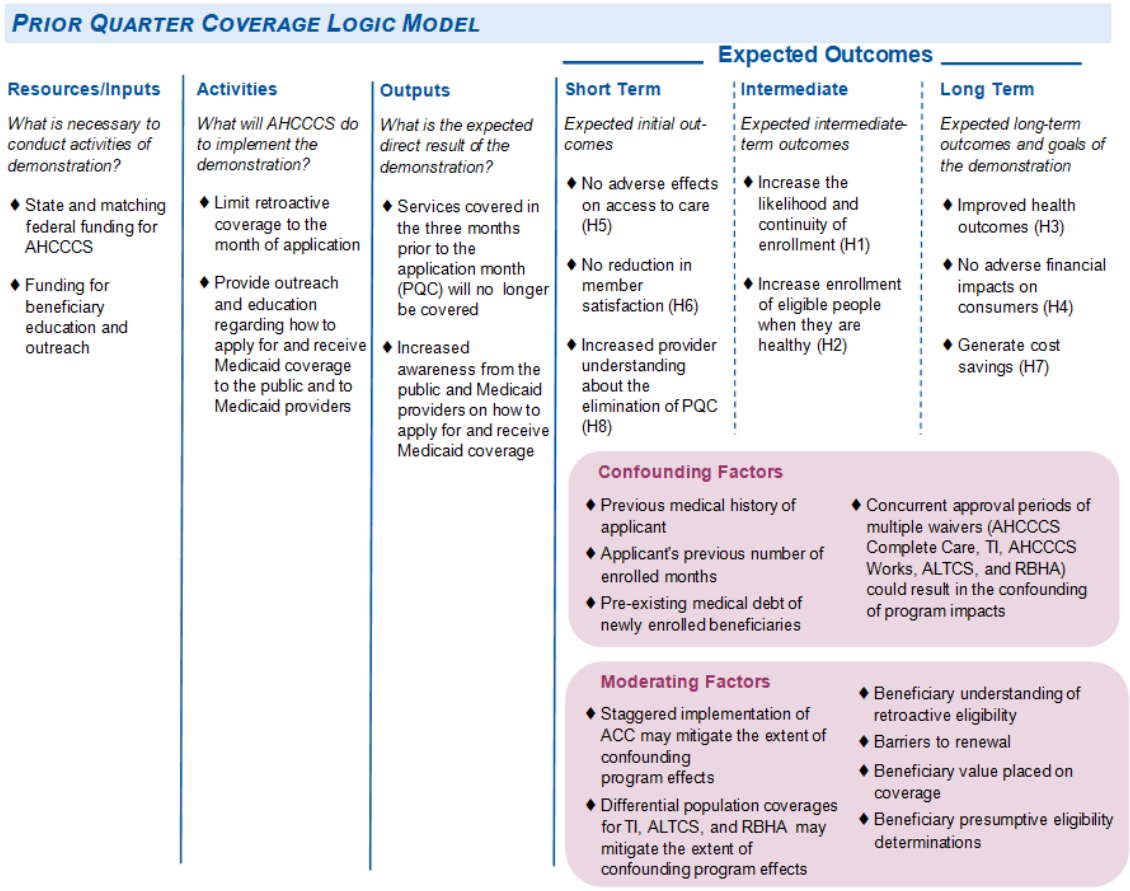
A primary purpose of this evaluation is to determine whether the AHCCCS demonstration to waive PQC is achieving these goals. To develop hypotheses and research questions associated with these goals, AHCCCS developed a logic model that relates the inputs and activities of the program to the anticipated initial, intermediate, and long-term outcomes, which are associated with hypotheses.

Logic Model

Figure 2-7 illustrates that through providing outreach and education to the public and providers regarding the demonstration and limiting retroactive eligibility to the month of application will lead to improved health outcomes, while having no negative effects on access to care and beneficiary satisfaction, as well as no negative financial impact to beneficiaries. These expected outcomes will not all happen simultaneously. Any effects on access to care and beneficiary satisfaction are expected to occur first. Later, there is the expectation that there will be an increase in the likelihood and continuity of enrollment and in the enrollment of eligible people while they are healthy. This aligns with the set objectives of the amendment. Longer term, there should be no financial impact on beneficiaries, while generating cost savings to promote Arizona Medicaid sustainability. Ultimately, this leads to improved health outcomes among beneficiaries. Hypotheses associated with these outcomes are denoted in parentheses in the logic model (hypotheses descriptions can be found in Table 2-26).

[2-4] Arizona Health Care Cost Containment System. Arizona Section 1115 Waiver Amendment Request: Proposal to Waive Prior Quarter Coverage. Apr 6, 2019. Available at: https://www.azahcccs.gov/Resources/Downloads/PriorQuarterCoverageWaiverToCMS_04062018.pdf. Accessed on: Jun 19, 2019.

Figure 2-7: PQC Logic Model



Hypotheses and Research Questions

To comprehensively evaluate the PQC demonstration waiver, eight hypotheses will be tested using 14 research questions. Table 2-26 lists the eight hypotheses.

Table 2-26: PQC Hypotheses

Hypotheses	
1	Eliminating prior quarter coverage will increase the likelihood and continuity of enrollment.
2	Eliminating prior quarter coverage will increase enrollment of eligible people when they are healthy relative to those eligible people who have the option of prior quarter coverage.
3	Health outcomes will be better for those without prior quarter coverage compared to Medicaid beneficiaries with prior quarter coverage.
4	Eliminating prior quarter coverage will not have adverse financial impacts on consumers.
5	Eliminating prior quarter coverage will not adversely affect access to care.

Hypotheses	
6	Eliminating prior quarter coverage will not result in reduced member satisfaction.
7	Eliminating prior quarter coverage will generate cost savings over the term of the waiver.
8	Education and outreach activities by AHCCCS will increase provider understanding about the elimination of PQC.

Hypothesis 1 will test whether the demonstration results in an increase in the likelihood and continuity of enrollment. The measures and associated research questions are listed in Table 2-27. Improvements in these outcomes would support the demonstration's goal of increasing enrollment and its continuity among eligible beneficiaries.

Table 2-27: Hypothesis 1 Research Questions and Measures

Hypothesis 1—Eliminating prior quarter coverage will increase the likelihood and continuity of enrollment.	
Research Question 1.1: Do eligible people without prior quarter coverage enroll in Medicaid at the same rates as other eligible people with prior quarter coverage?	
1-1	Percentage of Medicaid enrollees by eligibility group out of estimated eligible Medicaid recipients
1-2	Percentage of new Medicaid enrollees by eligibility group, as identified by those without a recent spell of Medicaid coverage out of estimated eligible Medicaid recipients
1-3	Number of Medicaid enrollees per month by eligibility group and/or per-capita of state
1-4	Number of new Medicaid enrollees per month by eligibility group, as identified by those without a recent spell of Medicaid coverage
Research Question 1.2: What is the likelihood of enrollment continuity for those without prior quarter coverage compared to other Medicaid beneficiaries with prior quarter coverage?	
1-5	Percentage of Medicaid beneficiaries due for renewal who complete the renewal process
1-6	Average number of months with Medicaid coverage
Research Question 1.3: Do beneficiaries without prior quarter coverage who disenroll from Medicaid have shorter enrollment gaps than other beneficiaries with prior quarter coverage?	
1-7	Percentage of Medicaid beneficiaries who re-enroll after a gap of up to six months
1-8	Average number of months without Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months
1-9	Average number of gaps in Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months
1-10	Average number of days per gap in Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months

Hypothesis 2 will test whether eliminating PQC increases the number of healthy enrollees. The measure and associated research question are presented in Table 2-28.

Table 2-28: Hypothesis 2 Research Questions and Measures

Hypothesis 2—Eliminating prior quarter coverage will increase enrollment of eligible people when they are healthy relative to those eligible people who have the option of prior quarter coverage.	
Research Question 2.1: Do newly enrolled beneficiaries without prior quarter coverage have higher self-assessed health status than continuously enrolled beneficiaries?	
2-1	Beneficiary reported rating of overall health
2-2	Beneficiary reported rating of overall mental or emotional health
2-3	Percentage of beneficiaries who reported prior year emergency room (ER) visit
2-4	Percentage of beneficiaries who reported prior year hospital admission
2-5	Percentage of beneficiaries who reported getting health care three or more times for the same condition or problem

A key goal of waiving PQC is that there will be improved health outcomes among both newly enrolled and established beneficiaries. Hypothesis 3 will test this by determining if beneficiaries without PQC have better outcomes than those with PQC or who have been enrolled since pre-implementation of the waiver. The measures and associated research questions are presented in Table 2-29.

Table 2-29: Hypothesis 3 Research Questions and Measures

Hypothesis 3—Health outcomes will be better for those without prior quarter coverage compared to Medicaid beneficiaries with prior quarter coverage.	
Research Question 3.1: Do beneficiaries without prior quarter coverage have better health outcomes than compared to baseline rates and out-of-state comparisons with prior quarter coverage?	
3-1	Beneficiary reported rating of overall health for all beneficiaries
3-2	Beneficiary reported rating of overall mental or emotional health for all beneficiaries

It is crucial to evaluate the financial impact that the PQC waiver has on beneficiaries. This can determine if there are any unintended consequences, such as consumers having additional expenses due to the PQC waiver not covering medical expenses during the prior quarter. Hypothesis 4 evaluates the impact that the waiver has by measuring reported beneficiary medical debt. The measure and associated research question are presented in Table 2-30.

Table 2-30: Hypothesis 4 Research Question and Measure

Hypothesis 4—Eliminating prior quarter coverage will not have adverse financial impacts on consumers.	
Research Question 4.1: Does the prior quarter coverage waiver lead to changes in the incidence of beneficiary medical debt?	
4-1	Percentage of beneficiaries who reported medical debt

It is important to ensure that the PQC waiver does not have an impact on access to care. Hypothesis 5 assesses this by examining utilization of office visits and facility visits for beneficiaries subject to the PQC wavier compared to those who were not subject to the wavier. The measures and associated research questions are presented in Table 2-31.

Table 2-31: Hypothesis 5 Research Questions and Measures

Hypothesis 5—Eliminating prior quarter coverage will not adversely affect access to care.	
Research Question 5.1: Do beneficiaries without prior quarter coverage have the same or higher rates of office visits compared to baseline rates and out-of-state comparisons with prior quarter coverage?	
5-1	Beneficiary response to getting needed care right away
5-2	Beneficiary response to getting an appointment for a check-up or routine care at a doctor's office or clinic
Research Question 5.2: Do beneficiaries without prior quarter coverage have the same or higher rates of service and facility utilization compared to baseline rates and out-of-state comparisons with prior quarter coverage?	
5-3	Percentage of beneficiaries with a visit to a specialist (e.g., eye doctor, Ears Nose Throat [ENT], cardiologist)

As these changes will directly impact the beneficiaries, it is important to ensure that the beneficiaries remain satisfied with their health care. Hypothesis 6 seeks to quantify the change that the implementation of the waiver has on beneficiary satisfaction. The measure and associated research question are presented in Table 2-32.

Table 2-32: Hypothesis 6 Research Question and Measure

Hypothesis 6—Eliminating prior quarter coverage will not result in reduced member satisfaction.	
Research Question 6.1: Do beneficiaries without prior quarter coverage have the same or higher satisfaction with their health care compared to baseline rates and out-of-state comparisons with prior quarter coverage?	
6-1	Beneficiary rating of overall health care

Hypothesis 7 seeks to measure the cost effectiveness of the eliminating retroactive eligibility demonstration waiver. A long-term goal of doing so is to provide cost-effective care for its beneficiaries. Because cost effectiveness will not be evaluated solely based on the outcome of specific financial measurements, no specific measures are included under research questions 7-1 and 7-2 for Hypothesis 7. The independent evaluator will calculate costs and savings associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs had the demonstration not be renewed. Program savings will be identified as reductions in administration and/or service expenditures beyond those projected had the integration of care not been implemented. Additional non-monetary benefits (costs) will also be identified related to improvements (declines) in any of the above measures in which a monetary value cannot be assigned. The approach for assessing cost-effectiveness of eliminating PQC is described in detail in the Cost-Effectiveness Analysis section and the research questions are listed in Table 2-33.

Table 2-33: Hypothesis 7 Research Questions and Measures

Hypothesis 7—Eliminating prior quarter coverage will generate cost savings over the term of the waiver.	
Research Question 7.1: What are the costs associated with eliminating prior quarter coverage??	
Research Question 7.2: What are the benefits/savings associated with eliminating prior quarter coverage?	
Research Question 7.3: Do costs to non-AHCCCS entities stay the same or decrease after implementation of the waiver compared to before?	
7-1	Reported costs for uninsured and/or likely eligible Medicaid recipients among potentially impacted providers and/or provider networks

Hypothesis 8 seeks to determine if there were barriers in the implementation of eliminating PQC. The measure and associated research question are presented in Table 2-34.

Table 2-34: Hypothesis 8 Research Question and Measure

Hypothesis 8—Education and outreach activities by AHCCCS will increase provider understanding about the elimination of PQC.	
Research Question 8.1: What activities did AHCCCS perform to educate beneficiaries and providers about changes to retroactive eligibility?	
8-1	AHCCCS' reported education activities
8-2	Providers' knowledge on eliminating PQC
Research Question 8.2: Did AHCCCS encounter barriers related to informing providers about eliminating PQC?	
8-3	AHCCCS' reported barriers to providing education on eliminating PQC

TI

The overarching goal of the AHCCCS demonstration for TI is to improve health by providing financial incentives to encourage integration of care between primary care providers and behavioral health care providers. Success will be measured by providers' ability to reach integration milestones, and improved health outcomes for children with behavioral health disorders, including children with ASD and children in the foster care system, adults with behavioral health needs, and adults with behavioral health needs who are transitioning from the criminal justice system. To participate in the TI program, providers and hospitals are required to meet specific requirements (Table 2-35). [2-5]

Table 2-35: TI Provider Requirements

TI Providers	Requirements
Primary Care Providers	• Have a minimum threshold of assigned AHCCCS members across all health plans with which they are contracted; • Attest to having an electronic health record (EHR) system which has the ability to exchange and use electronic health information from other systems without special effort on the part of the user; and • Have completed a behavioral health integration assessment.
Behavioral Health Care Providers	• Have delivered an AHCCCS-defined minimum number of qualifying outpatient services to members during a recent 12-month period; • Attest to having an EHR system, which has the ability to exchange and use electronic health information from other systems without special effort on the part of the user; and • Have completed a behavioral health integration assessment.

[2-5] Arizona Health Care Cost Containment System. Targeted Investments Program Overview. Available at: https://www.azahcccs.gov/PlansProviders/TargetedInvestments/. Accessed on: Aug 14, 2019.

TI Providers	Requirements
Hospitals	• Have had an AHCCCS-defined minimum number of qualifying member discharges across all health plans during a recent 12-month period; and • Attest to having an EHR system, which has the ability to exchange and use electronic health information from other systems without special effort on the part of the user.

A key step in the integration process for participating TI participating providers is establishing an executed agreement with Health Current and receiving Admission-Discharge-Transfer (ADT) alerts. Providers who receive ADT alerts receive an automated clinical summary in response to an inpatient admission, emergency department registration or ambulatory encounter registration, and a comprehensive continuity of care document that contains the patient's most recent clinical and encounter information.[2-6] This allows providers to receive key information to improve patient care.

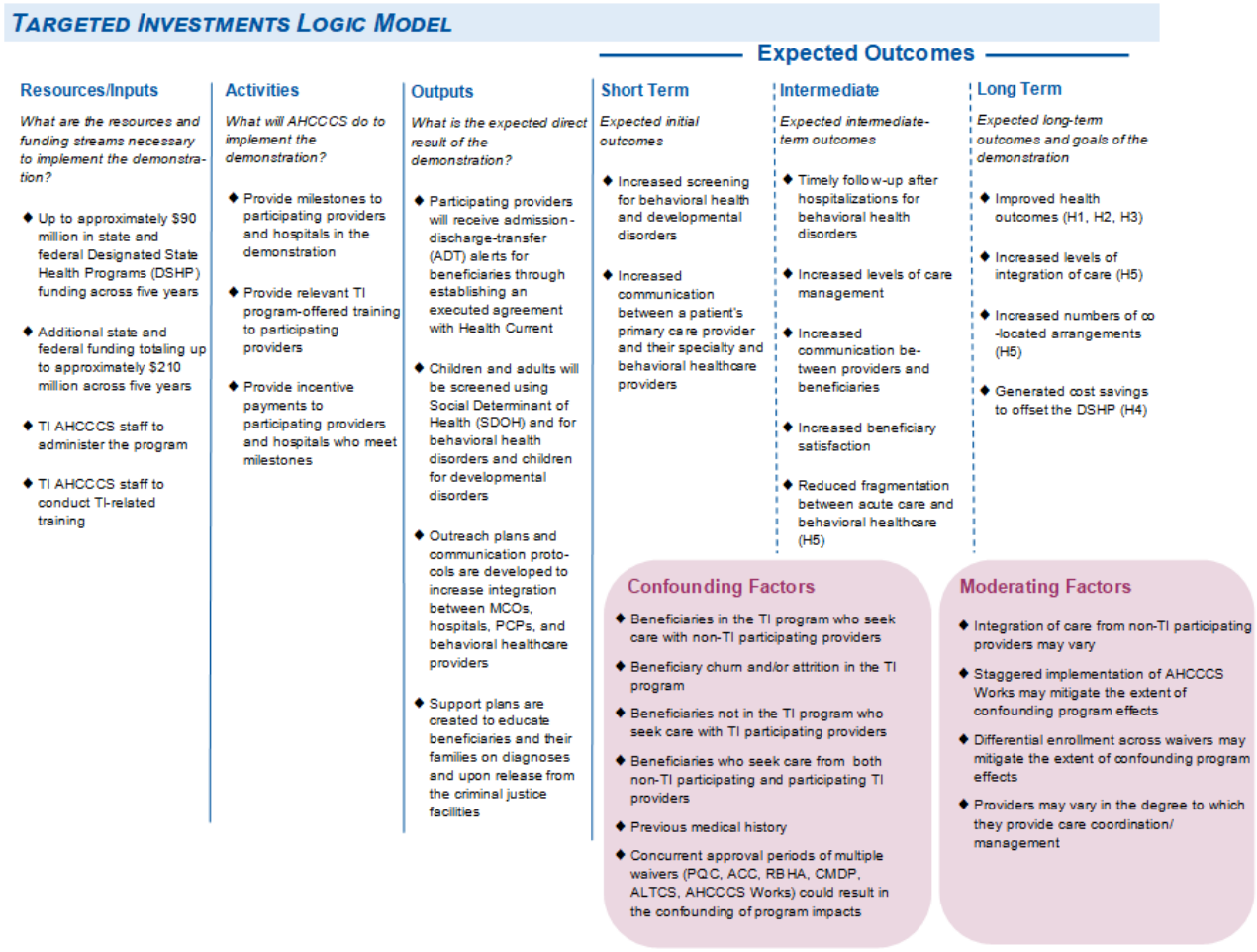
A primary purpose of this evaluation is to determine whether the AHCCCS demonstration to integrate physical health and behavioral health care services with TI is achieving the goals of the program. To develop hypotheses and research questions associated with these goals, AHCCCS created a logic model that relates the inputs and activities of the program to the anticipated initial, intermediate, and long-term outcomes.

Logic Model

The logical model presented in Figure 2-8 illustrates how providing financial investments to participating providers and hospitals in the demonstration will ultimately lead to improved health outcomes, increased levels of integration of care, and generate cost savings that will offset the time-limited federal Designated State Health Program (DSHP). By providing milestones that must be met at specific timeframes to earn financial incentives, AHCCCS expects to encourage increased levels of integration of care among participating providers. In the short term, AHCCCS expects that there will be increased communication between a patient's primary care provider and their specialty and behavioral health care providers. This will lead to increased levels of care management, which in the longer term, will lead to improved health outcomes among targeted beneficiaries. Hypotheses associated with these outcomes are denoted in parentheses in the logic model (hypotheses descriptions can be found in Table 2-36).

[2-6] Health Current. HIE Services. Available at: https://healthcurrent.org/hie/benefits-services/. Accessed on: Aug 21, 2019.

Figure 2-8: TI Logic Model



Historically, RBHA provided behavioral health coverage for much of the AHCCCS population, while medical care was provided through other plans.

AHCCCS expects that the simultaneous implementation of TI along with the payer-level care integration (most notably ACC) will provide an opportunity for both providers and health plans to leverage their experience and share strategies in delivering whole person integrated care.[2-7] This in turn may introduce an interaction effect between the TI program and the provision of integrated behavioral and medical care under a single plan. This may lead to confounding program effects; however, as described in Disentangling Confounding Events section below, both the differential timing in the integration of care and the TI program and the differential between program participation may be leveraged to mitigate the impact from these confounding factors.

[2-7] AHCCCS Targeted Investments Program Sustainability Plan, March 29, 2019. Available at: https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/Health-Care-Cost-Containment-System/az-hccc-target-stability-plan-20190812.pdf. Accessed on: Feb 11, 2020.

Hypotheses and Research Questions

To comprehensively evaluate the TI program, six hypotheses will be tested using 21 research questions. Table 2-36 lists the six hypotheses.

Table 2-36: TI Hypotheses

Hypotheses	
1	The TI program will improve physical and behavioral health care integration for children.
2	The TI program will improve physical and behavioral health care integration for adults.
3	The TI program will improve care coordination for AHCCCS enrolled adults released from criminal justice facilities.
4	The TI program will provide cost-effective care.
5	Providers will increase the level of care integration over the course of the demonstration.
6	Providers will conduct care coordination activities.

Hypothesis 1 will test whether the demonstration improves the integration of physical and behavioral health care for children. The measures and associated research questions are listed in Table 2-37. Improvements in these outcomes would support the demonstration's goal of improving health outcomes for children with behavioral health disorders, children with or at risk for ASD, and children who are engaged in the foster care system.

Table 2-37: Hypothesis 1 Research Questions and Measures

Hypothesis 1— The TI program will improve physical and behavioral health care integration for children.	
Research Question 1.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?	
1-1	Percentage of participating pediatric primary care and behavioral health care practices that have an executed agreement with Health Current
1-2	Percentage of participating pediatric primary care and behavioral health care practices that routinely receive ADT alerts
Research Question 1.2: Do children subject to the TI program have higher rates of screening and well-child visits compared to those who are not subject to the demonstration?	
1-3	Percentage of beneficiaries with a well-child visit in the third, fourth, fifth, and sixth years of life
1-4	Percentage of beneficiaries with a depression screening and follow-up plan
1-5	Percentage of beneficiaries with an adolescent well-care visit
1-6	Beneficiary response to getting needed care right away
Research Question 1.3: Do children subject to the TI program have higher rates of follow-up after hospitalization or an emergency department (ED) visit for mental illness than those who are not subject to the demonstration?	
1-7	Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness
Research Question 1.4: Do parents/guardians of children subject to the program perceive their doctors have better care coordination than those not subject to the demonstration?	

Hypothesis 1— The TI program will improve physical and behavioral health care integration for children.	
1-8	Beneficiary response to their child's doctor seeming informed about the care their child received from other health providers

Hypothesis 2 will test whether the demonstration improves the integration of physical and behavioral health care for adults with behavioral health needs. The measures and associated research questions are listed in Table 2-38.

Table 2-38: Hypothesis 2 Research Questions and Measures

Hypothesis 2— The TI program will improve physical and behavioral health care integration for adults.	
Research Question 2.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?	
2-1	Percentage of participating adult primary care and behavioral health care practices that have an executed agreement with Health Current
2-2	Percentage of participating adult primary care and behavioral health care practices that routinely receive ADT alerts
Research Question 2.2: Do adults subject to the TI program have higher rates of screening than those who are not subject to the demonstration?	
2-3	Percentage of beneficiaries with a depression screening and follow-up plan
2-4	Beneficiary response to getting needed care right away
Research Question 2.3: Do adults subject to the TI program have lower rates of ED utilization than those who are not subject to the demonstration?	
2-5	Number of ED visits per 1,000 member months
2-6	Number of ED visits for substance use disorder (SUD) or opioid use disorder (OUD) per 1,000 member months
Research Question 2.4: Do adults subject to the TI program have higher rates of follow-up after hospitalization or an ED visit for mental illness than those who are not subject to the demonstration?	
2-7	Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness
2-8	Percentage of beneficiaries with a follow-up visit after an ED visit for mental illness
Research Question 2.5: Do adults subject to the TI program have higher rates of alcohol and drug abuse treatment and adherence than those who were not subject to the demonstration?	
2-9	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment
2-10	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment
2-11	Percentage of beneficiaries with OUD receiving any Medication Assisted Treatment (MAT)
Research Question 2.6: Do adults subject to the TI program perceive their doctors have better care coordination than those not subject to the demonstration?	
2-12	Beneficiary response to their doctor seeming informed about the care they received from other health providers

Hypothesis 3 will test whether the demonstration improves the integration of physical and behavioral health care for adults who were recently released from the criminal justice system. The measures and associated research questions are listed in Table 2-39.

Table 2-39: Hypothesis 3 Research Questions and Measures

Hypothesis 3— The TI program will improve care coordination for AHCCCS enrolled adults released from criminal justice facilities.	
Research Question 3.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?	
3-1	Percentage of integrated practices participating in the justice transition project that have an executed agreement with Health Current
3-2	Percentage of integrated practices participating in the justice transition project that routinely receive ADT alerts
Research Question 3.2: Do adult beneficiaries who are recently released from a criminal justice facility and subject to the TI program have higher rates of access to care than those who were not subject to the demonstration?	
3-3	Percentage of recently released beneficiaries who had a preventive/ambulatory health service visit
3-4	Recently released beneficiary response to getting needed care right away
3-5	Recently released beneficiary response to getting routine care right away
Research Question 3.3: Do adult beneficiaries who are recently released from a criminal justice facility and subject to the TI program have higher rates of alcohol and drug abuse treatment and adherence than those who were not subject to the demonstration?	
3-6	Percentage of recently released beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment
3-7	Percentage of recently released beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment
3-8	Percentage of recently released beneficiaries with OUD receiving any Medication Assisted Treatment (MAT)
Research Question 3.4: Do adult beneficiaries recently released from a criminal justice facility and subject to the TI program have lower rates of ED utilization than those who were not subject to the demonstration?	
3-9	Number of ED visits per 1,000 member months for recently released beneficiaries
3-10	Number of ED visits for SUD or OUD per 1, 000 member months for recently released beneficiaries
Research Question 3.5: Do adult beneficiaries recently released from a criminal justice facility and subject to the TI program have better management of opioid prescriptions than those who were not subject to the demonstration?	
3-11	Percentage of recently released beneficiaries who have prescriptions for opioids at a high dosage
3-12	Percentage of recently released beneficiaries who have prescriptions for concurrent use of opioids and benzodiazepines

It is crucial to evaluate the financial impact that the TI demonstration will have. Because the demonstration is partially financed by time-limited DSHP funds, AHCCCS intends for the demonstration to become self-sufficient by the end of the demonstration period. Consequently, one of the expectations is for the program to generate cost savings that are equal to or exceed the time-limited DSHP funding. Hypothesis 4 evaluates the impact that the demonstration has by measuring costs and cost-effectiveness associated with the TI demonstration. Because cost-effectiveness will not be evaluated solely on the basis of the outcome of specific financial measurements, no specific measures are included under Hypothesis 4. The independent evaluator will calculate costs and savings

associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs had the demonstration not been renewed or implemented. Program savings will be identified as reductions in administrative and/or service expenditures beyond those projected had the integration of care not been implemented. Additional non-monetary benefits (costs) will also be identified related to improvements (reductions) in any of the above measures for which a monetary value cannot be assigned. As part of the cost-effectiveness analysis, a comparison of benefits/savings to the time-limited DSHP funding will be performed to determine whether the program offsets this funding. The approach for assessing cost-effectiveness of the TI program is described in further detail in the Cost-Effectiveness Analysis section. Table 2-40 presents the measures and associated research questions.

Table 2-40: Hypothesis 4 Research Questions and Measures

Hypothesis 4— The TI program will provide cost-effective care.
Research Question 4.1: What are the costs associated with care coordination provided under TI?
Research Question 4.2: What are the benefits/savings associated with care coordination provided under TI?

Direct payments to participating providers are designed to support increasing care integration at the practice level. In turn, the higher levels of care integration are expected to ultimately be associated with better health outcomes and patient satisfaction. For these reasons, it is important to ensure that the level of integration for participating TI practices is increasing during the demonstration period. Hypothesis 5 assesses the percentage of providers who transition to a higher level of care integration, as defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) and used in the Integrated Practice Assessment Tool (IPAT).[2-8] Table 2-41 presents the measures and associated research questions.

Table 2-41: Hypothesis 5 Research Questions and Measures

Hypothesis 5— Providers will increase the level of care integration over the course of the demonstration.	
Research Question 5.1: Do providers progress across the Substance Abuse and Mental Health Services Administration (SAMHSA) national standard of six levels of integrated health care?	
5-1	Percentage of providers transitioning from Level 1 or Level 2 (coordinated care[2-9]) to Level 3 or Level 4 (co-located care)[2-10]
5-2	Percentage of providers transitioning from Level 3 or Level 4 (co-located care) to Level 5 or Level 6 (integrated care)[2-11]
Research Question 5.2: Do providers increase level of integration within each broader category (i.e., coordinated, co-located, and integrated care) during the demonstration period?	

2-8 Waxmonsky, J., Auxier, A., Wise Romero, P., and Heath, B., Integrated Practice Assessment Tool Version 2.0. Available at: https://www.thenationalcouncil.org/integrated-health-coe/. Accessed on: Feb 11, 2020.

2-9 Note: "co-located care" in this context refers to the SAMHSA definition of physical proximity between behavioral health and primary care providers; it does not refer to the co-location of integrated health care settings with select county probation offices and/or parole offices, as used by AHCCCS in reference to adults transitioning from the criminal justice system. For purposes of these measures, "co-located care" will refer to physical proximity between behavioral health and primary care providers for all providers, including criminal justice providers.

2-10 Heath B, Wise Romero P, and Reynolds K. A Review and Proposed Standard Framework for Levels of Integrated Healthcare. Washington, D.C. SAMHSA-HRSA Center for Integrated Health Solutions. March 2013. Available at: https://www.integration.samhsa.gov/integrated-care-models/A_Standard_Framework_for_Levels_of_Integrated_Healthcare.pdf. Accessed on: Feb 11, 2020.

2-11 Ibid.

Hypothesis 5— Providers will increase the level of care integration over the course of the demonstration.	
5-3	Percentage of providers transitioning from Level 1 to Level 2 integration
5-4	Percentage of providers transitioning from Level 3 to Level 4 integration
5-5	Percentage of providers transitioning from Level 5 to Level 6 integration

Hypothesis 6 (Table 2-42) is designed to identify in detail the activities the providers conducted to further AHCCCS' goal of care coordination and integration through the TI program. Barriers encountered during implementation of the TI program will be a focus of this hypothesis. These research questions will be addressed through semi-structured key informant interviews or focus groups with representatives from AHCCCS and TI providers.

Table 2-42: Hypothesis 6 Research Questions and Measures

Hypothesis 6— Providers will conduct care coordination activities.	
Research Question 6.1: Did AHCCCS encounter barriers related to the pre-implementation and implementation phases of TI?	
6-1	AHCCCS' reported barriers before, during, and shortly following the implementation of TI
Research Question 6.2: Did providers encounter barriers related to the pre-implementation and implementation phases of TI?	
6-2	Providers' reported barriers before, during, and shortly following the implementation of TI

3. Methodology

To assess the impact of the program, a comparison of outcomes between the intervention group and a valid counterfactual—the intervention group had they not been exposed to the intervention—must be made. The gold standard for experimental design is a randomized controlled trial which would be implemented by first identifying an intervention population, and then randomly assigning individuals to the intervention and the rest to a comparison group, which would serve as the counterfactual. However, random assignment is rarely feasible or desirable in practice, particularly as it relates to health care policies.

As such, a variety of quasi-experimental or observational methodologies have been developed for evaluating the effect of policies on outcomes. The research questions presented in the previous section will be addressed through at least one of these methodologies. The selected methodology depends on data availability factors relating to: (1) data to measure the outcomes; (2) data for a valid comparison group; and (3) data during the time periods of interest—typically defined as the year prior to implementation and annually thereafter. Table 3-1 illustrates a sampling of standard analytic approaches and whether the approach requires data gathered at the baseline (i.e., pre-implementation), requires a comparison group, or allows for causal inference to be drawn. It also notes key requirements unique to a particular approach.

Table 3-1: Sampling of Analytic Approaches

Analytic Approach	Baseline Data	Comparison Group	Allows Causal Inference	Notes
Randomized Controlled Trial		✓	✓	Requires full randomization of intervention and comparison group.
Difference-in-Differences	✓	✓	✓	Trends in outcomes should be similar between comparison and intervention groups at baseline.
Panel Data Analysis	✓		✓	Requires sufficient data points both prior to and after implementation.
Regression Discontinuity		✓	✓	Program eligibility must be determined by a threshold
Interrupted Time Series	✓		✓	Requires sufficient data points prior to and after implementation.
Pre-test/post-test	✓			
Cross-Sectional Analysis		✓		

Given that each demonstration component (Arizona Health Care Cost Containment System [AHCCCS] Complete Care [ACC], Comprehensive Medical and Dental Program [CMDP], Arizona Long Term Care System [ALTCS], Regional Behavioral Health Authority [RBHA], Prior Quarter Coverage [PQC], and Targeted Investments [TI]) implemented under AHCCCS serve different populations, selection of a comparison group must be specific to each program.

ACC

The ACC plans affected most Medicaid children and adults statewide on October 1, 2018, and thus the viability of an in-state counterfactual group not exposed to the intervention (i.e., ACC) is limited by several factors. First, the number of beneficiaries available for a potential comparison group is far smaller than the number of beneficiaries enrolled in ACC plans. This restricts the ability to apply often-used one-to-one matching techniques. Possible solutions include propensity score weighting or matching with replacement. The small pool for the eligible comparison group, however, increases the likelihood that the comparison group would be dominated by only a few individuals, leading to inaccurate and misleading results. Second, the small comparison group reduces statistical power. Finally, and most importantly, AHCCCS beneficiaries not enrolled in an ACC plan are fundamentally different from those who are enrolled in an ACC plan. For example, the theoretical in-state comparison group would consist of those with a serious mental illness (SMI), foster children, those with developmental disabilities, and the elderly and physically disabled. It is possible that these groups could serve as a comparison group with a risk-adjustment algorithm applied; however, this approach is unlikely to sufficiently adjust for the substantial differences across subpopulations to produce accurate and reliable results. Since Arizona does not have an all-payer claims database, it is not possible to identify and use an in-state low-income non-Medicaid population as a comparison group.

Despite these limitations, since ACC covers most children and adults on Medicaid, many measure rates for the ACC population may be compared to national benchmarks, with regional adjustments if available. By comparing ACC rates both before and after implementation against national benchmarks during the same time periods, a difference-in-differences (DiD) calculation can be performed.

ALTCS

The ALTCS has been in existence since prior to the current Section 1115 demonstration waiver renewal period, which began on October 1, 2016. There were no substantive changes to the program on this date. However, behavioral health services for beneficiaries with intellectual/developmental disabilities (DD) were transitioned to the Arizona Department of Economic Security/Division of Developmental Disabilities (DES/DDD), which is contracted with ALTCS, on October 1, 2019. Behavioral services, along with physical health services and certain Long Term Services and Supports (LTSS) (i.e., nursing facilities, emergency alert system services, and habilitative physical therapy for beneficiaries 21 years of age and older), are subcontracted by DES/DD to managed care organizations called DDD health plans. Therefore, the results from the evaluation of the ALTCS program will be split by population (beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD) and consist of two components:

1. Evaluation of demonstration renewal period, beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD (October 1, 2016—September 30, 2021)
2. Evaluation of behavioral health care integration beneficiaries with DD only (October 1, 2019 – September 30, 2021)

Because there were no substantive policy changes upon renewal of the demonstration, the objective of the pre-integration evaluation is to assess the general performance and sustainability of ALTCS during this timeframe. In contrast, the evaluation of integration will assess the impact of care integration on outcomes. Therefore, different methodologies will be used for each component of the evaluation.

Given that ALTCS only impacts individuals with intellectual/developmental disabilities and individuals who are elderly and/or with physical disabilities, the viability of an in-state comparison group consisting of similar

beneficiaries is limited by several factors. First, there are few in-state people with developmental disabilities who are not enrolled in Medicaid and ALTCS. While the number of people who are elderly and/or with physical disabilities who are not enrolled in Medicaid may be somewhat larger, the size of the comparison group is estimated to be far smaller than the similar ALTCS population, thereby reducing the ability to use valid and robust matching techniques to ensure reliable results and reducing statistical power. In the event that such in-state population were sufficient and appropriate as a comparison group, Arizona does not have an all-payer claims database with which to identify and calculate relevant measures for the comparison group. As a result, an out-of-state comparison group, if available, will serve as the most appropriate counterfactual.

A second potential comparison may be used comprising of national or regional benchmarks of similar populations during the same time periods. By comparing ALTCS rates both during the baseline and evaluation periods against national or regional benchmarks, a DiD calculation can be performed. However, it is important to note that because the ALTCS population differ substantially from that of national or regional benchmarks reported for Medicaid programs, such comparisons and DiD testing may not be appropriate for all measures. The independent evaluator will determine which comparison group is best suited for the evaluation or if both can be used for each measure once data has obtained.

CMDP

The CMDP has been in existence since prior to the current Section 1115 waiver demonstration renewal period, beginning on October 1, 2016, with no substantive changes to the program on this date. However, AHCCCS anticipates that behavioral health services will be integrated into CMDP on April 1, 2021. Therefore, the evaluation of the CMDP will consist of two components:

1. Evaluation of demonstration renewal period (October 1, 2016—September 30, 2021)
2. Evaluation of behavioral healthcare integration (April 1, 2021 – March 31, 2022)

Because there were no substantive policy changes upon renewal of the demonstration, the objective of the pre-integration evaluation is to assess the general performance and sustainability of CMDP during this timeframe. In contrast, the evaluation of integration will assess the impact of care integration on outcomes. Therefore, different methodologies will be used for each component of the evaluation.

Given that CMDP only impacts children in the custody of the Arizona Department of Child Safety (DCS) and the unique health care needs of this population, the viability of an in-state comparison group consisting of similar beneficiaries is limited. As such, an out-of-state comparison group, if available, would serve as the most appropriate counterfactual. To account for differences between the two groups, propensity score matching, or weighting would be used to identify non-CMDP beneficiaries who share similar characteristics to those in the intervention (i.e., foster children from another state). An out-of-state comparison group may be obtained by using aggregate rates calculated for a population of foster children served by Medicaid services in another state. To obtain data for a comparison group in this way will require the independent evaluator to obtain a Data Use Agreement (DUA) with comparison state Medicaid authority.

A second potential comparison may be used comprising of national or regional benchmarks of similar populations during the same time periods. By comparing CMDP rates both before and after during the baseline and evaluation period against an out-of-state comparison group or national or regional benchmarks, a DiD calculation can be performed. However, it is important to note that because the CMDP population will differ substantially from that of national or regional benchmarks, DiD statistical testing may not be performed, and the benchmarks will provide context in which to interpret results for the CMDP population.

RBHA

The RBHA have been in existence prior to the current Section 1115 waiver demonstration renewal period which began on October 1, 2016. During the existence of the RBHAs, there have been no substantive changes to the provision of behavioral and physical health care services to adult beneficiaries with a SMI. However, the integration efforts that began with Mercy Maricopa in April 2014 and expanded statewide in October 2015 have not been rigorously evaluated as part of a formal 1115 demonstration evaluation under CMS's revised guidance. Therefore, this evaluation will build upon existing studies of the RBHAs by assessing the impact of the integration on rates through statistical testing and quasi-experimental research design. Previous studies of the RBHAs include a case study conducted by NORC, which consisted of a qualitative assessment of Mercy Maricopa, an issue brief by the Commonwealth Fund, and an independent evaluation of the RBHAs conducted by Mercer Government Human Services Consulting.[3-1] While Mercer's independent evaluation assessed a wide range of performance measures both before and after integration, the evaluation was conducted prior to CMS's revised guidance for 1115 waiver evaluations, and therefore does not include statistical testing or causal analysis. The objective of this evaluation is to assess the integration of care over the 2014/2015 timeframe on pertinent measures for the adult SMI population.. The rates for RBHA beneficiaries with an SMI will be compared to historical rates (i.e., pre-demonstration renewal) and tested to determine if the observed changes are statistically significant.

PQC

The PQC waiver demonstration impacts all new AHCCCS beneficiaries, excluding pregnant woman, women who are 60 days or less postpartum, and infants and children under 19 years of age. Therefore, the excluded populations may serve as a comparison group. To account for differences between the two groups, propensity score matching, or weighting will be used to identify beneficiaries who share similar characteristics to those in the intervention (i.e., new members subject to the waiver requirements). Since age can impact many of the outcomes studied, one important consideration is adequately controlling for the impact of age on the outcomes. This will isolate the effect of the demonstration on outcomes, rather than contaminate that effect with the impact of age on the outcome. This is discussed in sections below.

A second potential comparison group can be used comprising current beneficiaries who were not impacted by the PQC waiver because they enrolled prior to the waiver implementation. The independent evaluator will determine which comparison group is best suited for the evaluation or if both can be used.

TI

The demonstration measures the improvement of health on beneficiaries who are assigned to primary care practitioner (PCP) or behavioral health care providers participating in the TI program. Thus, beneficiaries who receive care from PCPs or behavioral health care providers not participating in the program may serve as the comparison group. To account for differences between the two groups, propensity score matching or weighting,

[3-1] "Supportive Service Expansion for Individuals with Serious Mental Illness: A Case Study of Mercy Maricopa Integrated Care," NORC, August 18, 2017; Bachrach. D., Boozang, P. M., Davis, H. E., "How Arizona Medicaid Accelerated the Integration of Physical and Behavioral Health Services," Issue Brief: *The Commonwealth Fund*, May 2017. Available at: https://www.commonwealthfund.org/publications/issue-briefs/2017/may/how-arizona-medicaid-accelerated-integration-physical-and. Accessed on Jun 19, 2020; "Independent Evaluation of Arizona's Medicaid Integration Efforts," Mercer, November 27, 2018. Available at: https://www.azahcccs.gov/shared/Downloads/News/CRS_SMI_IndependentEvaluationReport_11_27_18.pdf. Accessed on: Jun 19, 2020.

will be used to identify beneficiaries who share similar characteristics to those in the intervention (i.e., children and adults with behavioral health needs and beneficiaries who are transitioning from the criminal justice system).

Evaluation Design Summary

A DiD study design may be used to evaluate measures in which (1) a valid comparison group and baseline data are available, or (2) comparable national or regional benchmarks are available both before and after implementation. DiD compares the changes in outcomes for the intervention group against the changes in the outcomes for the comparison group. Assuming that the trends in outcomes between the two groups would be the same in absence of the intervention, the changes in outcomes for the comparison group would serve as the expected change in outcomes for the intervention group, thereby providing an estimated counterfactual.

There are two general limitations to the planned DiD approach:

1. Medicaid member composition as represented in the national or regional benchmarks may differ from the target population (e.g., ACC, CMDP, or ALTCS populations).
2. Measurement time periods between national or regional benchmarks and rate calculation may not align. Specifically, benchmarks are calculated on a calendar year basis, while the demonstration approval period aligns with the federal fiscal year. To mitigate this limitation, the independent evaluator can align measurement periods for specific measures as necessary.

Where a comparison group is not available, multiple data points in the baseline may be used to support an interrupted time series (ITS) design. Program specific considerations are described below.

ACC

For the evaluation of ACC, the comparison group will be Medicaid beneficiaries nationally or regionally and incorporated into a DiD approach.

If comparable national or regional benchmarks are not available and the measure relies on state administrative claims data that have monthly or quarterly measurements taken both prior to and after implementation across multiple years, then an ITS methodology may be utilized. This can serve to build pre- and post-implementation trends, which can evaluate the impact that the ACC had on health outcomes, assuming enough measurements can be taken both prior to and after the implementation of the ACC.

If there are insufficient data points before and after implementation of ACC to support an ITS, then causal inferences cannot be drawn. For these measures, the independent evaluator will compare rates calculated before and after the implementation of the ACC to assess changes in a pre-test/post-test analysis. To the extent multiple data points are available prior to the implementation of ACC and measure specifications are comparable across years, trends can be estimated by which to compare post-implementation rates outside the framework of a formal interrupted time series analysis. In short, the independent evaluator can use historical Arizona rate calculations for the Acute Care population and/or benchmarks to triangulate an estimate of the impact of the ACC on outcomes.

ALTCS

The evaluation of the ALTCS program will consist of two components: the demonstration renewal period and the integration of behavioral health care. The evaluation of the demonstration renewal period prior to care integration will rely on comparisons to historical AHCCCS rates and national or regional benchmarks. With the presence of a

pre-implementation period, the integration of care evaluation may utilize either a DiD approach or a pre-test/post-test design, depending on the availability of a viable comparison group for the specific measure.

CMDP

The evaluation of the pre-integration renewal period will rely on aggregate measures for a similar population from other states if available or on pre-test/post-testing if such data is unavailable. With the presence of multiple data points in the pre-implementation period, the integration of care evaluation may utilize either a DiD approach or an ITS design, depending on the availability of a viable comparison group.

For the evaluation of CMDP, the comparison group will be children in the custody of DCS nationally or Medicaid children nationally. Where possible, the independent evaluator will seek aggregate rates calculated for a population of foster children served by Medicaid services in another state. To obtain data for a comparison group in this way will require the independent evaluator to obtain a DUA with comparison state Medicaid authority.

RBHA

A robust approach to evaluating the integration of care is the inclusion and identification of an in-state comparison group. Although the target population of the RBHA evaluation are adults with an SMI as defined by A.R.S. §36-550, there could be a subset of AHCCCS beneficiaries who have not gone through the formal SMI determination process yet exhibit similar characteristics. Propensity scores can be used to identify beneficiaries similar to the target population who are not enrolled in a RBHA as an adult SMI beneficiary. The independent evaluator will assess the comparability of a potential comparison group following best practices in the literature prior to proceeding with statistical testing.[3-2] If a suitable in-state comparison group can be found, then a robust difference-in-differences design can be employed to conduct statistical testing. Given the selection and SMI determination process for RBHA coverage, we do not anticipate finding a comparable group similar to the RBHA SMI population.[3-3] If no suitable in-state comparison group is found, then the independent evaluator will leverage multiple data points before and after integration to construct an interrupted time series analysis.

PQC

Because the PQC waiver is hypothesized to increase the rate of enrollment among the eligible population, the demonstration has a partial focus on newly enrolled Medicaid beneficiaries. Specifically, because the waiver is expected to increase the rate of enrollment when individuals in the eligible population are healthy, and because there are no readily available administrative data or survey data for the eligible and unenrolled population, the independent evaluator will need to collect data for the evaluation from newly-enrolled beneficiaries. In the context of the PQC waiver, newly enrolled refers to beneficiaries who satisfy two criteria:

1. Enrolled no earlier than the first day of the month prior to the month of sampling
2. Experienced a gap in enrollment of at least two months immediately before the month prior to the month of sampling

[3-2] See, e.g., Guo, S., and Fraser, M.W., (2010) *Propensity Score Analysis: Statistical Methods and Applications*, SAGE Publications, Inc., Thousand Oaks, CA; or Austin, P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate behavioral research*, *46*(3), 399–424. doi:10.1080/00273171.2011.568786. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144483/.

[3-3] Due to the subjective and qualitative nature of the clinical determination of an SMI, there is no uniform screening tool that could be used to identify a hypothetical comparison group through a regression discontinuity approach.

Because many measures consider continuously enrolled beneficiaries to be those enrolled for at least five out of the previous six months, the criteria defined for a newly enrolled beneficiary captures those persons who did not have a recent spell of continuous enrollment and who had recently enrolled. This represents the population of beneficiaries for whom the PQC waiver is expected to increase the likelihood of enrollment when healthy. The evaluation design will therefore capture survey data from newly enrolled beneficiaries at multiple points in time to assess whether their self-reported health status is increasing as expected. Self-reported health status will also be captured for other beneficiaries meeting the traditional continuous enrollment criteria. This will also allow the independent evaluator to determine if the health status of beneficiaries who are not newly enrolled increases over time after implementing the PQC waiver.

Outcomes that rely on state administrative data pertaining to enrollment by eligibility category and rates of enrollment can have intra-year (e.g., monthly) measurements taken both prior to and after implementation. This can serve to build pre- and post-implementation trends that can be evaluated via an interrupted time series analysis and through a pre-test/post-test analysis. These analyses will not utilize a comparison group because no comparable populations exist within Arizona that would not be impacted by the elimination of PQC. Additionally, a descriptive analysis of these measures will be included in the rapid-cycle reporting for the State's implementation of the waiver.

Due to the implementation of multiple waivers that will be evaluated, the independent evaluator will leverage the staggered implementation of each waiver along with variations among intervention and comparison groups to identify waiver-specific impacts. This will be accomplished through varying the timing of survey collections as well as judicious employment of statistical controls identifying individual participation in each waiver.

TI

DiD may be used for all outcomes that rely on administrative data when a valid comparison group can be utilized. However, in situations where a valid comparison group is not available and the outcome relies on state administrative claims data that can have intra-year (e.g., monthly) measurements taken both prior to and after implementation, then an ITS methodology can be utilized. This can serve to build pre- and post-implementation trends, which can evaluate the impact that the TI demonstration had on health outcomes. This is assuming that enough measurements can be taken both prior to and after the implementation of the TI program. This analysis would serve as valuable rapid-cycle reporting for the State's implementation of the demonstration.

For measures in which a survey is utilized and a valid comparison group exists, a chi-square test can be used to compare results of the survey between the intervention group and the comparison group. A chi-square test is a test statistic that determines if there is a relationship between a categorical outcome for two groups.

Due to the implementation of multiple program that will be evaluated, the independent evaluator will leverage the staggered implementation of each program along with variations among intervention and comparison groups to identify program-specific impacts. This will be accomplished through varying the timing of survey collections as well as judicious employment of statistical controls identifying individual participation in each program.

Intervention and Comparison Populations

ACC

Intervention Population

The intervention group will consist of AHCCCS beneficiaries previously covered by "Acute Care" plans who, as of October 1, 2018, transitioned into ACC plans. Specifically, AHCCCS beneficiaries meeting the following criteria are affected:

- Adults who are not determined to have an SMI (excluding beneficiaries enrolled with DES/DDD);
- Children, including those with special health care needs (excluding beneficiaries enrolled with DES/DDD and DCS/CMDP); and
- Beneficiaries determined to have an SMI who opt out and transfer to an ACC for the provision of physical health services.

Results for each of these populations will be presented separately; however, it is anticipated that the number of beneficiaries with an SMI who opt out of a RBHA and transfer to an ACC is too small to support meaningful analysis. Therefore, ACC results will be stratified by adults and children for measures where supported by the data (i.e., sufficiently covers both adults and children).

Comparison Populations

In-State Comparison Groups

AHCCCS does not maintain or have access to an all-payer claims database from which to pull commercial insurance claims and enrollment information to identify low income commercial insurance enrollees who may be similar to AHCCCS beneficiaries. Additionally, as mentioned above, the intervention group covers virtually all non-SMI, non-disabled, and non-foster care children, limiting the viability of an in-state comparison group.

Aggregate Data

The evaluation design will rely on national benchmarks based on aggregate data to represent a comparison group. Regional benchmarks will be used when available, since they would provide a more accurate comparison to the population specific to Arizona. The independent evaluator will utilize the most granular data available, such as at the health plan level. The level of granularity will determine the extent to which statistical testing can be performed.

ALTCS

Intervention Population

As described in the Background section, the intervention group will consist of individuals who:

- Are EPD
- With DD

To qualify for EPD, individuals must be 65 or older and/or medically require long-term care services. Long-term care service needs are determined by a pre-admission screening (PAS).[3-4]

A DD qualifying diagnosis is a cognitive disability, cerebral palsy, epilepsy, or autism. Since children often do not have a specific diagnosis, individuals six and under must either have one of the four previously mentioned diagnoses, be determined to be at risk for one of the four diagnoses, or demonstrate a delay that may lead to one of the four diagnoses. Similar to EPD eligibility, beneficiaries with DD must pass the PAS and require institutional level of care.[3-5]

Comparison Populations

In-State Comparison Groups

AHCCCS does not maintain or have access to an all-payer claims database from which to pull commercial insurance claims and enrollment information to identify low income commercial insurance enrollees who may be similar to AHCCCS beneficiaries. Additionally, as mentioned above and in the Background section, the intervention group covers virtually all people with physical and developmental disabilities, eliminating the use of an in-state comparison group.

Out-of-State Comparison Groups

Aggregate Data

An out-of-state comparison group could also be obtained by using aggregate rates calculated for a population of beneficiaries who are EDP or with DD served by Medicaid services in another state. Ideally, the state chosen to serve as the comparison group would not have physical and behavioral health care services integrated throughout the period of the demonstration. It may be challenging to identify and confirm states that will not make such an integration prior to the end of the AHCCCS ALTCS evaluation period. As an alternative, however, a state that has already integrated physical and behavioral health care prior to the ALTCS baseline for integration could also serve as a viable comparison group. In effect, the evaluation would compare the performance of ALTCS after integration to a group already receiving integrated care and who, all else equal, should not exhibit any significant changes. To obtain data for a comparison group in this way will require the independent evaluator to obtain a Data Use Agreement (DUA) with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS ALTCS model and does not have other confounding quality improvement activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in populations for ALTCS and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made. Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their foster care population, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the population of beneficiaries who are EPD or with DD when using aggregate rates.

[3-4] Medical Assistance Eligibility Policy Manual. https://www.azahcccs.gov/Resources/guidesmanualspolicies/eligibilitypolicy/eligibilitypolicymanual/Policy/Chapter_500_Non-Financial_Conditions_of_Eligibility/MA0509.htm. Accessed on Oct 16, 2019.

[3-5] DDD Eligibility. https://des.az.gov/sites/default/files/10_DDD_Eligibility.pdf. Accessed on Oct 16, 2019.

CMDP

Intervention Population

As described in the Background section, the intervention group will consist of children in the custody of DCS. More specifically, children in:

- Foster homes
- The custody of DCS and placed with a relative
- The custody of DCS and placed in a certified adoptive home prior to the entry of the final order of adoption
- The custody of DCS and in an independent living program as provided in Arizona Revised Statutes (A.R.S.) § 8-521
- The custody of a probation department and placed in out-of-home care

CMDP provides health care to eligible beneficiaries from birth to 18 years of age, and up to age 21 in rare instances when the beneficiary is not Medicaid eligible.

Comparison Populations

In-State Comparison Groups

AHCCCS does not maintain or have access to an all-payer claims database from which to pull commercial insurance claims and enrollment information to identify low income commercial insurance enrollees who may be similar to AHCCCS beneficiaries. Additionally, as mentioned above, the intervention group covers all children in the state of Arizona in the custody of DCS and in out-of-home care. As such, the CMDP beneficiaries represent a qualitatively unique population with health care needs that often exceed other children, and no comparable group of individuals within the state for whom CMDP was not already providing physical health care coverage and where the integration of physical and behavioral health care will not occur. For these reasons, no viable in-state comparison group exists for this evaluation.

Out-of-State Comparison Groups

Aggregate Data

An out-of-state comparison group could be obtained by using aggregate rates calculated for a population of foster children served by Medicaid services in another state. Ideally, the state chosen to serve as the comparison group would not have physical and behavioral health care services integrated throughout the period of the demonstration. It may be challenging to identify and confirm states that will not make such an integration prior to the end of the AHCCCS CMDP evaluation period. As an alternative, however, a state that has already integrated physical and behavioral health care prior to the CMDP baseline for integration could also serve as a viable comparison group. In effect, the evaluation would compare the performance of CMDP after integration to a group already receiving integrated care and who, all else equal, should not exhibit any significant changes. To obtain data for a comparison group in this way will require the independent evaluator to obtain a DUA with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS CMDP model and does not have other confounding quality improvement

activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in populations for CMDP and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made. Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their foster care population, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the CMDP population when using aggregate rates.

RBHA

Intervention Population

The intervention group will consist of beneficiaries 18 years of age or older and designated with an SMI, as defined as a substantial disorder of emotional processes, thought, cognition or memory that require supporting treatment or long-term support services to remain in the community.[3-6]

Comparison Populations

In-State Comparison Groups

AHCCCS does not maintain or have access to an all-payer claims database from which to pull commercial insurance claims and enrollment information to identify low income commercial insurance enrollees who may be similar to AHCCCS beneficiaries with an SMI. Additionally, as mentioned above and in the Background section, the intervention group consists of all Medicaid beneficiaries with an SMI, effectively eliminating the use of other Medicaid beneficiaries as an in-state comparison group. With these limitations, an in-state comparison group is unlikely to be feasible.

Out-of-State Comparison Groups

Aggregate Data

An out-of-state comparison group could be obtained by using aggregate rates calculated for a population with an SMI served by Medicaid services in another state. Ideally, the state chosen to serve as the comparison group would not have physical and behavioral health care services integrated throughout the period of the demonstration. It may be challenging to identify and confirm states that will not make such an integration prior to the end of the AHCCCS RHBA evaluation period. As an alternative, however, a state that has already integrated physical and behavioral health care prior to the RBHA baseline for integration could also serve as a viable comparison group. In effect, the evaluation would compare the performance of RBHA after integration to a group already receiving integrated care and who, all else equal, should not exhibit any significant changes. To obtain data for a comparison group in this way will require the independent evaluator to obtain a Data Use Agreement (DUA) with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS RHBA model and does not have other confounding quality improvement activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in populations for RHBAs and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made.

[3-6] Arizona Revised Statute § 36-550 and 36-501, https://www.azleg.gov/ars/36/00550.htm; https://www.azleg.gov/ars/36/00501.htm.

Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their population designated with an SMI, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the RBHA population when using aggregate rates.

PQC

Intervention Population

The intervention group will consist of all eligible members who apply for coverage after implementation, expected to be July 1, 2019, excluding pregnant women, women who are 60 days or less postpartum, and infants and children under 19 years of age. Comparison Populations

Comparison Populations

Out-of-State Comparison Groups

Aggregate Data

An out-of-state comparison group for survey responses could also be obtained by using aggregate rates calculated for a population of beneficiaries age 19 and older, women who are not pregnant, and women who are not less than 60 days postpartum, who are served by Medicaid services in another state. Aggregate rates based on enrollment data could also be used to calculate measures evaluating enrollment activities. The state chosen to serve as the comparison group would not have implemented a demonstration that limits retroactive eligibility or implement other demonstrations during the time period of the demonstration. To obtain data for a comparison group in this way will require the independent evaluator to obtain a DUA with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS model and does not have other confounding quality improvement activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in the intervention population and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made. Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their Medicaid population, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the AHCCCS intervention population when using aggregate rates. However, the independent evaluator will work with other states to obtain aggregate data for the most appropriate comparison population possible for each measure for which aggregate data will be used.

Identifying Comparison States

The selection of states used in an out-of-state comparison group will be based on similarity to Arizona in terms of overall demographics and Medicaid programs and policies. Potential comparison states would also not have implemented a retroactive eligibility waiver during the baseline or evaluation periods. There are several key limiting factors in identifying and using data on specific states. In addition to sharing demographic factors and similar Medicaid policies, comparison state(s) should not have a major change in Medicaid policies during either the baseline or evaluation period. Selection of states will be conducted on a case-by-case basis depending on the available data and state willingness to share data.

TI

Intervention Population

Although the TI demonstration's ultimate goal is to improve health outcomes of select beneficiaries, the participating providers are also measured on their level of integration. The evaluation design has measures targeted towards both populations: the providers and the beneficiaries.

Identification of Participating Providers

A state-provided list of providers and hospitals who successfully applied to the TI program will be utilized to identify participating providers. This list will be provided at least annually. To address potential bias that may arise from provider attrition, participating providers will be split into two groups upon analysis. Providers who participated in TI throughout the duration will be identified and separated from providers who did not participate throughout the duration. This will allow for the independent evaluator to identify and estimate any self-selection bias as a result of provider attrition.

Identification of Participating Beneficiaries

The intervention group will consist of beneficiaries assigned to or attributed to participating providers who are:

- Adults with behavioral health needs;
- Children with behavioral health needs, including children with or at risk for Autism Spectrum Disorder (ASD), and children engaged in the child welfare system; or
- Individuals transitioning from incarceration who are AHCCCS-eligible.

The independent evaluator will continue collaboration with AHCCCS to refine the identification of TI beneficiaries for purposes of evaluating the program. AHCCCS contracted with Arizona State University Center for Health Information and Research (ASU CHiR) to calculate performance measures used for provider incentive payments. Beneficiaries for ASU CHiR's analysis will be attributed to providers through a stepwise process that combines attribution algorithms with plan assignment lists. Beneficiaries are attributed to TI participating practitioners through the following process, where attribution is made by the first criterion met:

1. Physical examination or assessment by one of the eligible PCP specialties and PCP assigned via enrollment.[3-7]
2. Most recent physical examination or assessment by any physician with one of the eligible PCP specialties. Non-physician specialties do not qualify.
3. Ambulatory or nursing facility visit or professional supervision service by one of the eligible PCP specialties and PCP assigned via enrollment.
4. Largest number of any combination of the following by one of the eligible PCP specialties
    a. Ambulatory visits, nursing facility visits, professional supervision services. The most recent visit breaks any ties.
5. Prenatal, postpartum, or antepartum visit, or routine obstetrical care services performed by one of the eligible PCP specialties and PCP assigned via enrollment.
6. Largest number of prenatal, postpartum, or antepartum visits, or routine obstetrical care services by one of the eligible PCP specialties. The most recent visit breaks any ties.

[3-7] Eligible PCP specialties defined as provider types 08, 19, and 31 with one of the following specialty codes: 055, 060, 050, 150.

7. PCP assigned via enrollment. The PCP can be any specialty

The lookback period for member attribution is the twelve months prior to each evaluation year.

While this methodology is suitable for calculating provider-level rates for purposes of determining incentive payments, it is not feasible to use for this evaluation, in part due to the reliance on plan assignment files, which do not exist for the proposed baseline period. As a result, logic from the above methodology will be extended to accurately and appropriately identify beneficiaries impacted by the TI program without reliance on the plan assignment files. Provider attribution could be accomplished by identifying members with multiple visits to a TI participating provider (both PCPs and BH providers) in the year prior to each measurement year and taking the most recent visit in case of a tie.

Comparison Populations

For measures at the provider level (e.g., the percentage of providers who routinely receive Admission-Discharge-Transfer [ADT] alerts), the comparison group will be non-TI participating providers.

For all other measures, the comparison group will include beneficiaries who are attributed to non-TI participating providers, and have never been assigned, attributed to, nor received any health care services from a TI participating provider. The attribution methodology for the comparison group will follow the steps described above to identify the intervention group. Statistical methods will be used to identify and select members of the comparison group who have similar characteristics to the intervention group, including comparable levels of access to care as the intervention group.

Excluding beneficiaries who have received any care from TI participating providers should minimize any crossover effects from beneficiaries who have not been assigned to a TI participating provider receiving TI-influenced care from a TI participating provider. However, once program participation data are available, the independent evaluator will determine the feasibility and appropriateness of this comparison group criteria and may revise it to accommodate details of program implementation and the idiosyncrasies of the available data, while ensuring a scientific and rigorous evaluation.

Identification of Similar Beneficiaries

Propensity score matching will be used to identify a subset of the eligible comparison group that is most similar to the intervention population based on observable characteristics, including demographic factors and health conditions prior to implementation of the demonstration.[3-8] Propensity score matching has been used extensively to match individuals from an eligible comparison group to individuals in the intervention group.[3-9] However, there are several risks to the use of propensity scores and subsequent matching on the propensity score (Table 3-2).

[3-8] See, e.g., Selecting the Best Comparison Group and Evaluation Design: A Guidance Document for State Section 1115 Demonstration Evaluations" for a detailed discussion of appropriate evaluation designs based on comparison group strategies (https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/comparison-grp-evaldsgn.pdf).

[3-9] Guo, S., and Fraser, M.W., (2010) *Propensity Score Analysis: Statistical Methods and Applications,* SAGE Publications, Inc., Thousand Oaks, CA; or Austin, P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate behavioral research*, *46*(3), 399–424. doi:10.1080/00273171.2011.568786; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144483/.

Table 3-2: Propensity Score Risks

Risk	Description
Insufficient coverage	Not enough individuals in the eligible comparison group similar enough to intervention population for 1:1 matching
Unbalanced groups	Observable characteristics of the intervention and comparison groups after matching are not balanced

When confronted with insufficient coverage, the independent evaluator should first explore alternative specifications in either the propensity score model and/or the matching algorithm before moving to alternative approaches. For example, instead of a typical 1:1 greedy matching algorithm, the independent evaluator could explore matching with replacement or optimal matching algorithms.[3-10] If alternative matching algorithms do not yield a matched comparison group with sufficient coverage and balance, then propensity score weighting can be explored as the next step. Propensity score weighting utilizes the full eligible comparison group and assigns a higher statistical weight to beneficiaries who are predicted to be part of the intervention but were not. A risk of this methodology is that the analysis may be dominated by a handful of beneficiaries with extremely high weights.

Balance between the matched comparison and intervention groups will be assessed using a three-pronged approach to evaluate the similarity between the intervention group and comparison groups across observable characteristics, or covariates. Table 3-3 summarizes each of the three prongs.

Table 3-3: Assessment Approaches

Assessment Approach	Advantage	Cautionary Note
Covariate-level statistical testing	Provides quantitative evidence, or lack thereof, of significant differences between matched groups	Susceptible to false positives for large sample sizes and false negatives for small sample sizes
Standardized differences	Does not rely on sample size	No universal threshold to indicate balance or unbalance
Omnibus test	Provides a single quantitative assessment of balance across all covariates as a whole	Susceptible to false positives for large sample sizes and false negatives for small sample sizes

Each of these approaches ultimately assesses the similarity of the *mean* of the distribution for each covariate. Additional metrics pertaining to the distribution should also be considered as part of the balance assessment, such as reporting the standard deviations.[3-11]

These categories represent a starting place for building the comparison group and may not reflect the final selection identified by the independent evaluator.

Similarities in observable characteristics between the intervention population and those meeting exemptions will be assessed and if systematic differences are found, propensity score matching, or weighting will be used to normalize the comparison group to match the intervention group.

[3-10] See, e.g., Austin P. C. (2014). A comparison of 12 algorithms for matching on the propensity score. *Statistics in medicine*, 33(6), 1057–1069. doi:10.1002/sim.6004; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4285163/.

[3-11] Austin P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate behavioral research*, *46*(3), 399–424. doi:10.1080/00273171.2011.568786; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144483/.

Out-of-State Comparison Groups

The independent evaluator will consider utilizing an out-of-state comparison group if data are available and complete enough to support rigorous statistical testing of outcomes. One possible data source for beneficiary-level data is through national surveys, such as the Behavioral Risk Factors Surveillance System (BRFSS), the National Health Interview Survey (NHIS), Medical Expenditure Panel Survey (MEPS), National Survey on Drug Use and Health (NSDUH) or National Core Indicators (NCI) survey, and data collection efforts like the HHS Administration for Children and Families Adoption and Foster Care Analysis and Reporting System (AFCARS) and the National Survey of Children's Health (NSCH). The ACC, PQC, and RBHA evaluations will utilize the BRFSS, NHIS and MEPS datasets, ALTCS will utilize the NCI survey, and the CMDP evaluation will utilize AFCARs and NSCH. Details on each of these national surveys are described under each specific program.

When considering such data sources, there are several pieces that need to align in order to leverage the data source in the evaluation. First, ideally beneficiary-level data should be available, which will allow for identification of additional key features to control for in statistical testing. Second, the data source must include a method to identify Medicaid beneficiaries. Third, the data source must include state indicators to separate Medicaid beneficiaries in Arizona from other states. Fourth, the data source should include a method to identify specific subpopulations of interest, specifically Medicaid expansion beneficiaries. Fifth, the data source must contain relevant outcomes to measure that are pertinent to the waiver evaluation. Finally, the timing of survey administration and lag time in data availability should be taken into consideration as it relates to the implementation of each program specifically and the demonstration renewal period.

Another potential source for beneficiary-level data, is the Transformed Medicaid Statistical Information System (T-MSIS) maintained and collected by the Centers for Medicare & Medicaid Services (CMS). The evaluation of ACC, ALTCS, CMDP, PQC, and RBHAs will utilize the T-MSIS data. It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support individual-level matching to beneficiaries of each program. However, as of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group. If these data become available in time for the summative evaluation report, the independent evaluator will examine the completeness and viability of using these data in the analyses. With robust beneficiary-level data covering the baseline period and multiple years during the demonstration period (if not the entire demonstration period), then more robust methods can be employed to estimate the effect of the demonstration on outcomes. Measures that utilize administrative claims/encounter data or enrollment and eligibility data may use methods such as propensity score matching or reweighting to construct a valid out-of-state comparison group.

When these pieces are aligned and the data source appears viable, there are several additional limitations that confront usage of these data—some that may be anticipated while others may be uncovered upon closer inspection of the data. A discussion of the limitations of these data sets specific to each program can be found below.

ACC

Many national surveys such as NHIS or MEPS are designed to be nationally representative, but once limited to the Medicaid population in certain states, this sample may not be representative of each state's Medicaid population. Similarly, sample sizes and response frequencies may be too small to provide a sufficiently powered statistical analysis once the subpopulations are identified. The NHIS indicates that pooling multiple years together may yield sufficient statistical power; however, given the multitude of programs and demonstration components

implemented before and during the current demonstration renewal period, a redesign of the NHIS, and the time-limited nature of the summative evaluation report, the aggregation of survey results across time may not provide unbiased results indicative of the causal impact of the ACC on outcomes with sufficient statistical power.

An alternative use of national survey data, which can in part address the possibility of inadequate or unrepresentative sample for AHCCCS beneficiaries, is to leverage the survey questions for use in surveys conducted as part of the waiver evaluation and compare these responses to beneficiaries in other states. One limitation to this approach is that the survey instruments would not be the same, which could introduce bias in the responses. This is especially pertinent when the mode of fielding the survey is different. For example, the NHIS survey is conducted face-to-face while Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys (which could be modified to include additional questions) are typically administered through a combination of telephone and mail and have lower response rates than face-to-face surveys.[3-12] Another limitation to this approach is because the survey was not fielded at baseline, only a single, post-implementation data point would be included in the summative evaluation, which would not provide causal inferences.

For the ACC evaluation, such national survey data sources do not appear to be viable or cost-effective if in-person data collection is required. The NHIS and MEPS data sources do not include state identifiers in their public use files, the sample sizes are likely too small to provide reliable single-state estimates without aggregating across multiple years, and they are administered in-person, which would add significant costs to the evaluation and departs from the typical CAHPS survey administration method. Similarly, while BRFSS contains a state indicator, the Medicaid coverage indicator is part of an optional module collected by only six states in 2017 and 11 states in 2016, and Arizona is not included in either year. Additionally, this survey is only administered via telephone, which departs from the collection methods of the standard CAHPS survey. The primary benefit of leveraging such data sources, therefore, is to use beneficiary-level responses as a comparison group for several measures. Because national benchmarks for CAHPS surveys can be used as a comparison group for the ACC population, this advantage is lessened. One exception to this is Measure 4-1, percentage of beneficiaries who reported a high rating of overall health, which may utilize data from BRFSS to create an out-of-state comparison group among beneficiaries in states that include a Medicaid indicator. A comparison of possible data sources, their requirements, limitations, and anticipated utility is described in Appendix E.

ALTCS

Because of the specific nature of the ALTCS population, none of the standard nationally representative datasets, used to measure national trends in physical and behavioral health, such as the BRFSS, the NHIS, or MEPS, would identify a comparison group similar the ALTCS population. A comparison of possible data sources, their requirements, limitations, and anticipated utility is described in Appendix E. However, the NCI survey captures a range of data for Medicaid beneficiaries with DD. The survey has been issued annually since 1997, and this year 39 states are expected to participate.[3-13] Results from other states with similar Medicaid eligibility criteria along with national aggregated results can be used as a comparison group for beneficiaries with a developmental disability.

Identifying Comparison States

For measures in which individual level data are not available, the selection of states used for an out-of-state comparison group will be based on similarity to Arizona in terms of overall demographics and Medicaid

[3-12] CAHPS is a registered trademark of the Agency for Healthcare Research and Quality.
[3-13] National Core Indicators. https://www.nationalcoreindicators.org/. Accessed on Oct 15, 2019.

programs and policies. In addition to sharing demographic factors and similar Medicaid policies, comparison state(s) should not have a major change in Medicaid policies during either the baseline or evaluation period. Selection of states will be conducted on a measure-by-measure basis depending on the available data and state willingness to share data.

CMDP

The AFCARS data contain information on the demographics of children in adoption and foster care systems, and the timing of entry to and exit from the system. The data do not, however, contain information on the health care services received or outcomes experienced by children within the foster care system. Therefore, while the AFCARS data captures data from the correct population and at the desired scale, the breadth of data is insufficient for the purpose of this evaluation. The NSCH is sponsored by the Health Resources and Services Administration, Maternal and Child Health Bureau and is designed to produce national and state-level estimates of the health and emotional well-being of all children. While the survey design allows for the identification of adults in the survey who self-report being a foster parent, the proportion of respondents self-reporting as a foster parent is approximately 0.3 percent. In 2017, the NSCH sampled 3,664 households in Arizona, completing 1,204 screening surveys with basic demographic information, and limited questions regarding current healthcare needs of children (e.g., limitations in abilities; special therapy needs; emotional, developmental, or behavioral problems). For the detailed topical survey components that include questions about experiences with providers and access to care, there were 434 surveys completed. Based on the estimated number of foster parent surveys completed, the NSCH foster child sample for Arizona would be fewer than 10 respondents with sufficiently detailed information for inclusion in the current evaluation. The NSCH, therefore, captures data at the national and state level and contains detailed questions that could be of use to the CMDP evaluation, but is not sufficiently powered in sample size to adequately capture a representative sample of the population receiving care through CMDP at the state level. For these reasons, no known national survey data source or data collection efforts for this population can produce a viable estimate of a treatment and comparison group. A comparison of possible data sources, their requirements, and anticipated utility is described in Appendix E.

RBHA

The BRFSS and NHIS surveys do not contain indicators that could identify the adult with an SMI enrolled in Medicaid with an acceptable degree of reliability and accuracy. The NSDUH contains an indicator for beneficiaries with an SMI. The NSDUH is an annual survey directed by the Substance Abuse and Mental Health Services Administration (SAMHSA) and conducted by RTI International. This survey provides information on tobacco, alcohol, drug use, mental health, and other health-related issues.[3-14]

While the NSDUH allows for the identification of Medicaid beneficiaries with an SMI, there are several critical limitations to using this dataset for the purposes of evaluating program or waiver performance. First, there is an unknown degree of bias between definitions of SMI for RBHA eligibility and the SMI indicator in the NSDUH.[3-15] Lastly, because only a single round of surveys will be administered during the current demonstration renewal period, the evaluation would be limited to comparisons to the control population at only a single point in time. Such single-point-in-time-comparisons are of limited utility and provide no useful data to evaluate the performance of the waiver program. Comparisons to control groups or national averages would only be useful for waiver program performance evaluation when compared over multiple years. As a result, the NSDUH data cannot

[3-14] What is NSDUH? https://nsduhweb.rti.org/respweb/homepage.cfm; Accessed Oct 12, 2019

[3-15] The SMI indicator in NSDUH is derived from a predictive model using survey responses as predictors. Therefore, the selection of pertinent measures is limited due to many measures exhibiting endogeneity with the SMI indicator.

be used for the evaluation for the waiver during the current renewal/evaluation period. However, questions similar to those in NSDUH that are identified as appropriate given the limitations described above will be included in the CAHPS administered to the waiver population to generate baseline data for future evaluations and build a sound foundation for rigorous program evaluations in future years, within the limitations above.

Identifying Comparison States

The selection of states used for an out-of-state comparison group will be based on similarity to Arizona in terms of overall demographics and Medicaid programs and policies. In addition to sharing demographic factors and similar Medicaid policies, comparison state(s) should not have a major change in Medicaid policies during either the baseline or evaluation period. Selection of states will be conducted on a measure-by-measure basis depending on the available data.

As result of the unavailability of reliable national data with the necessary level of detail and covered periods of time, the independent evaluator will not be able to use a comparison group from one of these sources for the evaluation.

PQC

The BRFSS, NHIS, and MEPS datasets provide beneficiary-level data and state indicators; however, BRFSS does not contain a Medicaid indicator for all states. The Medicaid indicator in BRFSS is part of an optional module collected by only six states in 2017 and 11 states in 2016, and Arizona is not included in either year. It is possible for future analyses to consider this data source if Arizona participates in the optional module to identify Medicaid beneficiaries. Responses from Medicaid beneficiaries in other states may be used as an out of state comparison group for measures from state beneficiary surveys asking the same questions; specifically, data for AHCCCS beneficiaries for Measure 3-1 (Beneficiary reported rating of overall health for all beneficiaries) and Measure 4-1 (Percentage of beneficiaries who reported medical debt).

Out-of-state members may also come from state eligibility and enrollment data, such as Integrated Public Use Microdata Series (IPUMS) American Community Surveys (ACS).

There are two approaches that may be taken to identify a valid comparison using national datasets, such as IPUMS. They could be used either independently or together, and through the course of conducting analysis, the independent evaluator will determine the best approach. The first approach would be to identify a state with similar Medicaid beneficiaries and eligibility criteria as the intervention state (i.e., Arizona). This could be accomplished through a variety of methods, including background qualitative research in addition to quantitative assessments. Once a similar state or states are identified, national data from that state would be used. Identifying Medicaid beneficiaries during the time period of interest would depend on the data source. Some data sources, including IPUMS ACS, currently provide a field on previous year Medicaid coverage. Alternatively, individuals likely eligible for Medicaid could be identified using additional data fields indicating household/family income, number of dependents, and/or disability status.

The second approach would involve identifying a state with roughly similar Medicaid beneficiaries and coverages, but utilizing propensity score matching to identify a subset of the eligible comparison group that is most similar to the intervention population based on observable characteristics, including demographic factors

and health conditions prior to implementation of the waiver.[3-16] The richness of data on observable characteristics will depend on the data source. Some national data sets may only contain broad information that could be used to balance populations based on general demographic and basic health/disability status, rather than detailed indicators of specific chronic physical and/or mental health conditions. A comparison of possible data sources, their requirements, and anticipated utility is described in Appendix E.

Evaluation Periods

ACC

The current demonstration period was approved from October 1, 2016, through September 30, 2021. AHCCCS Complete Care plans were effective as of October 1, 2018. The baseline period will span three years prior to the effective date of the ACC plans, with the interim evaluation report covering the first year of ACC, and the summative report covering the remaining years. Table 3-4 presents time frames for each of the evaluation periods.

Table 3-4: ACC Evaluation Periods

Evaluation Periods	Time Frame
Baseline	October 1, 2015 – September 30, 2018
Evaluation*	October 1, 2018 – September 30, 2021

*Approval for the waiver ends September 30, 2021.

ALTCS

The ALTCS program has been in effect since 1989, providing health care services to beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD, with the most current demonstration waiver coming into effect beginning October 2016 and approved through September 2021. The baseline period will be October 1, 2015 through September 30, 2016. Table 3-5 presents time frames for each of the evaluation periods.

Table 3-5: ALTCS Evaluation Periods

Evaluation Periods	Time Frame
Pre-Renewal Baseline	October 1, 2014 – September 30, 2016
Waiver Renewal	October 1, 2016 – September 30, 2021
Pre-Integration Baseline	October 1, 2017 – September 30, 2019
Integration Evaluation*	October 1, 2019 – September 30, 2021

*Approval for the waiver ends September 30, 2021.

[3-16] See, e.g., Selecting the Best Comparison Group and Evaluation Design: A Guidance Document for State Section 1115 Demonstration Evaluations" for a detailed discussion of appropriate evaluation designs based on comparison group strategies (https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/comparison-grp-evaldsgn.pdf).

CMDP

The CMDP program has been in effect for many decades now, providing health care services to children in custody of DCS with the most current demonstration waiver coming into effect beginning October 2016 and approved through September 2021. Table 3-6 presents time frames for each of the evaluation periods.

Table 3-6: CMDP Evaluation Periods

Evaluation Periods	Time Frame
Pre-renewal baseline	October 1, 2014 – September 30, 2016
Waiver renewal period	October 1, 2016 – September 30, 2021
Integration Evaluation Baseline[1]	October 1, 2018 – September 30, 2020
Integration Evaluation[1,2]	April 1, 2021 – March 31, 2022

[1]Subject to revision pending final implementation date.
[2]Approval for the waiver ends September 30, 2021.

RBHA

The RBHAs have been providing integrated behavioral and physical care for beneficiaries with an SMI in greater Arizona since 2015 and in Maricopa county since 2014, prior to the current demonstration renewal period. Because evaluation of the integration is a focus of CMS and AHCCCS, the evaluation period will extend prior to the demonstration renewal period, beginning on October 1, 2015, with the expansion of integrated RBHA services statewide. Table 3-7 below defines the baseline and evaluation periods.

Table 3-7: RBHA Evaluation Periods

Evaluation Periods	Time Frame
Baseline	October 1, 2011 – September 30, 2015
Evaluation*	October 1, 2015 – September 30, 2021

*Approval for the waiver ends September 30, 2021.

PQC

The PQC waiver is anticipated to be in effect beginning in July 1, 2019, through September 30, 2021. Due to the timing of the Interim Evaluation Report the time period covered by the interim evaluation will be July 1, 2019 through December 31, 2019, with three months of claims/encounter data run out. Due to this shortened evaluation period, measures using national data released annually may not be reportable in the Interim Evaluation Report. The baseline period will be July 1, 2017, through June 30, 2019. Because the baseline period will end prior to the beginning of the evaluation, baseline data collection will only be possible through administrative data and by asking retrospective questions on beneficiary surveys. The Summative Evaluation Report will cover two full years of the waiver with six months of claims/encounter data run out. Table 3-8 presents time frames for each of the evaluation periods.

Table 3-8: PQC Evaluation Periods

Evaluation Periods	Time Frame
Baseline	July 1, 2017 – June 30, 2019

Evaluation Periods	Time Frame
Interim Evaluation*	July 1, 2019 – December 31, 2019
Summative Evaluation	July 1, 2019 – June 30, 2021

*Approval for the waiver ends September 30, 2021.

TI

The initial demonstration for the TI program was approved from January 18, 2017, through September 30, 2021. The first nine months of the demonstration from January 2017 through September 30, 2017, consisted of recruitment and onboarding of providers. The second year of the demonstration, October 1, 2017, through September 30, 2018, primarily consisted of a ramp-up period as TI participating providers began establishing systems and implementing integration protocols. AHCCCS expects that by September 30, 2019, TI participating providers will meet the associated milestones of care integration. Therefore, the baseline period for the evaluation will be October 1, 2015, through September 30, 2016. The Summative Evaluation Report will cover two full years of the demonstration, beginning on October 1, 2019, when TI providers are expected to have met implementation milestones. This period will allow for six months of claims/encounter data run out. Table 3-9 presents time frames for each of the evaluation periods.

Table 3-9: TI Program Evaluation Periods

Evaluation Periods	Time Frame
Baseline	October 1, 2014 – September 30, 2016
Evaluation	October 1, 2019 – September 30, 2021

Evaluation Measures

Table 3-10 through Table 3-15 details the proposed measure(s), study populations, data sources and proposed analytic methods that will be used to evaluate the ACC, ALTCS, CMDP, PQC, RBHA, and TI program, respectively. Detailed measure specifications can be found in Appendix D.

Table 3-10: ACC Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1—Health plans encourage and/or facilitate care coordination among primary care practitioners (PCPs) and behavioral health practitioners.				
Research Question 1.1: What care coordination strategies did the plans implement as a result of ACC?	1-1: Health plans' reported care coordination activities	N/A	Key informant interviews	Qualitative synthesis
Research Question 1.2: Did the plans encounter barriers to implementing care coordination strategies?	1-2: Health plans' reported barriers to implementing care coordination strategies	N/A	Key informant interviews	Qualitative synthesis

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 1.3: Did the plans encounter barriers not related specifically to implementing care coordination strategies during the transition to ACC?	1-3: Health plans' reported barriers not related specifically to implementing care coordination strategies during the transition to ACC	N/A	Key informant interviews	Qualitative synthesis
Research Question 1.4: Did AHCCCS encounter barriers related to the transition to ACC?	1-4: AHCCCS' reported barriers before, during, and shortly following the transition to ACC	N/A	Key informant interviews	Qualitative synthesis
Research Question 1.5: Did providers encounter barriers related to the transition to ACC?	1-5: Providers' reported barriers before, during, and shortly following the transition to ACC	N/A	Provider Focus Groups	Qualitative synthesis
Research Question 1.6: Do beneficiaries perceive their doctors to have better care coordination as a result of ACC?	1-6: Percentage of beneficiaries who reported their doctor seemed informed about the care they received from other health providers	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Hypothesis 2—Access to care will maintain or improve as a result of the integration of behavioral and physical care.				
Research Question 2.1: Do beneficiaries enrolled in an ACC plan have the same or better access to primary care services compared to prior to integrated care?	2-1: Percentage of adults who accessed preventive/ambulatory health services	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	2-2: Percentage of children and adolescents who accessed PCPs	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	2-3: Percentage of beneficiaries under 21 with an annual dental visit	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	2-4: Percentage of beneficiaries who reported they received care as soon as they needed	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	2-5: Percentage of beneficiaries who reported they were able to schedule an appointment for a checkup or routine care at a doctor's office or clinic as soon as they needed	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	2-6: Percentage of beneficiaries who reported they were able to schedule an appointment with a specialist as soon as they needed	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Research Question 2.2: Do beneficiaries enrolled in an ACC plan have the same or better access to substance abuse treatment compared to prior to integrated care?	2-7: Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	2-8: Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Hypothesis 3—Quality of care will maintain or improve as a result of the integration of behavioral and physical care.				
Research Question 3.1: Do beneficiaries enrolled in an ACC plan have the same or higher rates of preventive or wellness services compared to prior to integrated care?	3-1: Percentage of beneficiaries with a well-child visit in the first 15 months of life	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-2: Percentage of beneficiaries with a well-child visits in the third, fourth, fifth, and sixth years of life	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-3: Percentage of beneficiaries with an adolescent well-care visit	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-4: Percentage of children two years of age with appropriate immunization status	National/regional benchmarks	• State eligibility and enrollment data • Arizona State Immunization Information System	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-5: Percentage of adolescents 13 years of age with appropriate immunizations	National/regional benchmarks	• State eligibility and enrollment data • Arizona State Immunization Information System	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	3-6: Percentage of adult beneficiaries who reported having a flu shot or nasal flu spray since July 1	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
Research Question 3.2: Do beneficiaries enrolled in an ACC plan have the same or better management of chronic conditions compared to prior to integrated care?	3-7: Percentage of beneficiaries with persistent asthma who had a ratio of controller medications to total asthma medications of at least 50 percent	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Research Question 3.3: Do beneficiaries enrolled in an ACC plan have the same or better management of behavioral health conditions compared to prior to integrated care?	3-8: Percentage of adult beneficiaries who remained on an antidepressant medication treatment	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-9: Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	3-10: Percentage of beneficiaries with a follow-up visit after emergency department (ED) visit for mental illness	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	3-11: Percentage of beneficiaries with follow-up after ED visit for alcohol and other drug abuse or dependence	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	3-12: Percentage of beneficiaries with a screening for clinical depression and follow-up plan	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	3-13: Percentage of beneficiaries receiving mental health services (inpatient, intensive outpatient or partial hospitalization, outpatient, ED, or telehealth)	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Research Question 3.4: Do beneficiaries enrolled in an ACC plan have the same or better management of opioid prescriptions compared to prior to integrated care?	3-14: Percentage of adult beneficiaries who have prescriptions for opioids at a high dosage	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-15: Percentage of adult beneficiaries with concurrent use of opioids and benzodiazepines	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 3.5: Do beneficiaries enrolled in an ACC plan have equal or lower ED or hospital utilization compared to prior to ACC?	3-16: Number of ED visits per 1,000 member months	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	3-17: Number of inpatient stays per 1,000 member months	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	3-18: Percentage of adult inpatient discharges with an unplanned readmission within 30 days	National/regional benchmarks	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
Hypothesis 4—Beneficiary self-assessed health outcomes will maintain or improve as a result of the integration of behavioral and physical care.				
Research Question 4.1: Do beneficiaries enrolled in an ACC plan have the same or higher overall health rating compared to prior to integrated care?	4-1: Percentage of beneficiaries who reported a high rating of overall health	• National/regional benchmarks • Out-of-State Comparison	• Beneficiary survey • National/regional benchmarks • BRFSS	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Research Question 4.2: Do beneficiaries enrolled in an ACC plan have the same or higher overall mental or emotional health rating compared to prior to integrated care?	4-2: Percentage of beneficiaries who reported a high rating of overall mental or emotional health	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Hypothesis 5—Beneficiary satisfaction with their health care will maintain or improve as a result of the integration of behavioral and physical care.				

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 5.1: Are beneficiaries equally or more satisfied with their health care as a result of integrated care?	5-1: Percentage of beneficiaries who reported a high rating of health plan	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
	5-2: Percentage of beneficiaries who reported a high rating of overall health care	National/regional benchmarks	• Beneficiary survey • National/regional benchmarks	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults
Hypothesis 6—The AHCCCS Complete Care program provides cost-effective care.				
Research Question 6.1: What are the costs associated with the integration of care under ACC?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost-effectiveness analysis
Research Question 6.2: What are the benefits/savings associated with the integration of care under ACC?				

Table 3-11: ALTCS Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1: Access to care will maintain or improve over the waiver demonstration period.				
Research Question 1.1: Do adult beneficiaries who are elderly and/or with a physical disability and adult beneficiaries with DD have the same or higher rates of access to care compared to baseline rates and out-of-state comparisons?	1-1: Percentage of beneficiaries who accessed preventive/ambulatory health services	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 1.2: Do child beneficiaries with DD have the same or higher rates of access to care compared to	1-2: Percentage of children and adolescents who accessed primary care practitioners	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
baseline rates and out-of-state comparisons?	1-3: Percentage of beneficiaries under 21 with an annual dental visit	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 1.3: Do adult beneficiaries with DD have the same or improved rates of access to care as a result of the integration of care for beneficiaries with DD?	1-4: Percentage of beneficiaries who have a primary care doctor or practitioner	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	1-5: Percentage of beneficiaries who had a complete physical exam in the past year	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	1-6: Percentage of beneficiaries who had a dental exam in the past year	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	1-7: Percentage of beneficiaries who had an eye exam in the past year	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	1-8: Percentage of beneficiaries who had an influenza vaccine in the past year	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
Hypothesis 2: Quality of care will maintain or improve over the wavier demonstration period.				
Research Question 2.1: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or higher rates of preventative care compared to baseline rates and out-of-state comparisons?	2-1: Percentage of adult beneficiaries with a breast cancer screening	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-2: Percentage of adult beneficiaries with a cervical cancer screening	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-3: Percentage of beneficiaries with persistent asthma who had a ratio of controller medications to total asthma medications of at least 50 percent	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 2.2: Do child beneficiaries with DD have the same or higher rates of preventative care	2-4: Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
compared to baseline rates and out-of-state comparisons?	2-5: Percentage of beneficiaries with an adolescent well-care visit	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-6: Percentage of beneficiaries with an influenza vaccine	N/A	• State eligibility and enrollment data • ASIIS	Pre-test/post-test
Research Question 2.3: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or better management of behavioral health conditions compared to baseline rates and out-of-state comparisons?	2-7: Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-8: Percentage of adult beneficiaries who remained on an antidepressant medication treatment	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-9: Percentage of beneficiaries with a screening for depression and follow-up plan	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-10: Percentage of beneficiaries receiving mental health services (inpatient, intensive outpatient or partial hospitalization, outpatient, emergency department [ED], or telehealth)	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 2.4: Do adult beneficiaries who are elderly and/or with a physical disability and adult beneficiaries with DD have the same or better management of prescriptions compared	2-11: Percentage of adult beneficiaries with monitoring for persistent medications	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-12: Percentage of beneficiaries with opioid use at high dosage	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
to baseline rates and out-of-state comparisons?	2-13: Percentage of beneficiaries with a concurrent use of opioids and benzodiazepines	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 2.5: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or higher rates of utilization of care compared to baseline rates and out-of-state comparisons?	2-14: Number of ED visits per 1,000 member months	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-15: Number of inpatient stays per 1,000 member months	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-16: Percentage of adult inpatient discharges with an unplanned readmission within 30 days	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Hypothesis 3: Quality of life for beneficiaries will maintain or improve over the waiver demonstration period.				
Research Question 3.1: Do beneficiaries have the same or higher rates of living in their own home as a result of the ALTCS waiver renewal?	3-1: Percentage of beneficiaries residing in their own home	N/A	• PMMIS • ACE	Pre-test/post-test
	3-2: Type of residence for adult beneficiaries with DD	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
Research Question 3.2: Do adult beneficiaries have the same or higher rates of feeling satisfied with their living arrangements as a result of the integration of care for beneficiaries with DD?	3-3: Percentage of beneficiaries who want to live somewhere else	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	3-4: Percentage of beneficiaries who believe services and supports help them live a good life	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
Research Question 3.3: Do adult beneficiaries have the same or higher rates of feeling engaged as a result of the integration of care for beneficiaries with DD?	3-5: Percentage of beneficiaries able to go out and do things s/he likes to do in the community	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	3-6: Percentage of beneficiaries who have friends who are not staff or family members	Respondents from NCI survey in other states	NCI survey	Difference-in-differences
	3-7: Percentage of beneficiaries who decide or has input in deciding their daily schedule	Respondents from NCI survey in other states	NCI survey	Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 4: ALTCS encourages and/or facilitates care coordination among PCPs and behavioral health practitioners.				
Research Question 4.1: Did DES/DDD or its contracted plans encounter barriers during the integration of care for beneficiaries with DD?	4-1: DES/DDD and its contracted plans' barriers during transition	N/A	Key informant interview	Qualitative synthesis
Research Question 4.2: What care coordination strategies did DES/DDD and its contracted plans implement as a result of integration of care?	4-2: DES/DDD and its contracted plans' care coordination activities	N/A	Key informant interview	Qualitative synthesis
Research Question 4.3: Did DES/DDD or its contracted plans encounter barriers to implementing care coordination strategies?	4-3: DES/DDD and its contracted plans' barriers to implementing care coordination strategies	N/A	Key informant interview	Qualitative synthesis
Research Question 4.4: Did AHCCCS encounter barriers related to integration of care for beneficiaries with DD?	4-4: AHCCCS' reported barriers before, during, and shortly after the integration of care	N/A	Key informant interview	Qualitative synthesis
Research Question 4.5: Did providers encounter barriers related to integration of care for beneficiaries with DD?	4-5: Providers' reported barriers before, during, and shortly after the integration of care	N/A	Key informant interview	Qualitative synthesis
Hypothesis 5: ALTCS provides cost-effective care.				
Research Question 5.1: What are the costs associated with the integration of care under ALTCS?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost-effectiveness analysis
Research Question 5.2: What are the benefits/savings associated with the integration of care under ALTCS?				

Table 3-12: CMDP Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1: Access to care will be maintained or increase during the demonstration.				
Research Question 1.1: Do CMDP beneficiaries have the same or increased access to primary care practitioners (PCPs) and specialists in the remeasurement period as compared to the baseline?	1-1: Percentage of children and adolescents with access to primary care practitioners	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	1-2: Percentage of beneficiaries with an annual dental visit	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
Hypothesis 2: Quality of care for beneficiaries enrolled in CMDP will be maintained or improve during the demonstration.				
Research Question 2.1: Do CMDP beneficiaries have the same or higher rates of preventive or wellness services in the remeasurement period as compared to the baseline?	2-1: Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-2: Percentage of beneficiaries with an adolescent well-care visit	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-3: Percentage of children two years of age with appropriate immunization status	National/regional benchmarks	• State eligibility and enrollment data • Arizona State Immunization Information System	• Difference-in-differences • Pre-test/post-test
	2-4: Percentage of adolescents 13 years of age with appropriate immunizations	National/regional benchmarks	• State eligibility and enrollment data • Arizona State Immunization Information System	• Difference-in-differences • Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 2.2: Do CMDP beneficiaries have the same or better management of chronic conditions in the remeasurement period as compared to the baseline?	2-5: Percentage of beneficiaries ages 5 to 18 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	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
Research Question 2.3: Do CMDP beneficiaries have the same or better management of behavioral health conditions in the remeasurement period as compared to the baseline?	2-6: Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-7: Percentage of children and adolescents on antipsychotics with metabolic monitoring	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-8: Percentage of beneficiaries with screening for depression and follow-up plan	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-9: Percentage of children and adolescents with use of multiple concurrent antipsychotics	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-10: Percentage of beneficiaries receiving mental health services (inpatient, intensive outpatient or partial hospitalization, outpatient, emergency department [ED], or telehealth)	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 2.4: Do CMDP beneficiaries have the same or lower hospital utilization in the remeasurement period as compared to the baseline?	2-11: Number of ED visits per 1,000 member months	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks	• Difference-in-differences • Pre-test/post-test
	2-12: Number of inpatient stays per 1,000 member months	• National/regional benchmarks • Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmark	• Difference-in-differences • Pre-test/post-test
Hypothesis 3: CMDP encourages and/or facilitates care coordination among PCPs and behavioral health practitioners.				
Research Question 3.1: What barriers did CMDP anticipate/encounter during the integration?	3-1: CMDP's anticipated/reported barriers during transition	N/A	• Key informant interviews • Provider Focus Groups	Qualitative synthesis
Research Question 3.2: What care coordination strategies did CMDP plan/implement during integration?	3-2: CMDP's planned/reported care coordination activities	N/A	• Key informant interviews • Provider focus groups	Qualitative synthesis
Research Question 3.3: What barriers to implementing care coordination strategies did the CMDP anticipate/encounter?	3-3: CMDP's anticipated/reported barriers in implementing care coordination strategies	N/A	• Key informant interviews • Provider focus Groups	Qualitative synthesis
Hypothesis 4: CMDP provides cost-effective care.				
Research Question 4.1: What are the costs associated with the integration of care in the CMDP?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost Effectiveness Analysis
Research Question 4.2: What are the benefits/savings associated with the integration of care in the CMDP?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost Effectiveness Analysis

Table 3-13: PQC Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1—Eliminating prior quarter coverage will increase the likelihood and continuity of enrollment.				
Research Question 1.1: Do eligible people without prior quarter coverage enroll in Medicaid at the same rates as other eligible people with prior quarter coverage?	1-1: Percentage of Medicaid enrollees by eligibility group out of estimated eligible Medicaid recipients	Out-of-State Comparison	IPUMS ACS	• Difference-in-differences • Pre-test/post-test
	1-2: Percentage of new Medicaid enrollees by eligibility group, as identified by those without a recent spell of Medicaid coverage out of estimated eligible Medicaid recipients	N/A	• Eligibility and enrollment data • IPUMS ACS	• Interrupted time series • Pre-test/post-test
	1-3: Number of Medicaid enrollees per month by eligibility group and/or per-capita of state	N/A	Eligibility and enrollment data	Rapid-cycle reporting – statistical process control chart
	1-4: Number of new Medicaid enrollees per month by eligibility group, as identified by those without a recent spell of Medicaid coverage	N/A	Eligibility and enrollment data	Rapid-cycle reporting – statistical process control chart
Research Question 1.2: What is the likelihood of enrollment continuity for those without prior quarter coverage compared to other Medicaid beneficiaries with prior quarter coverage?	1-5: Percentage of Medicaid beneficiaries due for renewal who complete the renewal process	Aggregate Data for Other State	• Eligibility and enrollment data • Other state aggregate data	• Difference-in-differences • Pre-test/post-test • Interrupted time series
	1-6: Average number of months with Medicaid coverage	Aggregate Data for Other State	• Eligibility and enrollment data • Other state aggregate data	• Difference-in-differences • Pre-test/post-test • Interrupted time series
Research Question 1.3: Do beneficiaries without prior quarter coverage who disenroll from Medicaid have shorter enrollment gaps than other beneficiaries with prior quarter coverage?	1-7: Percentage of Medicaid beneficiaries who re-enroll after a gap of up to six months	Aggregate Data for Other State	• Eligibility and enrollment data • Other state aggregate data	• Difference-in-differences • Pre-test/post-test • Interrupted time-series
	1-8: Average number of months without Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months	Aggregate Data for Other State	• Eligibility and enrollment data • Other state aggregate data	• Difference-in-differences • Pre-test/post-test • Interrupted time series
	1-9: Average number of gaps in Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months	Aggregate Data for Other State	• Eligibility and enrollment data • Other state aggregate data	• Difference-in-differences • Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	1-10: Average number of days per gap in Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months	Aggregate Data for Other State	• Eligibility and enrollment data • Other state aggregate data	• Difference-in-differences • Pre-test/post-test
Hypothesis 2—Eliminating prior quarter coverage will increase enrollment of eligible people when they are healthy relative to those eligible people who have the option of prior quarter coverage.				
Research Question 2.1: Do newly enrolled beneficiaries without prior quarter coverage have higher self-assessed health status than continuously enrolled beneficiaries?	2-1: Beneficiary reported rating of overall health	N/A	State beneficiary survey	Comparison of means
	2-2: Beneficiary reported rating of overall mental or emotional health	N/A	State beneficiary survey	Comparison of means
	2-3: Percentage of beneficiaries who reported prior year ER visit	N/A	State beneficiary survey	Comparison of means
	2-4: Percentage of beneficiaries who reported prior year hospital admission	N/A	State beneficiary survey	Comparison of means
	2-5: Percentage of beneficiaries who reported getting healthcare three or more times for the same condition or problem	N/A	State beneficiary survey	Comparison of means
Hypothesis 3—Health outcomes will be better for those without prior quarter coverage compared to Medicaid beneficiaries with prior quarter coverage.				
Research Question 3.1: Do beneficiaries without prior quarter coverage have better health outcomes than compared to baseline rates and out-of-state comparisons with prior quarter coverage?	3-1: Beneficiary reported rating of overall health for all beneficiaries	• Aggregate Data for Other State • Out-of-State Comparison	• State beneficiary survey • Other state aggregate data • BRFSS	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	3-2: Beneficiary reported rating of overall mental or emotional health for all beneficiaries	Aggregate Data for Other State	• State beneficiary survey • Other state aggregate data	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
Hypothesis 4—Eliminating prior quarter coverage will not have adverse financial impacts on consumers.				

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 4.1: Does the prior quarter coverage waiver lead to changes in the incidence of beneficiary medical debt?	4-1: Percentage of beneficiaries who reported medical debt	Out-of-State Comparison	• State beneficiary survey • BRFSS	Comparison to other states
Hypothesis 5—Eliminating prior quarter coverage will not adversely affect access to care.				
Research Question 5.1: Do beneficiaries without prior quarter coverage have the same or higher rates of office visits compared to baseline rates and out-of-state comparisons with prior quarter coverage?	5-1: Beneficiary response to getting needed care right away	Aggregate Data for Other State	• State beneficiary survey • Other state aggregate data	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
	5-2: Beneficiary response to getting an appointment for a check-up or routine care at a doctor's office or clinic	Aggregate Data for Other State	• State beneficiary survey • Other state aggregate data	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
Research Question 5.2: Do beneficiaries without prior quarter coverage have the same or higher rates of service and facility utilization compared to baseline rates and out-of-state comparisons with prior quarter coverage?	5-3: Percentage of beneficiaries with a visit to a specialist (e.g., eye doctor, ENT, cardiologist)	Aggregate Data for Other State	• Eligibility and enrollment data • Administrative claims data • Other state aggregate data	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test
Hypothesis 6—Eliminating prior quarter coverage will not result in reduced member satisfaction.				
Research Question 6.1: Do beneficiaries without prior quarter coverage have the same or higher satisfaction with their healthcare compared to baseline rates and out-of-state comparisons with prior quarter coverage?	6-1: Beneficiary rating of overall healthcare	N/A	State beneficiary survey	Pre-test/post-test
Hypothesis 7—Eliminating prior quarter coverage will generate cost savings over the term of the waiver.				

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 7.1: What are the costs associated with eliminating PQC?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost-effectiveness analysis
Research Question 7.2: What are the benefits/savings associated with eliminating PQC?				
Research Question 7.3: Do costs to non-AHCCCS entities stay the same or decrease after implementation of the waiver compared to before?	7-1: Reported costs for uninsured and/or likely eligible Medicaid recipients among potentially impacted providers and/or provider networks	Out-of-State Comparison	• HCRIS • HCUP-SID • Provider focus groups	• Difference-in-differences • Interrupted time series • Qualitative synthesis
Hypothesis 8—Education and outreach activities by AHCCCS will increase provider understanding about the elimination of PQC.				
Research Question 8.1: What activities did AHCCCS perform to educate beneficiaries and providers about changes to retroactive eligibility?	8-1: AHCCCS' education activities	N/A	Key informant interviews	Qualitative Synthesis
	8-2: Providers' knowledge on eliminating PQC	N/A	Provider focus groups	Qualitative Synthesis
Research Question 8.2: Did AHCCCS encounter barriers related to informing providers about eliminating PQC?	8-3: AHCCCS' reported barriers to providing education on eliminating PQC	N/A	Key informant interviews	Qualitative Synthesis

Note: IPUMS: Integrated Public Use Microdata Series; ACS: American Community Surveys; BRFSS: Behavioral Risk Factors Surveillance System ER: emergency room; ENT: ears, nose, throat; HCRIS: Healthcare Cost Report Information System; HCUP-SID: Healthcare Cost and Utilization Project, State Inpatient Databases.

Table 3-14: RBHA Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1— Access to care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or increase during the demonstration.				
Research Question 1.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or increased access to primary care services compared to prior to the demonstration renewal?	1-1: Percentage of adults who accessed preventive/ambulatory health services	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	1-2: Percentage of beneficiaries who reported they received care as soon as they needed	N/A	Beneficiary survey	Pre-test/post-test

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	1-3: Percentage of beneficiaries who reported they were able to schedule an appointment for a checkup or routine care at a doctor's office or clinic as soon as they needed	N/A	Beneficiary Survey	Pre-test/post-test
	1-4: Percentage of beneficiaries who reported they were able to schedule an appointment with a specialist as soon as they needed	N/A	Beneficiary survey	Pre-test/post-test
Research Question 1.2: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or increased access to substance abuse treatment compared to prior to the demonstration renewal?	1-5: Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	1-6: Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Hypothesis 2—Quality of care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.				
Research Question 2.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher rates of preventive or wellness services compared to prior to demonstration renewal?	2-1: Percentage of beneficiaries who reported having a flu shot or nasal flu spray since July 1	N/A	Beneficiary Survey	Pre-test/post-test
Research Question 2.2: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of chronic conditions compared to prior to the demonstration renewal?	2-2: Percentage of beneficiaries with persistent asthma who had a ratio of controller medications to total asthma medications of at least 50 percent	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-3: Percentage of beneficiaries with schizophrenia or bipolar disorder using antipsychotic medications who had a diabetes screening test	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-4: Percentage of beneficiaries with schizophrenia who adhered to antipsychotic medications	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 2.3: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of behavioral health conditions compared to prior to the demonstration renewal?	2-5: Percentage of beneficiaries who remained on antidepressant medication treatment	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-6: Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-7: Percentage of beneficiaries with a follow-up visit after emergency department (ED) visit for mental illness	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-8: Percentage of beneficiaries with follow-up after ED visit for alcohol and other drug abuse or dependence	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-9: Percentage of beneficiaries with a screening for clinical depression and follow-up plan	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-10: Percentage of beneficiaries receiving mental health services (total and by inpatient, intensive outpatient or partial hospitalization, outpatient, ED, or telehealth)	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 2.4: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of opioid prescriptions compared to prior to the demonstration renewal?	2-11: Percentage of beneficiaries who have prescriptions for opioids at a high dosage	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-12: Percentage of beneficiaries with concurrent use of opioids and benzodiazepines	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Research Question 2.5: Do adult beneficiaries with an SMI enrolled in a RBHA have the same lower tobacco usage compared to prior to the demonstration renewal?	2-13: Percentage of beneficiaries who indicated smoking cigarettes or using tobacco	N/A	• Beneficiary Survey	• Pre-test/post-test
Research Question 2.6: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or lower hospital utilization compared to	2-14: Number of ED visits per 1,000 member months	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
	2-15: Number of inpatient stays per 1,000 member months	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
prior to the demonstration renewal?	2-16: Percentage of inpatient discharges with an unplanned readmission within 30 days	Out-of-State Comparison	• State eligibility and enrollment data • Claims/encounter data	• Pre-test/post-test • Difference-in-differences
Hypothesis 3—Health outcomes for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.				
Research Question 3.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher rating of health compared to prior to the demonstration renewal?	3-1: Percentage of beneficiaries who reported a high rating of overall health	N/A	Beneficiary survey	Pre-test/post-test
	3-2: Percentage of beneficiaries who reported a high rating of overall mental or emotional health	N/A	Beneficiary survey	Pre-test/post-test
Hypothesis 4—Adult beneficiary satisfaction in RBHA health plans will be maintained or improve over the waiver demonstration period.				
Research Question 4.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher satisfaction in their health care compared to prior to the demonstration renewal?	4-1: Percentage of beneficiaries who reported a high rating of overall healthcare	N/A	Beneficiary survey	Pre-test/post-test
	4-2: Percentage of beneficiaries who reported a high rating of health plan	N/A	Beneficiary survey	Pre-test/post-test
Research Question 4.2: Do adult beneficiaries with an SMI enrolled in a RBHA perceive their doctors to have the same or better care coordination compared to prior to the demonstration renewal?	4-3: Percentage of beneficiaries who reported their doctor seemed informed about the care they received from other health providers	N/A	Beneficiary survey	Pre-test/post-test
Hypothesis 5—RBHAs encourage and/or facilitate care coordination among PCPs and behavioral health practitioners.				
Research Question 5.1: What care coordination strategies are the RBHAs conducting for their beneficiaries with an SMI?	5-1: Health plans' reported care coordination activities for beneficiaries with an SMI	N/A	Key informant interviews	Qualitative synthesis
Research Question 5.2: Have care coordination strategies for beneficiaries with an SMI changed as a result of AHCCCS Complete Care?	5-2: Reported changes in health plans' care coordination strategies for beneficiaries with an SMI	N/A	Key informant interviews	Qualitative synthesis

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 5.3: What care coordination strategies is AHCCCS conducting for its beneficiaries with an SMI?	5-3: AHCCCS's reported care coordination strategies and activities for beneficiaries with an SMI served by the RBHAs	N/A	Key informant interviews	Qualitative synthesis
Research Question 5.4: What care coordination strategies and/or activities are providers conducting for their Medicaid patients with an SMI served by the RBHAs?	5-4: Providers' reported care coordination strategies and activities for their Medicaid patients with an SMI	N/A	Provider focus groups	Qualitative synthesis
Hypothesis 6—RBHAs will provide cost-effective care for beneficiaries with an SMI.				
Research Question 6.1: What are the costs associated with providing care for beneficiaries with an SMI through the RBHAs?	There are no specific measures associated with this hypothesis; see the Cost-Effectiveness Analysis Section for details	N/A	N/A	Cost-effectiveness analysis
Research Question 6.2: What are the benefits/savings associated with providing care for beneficiaries with an SMI through the RBHAs?	There are no specific measures associated with this hypothesis; see the Cost-Effectiveness Analysis Section for details	N/A	N/A	Cost-effectiveness analysis

Table 3-15: TI Program Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1: The TI program will improve physical and behavioral health care integration for children.				
Research Question 1.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?	1-1: Percentage of participating pediatric primary care and behavioral health care practices that have an executed agreement with Health Current	Practitioners not participating in TI	Administrative program data	Rapid cycle reporting
	1-2: Percentage of participating pediatric primary care and behavioral health care practices that routinely receive ADT alerts	Practitioners not participating in TI	Administrative program data	Rapid cycle reporting

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 1.2: Do children subject to the TI program have higher rates of screening and well-child visits compared to those who are not subject to the demonstration?	1-3: Percentage of beneficiaries with a well-child visit in the third, fourth, fifth, and sixth years of life	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	1-4: Percentage of beneficiaries with a depression screening and follow-up plan	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	1-5: Percentage of beneficiaries with an adolescent well-care visit	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	1-6: Beneficiary response to getting needed care right away	Beneficiaries not assigned to, nor received care from TI participating providers	Beneficiary survey	Chi-square test
Research Question 1.3: Do children subject to the TI program have higher rates of follow-up after hospitalization or an ED visit for mental illness than those who are not subject to the demonstration?	1-7: Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Research Question 1.4: Do parents/guardians of children subject to the program perceive their doctors have better care coordination than those not subject to the demonstration?	1-8: Beneficiary response to their child's doctor seeming informed about the care their child received from other health providers	Beneficiaries not assigned to, nor received care from TI participating providers	Beneficiary survey	Chi-square test
Hypothesis 2: The TI program will improve physical and behavioral health care integration for adults.				
Research Question 2.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?	2-1: Percentage of participating adult primary care and behavioral health care practices that have an executed agreement with Health Current	Practitioners not participating in TI	Administrative program data	Rapid cycle reporting

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	2-2: Percentage of participating adult primary care and behavioral health care practices that routinely receive ADT alerts	Practitioners not participating in TI	Administrative program data	Rapid cycle reporting
Research Question 2.2: Do adults subject to the TI program have higher rates of screening than those who are not subject to the demonstration?	2-3: Percentage of beneficiaries with a depression screening and follow-up plan if positive	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	2-4: Beneficiary response to getting needed care right away	Beneficiaries not assigned to, nor received care from TI participating providers	Beneficiary survey	Chi-square test
Research Question 2.3: Do adults subject to the TI program have lower rates of ED utilization than those who are not subject to the demonstration?	2-5: Number of ED visits per 1,000 member months	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	2-6: Number of ED visits for SUD or OUD per 1,000 member months	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Research Question 2.4: Do adults subject to the TI program have higher rates of follow-up after hospitalization or an ED visit for mental illness than those who are not subject to the demonstration?	2-7: Percentage of beneficiaries with a follow-up visit after hospitalization for mental illness	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	2-8: Percentage of beneficiaries with a follow-up visit after an ED visit for mental illness	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Research Question 2.5: Do adults subject to the TI program have higher rates of alcohol and drug abuse treatment and adherence than those who were not	2-9: Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
subject to the demonstration?	2-10: Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	2-11: Percentage of beneficiaries with OUD receiving any Medication Assisted Treatment (MAT)	Beneficiaries not assigned to, nor received care from TI participating providers	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Research Question 2.6: Do adults subject to the TI program perceive their doctors have better care coordination than those not subject to the demonstration?	2-12: Beneficiary response to their doctor seeming informed about the care they received from other health providers	Beneficiaries not assigned to, nor received care from TI participating providers	Beneficiary survey	Chi-square test
Hypothesis 3: The TI program will improve care coordination for AHCCCS enrolled adults released from criminal justice facilities.				
Research Question 3.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?	3-1: Percentage of integrated practices participating in the justice transition project that have an executed agreement with Health Current	Practitioners participating in justice transition project not participating in TI	Administrative program data	Rapid cycle reporting
	3-2: Percentage of integrated practices participating in the justice transition project that routinely receives ADT alerts	Practitioners participating in justice transition project not participating in TI	Administrative program data	Rapid cycle reporting
Research Question 3.2: Do adult beneficiaries who are recently released from a criminal justice facility and subject to the TI program have higher rates of access to care than those who were not subject to the demonstration?	3-3: Percentage of recently released beneficiaries who had a preventive/ambulatory health service visit	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	3-4: Recently released beneficiary response to getting needed care right away	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	Beneficiary survey	Chi-square test
	3-5: Recently released beneficiary response to getting routine care right away	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	Beneficiary survey	Chi-square test
Research Question 3.3: Do adult beneficiaries who are recently released from a criminal justice facility and subject to the TI program have higher rates of alcohol and drug abuse treatment and adherence than those who were not subject to the demonstration?	3-6: Percentage of recently released beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	3-7: Percentage of recently released beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	3-8: Percentage of recently released beneficiaries with OUD receiving any MAT	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Research Question 3.4: Do adult beneficiaries recently released from a criminal justice facility and subject to the TI program have lower rates of emergency department utilization than those who were not subject to the demonstration?	3-9: Number of ED visits per 1,000 member months for recently released beneficiaries	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
	3-10: Number of ED visits for SUD or OUD per 1,000 member months for recently released beneficiaries	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Research Question 3.5: Do adult beneficiaries recently released from a criminal justice facility and subject to the TI program have better management of opioid prescriptions than those who were not subject to the demonstration?	3-11: Percentage of recently released beneficiaries who have prescriptions for opioids at a high dosage	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	3-12: Percentage of recently released beneficiaries who have prescriptions for concurrent use of opioids and benzodiazepines	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI	• State eligibility and enrollment data • Claims/encounter data	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series
Hypothesis 4: The TI program will provide cost-effective care.				
Research Question 4.1: What are the costs associated with care coordination provided under TI?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost-effectiveness analysis
Research Question 4.2: What are the benefits/savings associated with care coordination provided under TI?				
Hypothesis 5: Providers will increase the level of care integration over the course of the demonstration.				
Research Question 5.1: Do providers progress across the Substance Abuse and Mental Health Services Administration (SAMHSA) national standard of six levels of integrated health care?	5-1: Percentage of providers transitioning from Level 1 to Level 2(coordinated care) to Level 3 to Level 4 (co-located care)	N/A	Program data from provider attestations	Descriptive impact analysis
	5-2: Percentage of providers transitioning from Level 3 to Level 4 (co-located care) to Level 5 to Level 6 (integrated care)	N/A	Program data from provider attestations	Descriptive impact analysis
Research Question 5.2: Do providers increase level of integration within each broader category (i.e. coordinated, co-located, and integrated care) during the demonstration period?	5-3: Percentage of providers transitioning from Level 1 to Level 2 integration	N/A	Program data from provider attestations	Descriptive impact analysis
	5-4: Percentage of providers transitioning from Level 3 to Level 4 integration	N/A	Program data from provider attestations	Descriptive impact analysis
	5-5: Percentage of providers transitioning from Level 5 to Level 6 integration	N/A	Program data from provider attestations	Descriptive impact analysis
Hypothesis 6: Providers will conduct care coordination activities				

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 6.1: Did AHCCCS encounter barriers related to the pre-implementation and implementation phases of TI?	6-1: AHCCCS' reported barriers before, during, and shortly following the implementation of TI	N/A	Key informant interviews	Qualitative synthesis
Research Question 6.2: Did providers encounter barriers related to the pre-implementation and implementation phases of TI?	6-2: Providers' reported barriers before, during, and shortly following the implementation of TI	N/A	Provider focus groups	Qualitative synthesis

ADT: Admission-Discharge-Transfer; ED: emergency department; SUD: substance use disorder; OUD: opioid use disorder; MAT: Medication Assisted Treatment

Data Sources

Multiple data sources will be utilized to evaluate the program-specific hypotheses. In general, these include administrative data, state beneficiary survey data, aggregate data, national datasets, and provider focus groups and key informant interviews.

ACC

Multiple data sources will be utilized to evaluate the six hypotheses for the ACC evaluation. Data collection will include administrative and survey-based data such as CAHPS questions. Administrative data sources will include information extracted from Prepaid Medical Management Information System (PMMIS). PMMIS will be used to collect, manage and maintain Medicaid recipient files (i.e., eligibility, enrollment, demographics), fee-for-service (FFS) claims, and managed care encounter data. Administrative data will also be used from the Arizona State Immunization Information System (ASIIS) to identify child and adolescent vaccination rates. The combination of survey and the administrative data sources will be used to assess the six research hypotheses.

State Beneficiary Survey Data

State beneficiary surveys will be used to assess beneficiaries' ability to obtain timely appointments, experience with health care, and their perception that their personal doctor seemed informed about the care they received from other providers. CAHPS surveys are often used to assess beneficiaries' experiences with provided health care services.

The timing of the ACC and evaluation presents some challenges in constructing pre- and post-implementation comparisons. Although the ACC program has been in effect for a full year before the development of the evaluation design plan, surveys will be administered without the use of retrospective questions which would be particularly susceptible to recall bias. Results will be compared against historical AHCCCS rates from previous state-wide surveys sampled from the Acute Care population (the same population as those who transitioned into the ACC plans) and national benchmarks where available. It is expected that cross-sectional surveys will be conducted annually. The sampling frame for the survey will be identified through eligibility and enrollment data, with specific enrollment requirements being finalized upon inspection of the data. Typically, beneficiaries are

drawn from beneficiaries enrolled continuously during the last six months of the measurement period, with no more than a one-month gap in enrollment.

Stratified random sampling by ACC plan will be used to construct a statistically valid sample at the plan level. The independent evaluator will conduct power calculations to determine the appropriate number of surveys that will be sent out to beneficiaries in each plan. The standard National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS®) Specifications for Survey Measures requires a sample size of 1,350 beneficiaries for the CAHPS 5.0 Adult Medicaid Health Plan Survey and 1,650 for the CAHPS 5.0 Child Medicaid Health Plan Survey.[3-17,3-18] An oversample of at least 10 percent for each plan will be applied to ensure an adequate number of respondents to each CAHPS measure. The maximum estimated number of surveys that need to be sent per plan is estimated to be 1,485 for adults and 1,815 for children. Historical response rates in Arizona for the Acute Care population have been approximately 22 percent for adults and 20 percent for children, which would translate to 327 completed adult surveys and 363 completed child surveys per plan. The statewide sample across the seven ACC plans would therefore be 2,289 adult respondents and 2,541 child respondents. An adult sample of 2,289 would have 0.8 power to identify a single percentage estimate of a 50 percent rate with a margin of error of 2.05 percent or be able to identify a difference of rates between 50 percent and 54.1 percent with an alpha level of 0.05 and a two-tailed test. A child sample of 2,541 would have 0.8 power to identify a single percentage estimate of a 50 percent rate with a margin of error of 1.94 percent, or to be able to identify a difference of rates between 50 percent and 54.0 percent with an alpha level of 0.05 and a two-tailed test. Because plan sampling will be disproportionate to overall plan membership statewide, plan-level rates will be reweighted to adjust for proportionality when calculating aggregate rates. Because evaluations for several concurrent waivers are planned, the State and its independent evaluator will seek to streamline survey administration across evaluations to minimize the number of separate survey rounds required, thereby minimizing the burden on beneficiaries and maximizing the response rate. Therefore, the sampling strategy described above may be revised based on enrollment across waivers. Two survey instruments will be used depending on the population:

- Children: CAHPS 5.0 Child Medicaid Health Plan Survey with the HEDIS supplemental item set
- Adults: CAHPS 5.0 Adult Medicaid Health Plan Survey with the HEDIS supplemental item set

To maximize response rates, a mixed-mode methodology (e.g., telephone and mail) for survey data collection will be used. The addition of email reminders, when data are available, or pre-notification letters to beneficiaries, has been shown to increase response rates and will be incorporated into survey administration.

Administrative Data

Administrative data extracted from the PMMIS will be used to calculate most measures proposed in this evaluation design. These data include administrative claims/encounter data, beneficiary eligibility, enrollment, and demographic data. Provider data will also be utilized as necessary to identify provider type and beneficiary attribution where necessary.

Use of FFS claims and managed care encounters will be limited to final, paid status claims/encounters. Interim transaction and voided records will be excluded from all evaluations because these types of records introduce a

[3-17] HEDIS is a registered trademark of NCQA.
[3-18] National Committee for Quality Assurance. *HEDIS® 2020, Volume 3: Specifications for Survey Measures*. Washington, DC: NCQA Publication, 2019.

level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and cost calculations.

The ASIIS will be used to calculate measures pertaining to immunization history. ASIIS is Arizona's immunization registry that collects immunization information and demographic data. Providers are mandated under Arizona Revised Statute (ARS) §36-135 to report all immunizations administered to individuals aged 18 and younger.[3-19]

Aggregate Data

Aggregate data may be used in the form of national or regional benchmarks and/or plan-level rates. National or regional benchmarks would be obtained to support difference-in-differences hypothesis testing. The independent evaluator will obtain rates from a range of national or regional benchmark sources, recognizing and where feasible, minimizing any limitations in the comparability of the AHCCCS target population and the population represented by the national or regional benchmarks. Most aggregate rates for HEDIS performance measures or CAHPS survey responses are provided at the measure level. Plan-level rates may be purchased, which can potentially support more rigorous statistical testing. However, these plan-level rates would not include data pertaining to plan demographics or risk. Although denominator data is not included in plan-level rates, these data sources include overall plan size. As a result, plan-level data would limit the ability to weight individual measures by denominator size (although overall plan size can be controlled for) and to control for differences in demographics or risk.

Out-of-State Comparison Groups

The independent evaluator will consider utilizing an out-of-state comparison group using beneficiary-level data if data are available and complete enough to support rigorous statistical testing of outcomes. One such source for beneficiary-level data, is T-MSIS maintained and collected by CMS. All 50 states and Washington D.C., and two territories are currently submitting data monthly.[3-20] It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support individual-level matching to ACC beneficiaries. However, as of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group.

One measure may utilize data from BRFSS as an out-of-state comparison group. BRFSS is a health-focused telephone survey developed by the Centers for Disease Control and Prevention (CDC) that collects data from approximately 400,000 adults annually across all 50 states, Washington D.C., and three territories.[3-21] The questionnaire generally consists of two components: a core component and an optional component. Measure 3-1, general health status, will utilize data from BRFSS core module Health Status in conjunction with Medicaid coverage indicator from optional module Healthcare Access to compare against responses for a similar question among AHCCCS beneficiaries.[3-22] As described in the Comparison Populations—Out-of-State Comparison

[3-19] Arizona State Legislature. https://www.azleg.gov/viewdocument/?docName=http://www.azleg.gov/ars/36/00135.htm. Accessed October 11, 2019.

[3-20] "Transformed Medicaid Statistical Information System (T-MSIS)," Centers for Medicare and Medicaid Services. Available at: https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html. Accessed on: Feb 11, 2020.

[3-21] "About BRFSS," Centers for Disease Control and Prevention. Available at: https://www.cdc.gov/brfss/about/index.htm. Accessed on: Feb 11, 2020.

[3-22] CAHPS surveys for this evaluation will be administered through both mail and telephone, while BRFSS is administered exclusively through telephone. This difference in survey administration mode may lead to biased comparisons.

Groups section, fewer than a dozen states included the optional Healthcare Access module in a given year, which limits the availability and selection of potential comparison states.

To provide an understanding of the capabilities of the data for performing statistical analyses, the independent evaluator will calculate the statistical power associated with any out-of-state comparison group data and report the results.

Provider Focus Groups and Key Informant Interviews

Provider focus groups and key informant interviews will be conducted through semi-structured interview protocols, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

ALTCS

Multiple data sources will be utilized to evaluate the five research hypotheses for the ALTCS evaluation. Administrative data sources include information extracted from PMMIS. PMMIS will be used to collect, manage and maintain Medicaid recipient files (i.e., eligibility, enrollment, demographics), FFS claims, and managed care encounter data. Historical eligibility data was contained in the AHCCCS Customer Eligibility (ACE) system, which was replaced with Health-e-Arizona Plus in September 2018. The NCI survey results will also be used to identify a comparison group of people with DD.

Administrative Data

Administrative data extracted from the PMMIS will be used to calculate most measures proposed in this evaluation design. These data include administrative claims/encounter data, beneficiary eligibility, enrollment, and demographic data. Provider data will also be utilized as necessary to identify provider type and beneficiary attribution where necessary.

Use of FFS claims and managed care encounters will be limited to final, paid status claims/encounters. Interim transaction and voided records will be excluded from all evaluations because these types of records introduce a level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and cost calculations.

The ASIIS will be used to calculate measures pertaining to immunization history. ASIIS is Arizona's immunization registry that collects immunization information and demographic data. Providers are mandated under Arizona Revised Statute (ARS) §36-135 to report all immunizations administered to individuals aged 18 and younger.[3-23]

Out-of-State Comparison Groups

Aggregate Data

NCI

The NCI surveys national Medicaid beneficiaries with intellectual or developmental disabilities. These surveys are conducted annually in-person, and it is expected that half of states participate on an annual basis. Survey

[3-23] Arizona State Legislature. https://www.azleg.gov/viewdocument/?docName=http://www.azleg.gov/ars/36/00135.htm. Accessed Oct 11, 2019.

periods cycle annually between July 1 to June 30, with states submitting data by June 30. Each state is required to survey at least 400 individuals, allowing for a robust comparison. However, beneficiary-level data is not publicly available, and information is not publicly provided on methodology and survey administration which could vary across states. State participation is voluntary, and states may not participate on an annual basis. Use of this data assumes that Arizona will participate in the NCI survey for the years covered by this evaluation. In addition to state-specific reports, NCI provides aggregate data that may be stratified by demographic factors, such as race/ethnicity, gender, and age, as well as certain diagnoses and living arrangement. As of the writing of this evaluation design plan, rates for Arizona respondents are only available for the 2015-16 time period. This will serve as a baseline; however, it is not known if follow-up rates will be available for Arizona in time to develop the summative evaluation report. If follow-up rates are available a difference-in-difference study design may be employed and rates may be stratified by demographics or diagnoses within the limits of sample size and statistical power.

Other State Aggregate Data

An out-of-state comparison group could also be obtained by using aggregate rates calculated for a population of beneficiaries who are EDP or with DD served by Medicaid services in another state. Ideally, the state chosen to serve as the comparison group would not have physical and behavioral health care services integrated throughout the period of the demonstration. It may be challenging to identify and confirm states that will not make such an integration prior to the end of the AHCCCS ALTCS evaluation period. As an alternative, however, a state that has already integrated physical and behavioral health care prior to the ALTCS baseline for integration could also serve as a viable comparison group. In effect, the evaluation would compare the performance of ALTCS after integration to a group already receiving integrated care and who, all else equal, should not exhibit any significant changes. To obtain data for a comparison group in this way will require the independent evaluator to obtain a DUA with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS ALTCS model and does not have other confounding quality improvement activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in populations for ALTCS and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made. Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their foster care population, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the population of beneficiaries who are EPD or with DD when using aggregate rates.

Beneficiary-Level Data

The independent evaluator will consider utilizing an out-of-state comparison group using beneficiary-level data if data are available and complete enough to support rigorous statistical testing of outcomes. One such source for beneficiary-level data, is T-MSIS maintained and collected by CMS. All 50 states and Washington D.C., and two territories are currently submitting data monthly.[3-24] It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support beneficiary-level matching to ALTCS beneficiaries. However, as of the submission date of this evaluation design plan, these data

[3-24] "Transformed Medicaid Statistical Information System (T-MSIS)," Centers for Medicare and Medicaid Services. Available at: https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html. Accessed on: Feb 11, 2020.

are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group.

To provide an understanding of the capabilities of the data for performing statistical analyses, the independent evaluator will calculate the statistical power associated with any out-of-state comparison group data and report the results.

Focus Groups and Key Informant Interviews

Focus groups and key informant interviews will be conducted through a semi-structured interview protocol, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

CMDP

Multiple data sources will be utilized to evaluate the three research hypotheses for the CMDP evaluation. Quantitative data collection will include administrative data extracted from PMMIS. PMMIS will be used to collect, manage and maintain Medicaid recipient files (i.e., eligibility, enrollment, demographics, income, community engagement compliance), FFS claims, managed care encounter data, income and program compliance data. Registry data about immunizations for children under 18 will be extracted from the ASIIS. Qualitative data pertaining to care coordination among providers will be collected through key informant interviews and/or provider focus groups. The combination of these data sources will be used to assess the four research hypotheses.

Administrative Data

Administrative data extracted from the PMMIS will be used to calculate most measures proposed in this evaluation design. These data include administrative claims/encounter data, beneficiary eligibility, enrollment, and demographic data. Provider data will also be utilized as necessary to identify provider type and beneficiary attribution where necessary.

Use of FFS claims and managed care encounters will be limited to final, paid status claims/encounters. Interim transaction and voided records will be excluded from all evaluations because these types of records introduce a level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and cost calculations.

Aggregate Data

Aggregate data may be used in the form of national or regional benchmarks and/or plan-level rates. National or regional benchmarks can be obtained to support difference-in-differences hypothesis testing. The independent evaluator will obtain rates from a range of national or regional benchmark sources, recognizing and where feasible, minimizing any limitations in the comparability of the AHCCCS target population and the population represented by the national or regional benchmarks. Most aggregate rates for HEDIS performance measures or CAHPS survey responses are provided at the measure level. Plan-level rates may be purchased, which can potentially support more rigorous statistical testing. However, these plan-level rates would not include data pertaining to plan demographics or risk. Although denominator data is not included in plan-level rates, these data sources include overall plan size. As a result, plan-level data would limit the ability to weight individual measures by denominator size (although overall plan size can be controlled for) and to control for differences in demographics or risk. Where possible, aggregate data for other health plans will be limited to those that primarily serve children in foster care.

An out-of-state comparison group could be obtained by using aggregate rates calculated for a population of foster children served by Medicaid services in another state. Ideally, the state chosen to serve as the comparison group would not have physical and behavioral health care services integrated throughout the period of the demonstration. It may be challenging to identify and confirm states that will not make such an integration prior to the end of the AHCCCS CMDP evaluation period. As an alternative, however, a state that has already integrated physical and behavioral health care prior to the CMDP baseline for integration could also serve as a viable comparison group. In effect, the evaluation would compare the performance of CMDP after integration to a group already receiving integrated care and who, all else equal, should not exhibit any significant changes. To obtain data for a comparison group in this way will require the independent evaluator to obtain a Data Use Agreement (DUA) with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS CMDP model and does not have other confounding quality improvement activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in populations for CMDP and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made. Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their foster care population, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the CMDP population when using aggregate rates.

Out-of-State Comparison Groups

The independent evaluator will consider utilizing an out-of-state comparison group using beneficiary-level data if data are available and complete enough to support rigorous statistical testing of outcomes. One such source for beneficiary-level data, is T-MSIS maintained and collected by CMS. All 50 states and Washington D.C., and two territories are currently submitting data monthly.[3-25] It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support beneficiary-level matching to CMDP beneficiaries. However, as of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group.

To provide an understanding of the capabilities of the data for performing statistical analyses, the independent evaluator will calculate the statistical power associated with any out-of-state comparison group data and report the results.

Provider Focus Groups and Key Informant Interviews

Provider focus groups and key informant interviews will be conducted through semi-structured interview protocols, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

[3-25] "Transformed Medicaid Statistical Information System (T-MSIS)," Centers for Medicare and Medicaid Services. Available at: https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html. Accessed on: Feb 11, 2020.

PQC

Multiple data sources will be utilized to evaluate the eight research hypotheses for the PQC waiver evaluation. These include administrative and survey-based data. Administrative data include state eligibility, enrollment, and claims/encounter data. These data will be extracted from the PMMIS. State beneficiary survey data will be used primarily to measure beneficiary health status and satisfaction. National data will be used to capture data elements not otherwise available.

Administrative Data

Administrative data containing information on Medicaid eligibility, enrollment, demographics, claims, and encounters will be used to calculate measures pertaining to enrollment patterns, service utilization, costs, and to identify a valid comparison group.

Use of FFS claims and managed care encounters will be limited to final, paid status claims/ encounters. Interim transaction and voided records will be excluded from all analyses because these types of records introduce a level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and costs.

National Datasets

Data from the IPUMS ACS will be utilized to estimate the number of Medicaid-eligible individuals in Arizona, as part of the analysis of *Percentage of Medicaid Enrollees by Eligibility Group* (Measure 1-1) and *Percentage of New Medicaid Enrollees by Eligibility Group* (Measure 1-2). The IPUMS ACS is a "database providing access to over sixty integrated, high-precision samples of the American population drawn from sixteen federal censuses, from the American Community Surveys of 2000-present."[3-26] The independent evaluator will extract data that include demographic information, employment, disability, income data and program participation such as Medicaid enrollment information.

Healthcare Cost Report Information System (HCRIS)

Data reported by Medicare-certified institutions housed in HCRIS will be used to assess non-Medicare uncompensated care costs, including Medicaid shortfalls as part of the measure *Reported costs for uninsured and/or likely eligible Medicaid recipients among potentially impacted providers and/or provider networks* (Measure 7-1). Institutions serving Medicare beneficiaries are required to submit a cost report to CMS annually, which includes data on non-Medicare uncompensated care costs, non-Medicare and non-reimbursable Medicare bad debts, indigent care costs, charity care, and Medicaid shortfalls. Data from HCRIS will be used to assess facility-level uncompensated care costs and will be compared to states similar to Arizona that do not operate a retroactive eligibility waiver. There is approximately a one to two-year lag on reporting into the HCRIS system.

Healthcare Cost and Utilization Project, State Inpatient Databases (HCUP-SID)

The Agency for Healthcare Research and Quality (AHRQ) supports the collection of healthcare databases from State data organizations, hospital associations, private data organizations, and the Federal government. HCUP includes the largest collection of longitudinal encounter-level hospital care data in the United States.[3-27] The HCUP State Inpatient Database encompasses over 95 percent of all U.S. hospital discharges, allows for cross-

[3-26] IPUMS. Available at: https://usa.ipums.org/usa/intro.shtml. Accessed on: Feb 11, 2020.
[3-27] Overview of HCUP; https://www.hcup-us.ahrq.gov/overview.jsp. Accessed on June 25, 2020.

state comparisons, and contains information on the charges and source of payment, including charity care and self-payment.[3-28] There is approximately a one to two year lag on reporting into the HCUP-SID.

Beneficiary-level data

The independent evaluator will consider utilizing an out-of-state comparison group using beneficiary-level data if data are available and complete enough to support rigorous statistical testing of outcomes. One such source for beneficiary-level data, is T-MSIS maintained and collected by CMS. All 50 states and Washington D.C., and two territories are currently submitting data monthly.[3-29] It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support individual-level matching to PQC beneficiaries. However, as of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group.

Two measures may utilize data from BRFSS as out-of-state comparison groups. BRFSS is a health-focused telephone survey developed by CDC that collects data from approximately 400,000 adults annually across all 50 states, Washington D.C., and three territories.[3-30] The questionnaire generally consists of two components: a core component and an optional component. Measure 3-1 (*Beneficiary reported rating of overall health for all beneficiaries*) will utilize data from BRFSS core module Health Status in conjunction with Medicaid coverage indicator from optional module Healthcare Access to compare against responses for a similar question among AHCCCS beneficiaries. [3-31] Likewise, Measure 4-1, (*Percentage of beneficiaries who reported medical debt*) will utilize data from optional module Healthcare Access to measure percentage of Medicaid beneficiaries with medical bills. As described in the Comparison Populations—Out-of-State Comparison Groups section, fewer than a dozen states elected to include the optional Healthcare Access module in a given year, which limits the availability and selection of potential comparison states.

To provide an understanding of the capabilities of the data for performing statistical analyses, the independent evaluator will calculate the statistical power associated with any out-of-state comparison group data and report the results.

State Beneficiary Survey Data

Measures pertaining to Hypotheses 3, 4, 5, and 6 will be based on a consumer survey, CAHPS® and will include CAHPS-like questions specific to the PQC evaluation.[3-32] CAHPS surveys are often used to assess satisfaction with provided healthcare services and are adapted to elicit information addressing the research hypotheses related to members' continuity of healthcare coverage, and overall health status and utilization.

Since the program will be in effect prior to the completion of the evaluation design plan, the independent evaluator will conduct two post-implementation surveys to ask recipients about their self-reported health status. The elimination of PQC is not expected to reduce self-reported health. Rather, the elimination of PQC is expected to increase the enrollment of eligible individuals when they are healthy, and reduce the disenrollment of

[3-28] Introduction to the HCUP State Inpatient Databases (SID); https://www.hcup-us.ahrq.gov/db/state/siddist/Introduction_to_SID.pdf. Accessed on June 25, 2020.
[3-29] "Transformed Medicaid Statistical Information System (T-MSIS)," Centers for Medicare and Medicaid Services. Available at: https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html. Accessed on: Feb 11, 2020.
[3-30] "About BRFSS," Centers for Disease Control and Prevention; https://www.cdc.gov/brfss/about/index.htm; last accessed Feb 11, 2020.
[3-31] CAHPS surveys for this evaluation will be administered through both mail and telephone, while BRFSS is administered exclusively through telephone. This difference in survey administration mode may lead to biased comparisons.
[3-32] CAHPS is a registered trademark of the Agency for Healthcare Research and Quality (AHRQ).

individuals when they are healthy. As such, the survey data collected by the independent evaluator does not have a traditional baseline period and comparison group for identification of causal effects. Rather, fielding a survey shortly after implementation, and another in the following year will allow a descriptive comparison of the self-reported health for newly-enrolled Medicaid beneficiaries and those that are not newly enrolled. This approached is predicated on the assumption that there will be a ramp-up period during which the knowledge-base of the eligible population will be updated to include the elimination of PQC moving forward. To the extent that this increases the likelihood of enrollment by eligible individual and reduces disenrollment of beneficiaries when they are healthy, the self-reported health status should increase between the survey waves.

Measures pertaining to Hypothesis 2 will also be based on CAHPS-like questions. Unlike a traditional CAHPS survey that is limited to beneficiaries enrolled for at least five of the past six months, the self-reported data needed for Hypothesis 2 must also be collected for a sample of beneficiaries who are newly enrolled. The sampling frame will be adjusted to include a sample of beneficiaries who have been enrolled within the past month to capture the health status of beneficiaries who did not have a recent spell of Medicaid coverage. All beneficiaries will be eligible to be surveyed and beneficiaries who are newly enrolled will be compared to continuously enrolled beneficiaries who have had sustained Medicaid coverage. This will allow for comparison of health status between beneficiaries who are newly enrolled compared to those who have had sustained coverage. A second survey with the same questions will be administered to similar groups later in the demonstration to evaluate how health outcomes between beneficiaries who are newly enrolled and those who are not have changed over time. Because CAHPS surveys are traditionally limited to beneficiaries who have been enrolled for at least five of the past six months, and exclude any newly enrolled beneficiaries, historical data does not exist to serve as a comparison. Additionally, this survey will not allow for causal inferences to be drawn regarding the impact of the PQC waiver. The survey results, however, will provide a descriptive statement about the self-reported health status of beneficiaries over time to determine if the expected improvements manifest.

Simple random sampling will be used to construct a statistically valid sample at the state level. The independent evaluator will perform power calculations to determine the appropriate number of surveys that will be sent out to beneficiaries statewide and to include sufficient power to identify rates for the newly enrolled. The standard NCQA HEDIS® Specifications for Survey Measures requires a sample size of 1,350 beneficiaries for the CAHPS 5.0 Adult Medicaid Health Plan Survey.[3-33,3-34] An oversample of at least 10 percent for each plan will be applied to ensure an adequate number of respondents to each CAHPS measure. The maximum estimated number of surveys that need to be sent is estimated to be 1,485. Historical response rates in Arizona for the Acute Care population are approximately 22 percent, which would translate to 327 completed adult surveys. The statewide sample across the seven plans would therefore be 2,289 respondents. A sample of 2,289 would have 0.8 power to identify a single percentage estimate of a 50 percent rate with a margin of error of 2.05 percent, or to identify a difference of rates between 50 percent and 54.1 percent with an alpha level of 0.05 and a two-tailed test. Because evaluations for several concurrent waivers are planned, the State and its independent evaluator will seek to streamline survey administration across evaluations to minimize the number of separate survey rounds required, thereby minimizing the burden on beneficiaries and maximizing the response rate. Therefore, the sampling strategy described above may be revised based on enrollment across waivers.

[3-33] HEDIS is a registered trademark of NCQA.

[3-34] National Committee for Quality Assurance. *HEDIS® 2020, Volume 3: Specifications for Survey Measures*. Washington, DC: NCQA Publication, 2019.

To maximize response rates, a mixed-mode methodology (e.g., telephone and mail) for survey data collection will be used. The addition of email reminders, when data are available, or pre-notification letters to beneficiaries, has been shown to increase response rates and will be incorporated into survey administration.

Historical Data

Results will be compared against historical AHCCCS rates from previous state-wide surveys and national benchmarks where available. Between October 2015 and March 2016, a CAHPS survey was administered to the Acute Care population, which is similar to the population subject to the waiver of PQC.[3-35] Limitations with using this survey as a comparison group lie in the differences in the population. The Acute Care population includes women who are pregnant or less than 60 days postpartum, as well as individuals who are 18 years of age. The Acute Care population also excludes individuals with severe mental illness, individuals who are elderly and/or physically disabled, and individuals who are developmentally disabled, whereas these individuals would be subjected to the elimination of PQC. However, these population differences are minimal and are not expected to have an impact on the aggregated rates.

Aggregate Data

An out-of-state comparison group for CAHPS survey responses could also be obtained by using aggregate rates from the Adult Medicaid Health Plan Survey with the Healthcare Effectiveness Data and Information Set. The state(s) chosen to serve as the comparison group would not have implemented a demonstration that limits retroactive eligibility or implement other demonstrations during the time period of the demonstration. To obtain data for a comparison group in this way will require the independent evaluator to obtain a DUA with comparison state Medicaid authority.

The use of aggregate rates from another state does not come without limitations. Two key limitations to note are the challenges in comparing a population that may have different demographics and background disease conditions and diagnoses from the Arizona population, and the likely inability to identify a state with a system that does not differ from the AHCCCS model and does not have other confounding quality improvement activities operating concurrently. Both of these factors could lead to confounded results. Whereas beneficiary-level data could allow the independent evaluator to statistically control for differences in the intervention population and a comparison state, the use of aggregated rates will not allow similar statistical adjustments to be made. Similarly, if a comparison state is concurrently operating other quality improvement initiatives that impact their Medicaid population, the independent evaluator will not be able to statistically adjust for potential effects that would not impact the AHCCCS intervention population when using aggregate rates.

Provider Focus Groups and Key Informant Interviews

A possible unintended consequence of the retroactive eligibility waiver is that likely Medicaid-eligible beneficiaries who are uninsured will not have costs covered by Medicaid. This can adversely impact the financial well-being of these individuals, which is addressed through Measure 4-1 (*Percentage of Beneficiaries Who Reported Medical Debt*). Another effect of this, is that it could cause an increase in costs for healthcare providers through providing uncompensated care to the uninsured who are likely Medicaid eligible. To comprehensively evaluate the cost savings of the waiver, costs external to Medicaid should be captured to the extent possible. Measure 7-4, *Reported Costs for Uninsured and/or Likely Eligible Medicaid Recipients*, will be based on data

[3-35] 2016 Acute Care Program Adult Medicaid Member Satisfaction Report. https://www.azahcccs.gov/shared/Downloads/Reporting/CAHPS/2016/AZCAHPS_2016_Acute_Care_Program_Adult_Member_Satisfaction_Report_Final.pdf. Accessed on Oct 24, 2019.

obtained during provider focus groups. Focus groups will be conducted with representatives of some of the healthcare providers who serve the likely Medicaid-eligible population in Arizona. Key informant interviews will gather information from individuals with AHCCCS and health plans who are knowledgeable about their organization's populations served, and associated costs and utilization particularly among Medicaid beneficiaries and likely Medicaid-eligible beneficiaries who are uninsured.

Focus groups and key informant interviews will be conducted through a semi-structured interview protocol, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

RBHA

Multiple data sources will be utilized to evaluate the six hypotheses for the RBHA evaluation. Data collection will include administrative and survey-based data, such as from CAHPS® questions.[3-36] Administrative data sources include information extracted from PMMIS. PMMIS will be used to collect, manage and maintain Medicaid recipient files (i.e., eligibility, enrollment, demographics), FFS claims, and managed care encounter data. The combination of survey and the administrative data sources mentioned earlier will be used to assess the six research hypotheses.

State Beneficiary Survey Data

State beneficiary surveys will be used to assess beneficiaries' ability to obtain timely appointments, satisfaction with healthcare, and their perception that their personal doctor seemed informed about the care they received from other providers, and flu vaccinations. CAHPS surveys are often used to assess satisfaction with provided healthcare services. It is expected that cross-sectional surveys will be conducted once during 2020 and once during 2021. The sampling frame for the survey will be identified through eligibility and enrollment data, with specific enrollment requirements being finalized upon inspection of the data. Typically, beneficiaries are drawn from beneficiaries enrolled continuously during the last six months of the measurement period, with no more than a one-month gap in enrollment. Stratified random sampling by RBHA will be used to construct a statistically valid sample at the plan level. The standard NCQA HEDIS® Specifications for Survey Measures requires a sample size of 1,350 beneficiaries for the CAHPS 5.0 Adult Medicaid Health Plan Survey.[3-37,3-38] An oversample of at least 10 percent for each plan will be applied to ensure an adequate number of respondents to each CAHPS measure. The maximum estimated number of surveys that need to be sent per plan is 1,485. In Arizona, the response rate for beneficiaries determined to have an SMI was approximately 30 percent in 2015. With a 30 percent response rate across three RBHAs, the anticipated number of completed surveys is 1,336. A sample size of 1,336 would have 0.8 power to identify a single percentage estimate of a 50 percent rate with a margin of error of 2.68 percent, or to identify a difference of rates between 50 percent and 55.4 percent with an alpha level of 0.05 and two-tailed tests. Because plan sampling will be disproportionate to overall plan membership statewide, plan-level rates will be reweighted to adjust for proportionality when calculating aggregate rates. Because evaluations for several concurrent waivers are planned, the State and its independent evaluator will seek to streamline survey administration across evaluations to minimize the number of separate survey rounds required, thereby minimizing the burden on beneficiaries and maximizing the response rate. Therefore, the sampling strategy described above

[3-36] CAHPS is a registered trademark of the Agency for Healthcare Research and Quality (AHRQ).
[3-37] HEDIS is a registered trademark of the NCQA.
[3-38] National Committee for Quality Assurance. HEDIS® 2020, Volume 3: Specifications for Survey Measures. Washington, DC: NCQA Publication, 2019.

may be revised based on enrollment across waivers. The CAHPS 5.0 Adult Medicaid Health Plan Survey with the HEDIS supplemental item set will be used to field the survey.

To maximize response rates, a mixed-mode (i.e., telephone a mail) methodology for survey data collection will be used. The addition of email reminders, when data are available, or pre-notification letters to beneficiaries, has been shown to increase response rates and will be incorporated into survey administration.

Administrative Data

Administrative data extracted from the PMMIS will be used to calculate most measures proposed in this evaluation design. These data include administrative claims/encounter data, beneficiary eligibility, enrollment, and demographic data. Provider data will also be utilized as necessary to identify provider type and beneficiary attribution where necessary.

Use of FFS claims and managed care encounters will be limited to final, paid status claims/encounters. Interim transaction and voided records will be excluded from all evaluations because these types of records introduce a level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and cost calculations.

National Datasets

The independent evaluator will consider utilizing an out-of-state comparison group using beneficiary-level data if data are available and complete enough to support rigorous statistical testing of outcomes. One such source for beneficiary-level data, is T-MSIS maintained and collected by CMS. All 50 states and Washington D.C., and two territories are currently submitting data monthly.[3-39] It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support beneficiary-level matching to RBHA beneficiaries. However, as of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group.

To provide an understanding of the capabilities of the data for performing statistical analyses, the independent evaluator will calculate the statistical power associated with any out-of-state comparison group data and report the results.

Focus Groups and Key Informant Interviews

Focus groups and key informant interviews will be conducted through a semi-structured interview protocol, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

TI

Multiple data sources will be utilized to evaluate the six research hypotheses for the TI program evaluation. Quantitative data collection will include administrative and survey-based data such as CAHPS® survey questions. Administrative data sources include information extracted from PMMIS.[3-40] PMMIS will be used to collect,

[3-39] "Transformed Medicaid Statistical Information System (T-MSIS)," Centers for Medicare and Medicaid Services. Available at: https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html. Accessed on: Feb 11, 2020.
[3-40] CAHPS is a registered trademark of the Agency for Healthcare Research and Quality (AHRQ).

manage and maintain Medicaid recipient files (i.e., eligibility, enrollment, demographics), FFS claims, managed care encounter data. Administrative program data from Health Current will be utilized to assess providers who have an executed agreement and receive ADT alerts and self-attestation Integrated Practice Assessment Tool (IPAT) results from participating TI participating providers will serve to monitor the level of care integration. Qualitative data pertaining to AHCCCS' and providers' reported barriers to implementation of the TI program will be collected through key informant interviews and/or provider focus groups. The combination of these data sources will be used to assess the six research hypotheses.

State Beneficiary Survey Data

State beneficiary surveys will be used to assess beneficiaries' health care coverage and satisfaction after TI program implementation. These surveys will be an important data source for the evaluation because the independent evaluator will need to capture information from beneficiaries about their health care experience in order to answer pertinent questions to the demonstration, such as patient perception of care coordination.

The survey questions will be designed to capture elements of the program Special Terms and Conditions (STCs) that cannot be addressed through administrative data. The following concepts and hypotheses will be addressed in the beneficiary surveys:

1. Access and availability of care—research questions 1.2, 2.2, and 3.2 ask whether rates of screening visits, well-care visits, and beneficiaries' access to care are higher for beneficiaries subject to the TI demonstration compared to beneficiaries not subject to the TI demonstration.
2. Patient perception of care coordination—research questions 1.4 and 2.6 ask whether beneficiaries subject to the TI demonstration perceive that their doctors have better care coordination than those not subject to the demonstration.

The independent evaluator will conduct single cross-sectional surveys during the measurement period.

When administering the survey for children, the survey may include language on the cover page allowing for older children to answer directly; otherwise the parent or guardian will answer on their behalf. To maximize response rates, a mixed-mode methodology for survey data collection will be used. The addition of email reminders, when data are available, or pre-notification letters to beneficiaries, has shown to increase response rates and will be incorporated into survey administration. Additionally, to the extent possible, the independent evaluator will align multiple demonstration surveys to be distributed at the same time to increase response rates across all demonstrations with overlapping populations. A range of sampling protocols will be considered including simple random samples, stratified random samples, multistage stratifications (i.e., cluster), and targeted oversamples.

The standard NCQA HEDIS® Specifications for Survey Measures requires a sample size of 1,350 beneficiaries for the CAHPS 5.0 Adult Medicaid Health Plan Survey and 1,650 for the CAHPS 5.0 Child Medicaid Health Plan Survey. [3-41,3-42] An oversample of at least 10 percent for each plan will be applied to ensure an adequate number of respondents to each CAHPS measure. Rather than sampling from plans, the survey for the TI program will sample from the TI and non-TI attributed populations for three distinct populations: adults, children, and adults transitioning from the criminal justice system. The maximum estimated number of surveys that need to be sent is estimated to be 1,485 for adults and 1,815 for children in each of the TI and non-TI attributed populations.

[3-41] HEDIS is a registered trademark of NCQA.
[3-42] National Committee for Quality Assurance. *HEDIS® 2020, Volume 3: Specifications for Survey Measures*. Washington, DC: NCQA Publication, 2019.

Historic response rates in Arizona for the Acute Care population are approximately 22 percent for adults and 20 percent for children, which would translate to a completed sample of 327 adult respondents and 363 child respondents. For the adult samples, a sample size of 327 would have 0.8 power to identify a single percentage of 50 percent with a margin of error of 5.42 percent, or to identify a difference between rates of 50 percent and 60.9 percent with an alpha level of 0.05 and two-tailed tests. For the child sample, a sample size of 363 would have 0.8 power to identify a single percentage of 50 percent with a margin of error of 5.14 percent, or to identify a difference between rates of 50 percent and 60.3 percent with an alpha level of 0.05 and two-tailed tests.

Administrative Data

AHCCCS's demonstration evaluation will allow the opportunity to utilize data from several sources (i.e., PMMIS and Health Current) to determine the impact of TI. The administrative data sources are necessary to address the five research hypotheses primarily relating to health outcomes, and to identify a valid comparison group.

Use of encounters will be limited to final, paid status claims/encounters. Interim transaction and voided records will be excluded from all evaluations because these types of records introduce a level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and cost calculations.

Program administrative data will also be used to identify TI participating practices, member assignment, monitor providers who have an executed agreement with Health Current and routinely receive ADT alerts, as well as each participating providers' self-reported result from the IPAT, which measures the level of care integration.

Focus Groups and Key Informant Interviews

Focus groups and key informant interviews will be conducted through a semi-structured interview protocol, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

Analytic Methods

The evaluation reporting will meet traditional standards of scientific and academic rigor, as appropriate and feasible for each aspect of the evaluation (e.g., for the evaluation design, data collection and analysis, and the interpretation and reporting of findings). The ACC waiver evaluation will use the best available data, will use controls and adjustments where appropriate and available, and will report the limitations of data and the limitations' effects on interpreting the results. Six general analytic approaches will be considered for this evaluation:

1. Difference-in-differences (DiD)
2. Interrupted time series
3. Hierarchical Linear/Generalized Linear Model
4. Pre-test/post-test
5. Comparison to national benchmarks and/or historical rates
6. Qualitative synthesis

Difference-in-Differences

A DiD analysis will be performed on all measures for which baseline and evaluation period data are available for both the intervention and comparison groups. Because this is the preferred analytic approach, the DiD will be utilized of the evaluation of all six programs where possible. This analysis will compare the changes in the rates or outcomes between the baseline period and the evaluation period. This allows for expected rates for the intervention group to be calculated by considering expected changes in outcomes had the policy not been implemented. This is done by subtracting the average change in the comparison group from the average change in the intervention, thus removing biases from the evaluation period comparisons due to permanent differences between the two groups. In other words, any changes in the outcomes caused by factors external to the policy would apply to both groups equally and the DiD methodology will remove the potential bias. The result is a clearer picture of the actual effect of the program on the evaluated outcomes.

Because beneficiary-level data is unlikely to be publicly available for other states and out-of-state comparisons rates are likely to be aggregated rates, DiD statistical testing will be conducted with aggregated data.

The generic DiD model is:

$$Y_{it} = \beta_0 + \beta_1 X_i + \beta_2 R_t + \beta_3 (R_t * X_i) + \boldsymbol{\gamma} \mathbf{D'}_{\boldsymbol{it}} + u_{it}$$

Where Y is the proportion for group *i* in year *t*, X is a binary indicator for the intervention group (i.e., Arizona), T is a binary indicator for the follow-up period, and ε is an error term. The vector **D'** will include observable covariates, where available, to ensure comparability of the groups for any measure-specific subgrouping (e.g., to address non-response bias) and $\boldsymbol{\gamma}$ is the related coefficient vector. The coefficient, β_1, identifies the average difference between the groups prior to the effective date of the policy. The time period dummy coefficient, β_2, captures the change in outcome between baseline and evaluation time periods. The coefficient of interest, β_3, is the coefficient for the interaction term, $R_t * X$, which is the same as the dummy variable equal to one for those observations in the intervention group in the remeasurement period. This represents the estimated effect of the program on the intervention group, conditional on the included observable covariates. For measures in which the comparison group is comprised of plan-level rates, the above regression will be frequency weighted by the sample size used to calculate the rate. Identifying the number of observations that go into a measure rate in the regression model will allow estimation of the same parameter results that would be obtained by having the underlying beneficiary-level data. It is expected that the aggregated data will include both the necessary rates and variances or for each measure or that variances can be estimated from the rates and total number of responses for each measure.

The generic DiD calculation is:

$$\delta = \left(\bar{y}_{T,R} - \bar{y}_{\mathrm{T,B}}\right) - \left(\bar{y}_{\mathrm{C,R}} - \bar{y}_{\mathrm{C,B}}\right) \mid \mathbf{D'}$$

Assuming trends in the outcome between the comparison and intervention groups are approximately parallel during the baseline period, the estimate will provide the expected costs and rates without intervention. If the β_3 coefficient is significantly different from zero, then it is reasonable to conclude that the outcome differed between the intervention and comparison group after the policy went into effect. In addition to assessing the degree of

statistical significance for the result, as represented by the p-value associated with β_3, the results will be interpreted in a broader context of clinical and practical significance.[3-43]

For analyses that utilize an out-of-state comparison group, the DiD regression model will provide an estimate of the statistical significance of the difference between the results for Arizona beneficiaries and those outside of the state. This estimate, however, is derived from data sources that are likely to have several important caveats that could lead to biased results. For survey-based measures the aggregated data is likely to include measurement error related to the questions asked and respondent recall issues. Similarly, an administrative data could contain measurement error in the form of coding mistakes or omissions. Importantly, any out-of-state comparison group is likely to include some differences in rates from Arizona based on differences in the policies and regulations governing the state Medicaid system such as eligibility rules and programmatic policies. Based on these potential biases, the independent evaluator will also need to characterize the uncertainty in the results of the DiD regression model above.

The measure rates, variances, and sample sizes will be used to simulate draws of the data. For each of the four data points in the regression (i.e., intervention and comparison group in the pre- and post-periods), a random value will be generated within 95 percent confidence interval of the observed rate. The DiD regression will be estimated with the randomly drawn values, and the process will be replicated 10,000 times. The resulting distribution of p-values will provide an estimate of how often a significant result would be found, given the potential error in the data. For example, the results will allow the creation of probabilistic statements such as "In 80 percent of the simulated samples, a significant difference was identified in the DiD." Of note, this simulation will not mitigate against significant differences that are due to true programmatic differences across states that impact the populations. Rather, the simulation acknowledges that the data are drawn from data sources that contain measurement error and other sources of error and will help characterize the extent of uncertainty attached to a given model.

Interrupted Time Series

When a suitable comparison group cannot be found and data can be collected at multiple points in time before and after the implementation of the program, an ITS methodology can be used. This analysis is quasi-experimental in design and will compare a trend in outcomes between the baseline period and the evaluation period for those who were subject to the program. We will utilize an ITS approach for evaluation of the TI demonstration and the PQC waiver.

In ITS, the measurements taken before the TI demonstration was initiated is used to predict the outcome if the demonstration did not occur. The measurements collected after the demonstration are then compared to the predicted outcome to evaluate the impact the demonstration had on the outcome. The ITS model is:

$$Y_t = \beta_0 + \beta_1 time_t + \beta_2 post_t + \beta_3 time \times post_t + \mu_t$$

where Y_t is the outcome of interest for the time period *t*, *time* represents a linear time trend, *post* is a dummy variable to indicate the time periods post-implementation, and $time \times post$ is the interaction term between *time* and *post*. The coefficient, β_0, identifies the starting level of outcome *Y*, β_1 is the slope of the outcome between the

[3-43] Results from statistical analyses will be presented and interpreted in a manner that is consistent with the spirit of recent guidance put forth in *The American Statistician.* Ronald L. Wasserstein, Allen L. Schirm & Nicole A. Lazar (2019) Moving to a World Beyond "p < 0.05", The American Statistician, 73:sup1, 1-19, DOI: 10.1080/00031305.2019.1583913.

measurements before the program, β_2 is the change in the outcome at a various point in time, and β_3 is the change in the slope for the measurements after the program.

Assuming that the measurements taken after the implementation of the demonstration would have been equal to the expectation predicted from the measurements taken before the demonstration in the absence of the intervention, any changes in the observed rates after implementation can be attributed to the program.

A limitation of interrupted time series is the need for sufficient data points both before and after program implementation.[3-44] To facilitate this methodology, the independent evaluator may consider additional baseline data points using prior year calculations, and/or calculating quarterly rates where feasible, if multiple years both pre-and post-implementation are available to control for seasonality.

Specifically, for the PQC evaluation, the independent evaluator will evaluate two measures in which data on a comparison group will not be available:

- Percentage of Medicaid enrollees by eligibility group out of estimated eligible Medicaid recipients.
- Percentage of Medicaid beneficiaries applying for Medicaid within the month of finding relevant diagnosis, by eligibility category.

These measures are intended to be captured monthly through administrative program data. As such, the higher frequency can be used to construct pre- and post-implementation trends using interrupted time series. An interrupted time series approach can be utilized to draw causal inferences if sufficient data points exist before and after implementation, there are no concurrent shocks in the trend around program implementation, and any seasonal effects are adequately accounted for.

Hierarchical Linear/Generalized Linear Model

This analytic approach may be used in the evaluation of Targeted Investments because outcomes are measured at the beneficiary level while the TI program is implemented at the provider or practice level. Consequently, each provider or practice serves many beneficiaries, the statistical methods for the evaluation of the TI program must account for systematic variation at the level of the provider or practice. This can be accomplished through directly modelling the variation through hierarchical linear modeling techniques. Additional methods may include risk adjustment at the provider level and adjusting standard errors for clustering.

A hierarchical linear model (HLM) or hierarchical generalized linear model (HGLM) may be used to directly model the variation across providers. The HGLM is an extension of the HLM by which the outcome may be represented by data other than a continuous, numeric scale, such as binary or count data. The independent evaluator will determine the most appropriate methodology given the data. To allow for causal inference, the HLM or HGLM should be structured in either a DiD or ITS framework for this evaluation. The below description details the HLM model specification in a DiD framework.[3-45]

[3-44] Baicker, K., and Svoronos, T., (2019) "Testing the Validity of the Single Interrupted Time Series Design," *NBER Working Paper 26080,* https://www.nber.org/papers/w26080.pdf; Bernal, J.L., Cummins, S., Gasparrini, A. (2017) "Interrupted time series regression for the evaluation of public health interventions: a tutorial," *International Journal of Epidemiology,* 46(1): 348-355, https://doi.org/10.1093/ije/dyw098; Penfold, R. B., Zhang, F. (2013) "Use of Interrupted Time Series Analysis in Evaluating Health Care Quality Improvements," *Academic Pediatrics,* 13(6): S38 - S44, https://doi.org/10.1016/j.acap.2013.08.002.

[3-45] This model specification can be modified to follow an ITS framework or comparative ITS framework depending on the availability of a comparison group and number of data points both before and after program implementation.

The nature of the demonstration will yield data that logically adhere to a nested structure, with repeated measurements across time nested within beneficiaries, who are then nested within providers. Through the nested structure of the dataset, the generic HLM will be comprised of three levels, which will be combined in a final, fully nested equation.

The generic HLM will be comprised of three levels:

1. Time
2. Beneficiary
3. Provider

The time-level model is given by:

$$Y_{tij} = \pi_{0ij} + \pi_{1ij}T_{tij} + \varepsilon_{tij} \quad (1)$$

Where $Y_{tij}$is the outcome *Y* at time *t* for beneficiary *i* for provider *j;* the coefficient π_{0ij} is the value of outcome *Y* for beneficiary *i* for provider *j* at *T*=0 (i.e., baseline); the coefficient π_{1ij} is the average change in outcome *Y* for beneficiary *i* for provider *j* for a one unit change in *T*; $T_{tij}$is a whole number time trend coded as 0 for the first data point (i.e., baseline); and ε_{tij} is a normally distributed error term representing the random deviation in the observed outcome Y_{tij}.

The beneficiary-level model is given by:

$$\pi_{0ij} = \beta_{00j} + \beta_{01j}X_{ij} + r_{0ij} \quad (2)$$

$$\pi_{1ij} = \beta_{10j} + \beta_{11j}X_{ij} + r_{1ij}$$

Where β_{00j} is the average outcome *Y* for provider *j* at *T*=0; the coefficient β_{01j} is the average change in *Y* for provider *j* at *T*=0 for a unit change in X_{ij} which represents person-level covariates for beneficiary *i* for provider *j* such as demographics or health conditions; r_{0ij} is a normally distributed person-level error term and represents the deviation in outcome *Y* for person *i* for provider *j*; β_{10j} is the average change in *Y* for provider *j* for a one unit change in *T*; β_{11j} is the average increment or decrement to the change over time in the outcome for provider *j* for a one unit change in *X*; and r_{1ij} is a normally distributed person-level error term and represents the deviation of beneficiary *i* from the average change in *Y* for provider *j* for a one unit change in *T*.

The provider-level model is given by:

$$\beta_{00j} = \gamma_{000} + \gamma_{001}W_j + u_{00j} \quad (3)$$

$$\beta_{10j} = \gamma_{100} + \gamma_{101}W_j + u_{10j}$$

Where γ_{000} is the grand mean average outcome *Y* (i.e. average outcome across all beneficiaries and providers in the comparison group) at *T*=0; γ_{001} is the average change in the grand mean at *T*=0 for a unit change in *W* (e.g. the average difference in rates between intervention and comparison group at baseline); W_j represents an indicator for TI participation and, optionally, other provider-level covariates, such as panel size; u_{00j} is a normally distributed provider-level error term representing the deviation in outcome *Y* from the grand mean for provider *j* at *T*=0; γ_{100} is the grand mean change in *Y* for a one unit change in *T* across providers in the comparison group (e.g. average change in rates between baseline and remeasurement period for non-TI providers); γ_{101} is the increment

or decrement to the change over time in the outcome for a one unit change in *W*; and u_{10j} is a normally distributed provider-level error term and represents the deviation from γ_{100} for provider *j* for a unit change in *T*.

Substituting equations (2) and (3) into equation (1) and rearranging terms yields the following complete equation, which is what the independent evaluator will estimate:

$$Y_{tij} = \underbrace{\gamma_{000} + \beta_{01j}X_{ij} + \gamma_{001}W_j}_{\text{Fixed-Effects Main Effects}} + \underbrace{\left(\gamma_{100} + \beta_{11j}X_{ij} + \gamma_{101}W_j\right)T_{tij}}_{\text{Fixed-Effects Cross-Level Interactions}} + \underbrace{\left(u_{1j} + r_{1ij}\right)T_{tij} + r_{0ij} + u_{0j}}_{\text{Random Effects}} + \underbrace{\varepsilon_{tij}}_{\text{Error Term}} \quad (4)$$

In this equation, the fixed effects represent the average effect of beneficiary and provider characteristics (e.g. the average difference in rates between males and females). Random effects represent differences between beneficiaries and providers on the outcome that are not captured in the fixed effects. The cross-level interaction term, $\gamma_{101}W_j \times T_{tij}$, represents the HLM equivalent of a DiD regression coefficient where the treatment is defined via participation in TI (W_j) and impacts the outcome through an interaction with beneficiary-level changes over time. As briefly mentioned above, the coefficient γ_{101} represents the difference between TI and non-TI providers in the change in outcome between the baseline and remeasurement period(s), controlling for differences across practices. In other words, this coefficient represents the average incremental impact of the TI program across practices and patients.

The model specification above provides a general framework which the independent evaluator may build upon or modify to suit the specific data and evaluation needs, which may include determining the appropriate model specification regarding the inclusion or exclusion of specific elements of random or fixed effects.[3-46] The HLM framework can account for providers and beneficiaries who drop out of the study and allow for the estimation of resulting attrition effects.

Pre-Test/Post-Test

For measures with consistent specifications over time for which national or regional benchmarks are not available, and which have too few observations to support an interrupted time series analysis,[3-47] rates will be calculated and compared both before and after program integration. Statistical testing will be conducted through a chi-square analysis. A chi-square test allows for comparison between two groups that have a categorical outcome, such as survey results or numerator compliance, to determine if the observed counts are different than the expectation.

[3-46] There are many advantages that this flexibility can provide. These advantages include but are not limited to: given only two time periods (e.g., baseline and remeasurement) equation (1) may be modified to remove the error term and the time component substituted into equation (2), effectively reducing the model to a two-level hierarchical model. Second, a non-linear link function may be added to equation (4) to create an HGLM that can evaluate multiple types of outcomes (e.g., binary or count data). Third, for multi-year post-implementation analyses, the independent evaluator may consider including flags indicating practices that dropped out of the TI program as a measure of attrition effects. Fourth, if the intervention and comparison groups have similar rates at baseline after propensity score matching, the independent evaluator can test the need for random intercepts in the model. Fifth, the independent evaluator may begin analysis by running an unconditional model (i.e., no practice- or beneficiary-level) covariates to determine the extent to which the outcome varies across beneficiaries and across practices. Finally, the HLM or HGLM framework is robust to missing data in the level (1) equation and can therefore accommodate a changing population over time; however, higher levels (e.g., beneficiary and practice) cannot have missing data.

[3-47] Because measures are calculated on an annual reporting period, the post-implementation period during the current demonstration approval period of three years is insufficient to support an interrupted time series analysis.

A pre-test/post-test analysis will be conducted for ACC, ALTCS, CMDP, PQC, and RBHA.

Comparison to National Benchmarks and/or Historical Rates

A comparison to national benchmarks and/or historical rates approach will be utilized for the evaluation of ACC and PQC.

To provide additional context of rates and changes in rates after the transition to integrated care under these plans, the independent evaluator may compare rates from ACC or PQC with both historical rates prior to integration and against national benchmarks without necessarily conducting formal statistical testing (e.g., DiD or pre-test/post-test approaches). By combining reference points from historical rates under Acute Care with contemporaneous national benchmarks, rates calculated for ACC/PQC can be reported in the context of historical Arizona-specific performance in addition to performance nationally, thus triangulating an impact of the program on outcomes. Although statistical testing through a DiD or pre-test/post-test approach would be preferable, these comparisons may be necessary if the level of data for the comparison group are not granular enough to support such statistical testing.

Qualitative Synthesis

To evaluate the care coordination strategies implemented by health plans as a result of the program, and to identify and understand barriers encountered by health plans and AHCCCS during and after the transition to each program, a series of semi-structured focus groups and key informant interviews with representatives from the health plans, ACCCHS, and providers will be conducted to obtain results for all plan-specific measures. A qualitative synthesis will be utilized to evaluate ACC, ALTCS, CMDP, RBHA and PQR.

Focus group participants and key informant interviewees will be recruited from nominees identified by the health plans, AHCCCS, and providers. Interviews and focus groups will invite input from representatives of all seven health plans and appropriate individuals identified by AHCCCS as having experience and subject matter expertise regarding the development and implementation of strategies to promote integration of physical and behavioral health service delivery and care integration within the framework of the ACC.

AHCCCS will be asked to provide the names of up to three individuals each from pertinent organizations most familiar with the implementation activities performed by the State and the demonstration, including AHCCCS. Each of these individuals will be requested to participate in a 60 to 90-minute interview session to provide insights into the implementation of the demonstration. A limited number of key informant interviews should be sufficient in this scenario because there will be a limited number of staff at the agency with a working knowledge of the activities associated with the demonstration, and the challenges and successes that accompanied the implementation.

To recruit providers for the focus groups, the independent evaluator will begin by requesting a list of any providers from AHCCCS with whom they have experienced an above average level of engagement and participation. Those providers most engaged in the program may also be those most able and willing to provide feedback on their experiences during implementation. The independent evaluator will attempt to recruit focus group participants from the providers suggested by AHCCCS initially. The independent evaluator will supplement the list provided by AHCCCS with participating providers in the demonstration stratified by geographic region, location within each region (e.g., urban versus rural providers), and by specialty. Because the providers are participating in the demonstrations statewide, the independent evaluator will attempt to recruit focus group participants regionally across the AHCCCS-defined North, Central, and South geographical service areas within the state. Recruiting regionally, will allow for participation by providers operating in large metropolitan areas, as well as smaller rural locations. After stratifying the provider lists, the independent evaluator will sample

to recruit providers representing the broadest spectrum of participating providers. By recruiting to maximize the variation in provider-types and locations, the data obtained are likely to represent perspectives from a wide variety of participating providers. The recruitment goal is to have five to eight providers participate in each focus group. Focus group meetings will last approximately 90 minutes to allow sufficient time for all participants to voice their perspectives and explore each topic in detail. To facilitate provider participation—particularly for rural providers—focus groups will be held via a WebEx teleconference with the option of participant video conferencing. Due to the self-selection of participants and the wide degree of variability across provider types, the focus group participants are not likely to constitute a statistically representative sample of providers within the state. The purpose of the focus group data collection, however, is not to obtain a statistically representative sample of respondents. Rather, the purpose of the focus group data collection is to obtain a rich set of contextualized description that cannot easily be obtained through administrative data or survey data collection efforts

It is not anticipated that financial incentives for participation would be required for current plan or agency employees, however, key informants who are no longer employed by the plan or agency might be offered an incentive such as a $100.00 gift card to encourage participation.

A flexible protocol will be developed for focus groups and semi-structured interviews to be conducted with a sample of subjects with knowledge of the specific strategies developed and implemented as a result of ACC, the barriers encountered during the implementation of care coordination activities, and other barriers encountered during the transition to ACC. Interview questions will be developed to seek information about the plans' strategies to promote physical and behavioral health service delivery and care integration activities as well as any barriers encountered, including:

- Organizational structures and operational systems
- Program design and implementation
- Member engagement and communication
- Provider/network relations and communication

Early focus groups or interviews will inform the development and choice of topics and help inform the selection of additional interview subjects to round out the list of individuals to be interviewed for this project.

In both formats, open-ended questions will be used to maximize the diversity and richness of responses and ensure a more holistic understanding of the subject's experience. Probing follow-up questions will be used as appropriate to elicit additional detail and understanding of critical points, terminology, and perspectives. The sessions will be recorded and transcribed with participant consent.

The information obtained from these focus groups and interviews will be synthesized with the results from other quantitative data analyses providing an in-depth discussion of each of the domains/objectives to be considered. As the key informant interviews are being conducted, the independent evaluator will perform ongoing and iterative review of the interview responses and notes to identify overall themes and common response patterns. Unique responses that are substantively interesting and informative will also be noted and may be used to develop probing questions for future interviews. The results of these preliminary analyses will be used to document the emergent and overarching themes related to each research question. The documentation of emergent themes will be reviewed in an iterative manner to determine if responses to interview questions are continuing to provide new perspectives and answers, or if the responses are converging on a common set of response patterns indicating saturation on a particular interview question. As additional interview data are collected, the categories, themes, and relationships will be adjusted to reflect the broader set of concepts and different types of relationships

identified. The documentation of emergent themes will also be used as an initial starting point for organizing the analysis of the interview data once all interviews are completed.

Following the completion of the focus groups and key informant interviews, the interview notes and transcripts will be reviewed using standard qualitative analysis techniques. The data will first be examined through open coding to identify key concepts and themes that may not have been captured as emergent themes during previous analyses. After identifying key concepts, axial coding techniques will be used to develop a more complete understanding of the relationships among categories identified by respondents in the data. The open and axial coding will be performed with a focus on identifying the dimensionality and breadth of responses to the research questions posed for the overall project. Interviewee responses will be identified through the analysis to illustrate and contextualize the conclusions drawn from the research and will be used to support the development of the final report.

In addition to the six methods listed above, the independent evaluator will use the following additional approaches:

Chi-Square Test

A chi-square test will be utilized for certain measures in the TI demonstration evaluation as it allows for comparison between two groups that have a categorical outcome, such as survey results, to determine if the observed counts are different than the expectation. A test statistic is calculated that compares the observed results to the expected results and a chi-square distribution is used to estimate the probability of the observed difference from the expected results being due to the demonstration.

Rapid Cycle Reporting – Statistical Process Control Chart

Measures in which outcomes can be collected monthly are also conducive to rapid cycle reporting. Rapid cycle reporting provides an early warning of possible unintended consequences. These measures are primarily intended for program impact monitoring prior to the analyses that will be contained in the evaluation reports. Rapid cycle reporting measures will be presented on a regular schedule as determined by the independent evaluator using statistical process control charts. Statistical process control charts will be utilized as the tool to identify changes in time series data—data points or trends that depart from a baseline level of variation. This will be helpful in quickly identifying concerns requiring further investigation. Rapid cycle reporting will be used for the TI demonstration evaluation and the PQC waiver evaluation.

Descriptive Impact Analysis

Measure for the TI demonstration will rely on program data reported at infrequent or irregular intervals but are nevertheless critical to determining the success of the program on changing practice behavior. Specifically, measures evaluating changes in providers' self-reported level of care integration as defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) will likely be available at infrequent intervals throughout the course of the demonstration.[3-48] As such, the evaluation of these measures will center on a descriptive analysis of the changes in care integration as the demonstration program matures, providing valuable insights as to the impact that the TI program may have had on care integration.

[3-48] Heath B, Wise Romero P, and Reynolds K. A Review and Proposed Standard Framework for Levels of Integrated Healthcare. Washington, D.C. SAMHSA-HRSA Center for Integrated Health Solutions. March 2013. https://www.integration.samhsa.gov/integrated-care-models/A_Standard_Framework_for_Levels_of_Integrated_Healthcare.pdf.

Comparison of Means

For PQC measures that do not have a comparison group and where no causal inference can be deducted, means between groups will be compared to show changes in outcomes over time.

Cost-Effectiveness Analysis

To evaluate the sustainability of the demonstration component and its impacts on costs, the independent evaluator will estimate costs and savings associated with the renewal of the waiver for all six programs. Total costs will be comprised of both medical costs and administrative costs.

Costs and savings will be estimated based on an actuarial approach. The actuarial method will create a "hypothetical comparison group" by trending the cost experience of a waiver population during a baseline period prior to renewal of the waiver forward in time to the evaluation period(s) following renewal of the waiver. The trended costs will represent an estimate of the costs for the waiver population during the evaluation period(s) as if the waiver had never been renewed. Thus, the actuarial method will compare the trended actual costs of the waiver population in a baseline period to the actual costs for the waiver population during the evaluation period(s) to estimate savings.

There are two separate definitions of "medical cost" that will be evaluated, resulting in two separate estimates of total costs and savings. "Expenditure costs" represent the direct expenditures by the state for the provision of Medicaid services, identified as the medical cost component of the capitation payments. "Service costs" represent the cost to the plans of providing the included Medicaid services. A different approach will be used for each type of medical cost.

The method to estimate "expenditure cost" savings will compare the trended medical cost component for the waiver population from baseline capitation rates to the average medical cost component paid in the evaluation period(s). The independent evaluator will ensure that the service packages included in the capitation rates are similar in both the baseline and evaluation period(s). If the service packages are different, adjustments will be made to ensure the capitation rates for both the trended baseline and the evaluation period(s) represent the same package of services. Typically, these adjustments will be made based on fee for service claims or specific medical cost components included in the capitation payments during the baseline period.

The medical cost component in both the baseline for the evaluation period(s) will be based on the carriers' filed premium rates or other available documents that identify medical costs. Other adjustments for other medical-cost-related components such as risk corridor payment adjustments, cost sharing reduction payments, deductible funding, changes in medical technology or clinical guidance, changes in reimbursement rates, and the cost of wraparound services, will be included in both the baseline and evaluation period(s) estimates. These adjustments will be done as appropriate based on state and federal Medicaid policies in place for each waiver population during the period for which costs are being calculated. For the comparison group (trended baseline medical cost component), medical cost projections will be developed based on baseline program claims/encounter data that will be trended and adjusted for demographic changes, acuity differences, and programmatic changes as well as the other factors described above, as appropriate for specific periods, state policies, and waiver populations. The data for developing both the trended baseline and evaluation period cost estimates will be based on data provided to AHCCCS as a part of the capitation rate-setting and certification process.

The method for calculating "service cost" savings will involve comparing the trended baseline period medical cost component from the capitation rate to the plans' actual cost of providing Medicaid services to the waiver population in the evaluation period(s).

For both the baseline and evaluation periods, the average medical cost will be calculated based on claims/encounter data, while ensuring identical service packages in both periods. The baseline medical cost estimates will be trended forward from the baseline period and will be adjusted for the items listed above as necessary and appropriate.

Administrative costs will be estimated based on administrative amounts included in specific waiver premium rate filings in the baseline and evaluation period(s). This approach will be used since the allocation of actual administrative costs for waiver populations is typically difficult for plans to more accurately estimate. Adjustments will be made to account for changes in administrative activity requirements between the baseline and evaluation period(s). Adjustments will also be made to the baseline estimate to account for inflationary and state policy changes and waiver population factors as necessary and appropriate.

Total costs for both groups will be calculated as the sum of the medical and administrative cost estimates. This will result in two different total cost estimates, one for each of the approaches used to estimate medical costs described above.

The independent evaluator will work with AHCCCS to ensure that all cost calculations incorporate all appropriate adjustments to adequately account for changes in service packages, administrative cost structures, and/or national/state policy that directly or indirectly impact the costs of providing Medicaid services to the waiver population across the baseline and evaluation period(s).

Costs and benefits will be isolated to each individual AHCCCS program to the extent possible using the strategies described in the Disentangling Confounding Events section below.

Disentangling Confounding Events

During the current demonstration renewal period, AHCCCS has implemented several programs that could confound the estimated impact of the programs on measured outcomes. The TI program was implemented by October 2019. The TI program provides practices with funds specifically to encourage better care coordination and integrated care for their beneficiaries. As such, beneficiaries impacted by the TI program may receive higher levels of integrated care, thereby potentially confounding program effects from the care coordination efforts of ACC, ALTCS, CDMP, PQC, and RBHA. However, because each program was implemented at various times in comparison to TI, the evaluation may leverage the differential implementation of these programs to mitigate the confounding program effects. Additionally, the independent evaluator may identify those impacted by TI and utilize statistical controls to disentangle effects of TI beneficiaries on each program.

Beginning on July 1, 2019, AHCCCS eliminated PQC for most Medicaid adults.[3-49] This program may introduce confounding effects since impacted beneficiaries may alter their future care-seeking or enrollment and disenrollment decisions. The independent evaluator may leverage the differential timing between the introduction of each program and effective date of the elimination of PQC to help reduce the potential confounding effects. This is not expected to completely eliminate confounding effects. Without a valid comparison group, any observed changes (or lack thereof) in the rates cannot be completely separated from the impact of the elimination of PQC.

The coronavirus disease 2019 (COVID-19) widely impacted the healthcare system and socioeconomic conditions more broadly beginning in approximately March 2020 and is ongoing as of the writing of this evaluation design

[3-49] Pregnant women, women who are 60 days or less postpartum, and infants and children under 19 years of age are excluded.

plan. The scope and scale of the COVID-19 pandemic has already impacted the planned execution of some components of this design plan, and appears that it may continue to do so in the near future. Additionally, the pandemic forces the independent evaluator to consider methods that would allow the disentanglement of the Arizona Health Care Cost Containment System (AHCCCS) program impacts from results driven by COVID-19 or the policy response within Arizona and other states. Please see Appendix F: Methodological Considerations of COVID-19 Pandemic for additional detail.

Additional confounding factors specific to each program are listed below:

ACC

Some ACC beneficiaries may be impacted by the introduction of AHCCCS Works, if implemented. This program may introduce confounding effects as impacted beneficiaries may leave Medicaid because of community engagement noncompliance or because they no longer meet the income eligibility requirements for Medicaid. AHCCCS Works only impacts adult Medicaid expansion beneficiaries up to age 49 and will be rolled out in three annual phases based on urbanicity. Further delays in implementing AHCCCS Works will reduce confounding effects with ACC. Additionally, once AHCCCS Works is implemented, the independent evaluator may leverage the staged rollout, and the differential impact across eligibility and age groups to further disentangle effects of AHCCCS Works and ACC.

PQC

The AHCCCS Works demonstration, if implemented, will include beneficiaries who are also part of the PQC demonstration. While AHCCCS Works could be confounded with the PQC demonstration, the stepped-wedge implementation design provides an opportunity to disentangle the impact of AHCCCS Works from the PQC demonstration by leveraging the differential timing of the demonstration phases. The AHCCCS Works demonstration is approved effective from January 18, 2019, through September 30, 2021.[3-50] However, on October 17, 2019, AHCCCS notified CMS that Arizona will be postponing the implementation of AHCCCS Works until further notice, citing ongoing litigation regarding Medicaid community engagement programs.[3-51]

The ACC demonstration was implemented on October 1, 2018, and integrated physical health care and behavioral health services for beneficiaries who are adults not determined to have an SMI, and beneficiaries determined to have a serious mental illness (SMI). Both of these populations are also targeted populations in the PQC demonstration, potentially confounding the program impacts.

The ALTCS demonstration will target beneficiaries who are elderly and/or physically disabled and beneficiaries with a developmental disability. On October 1, 2019, physical and behavioral health services, as well as certain LTSS (i.e., nursing facilities services, emergency alert system services, and habilitative physical therapy for beneficiaries 21 years of age and older) for beneficiaries with DD were transitioned into ALTCS- DDD health

[3-50] CMS Approval Letter. Centers for Medicare & Medicaid Services. https://www.azahcccs.gov/Resources/Downloads/CMSApprovalLetter.pdf. Accessed on Jun 10, 2019.

[3-51] Snyder, J, (October 17, 2019) *RE: Implementation of AHCCCS Works*, letter to Acting Director Lynch, Center for Medicare and Medicaid Services. Available at https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/Health-Care-Cost-Containment-System/az-hccc-postponement-ltr-ahcccs-works-10172019.pdf. Accessed on Oct 23, 2019.

plans.[3-52] These beneficiaries may also be targeted by the PQC waiver demonstration, thereby confounding the effects of the two demonstrations.

The RBHA waiver demonstration will target adult beneficiaries with an SMI, turning the integration of physical and behavioral health care for several other populations over to their respective programs. Beginning on October 1, 2019, the RBHAs will transition care for the elderly and/or physical disabled and beneficiaries with a developmental disability over to the ALTCS. The transition of this populations from RBHA to ALTCS may confound the effects of those programs with the widespread application of the PQC waiver.

The PQC waiver demonstration went into effect on July 1, 2019, representing a differential timing for implementation from the other waiver demonstrations, AHCCCS is implementing. The independent evaluator may, therefore, leverage the differential implementation of these programs to mitigate the confounding program effects. Additionally, the independent evaluator may identify those impacted by TI, AHCCCS Works, ACC, ALTCS, and RHBA and use statistical controls to disentangle effects of these programs on the beneficiaries in the PQC waiver demonstration.

TI

During the current demonstration renewal period, AHCCCS has implemented several programs that could confound the estimated impact of the Targeted Investments program on measured outcomes. ACC plans begin providing integrated care coverage for most beneficiaries on AHCCCS beginning on October 1, 2018. This could impact rates for TI beneficiaries covered through an ACC plan and potentially bias results since the implementation of ACC happened between the baseline and evaluation periods. To reduce this potential bias, the independent evaluator may leverage the differential timing between the implementation of ACC and TI, and the independent evaluator may leverage the differential enrollment in TI among ACC beneficiaries. That is, outcomes for TI beneficiaries impacted by ACC may be compared against outcomes for TI beneficiaries not impacted by ACC using statistical controls.

Similarly, CMDP provides physical care services for children in the custody of DCS, and it is anticipated that CMDP will begin providing integrated behavioral and physical care beginning on October 1, 2020. This may impact rates for TI beneficiaries covered through CMDP and potentially bias results after the provision of integrated care. To reduce this potential bias, the independent evaluator may leverage the differential timing between the implementation of CMDP and TI, and the independent evaluator may leverage the differential enrollment in TI among CMDP beneficiaries. That is, outcomes for CMDP beneficiaries impacted by TI may be compared against outcomes for CMDP beneficiaries not impacted by TI using statistical controls.

ALTCS provides coverage for EPD and beneficiaries who are DD. ALTCS has been providing integrated behavioral and physical care for its EPD population and physical care for its DD population since its inception in 1989. However, on October 1, 2019, ALTCS began providing integrated behavioral and physical care for its DD population. This could impact rates for TI beneficiaries covered through ALTCS-DD and potentially bias results since the implementation of ALTCS-DD integration happened at the beginning of the TI evaluation period. To reduce this potential bias, the independent evaluator may leverage the differential enrollment in TI among ALTCS beneficiaries.

RBHA provides integrated behavioral and physical care for its adult SMI population. This may impact the TI evaluation to the extent coverages and quality of care differs between the RBHA population and the non-RBHA

[3-52] DDD Health Plans. https://des.az.gov/services/disabilities/developmental-disabilities/new-ddd-health-plans. Accessed on Sep 30, 2019.

population. In order disentangle the impact of the TI program on outcomes, the independent evaluator may utilize enrollment in RBHA as a statistical control in the final analysis.

Beginning on July 1, 2019, AHCCCS eliminated PQC for most Medicaid adults.[3-53] This program may introduce confounding effects since impacted beneficiaries may alter their future care-seeking or enrollment and disenrollment decisions. This may bias comparisons between the baseline and evaluation period as the PQC waiver was implemented just prior to the evaluation period. To disentangle the potential effects of the PQC waiver on TI outcomes, the independent evaluator may leverage differential enrollment in TI.

Some TI beneficiaries may be impacted by the introduction of AHCCCS Works, if implemented. This program may introduce confounding effects as impacted beneficiaries may leave Medicaid because of community engagement noncompliance or because they no longer meet the income eligibility requirements for Medicaid. AHCCCS Works only impacts adult Medicaid expansion beneficiaries up to age 49 and will be rolled out in three annual phases based on urbanicity. Once AHCCCS Works is implemented, the independent evaluator may leverage the staged rollout and the differential impact across eligibility and age groups to further disentangle effects of AHCCCS Works and TI.

[3-53] Pregnant women, women who are 60 days or less postpartum, and infants and children under 19 years of age are excluded.

4. Methodology Limitations

Despite the planned rigor of the evaluation, there are several limitations that may impact the ability of the evaluation to attribute changes in performance metrics to the demonstration. One of the primary limitations to this evaluation is the lack of a viable in-state or out-of-state comparison group for many demonstration components. Without a suitable contemporaneous comparison group, changes in rates over time may be either fully or partially attributable to secular trends independent of the demonstration. A viable in-state comparison group is unlikely to be found for the following demonstration components:

- Arizona Health Care Cost Containment System (AHCCCS) Complete Care (ACC)—The ACC program enrolls most adults and children on Medicaid.
- Arizona Long Term Care System (ALTCS)—The ALTCS program covers all eligible Medicaid elderly and/or physically disabled (EPD) or developmental disabilities (DD) beneficiaries.
- Comprehensive Medical and Dental Program (CMDP)—All children in the custody of the Arizona Department of Child Safety (DCS) are covered by CMDP.
- Regional Behavioral Health Authority (RBHA)—virtually all adult Medicaid beneficiaries with an SMI are enrolled with a RBHA.
- Prior Quarter Coverage (PQC)—All non-pregnant or postpartum adults are subject to the waiver.

Another broad limitation relates to the complexity and interaction of the demonstration components among each other, impairing the ability to attribute changes to a specific component as described in the Disentangling Confounding Events section. The PQC waiver confounds several other demonstration components to a different extent. The evaluation for each component can leverage differential timing of the program and the elimination of PQC to help isolate the effect of the on measured outcomes; however, without a counterfactual, any changes (or lack thereof) are not necessarily indicative of effects from the elimination of PQC. There are additional program-specific considerations that should be taken into account.

- ACC—Because PQC was implemented within a year of ACC, rates calculated after ACC implementation may still contain effects from the elimination of PQC.
- ALTCS—With the integration of care occurring three months after elimination of PQC, effects of the integration of care for adult beneficiaries with DD could be challenging to disentangle from the elimination of PQC.
- RBHA—The evaluation of RBHA integration in 2014/2015 may be confounded with the introduction of PQC in January 2014. The independent evaluator can leverage trends from 2012 through the end of the demonstration period to examine the changes associated with the introduction of PQC in 2014 and its removal (via the waiver) in July 2019. Additionally, the PQC impacts may be better isolated by evaluating the integration of RBHA using only 2015 as the baseline period and allowing the PQC implementation to take precedence in 2014.

The following sections discuss the planned approach to addressing these limitations for each demonstration component.

ACC

The ACC plans enroll most adults and children on Medicaid, leaving little to no viability of an in-state comparison group to represent a counterfactual. This limitation restricts the ability to link the program's performance to changes in rates and outcomes. By using national benchmarks as a comparison, it is assumed that Arizona Medicaid beneficiaries enrolled in an ACC are similar to Medicaid beneficiaries nationally. A second, related limitation is that any statewide, Arizona-specific changes external to the ACC program that could have impacted rates between the baseline and evaluation periods would not be adequately controlled for in the difference-in-differences (DiD) approach and could therefore bias results. A third limitation pertains to the DiD statistical testing. Beneficiary-level rates would provide the greatest level of statistical power and granularity. However, if beneficiary-level data cannot be obtained or utilized for a comparison group and instead the comparison group consists of national or regional benchmark data, the level of granularity of the benchmark data will dictate the level of granularity of statistical testing possible. For example, if the independent evaluator has benchmark rates at the plan level, then ACC rates must be calculated at the plan level, reducing its statistical power and introducing information loss through aggregating beneficiary level data to the plan level.

ALTCS

The first major limitation of the proposed evaluation design for the ALTCS is the availability of a comparison group. Due to the unique population of ALTCS beneficiaries, finding an in-state comparison group is very challenging since all eligible Medicaid EPD or DD beneficiaries would receive care through ALTCS—removing any possibility for Medicaid beneficiaries who are elderly and/or with a physical disability or beneficiaries with DD to serve as a counterfactual. A related limitation is that because ALTCS serves such a unique population, it is impossible to compare ALTCS rates to national benchmarks since these are designed to represent the entire Medicaid population as opposed to EPD individuals or individuals with DD. Combined, this leaves only trending rates over time for much of the ALTCS population, or, obtaining comparative data from an out-of-state Medicaid authority. The independent evaluator will need to consider variation across performance measure year specifications since these differences could impact the rate calculation. Also, due to the recent introduction of some performance measures (i.e., measures relating to opioid use), rates might not be available for all years of the evaluation design, limiting the years for which rates can be trended. Trending rates also limit comparability between measurement years since the beneficiary population can vary. The independent evaluator will evaluate the eligibility requirements for analyses in order to perform a robust analysis.

Second, where comparative data is available from an out-of-state comparison group, and especially if those data are aggregate rates, the comparison to this counterfactual will be limited by two factors. First, if beneficiary-level data are not available, then the independent evaluator will not be able to perform any statistical matching or include statistical controls in the DiD models to account for differences in the underlying population characteristics. Additionally, the use of an out-of-state comparison will be limited by the inability to control for systematic differences is the underlying eligibility criteria, concept definitions, and programmatic policies and procedures in the Medicaid system of the comparison state.

CMDP

The first limitation to the CMDP design plan is the availability of a comparison group. Due to the unique needs and specialized care provided to CMDP beneficiaries, finding an in-state comparison group is very challenging. Children in the custody of DCS have designated case workers and care coordinators to ensure CMDP

beneficiaries are receiving timely immunizations, screenings, and check-ups. Therefore, when comparing to in-state non-CMDP beneficiaries these children will have higher rates for certain measures which is not necessarily a reflection of CMDP itself, but rather the unique population it serves. For these reasons, the independent evaluator should prioritize finding an out-of-state comparison group that also contains children in the custody of DCS.

A second limitation related to the use of an out-of-state comparison group is the comparability of that population, the design of the program delivering services to them, and the presence or absence of confounding quality improvement programs. While an out-of-state comparison group can provide a counterfactual design, the granularity of the data available may not allow for strong statistical controls over differences across the populations. Additionally, an independent evaluator is not likely to be able to control for additional quality improvement programs that may impact a comparison group population.

A third limitation is the availability of national benchmarks for this population, again due to the specialized care provided to CMDP beneficiaries, certain rates for this population will be higher or lower due to the unique needs of this population, not the care provided by CMDP. There when comparing to national benchmarks, it is important for the independent evaluation to account for such differences.

PQC

The first limitation of the evaluation design for PQC is that the comparison groups represent a unique challenge for this demonstration, particularly because the waiver affects almost all new members except for pregnant women, women who are 60 days or less postpartum, and infants and children less than 19 years of age. This greatly restricts the feasibility of an in-state comparison group. As a result, many measures listed in Table 3-13 above either do not have a viable comparison group or are contingent on the availability of out of state or aggregate data.

Despite the methodology described in the Disentangling Confounding Events section, there are still limitations in fully isolating changes in rates attributable to the PQC waiver from other events, particularly from the transition to ACC health plans on October 1, 2018. Since this transition impacts most adults (and children) on Medicaid, comparisons to historical AHCCCS rates before ACC for the Acute Care population, who are the majority of beneficiaries in PQC, may be confounded with the transition to ACC. The independent evaluator will identify any individuals impacted by PQC but not ACC to reduce this potential confounding; however, because those exposed to PQC but not ACC are likely to be systematically different (e.g., beneficiaries enrolled in ALTCS or adults with a serious mental illness (SMI) and relatively few in number, confounding effects from ACC may still remain.

Additionally, the waiver will be implemented on July 1, 2019, which is prior to the Centers for Medicare & Medicaid Services' (CMS') review of the evaluation design plan. This will impact the survey baseline data collection since there is no opportunity to collect information about the evaluation prior to implementation directly. The survey can ask new members questions regarding the implementation after it has occurred, but these retrospective questions may introduce recall bias.

RBHA

There are three primary limitations to the proposed RBHA evaluation design. First, the RBHAs enroll all adult Medicaid beneficiaries with an SMI, leaving no viable in-state comparison group to estimate counterfactuals. This limitation restricts the ability to link the program's performance to changes in rates and outcomes. The use of national benchmarks for general Medicaid populations as a comparison group would result in inappropriate

comparisons, as beneficiaries with an SMI differ systematically from the general Medicaid population. No national data could be identified that would provide a reliable and accurate comparison group at the national level. For this reason, no national comparison group can be used to estimate counterfactual results, and thereby determine the causal impacts of the program.

Second, the use of an out-of-state comparison group comprised of aggregated rates from the adult Medicaid population designated with an SMI in another state is limited to the extent that the comparison state uses different criteria from Arizona to designate beneficiaries with an SMI. Additionally, this limitation expands to the extent that the policies and procedures of the Medicaid system in the comparison state do not align with those of Arizona.

TI

The first major limitation to the proposed evaluation design for the Targeted Investments (TI) program is that the comparison groups represent a unique challenge. Because non-TI participating providers could also receive Admission-Discharge-Transfer (ADT) alerts through an executed agreement with Health Current, it is possible the comparison group may receive partial treatment. If the non-TI participating providers act on the information received from the ADT alerts, then the comparison group is ultimately receiving a similar treatment to that of the intervention group, reducing the difference between the two. Currently, there are 520 organizations that are connected through Health Current, suggesting that there will be beneficiaries in the comparison group who are receiving care from non-TI participating providers that may receive the effects of the treatment that the ADT alerts may provide.[4-1]

The length of time between the baseline and the evaluation periods may result in bias due to intervening events external to the TI program. For example, the introduction of ACC in October 1, 2018, may lead to changes in rates that would otherwise be attributed to TI if not adequately controlled for. As discussed in the Disentangling Confounding Events section, the independent evaluator may leverage differential enrollment in TI and ACC to help isolate the effects of TI on outcomes; however, to the extent there is limited differential enrollment among TI members not impacted by ACC, this technique may not reduce this limitation. Additionally, to the extent the intervention group is defined by assignment to providers participating in TI, it is possible these beneficiaries may not choose to see their assigned provider and instead see a non-TI provider. This potential for crossover effects—that is, beneficiaries assigned to a TI participating provider may receive care from non-TI participating providers, and vice versa. The described attribution methodology linking beneficiaries to TI and non-TI providers will serve to reduce or eliminate this limitation.

Another limitation is the nature of the intervention and comparison groups for beneficiaries transitioning from the criminal justice system. The intervention group in this population would only receive the treatment from TI-participating providers during their probation period, which is much less time than the comparison group who can be enrolled in AHCCCS for the entirety of the measurement period. This discrepancy may dilute the impact of the demonstration on relative to the other populations due to the intervention group receiving a lower "dosage" of the intervention.

[4-1] Health Current. What is HIE? Available at: https://healthcurrent.org/hie/what-is-hie/. Accessed on: Aug 19, 2019.

5. Reporting

Following its evaluation of Arizona's 1115 waiver demonstration the independent evaluator will prepare two reports of the findings and how the results relate to each of the research hypotheses. Both the interim evaluation report and the final summative evaluation report will be produced in alignment with the Special Terms and Conditions (STCs) and the schedule of deliverables listed in Table 5-1 (See Appendix C for a detailed timeline.).

Table 5-1: Schedule of Deliverables

Deliverable	Date
Evaluation Design (STC #72)	
AHCCCS submits Evaluation Design Plan to Centers for Medicare & Medicaid Services (CMS)	November 13, 2019
AHCCCS to post Evaluation Design Plan on the State's website for public comment	TBD
AHCCCS to post final approved Evaluation Design Plan on the State's website within 30 days of approval by CMS	TBD
Evaluation Report(s)	
Quarterly: AHCCCS to report progress of Demonstration to CMS (STC #83)	30 days after the quarter
If Demonstration Continued, Interim Evaluation Report (STC #76)	TBD
If Demonstration Ended, Final Summative Evaluation Report (STC #77)	TBD
AHCCCS presentation to CMS on Final Summative Evaluation Report (STC #73)	As Requested

Each evaluation report will present results in a clear, accurate, concise, and timely manner. At minimum, all written reports will include the following nine sections:

1. The **Executive Summary** will concisely state the goals for the Demonstration, presenting the key findings, the context of policy-relevant implications, and recommendations.
2. The **General Background Information about the Demonstration** section will succinctly trace the development of the program from the recognition of need to the present degree of implementation. This section will also include a discussion of the State's implementation of the waiver demonstration along with its successes and challenges.
3. The **Evaluation Questions and Hypotheses** section will focus on programmatic goals and strategies with the research hypotheses and associated evaluation questions.
4. The **Methodology** section will include the evaluation design with the research hypotheses and associated measures, along with the type of study design; targeted and comparison populations and stakeholders; data sources that include data collection field, documents, and collection agreements; and analysis techniques with controls for differences in groups or with other State interventions, including sensitivity analyses when conducted.
5. The **Methodological Limitations** section will be a summary of the evaluation design limitations including its strengths and weaknesses.

6. The **Results** section will be a summary of the key findings and outcomes of each hypothesis and research question.
7. The **Conclusions** section will be a description of the effectiveness and impact of the Demonstration.
8. The **Interpretations, Policy Implications, and Interactions with Other State Initiatives** section will contain the policy-relevant and contextually appropriate interpretations of the conclusions, including the existing and expected impact of the Demonstration within the health care delivery system in Arizona in the context of the implications for state and federal health policy, including the potential for successful strategies to be replicated in other state Medicaid programs. In addition, this section will contain the interrelations between the Demonstration and other aspects of Arizona's Medicaid program, including interactions with other Medicaid waivers and other federal awards affecting service delivery, health outcomes, and the cost of care under Medicaid.
9. The **Lessons Learned and Recommendations** section will discuss the opportunities for revisions to future demonstrations, based on the information collected during the evaluation.

Content of Interim Report

The interim report will be made publicly available prior to the waiver renewal application deadline of December 31, 2020. Due to the abbreviated time for analysis, the interim report will consist of a status update regarding the execution of the evaluation design plan, preliminary analyses of key informant interviews conducted early enough for inclusion in the report, and a detailed and complete analytic plan for the waiver evaluation, including survey administration details (e.g., sampling frame, survey instrument, and sampling strategy to align surveys across programs). The independent evaluator will also provide summary results from the rapid-cycle assessment component of the design plan, as part of the evaluation for Prior Quarter Coverage.

Content of Summative Report

The final summative report will be delivered to CMS within 500 days of the Demonstration end and will contain the full results of all measures described in this evaluation design plan and in the final analytic plan contained in the Interim Report.

Based on State protocols, AHCCCS will follow established policies and procedures to acquire an independent entity or entities to conduct the waiver evaluation. In addition, AHCCCS will ensure that the selected independent evaluator does not have any conflicts of interest and will require the independent evaluator to sign a "No Conflict of Interest" statement.

All reports, including the Evaluation Design Plan, will be posted on the State Website within 30 days of the approval of each document to ensure public access to evaluation documentation and to foster transparency. AHCCCS will notify CMS prior to publishing any results based on the Demonstration evaluation for CMS' review and approval. The reports' appendices will present more granular results and supplemental findings. AHCCCS will work with CMS to ensure the transmission of all required reports and documentation occurs within approved communication protocols.

Arizona Health Care Cost Containment System

Arizona's Section 1115 Waiver Independent Evaluation – Design Plan, Appendices

AHCCCS Complete Care (ACC), Arizona Long Term Care System (ALTCS), Comprehensive Medical and Dental Program (CMDP), Regional Behavioral Health Authority (RBHA), Prior Quarter Coverage (PQC), and Targeted Investments (TI)

July 2020

This program is operated under an 1115 Research and Demonstration Waiver initially approved by the Centers for Medicare & Medicaid Services (CMS) on September 30, 2016

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A. Independent Evaluator

Arizona Health Care Cost Containment System (AHCCCS) will select an independent evaluator with experience and expertise to conduct a scientific and rigorous Medicaid Section 1115 waiver evaluation meeting all the requirements specified in the Special Terms and Conditions (STCs).[A-1] The independent evaluator will be required to have the following qualifications:

- Knowledge of public health programs and policy.
- Experience in health care research and evaluation.
- Understanding of AHCCCS programs and populations.
- Expertise with conducting complex program evaluations.
- Relevant work experience.
- Skills in data management and analytic capacity.
- Medicaid experience and technical knowledge.

Based on State protocols, AHCCCS will follow established policies and procedures to acquire an independent entity or entities to conduct the waiver evaluation. In addition, AHCCCS will ensure that the selected independent evaluator does not have any conflicts of interest and will require the independent evaluator to sign a "No Conflict of Interest" statement.

[A-1] Centers for Medicare & Medicaid Services. Arizona Medicaid Section 1115 Demonstration Special Terms and Conditions. Jan 18, 2017. Available at: https://www.azahcccs.gov/shared/Downloads/News/FORSTATEArizonaAHCCCSSTCAndAuthorities_W_TIPFinal.pdf. Accessed on Jun 20, 2019.

B. Evaluation Budget

Due to the complexity and resource requirements of Arizona's 1115 waiver demonstration, Arizona Health Care Cost Containment System (AHCCCS) will need to conduct a competitive procurement to obtain the services of an independent evaluator to perform the services outlined in this evaluation design. Upon selection of an evaluation vendor, a final budget will be prepared in collaboration with the selected independent evaluator. Table B-1 displays the proposed budget shell that will be used for submitting total costs for the waiver programs.

The costs presented in Table B-1 will include the total estimated cost, as well as a breakdown of estimated staff; administrative and other costs for all aspects of the evaluation, such as any survey and measurement development; quantitative and qualitative data collection and cleaning analyses and report generation. A final budget will be submitted once a final independent evaluator has been selected. The total estimated cost for this evaluation is $2,922,895. The estimate assumes that a single independent evaluator will conduct all required AHCCCS waiver evaluations. The independent evaluator will ensure all activities performed under the waiver evaluation take a synergistic approach and combine efforts, where feasible. The independent evaluator will collaborate with the State's external quality review organization (EQRO) to reduce burden and deduplicate efforts on activities such as the administration of surveys and performance measure calculations. Additionally, the independent evaluator will pool together data across various populations and pool programming code to simplify the effort required to calculate the many overlapping measures across the six AHCCCS programs. The detailed budgets by waiver program are presented below.

Table B-1: Proposed Budget

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 40,956	$ 5,809	$ 5,792	$ -	$ -
Administrative Costs	$ 29,754	$ 4,221	$ 4,208	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 70,710**	**$ 10,030**	**$ 10,000**	**$ -**	**$ -**
Administration					
Staff Costs	$ 64,930	$ 10,362	$ 10,345	$ -	$ -
Administrative Costs	$ 47,170	$ 7,528	$ 7,515	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 112,100**	**$ 17,890**	**$ 17,860**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 40,196	$ 6,533	$ 6,516	$ -	$ -
Administrative Costs	$ 29,204	$ 4,747	$ 4,734	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 69,400**	**$ 11,280**	**$ 11,250**	**$ -**	**$ -**
Administration					

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Staff Costs	$ 48,618	$ 8,120	$ 8,103	$ -	$ -
Administrative Costs	$ 35,322	$ 5,900	$ 5,887	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 83,940**	**$ 14,020**	**$ 13,990**	**$ -**	**$ -**
Member/Beneficiary Surveys					
Instrument Design					
Staff Costs	$ 18,120	$ 14,872	$ -	$ -	$ -
Administrative Costs	$ 13,165	$ 10,808	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 31,285**	**$ 25,680**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 25,724	$ 25,174	$ 8,688	$ -	$ -
Administrative Costs	$ 18,688	$ 18,288	$ 6,312	$ -	$ -
Other Costs	$ 74,003	$ 74,003	$ -	$ -	$ -
Total Costs	**$ 118,415**	**$ 117,465**	**$ 15,000**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 18,548	$ 7,468	$ -	$ -
Administrative Costs	$ -	$ 13,472	$ 5,422	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 32,020**	**$ 12,890**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 63,656	$ 34,890	$ -	$ -
Administrative Costs	$ -	$ 46,244	$ 25,350	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 109,900**	**$ 60,240**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 61,118	$ 177,015	$ 237,518	$ 356,190	$ 14,286
Administrative Costs	$ 44,402	$ 128,605	$ 172,562	$ 258,780	$ 10,374
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 105,520**	**$ 305,620**	**$ 410,080**	**$ 614,970**	**$ 24,660**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 98,962	$ 36,891	$ 9,522	$ 107,859	$ 34,443
Administrative Costs	$ 71,898	$ 26,799	$ 6,918	$ 78,361	$ 25,027

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 170,860**	**$ 63,690**	**$ 16,440**	**$ 186,220**	**$ 59,470**
Total	**$ 762,230**	**$ 707,595**	**$ 567,750**	**$ 801,190**	**$ 84,130**

Table B-2 through Table B-7 present the detailed budgets by waiver program.

Table B-2: Proposed Budget for ACC

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 8,520	$ -	$ -	$ -	$ -
Administrative Costs	$ 6,190	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 14,710**	**$ -**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 11,555	$ -	$ -	$ -	$ -
Administrative Costs	$ 8,395	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 19,950**	**$ -**	**$ -**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 6,516	$ -	$ -	$ -	$ -
Administrative Costs	$ 4,734	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 11,250**	**$ -**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 8,103	$ -	$ -	$ -	$ -
Administrative Costs	$ 5,887	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,990**	**$ -**	**$ -**	**$ -**	**$ -**
Member/Beneficiary Surveys					
Instrument Design					
Staff Costs	$ 4,584	$ 3,718	$ -	$ -	$ -
Administrative Costs	$ 3,331	$ 2,702	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 7,915**	**$ 6,420**	**$ -**	**$ -**	**$ -**
Administration					

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Staff Costs	$ 6,550	$ 6,550	$ 2,896	$ -	$ -
Administrative Costs	$ 4,758	$ 4,758	$ 2,104	$ -	$ -
Other Costs	$ 21,450	$ 21,450	$ -	$ -	$ -
Total Costs	**$ 32,758**	**$ 32,758**	**$ 5,000**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 2,908	$ 1,153	$ -	$ -
Administrative Costs	$ -	$ 2,112	$ 837	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 5,020**	**$ 1,990**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 10,426	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 7,574	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 18,000**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,003	$ 29,319	$ 39,623	$ 59,310	$ 2,381
Administrative Costs	$ 7,267	$ 21,301	$ 28,787	$ 43,090	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 17,270**	**$ 50,620**	**$ 68,410**	**$ 102,400**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,310	$ 5,109	$ -	$ 17,793	$ 5,722
Administrative Costs	$ 11,850	$ 3,711	$ -	$ 12,927	$ 4,158
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 28,160**	**$ 8,820**	**$ -**	**$ 30,720**	**$ 9,880**
Total	**$ 146,003**	**$ 121,638**	**$ 85,440**	**$ 133,120**	**$ 13,990**

Table B-3: Proposed Budget for ALTCS

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 5,902	$ -	$ -	$ -	$ -
Administrative Costs	$ 4,288	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 10,190**	**$ -**	**$ -**	**$ -**	**$ -**

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Administration					
Staff Costs	$ 10,455	$ -	$ -	$ -	$ -
Administrative Costs	$ 7,595	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 18,050**	**$ -**	**$ -**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 6,516	$ -	$ -	$ -	$ -
Administrative Costs	$ 4,734	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 11,250**	**$ -**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 8,103	$ -	$ -	$ -	$ -
Administrative Costs	$ 5,887	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,990**	**$ -**	**$ -**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 2,908	$ 1,153	$ -	$ -
Administrative Costs	$ -	$ 2,112	$ 837	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 5,020**	**$ 1,990**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 10,426	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 7,574	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 18,000**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,003	$ 29,319	$ 39,513	$ 59,310	$ 2,381
Administrative Costs	$ 7,267	$ 21,301	$ 28,707	$ 43,090	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 17,270**	**$ 50,620**	**$ 68,220**	**$ 102,400**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,310	$ 5,109	$ -	$ 17,793	$ 5,722
Administrative Costs	$ 11,850	$ 3,711	$ -	$ 12,927	$ 4,158

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 28,160**	**$ 8,820**	**$ -**	**$ 30,720**	**$ 9,880**
Total	**$ 98,910**	**$ 82,460**	**$ 80,250**	**$ 133,120**	**$ 13,990**

Table B-4: Proposed Budget for CMDP

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 7,727	$ 5,809	$ -	$ -	$ -
Administrative Costs	$ 5,613	$ 4,221	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,340**	**$ 10,030**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 11,555	$ 10,362	$ -	$ -	$ -
Administrative Costs	$ 8,395	$ 7,528	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 19,950**	**$ 17,890**	**$ -**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 6,516	$ 6,533	$ -	$ -	$ -
Administrative Costs	$ 4,734	$ 4,747	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 11,250**	**$ 11,280**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 8,103	$ 8,120	$ -	$ -	$ -
Administrative Costs	$ 5,887	$ 5,900	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,990**	**$ 14,020**	**$ -**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 4,008	$ 1,703	$ -	$ -
Administrative Costs	$ -	$ 2,912	$ 1,237	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 6,920**	**$ 2,940**	**$ -**	**$ -**
Code Development/Execution					

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Staff Costs	$ -	$ 11,526	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 8,374	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 19,900**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,553	$ 30,420	$ 39,513	$ 59,420	$ 2,381
Administrative Costs	$ 7,667	$ 22,100	$ 28,707	$ 43,170	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 18,220**	**$ 52,520**	**$ 68,220**	**$ 102,590**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,861	$ 4,998	$ -	$ 18,894	$ 5,833
Administrative Costs	$ 12,249	$ 3,632	$ -	$ 13,726	$ 4,237
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 29,110**	**$ 8,630**	**$ -**	**$ 32,620**	**$ 10,070**
Total	**$ 105,860**	**$ 141,190**	**$ 81,200**	**$ 135,210**	**$ 14,180**

Table B-5: Proposed Budget for RBHA

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 7,003	$ -	$ -	$ -	$ -
Administrative Costs	$ 5,087	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 12,090**	**$ -**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 10,455	$ -	$ -	$ -	$ -
Administrative Costs	$ 7,595	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 18,050**	**$ -**	**$ -**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 7,616	$ -	$ -	$ -	$ -
Administrative Costs	$ 5,534	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,150**	**$ -**	**$ -**	**$ -**	**$ -**

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Administration					
Staff Costs	$ 8,103	$ -	$ -	$ -	$ -
Administrative Costs	$ 5,887	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,990**	**$ -**	**$ -**	**$ -**	**$ -**
Member/Beneficiary Surveys					
Instrument Design					
Staff Costs	$ 4,512	$ 3,718	$ -	$ -	$ -
Administrative Costs	$ 3,278	$ 2,702	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 7,790**	**$ 6,420**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 7,100	$ 6,550	$ 2,896	$ -	$ -
Administrative Costs	$ 5,158	$ 4,758	$ 2,104	$ -	$ -
Other Costs	$ 21,450	$ 21,450	$ -	$ -	$ -
Total Costs	**$ 33,708**	**$ 32,758**	**$ 5,000**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 2,908	$ 1,153	$ -	$ -
Administrative Costs	$ -	$ 2,112	$ 837	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 5,020**	**$ 1,990**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 10,426	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 7,574	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 18,000**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,553	$ 29,319	$ 39,623	$ 59,420	$ 2,381
Administrative Costs	$ 7,667	$ 21,301	$ 28,787	$ 43,170	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 18,220**	**$ 50,620**	**$ 68,410**	**$ 102,590**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,861	$ 5,109	$ -	$ 17,793	$ 5,722
Administrative Costs	$ 12,249	$ 3,711	$ -	$ 12,927	$ 4,158

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 29,110**	**$ 8,820**	**$ -**	**$ 30,720**	**$ 9,880**
Total	**$ 146,108**	**$ 121,638**	**$ 85,440**	**$ 133,310**	**$ 13,990**

Table B-6: Proposed Budget for PQC

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 5,902	$ -	$ -	$ -	$ -
Administrative Costs	$ 4,288	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 10,190**	**$ -**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 10,455	$ -	$ -	$ -	$ -
Administrative Costs	$ 7,595	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 18,050**	**$ -**	**$ -**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 6,516	$ -	$ -	$ -	$ -
Administrative Costs	$ 4,734	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 11,250**	**$ -**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 8,103	$ -	$ -	$ -	$ -
Administrative Costs	$ 5,887	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,990**	**$ -**	**$ -**	**$ -**	**$ -**
Member/Beneficiary Surveys					
Instrument Design					
Staff Costs	$ 4,512	$ 3,718	$ -	$ -	$ -
Administrative Costs	$ 3,278	$ 2,702	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 7,790**	**$ 6,420**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 5,524	$ 5,524	$ -	$ -	$ -

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Administrative Costs	$ 4,014	$ 4,014	$ -	$ -	$ -
Other Costs	$ 9,653	$ 9,653	$ -	$ -	$ -
Total Costs	**$ 19,191**	**$ 19,191**	**$ -**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 2,908	$ 1,153	$ -	$ -
Administrative Costs	$ -	$ 2,112	$ 837	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 5,020**	**$ 1,990**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 10,426	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 7,574	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 18,000**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,003	$ 29,319	$ 39,623	$ 59,310	$ 2,381
Administrative Costs	$ 7,267	$ 21,301	$ 28,787	$ 43,090	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 17,270**	**$ 50,620**	**$ 68,410**	**$ 102,400**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,310	$ 11,457	$ 9,522	$ 17,793	$ 5,722
Administrative Costs	$ 11,850	$ 8,323	$ 6,918	$ 12,927	$ 4,158
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 28,160**	**$ 19,780**	**$ 16,440**	**$ 30,720**	**$ 9,880**
Total	**$ 125,891**	**$ 119,031**	**$ 96,880**	**$ 133,120**	**$ 13,990**

Table B-7: Proposed Budget for TI

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ 5,902	$ -	$ 5,792	$ -	$ -
Administrative Costs	$ 4,288	$ -	$ 4,208	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 10,190**	**$ -**	**$ 10,000**	**$ -**	**$ -**
Administration					

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Staff Costs	$ 10,455	$ -	$ 10,345	$ -	$ -
Administrative Costs	$ 7,595	$ -	$ 7,515	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 18,050**	**$ -**	**$ 17,860**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ 6,516	$ -	$ 6,516	$ -	$ -
Administrative Costs	$ 4,734	$ -	$ 4,734	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 11,250**	**$ -**	**$ 11,250**	**$ -**	**$ -**
Administration					
Staff Costs	$ 8,103	$ -	$ 8,103	$ -	$ -
Administrative Costs	$ 5,887	$ -	$ 5,887	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 13,990**	**$ -**	**$ 13,990**	**$ -**	**$ -**
Member/Beneficiary Surveys					
Instrument Design					
Staff Costs	$ 4,512	$ 3,718	$ -	$ -	$ -
Administrative Costs	$ 3,278	$ 2,702	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 7,790**	**$ 6,420**	**$ -**	**$ -**	**$ -**
Administration					
Staff Costs	$ 6,550	$ 6,550	$ 2,896	$ -	$ -
Administrative Costs	$ 4,758	$ 4,758	$ 2,104	$ -	$ -
Other Costs	$ 21,450	$ 21,450	$ -	$ -	$ -
Total Costs	**$ 32,758**	**$ 32,758**	**$ 5,000**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 2,908	$ 1,153	$ -	$ -
Administrative Costs	$ -	$ 2,112	$ 837	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 5,020**	**$ 1,990**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 10,426	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 7,574	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -

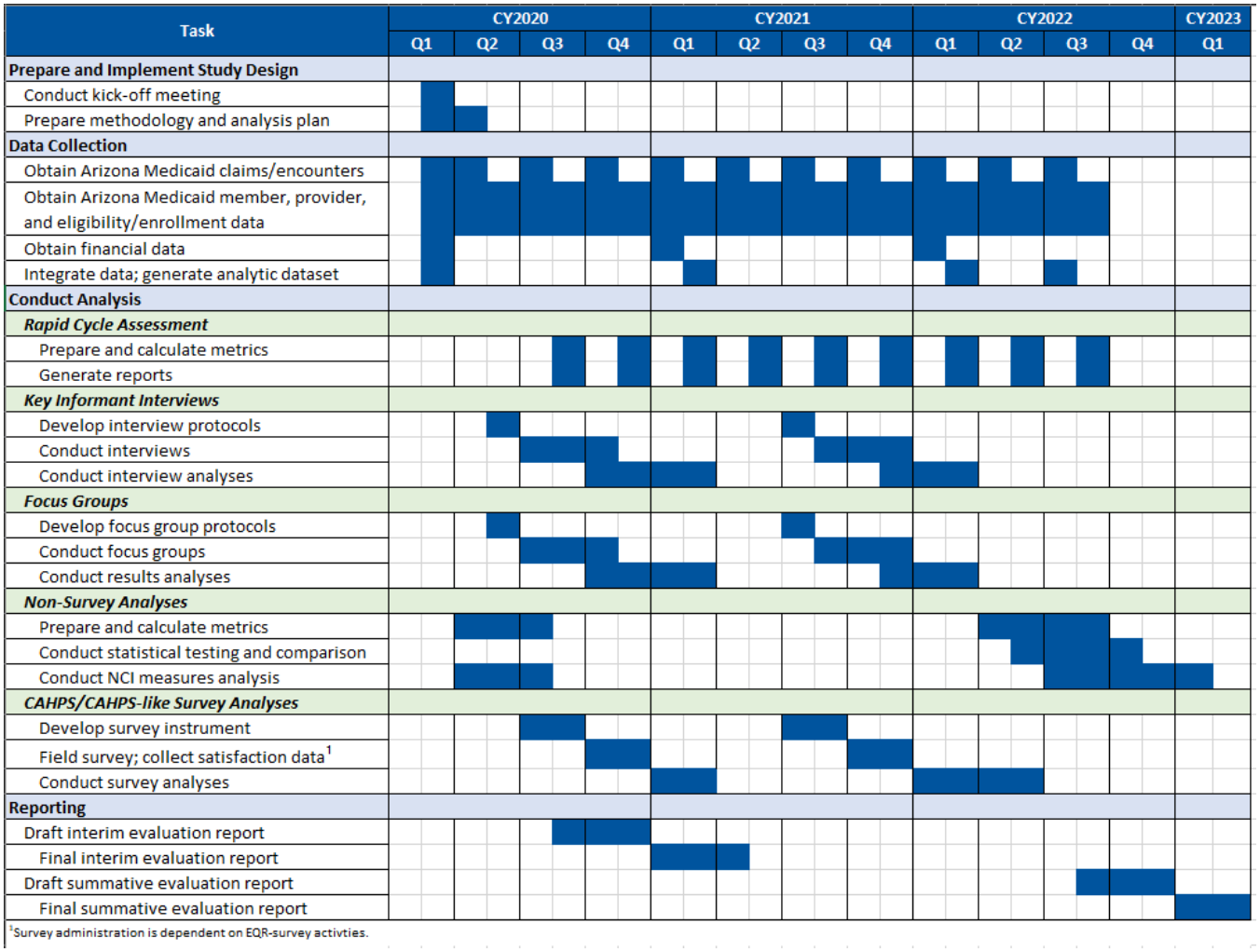
Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Total Costs	**$ -**	**$ 18,000**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,003	$ 29,319	$ 39,623	$ 59,420	$ 2,381
Administrative Costs	$ 7,267	$ 21,301	$ 28,787	$ 43,170	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 17,270**	**$ 50,620**	**$ 68,410**	**$ 102,590**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,310	$ 5,109	$ -	$ 17,793	$ 5,722
Administrative Costs	$ 11,850	$ 3,711	$ -	$ 12,927	$ 4,158
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 28,160**	**$ 8,820**	**$ -**	**$ 30,720**	**$ 9,880**
Total	**$ 139,458**	**$ 121,638**	**$ 138,540**	**$ 133,310**	**$ 13,990**

C. Timeline and Milestones

The following project timeline has been prepared for Arizona's 1115 waiver demonstration evaluation outlined in the preceding sections. This timeline should be considered preliminary and subject to change based upon approval of the Evaluation Design and implementations of the waiver programs. A final detailed timeline will be developed upon selection of the independent evaluator tasked with conducting the evaluation.

Figure C-1 outlines the proposed timeline and tasks for conducting the waiver evaluation.

Figure C-1: Evaluation Project Timeline



Note: Timeline based on approval for the waiver after September 30, 2021.

D. Proposed Measure Specifications

The tables in this section provide the detailed measure specifications for the Arizona Health Care Cost Containment System (AHCCCS) waiver demonstration evaluation.

ACC

Hypothesis 1—Health plans encourage and/or facilitate care coordination among primary care practitioners (PCPs) and behavioral health practitioners.

Research Question 1.1: What care coordination strategies did the plans implement as a result of ACC?

Health Plans' Reported Care Coordination Activities (Measure 1-1)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 1.2: Did the plans encounter barriers to implementing care coordination strategies?

Health Plans' Reported Barriers to Implementing Care Coordination Strategies (Measure 1-2)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 1.3: Did the plans encounter barriers not related specifically to implementing care coordination strategies during the transition to ACC?

Health Plans' Reported Barriers Not Related Specifically to Implementing Care Coordination Strategies During the Transition to ACC (Measure 1-3)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A

Health Plans' Reported Barriers Not Related Specifically to Implementing Care Coordination Strategies During the Transition to ACC (Measure 1-3)	
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 1.4: Did AHCCCS encounter barriers related to the transition to ACC?

AHCCCS' Reported Barriers Before, During, and Shortly Following the Transition to ACC (Measure 1-4)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 1.5: Did providers encounter barriers related to the transition to ACC?

Providers' Reported Barriers Before, During, and Shortly Following the Transition to ACC (Measure 1-5)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Provider Focus Groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 1.6: Do beneficiaries perceive their doctors to have better care coordination as a result of ACC?

Percentage of Beneficiaries Who Reported Their Doctor Seemed Informed about the Care They Received from Other Health Providers (Measure 1-6)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating their personal doctor seemed informed about the care they received from other health providers Denominator: Number of respondents to survey question regarding whether their doctor seemed informed about the care they received from other health providers
Comparison Population	National/regional benchmarks
Measure Steward	National Committee for Quality Assurance (NCQA)
CAHPS Question	Child: In the last 6 months, how often did your child's personal doctor seem informed and up-to-date about the care your child got from these doctors or other health providers?

Percentage of Beneficiaries Who Reported Their Doctor Seemed Informed about the Care They Received from Other Health Providers (Measure 1-6)	
	Adult: In the last 6 months, how often did your personal doctor seem informed and up-to-date about the care you got from these doctors or other health providers?
Data Source	• Beneficiary survey • National/regional benchmarks
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Hypothesis 2—Access to care will maintain or improve as a result of the integration of behavioral and physical care.

Research Question 2.1: Do beneficiaries enrolled in an ACC plan have the same or better access to primary care services compared to prior to integrated care?

Percentage of Adults Who Accessed Preventive/Ambulatory Health Services (Measure 2-1)	
Numerator/Denominator	Numerator: Number of beneficiaries with an ambulatory or preventive care visit Denominator: Number of beneficiaries 20 years and older
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Adults' Access to Preventive/Ambulatory Health Services (AAP)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Children and Adolescents Who Accessed PCPs (Measure 2-2)	
Numerator/Denominator	Numerator: One or more visits with a PCP during the measurement year for beneficiaries 1-6 years of age. One or more visits with a PCP during the measurement year or the year prior for beneficiaries 7-19 years of age Denominator: beneficiaries 1-19 years of age with continuous enrollment of: • The measurement year for beneficiaries 1-6 years of age with no more than one gap in enrollment of up to 45 days • The measurement year and the year prior for beneficiaries 7-19 years of age with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment
Comparison Population	National/regional benchmarks

Percentage of Children and Adolescents Who Accessed PCPs (Measure 2-2)	
Measure Steward	CMS Child Core Set
Measure Name	Children and Adolescents' Access to Primary Care Practitioners
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Beneficiaries under 21 with an Annual Dental Visit (Measure 2-3)	
Numerator/Denominator	Numerator: One or more dental visits with a dental practitioner during the measurement year. Any visit with a dental practitioner during the measurement year meets criteria Denominator: beneficiaries 2–20 years of age continuously enrolled during the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Annual Dental Visit (ADV)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries Who Reported They Received Care as Soon as They Needed (Measure 2-4)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get needed care right away Denominator: Number of respondents to getting needed care survey question
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: In the last 6 months, when your child needed care right away, how often did your child get care as soon as he or she needed? Adult: In the last 6 months, when you needed care right away, how often did you get care as soon as you needed?
Data Source	• Beneficiary survey • National/regional benchmarks

Percentage of Beneficiaries Who Reported They Received Care as Soon as They Needed (Measure 2-4)	
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries Who Reported They Were Able to Schedule an Appointment for a Checkup or Routine Care at a Doctor's Office or Clinic as Soon as They Needed (Measure 2-5)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get an appointment for routine care as soon as they needed Denominator: Number of respondents to getting appointment for routine care survey question
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: In the last 6 months, when you made an appointment for a check-up or routine care for your child at a doctor's office or clinic, how often did you get an appointment as soon as your child needed? Adult: In the last 6 months, how often did you get an appointment for a check-up or routine care at a doctor's office or clinic as soon as you needed?
Data Source	• Beneficiary survey • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries Who Reported They Were Able to Schedule an Appointment with a Specialist as Soon as They Needed (Measure 2-6)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get an appointment with a specialist as soon as they needed Denominator: Number of respondents to getting appointment with a specialist survey question
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: In the last six months, how often did you get an appointment for your child to see a specialist as soon as you needed? Adult: In the last six months, how often did you get an appointment to see a specialist as soon as you needed?
Data Source	• Beneficiary survey • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences

Percentage of Beneficiaries Who Reported They Were Able to Schedule an Appointment with a Specialist as Soon as They Needed (Measure 2-6)	
	• Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Research Question 2.2: Do beneficiaries enrolled in an ACC plan have the same or better access to substance abuse treatment compared to prior to integrated care?

Percentage of Beneficiaries Who Had Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 2-7)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode Denominator: Number of beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis and 60 days continuous enrollment prior to the episode and 48 days after the index episode.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment: Initiation of AOD Treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries Who Had Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 2-8)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode and two or more engagement episodes within 34 days of the initiation episode Denominator: Number of beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis and 60 days continuous enrollment prior to the episode and 48 days after the index episode.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment: Engagement of AOD Treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks

Percentage of Beneficiaries Who Had Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 2-8)	
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Hypothesis 3—Quality of care will maintain or improve as a result of the integration of behavioral and physical care.

Research Question 3.1: Do beneficiaries enrolled in an ACC plan have the same or higher rates of preventive or wellness services compared to prior to integrated care?

Percentage of Beneficiaries with a Well-Child Visit in the First 15 Months of Life (Measure 3-1)	
Numerator/Denominator	Numerator: Number of beneficiaries who turned 15 months old during the measurement year and had at least one well-child visit Denominator: Number of beneficiaries who turned 15 months old during the measurement year and continuous enrollment from 31 days to 15 months and continuously enrolled with no more than one gap in enrollment of up to 45 days during the continuous enrollment period
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child Core Set
Measure Name	Well-Child Visits in the First 15 Months of Life (W15)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Beneficiaries with a Well-Child Visits in the Third, Fourth, Fifth, and Sixth Years of Life (Measure 3-2)	
Numerator/Denominator	Numerator: Number of beneficiaries with at least one well-child visit with a PCP during the measurement year Denominator: Number of beneficiaries 3-6 years of age and continuously enrolled with no more than one gap in enrollment of up to 45 days during the measurement year
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child Core Set
Measure Name	Well-Child Visits in the Third, Fourth, Fifth and Sixth Years of Life (W34)
Data Source	• State eligibility and enrollment data • Claims/encounter data

Percentage of Beneficiaries with a Well-Child Visits in the Third, Fourth, Fifth, and Sixth Years of Life (Measure 3-2)	
	• National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Beneficiaries with an Adolescent Well-Care Visit (Measure 3-3)	
Numerator/Denominator	Numerator: Number of beneficiaries with at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year Denominator: Number of beneficiaries aged 12-21 and continuously enrolled with no more than one gap of up to 45 days during the measurement year
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child Core Set
Measure Name	Adolescent Well-Care Visits (AWC)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Children Two Years of Age with Appropriate Immunization Status (Measure 3-4)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had: four diphtheria, tetanus and acellular pertussis (DTaP); three polio (IPV); one measles, mumps and rubella (MMR); three haemophilus influenza type B (HiB); three hepatitis B (HepB), one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza (flu) vaccines by their second birthday. The measure calculates a rate for each vaccine and nine separate combination rates. Denominator: Number of children who turn 2 years of age during the measurement year.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child Core Set
Measure Name	Childhood Immunization Status
Data Source	• State eligibility and enrollment data • Arizona State Immunization Information System
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Adolescents 13 Years of Age with Appropriate Immunizations (Measure 3-5)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had: one dose of meningococcal vaccine, one tetanus, diphtheria toxoids and acellular pertussis (Tdap) vaccine, and have completed the human papillomavirus (HPV) vaccine series by their 13th birthday. The measure calculates a rate for each vaccine and two combination rates. Denominator: Number of adolescents 13 years of age.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child Core Set
Measure Name	Immunizations for Adolescents
Data Source	• State eligibility and enrollment data • Arizona State Immunization Information System
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Adult Beneficiaries Who Reported Having a Flu Shot or Nasal Flu Spray Since July 1 (Measure 3-6)	
Numerator/Denominator	Numerator: Number of beneficiaries stating they had a flu shot or nasal flu spray since July 1 Denominator: Number of respondents to survey question about flu shot or spray
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: N/A Adult: Have you had either a flu shot or flu spray in the nose since July 1, <year>?
Data Source	• Beneficiary survey • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Research Question 3.2: Do beneficiaries enrolled in an ACC plan have the same or better management of chronic conditions compared to prior to integrated care?

Percentage of Beneficiaries with Persistent Asthma Who Had a Ratio of Controller Medications to Total Asthma Medications of at least 50 Percent (Measure 3-7)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had a ratio of controller medications to total asthma medications of 0.50 or greater Denominator: Number of beneficiaries aged 5-64 who were identified as having persistent asthma who were continuously enrolled during the measurement year and the year prior to the measurement year with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment

Percentage of Beneficiaries with Persistent Asthma Who Had a Ratio of Controller Medications to Total Asthma Medications of at least 50 Percent (Measure 3-7)	
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child and Adult Core Set
Measure Name	Asthma Medication Ratio (AMR)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Research Question 3.3: Do beneficiaries enrolled in an ACC plan have the same or better management of behavioral health conditions compared to prior to integrated care?

Percentage of Adult Beneficiaries Who Remained on an Antidepressant Medication Treatment (Measure 3-8)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who remained on an antidepressant medication treatment for: 1) at least 84 days, and 2) at least 180 days Denominator: Number of beneficiaries aged 18 and older who were treated with antidepressant medication and had a diagnosis of major depression who were continuously enrolled from 105 days prior to the index prescription start date (IPSD) through 231 days after the IPSD with no more than one gap in enrollment of up to 45 days during the continuous enrollment period
Comparison Population	National/regional benchmarks
Measure Steward	CMS Adult Core Set
Measure Name	Antidepressant Medication Management (AMM)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Beneficiaries with a Follow-up Visit After Hospitalization for Mental Illness (Measure 3-9)	
Numerator/Denominator	Numerator: Number of beneficiaries with a discharge for mental illness and a follow-up visit with a mental health practitioner within 7 days after discharge Denominator: Number of beneficiaries 6 years of age or older who were hospitalized for treatment of selected mental illness or intentional self-harm with continuous enrollment 30 days after discharge
Comparison Population	National/regional benchmarks

Percentage of Beneficiaries with a Follow-up Visit After Hospitalization for Mental Illness (Measure 3-9)	
Measure Steward	CMS Child & Adult Core Set
Measure Name	Follow-Up After Hospitalization for Mental Illness (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries with a Follow-up Visit After Emergency Department (ED) Visit for Mental Illness (Measure 3-10)	
Numerator/Denominator	Numerator: Number of ED visits in the denominator with a follow-up visit for mental illness within 7 days of the ED visit. Denominator: Number of ED visits for beneficiaries 6 years of age and older with a principal diagnosis of mental illness or intentional self-harm with continuous enrollment from the date of the ED visit through 30 days after the ED visit
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Follow-Up After Emergency Department Visit for Mental Illness (FUM)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries with a Follow-up Visit After ED Visit for Alcohol and Other Drug Abuse or Dependence (Measure 3-11)	
Numerator/Denominator	Numerator: Number of ED visits in the denominator with a follow-up visit for alcohol or other drug (AOD) abuse within 7 days of the ED visit. Denominator: Number of ED visits for beneficiaries 13 years of age and older with a principal diagnosis of AOD abuse or dependence and continuously enrolled from the date of the ED visit through 30 days after the ED visit
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Follow-Up After ED Visit for Alcohol and Other Drug Abuse or Dependence (FUH)
Data Source	• State eligibility and enrollment data

Percentage of Beneficiaries with a Follow-up Visit After ED Visit for Alcohol and Other Drug Abuse or Dependence (Measure 3-11)	
	• Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries with a Screening for Clinical Depression and Follow-up Plan (Measure 3-12)	
Numerator/Denominator	Numerator: Number of beneficiaries age 12 and older with a positive screen and follow-up plan documented. Denominator: Number of beneficiaries age 12 and older screened for depression
Comparison Population	National/regional benchmarks
Measure Steward	CMS Child & Adult Core Set
Measure Name	Screening for Depression and Follow-Up Plan (CDF)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries Receiving Mental Health Services (inpatient, intensive outpatient or partial hospitalization, outpatient, ED, or telehealth) (Measure 3-13)	
Numerator/Denominator	Numerator: Number of beneficiaries utilizing mental health services Denominator: Number of member months, divided by 12
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Mental Health Utilization (MPT)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	N/A
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks

Percentage of Beneficiaries Receiving Mental Health Services (inpatient, intensive outpatient or partial hospitalization, outpatient, ED, or telehealth) (Measure 3-13)	
	• Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Research Question 3.4: Do beneficiaries enrolled in an ACC plan have the same or better management of opioid prescriptions compared to prior to integrated care?

Percentage of Adult Beneficiaries Who Have a Prescription for Opioids at High Dosage (Measure 3-14)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who received prescriptions for opioids with an average daily dosage greater than or equal to 90 morphine milligram equivalents (MME) over a period of 90 days or more. Denominator: Number of beneficiaries age 18 and older with two or more prescriptions for opioids on different days with a cumulative days' supply of 15 or more.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Adult Core Set
Measure Name	Use of Opioids at High Dosage in Persons Without Cancer (OHD)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Percentage of Adult Beneficiaries with a Concurrent Use of Opioids and Benzodiazepines (Measure 3-15)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator with concurrent use of prescription opioids and benzodiazepines. Denominator: Number of beneficiaries age 18 and older with 2 or more prescriptions for opioids on different days with a cumulative days' supply of 15 or more.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Adult Core Set
Measure Name	Concurrent Use of Opioids and Benzodiazepines (COB)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Research Question 3.5: Do beneficiaries enrolled in an ACC plan have equal or lower ED or hospital utilization compared to prior to ACC?

Number of ED Visits per 1,000 Member Months (Measure 3-16)	
Numerator/Denominator	Numerator: Number of ED Visits. Denominator: Number of member months, divided by 1,000.
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Ambulatory Care (AMB): ED Visits
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	N/A
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Number of Inpatient Stays per 1,000 Member Months (Measure 3-17)	
Numerator/Denominator	Numerator: Number of total inpatient stays. Denominator: Number of member months, divided by 1,000.
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
Measure Name	Inpatient Utilization—General Hospital/Acute Care (IPU)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	N/A
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Adult Inpatient Discharges with an Unplanned Readmission within 30 Days (Measure 3-18)	
Numerator/Denominator	Numerator: Number of acute inpatient stays in the denominator followed by an unplanned acute readmission within 30 days. Denominator: Number of acute inpatient stays for beneficiaries aged 18 to 64.
Comparison Population	National/regional benchmarks
Measure Steward	CMS Adult Core Set

Percentage of Adult Inpatient Discharges with an Unplanned Readmission within 30 Days (Measure 3-18)	
Measure Name	Plan All-Cause Readmissions (PCR)
Data Source	• State eligibility and enrollment data • Claims/encounter data • National/regional benchmarks
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Hypothesis 4—Beneficiary self-assessed health outcomes will maintain or improve as a result of the integration of behavioral and physical care.

Research Question 4.1: Do beneficiaries enrolled in an ACC plan have the same or higher overall health rating compared to prior to integrated care?

Percentage of Beneficiaries Who Reported a High Rating of Overall Health (Measure 4-1)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of overall health Denominator: Number of respondents to survey question regarding overall health
Comparison Population	National/regional benchmarks; Out-of-state comparison
Measure Steward	NCQA
CAHPS Question	Child: In general, how would you rate your child's overall health? Adult: In general, how would you rate your overall health?
Data Source	• Beneficiary Survey • National/regional benchmarks • BRFSS
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Research Question 4.2: Do beneficiaries enrolled in an ACC plan have the same or higher overall mental or emotional health rating compared to prior to integrated care?

Percentage of Beneficiaries Who Reported a High Rating of Overall Mental or Emotional Health (Measure 4-2)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of mental or emotional health Denominator: Number of respondents to survey question regarding mental or emotional health
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: In general, how would you rate your child's overall mental or emotional health?

Percentage of Beneficiaries Who Reported a High Rating of Overall Mental or Emotional Health (Measure 4-2)	
	Adult: In general, how would you rate your overall mental or emotional health?
Data Source	• Beneficiary Survey • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Hypothesis 5—Beneficiary satisfaction with their health care will maintain or improve as a result of the integration of behavioral and physical care.

Research Question 5.1: Are beneficiaries equally or more satisfied with their health care as a result of integrated care?

Percentage of Beneficiaries Who Reported a High Rating of Health Plan (Measure 5-1)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of their health plan Denominator: Number of respondents to survey question regarding satisfaction of health plan
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: Using any number from 0 to 10, where 0 is the worst health plan possible and 10 is the best health plan possible, what number would you use to rate your child's health plan? Adult: Using any number from 0 to 10, where 0 is the worst health plan possible and 10 is the best health plan possible, what number would you use to rate your health plan?
Data Source	• Beneficiary Survey • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

Percentage of Beneficiaries Who Reported a High Rating of Overall Health care (Measure 5-2)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of their overall health care Denominator: Number of respondents to survey question regarding satisfaction of overall health care
Comparison Population	National/regional benchmarks
Measure Steward	NCQA
CAHPS Question	Child: Using any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible, what number would you use to rate all your child's health care in the last 6 months?

Percentage of Beneficiaries Who Reported a High Rating of Overall Health care (Measure 5-2)	
	Adult: Using any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible, what number would you use to rate all your health care in the last 6 months?
Data Source	• Beneficiary Survey • National/regional benchmarks
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national/regional benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test • Subgroup analysis of children and adults

ALTCS

Hypothesis 1—Access to care will maintain or improve over the waiver demonstration period.

Research Question 1.1: Do adult beneficiaries who are elderly and/or with a physical disability and adult beneficiaries with developmental disabilities (DD) have the same or higher rates of access to care compared to compared to baseline rates and out-of-state comparisons?

Percentage of Beneficiaries Who Accessed Preventive/Ambulatory Health Services (Measure 1-1)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries with an ambulatory or preventive care visit Denominator: Number of beneficiaries 20 years and older continuously enrolled throughout the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Out-of-State Comparison
Measure Steward	National Committee for Quality Assurance (NCQA)
Measure Name	Adults' Access to Preventive/Ambulatory Health Services (AAP)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 1.2: Do child beneficiaries with DD have the same or higher rates of access to care compared to baseline rates and out-of-state comparisons?

Percentage of Children and Adolescents Who Accessed Primary Care Practitioners (Measure 1-2)	
Evaluation Population	Beneficiaries with DD
Age Group	Children
Numerator/Denominator	Numerator: One or more visits with a primary care practitioner (PCP) during the measurement year for beneficiaries 1-6 years of age. One or more visits with a PCP during the measurement year or the year prior for beneficiaries 7-19 years of age Denominator: Beneficiaries 1-19 years of age with continuous enrollment of: • The measurement year for beneficiaries 1-6 years of age with no more than one gap in enrollment of up to 45 days • The measurement year and the year prior for beneficiaries 7-19 years of age with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment
Comparison Population	Out-of-State Comparisons
Measure Steward	Centers for Medicare & Medicaid Services (CMS) Child Core Set
Measure Name	Children and Adolescents' Access to Primary Care Practitioners (CAP)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries Under 21 with an Annual Dental Visit (Measure 1-3)	
Evaluation Population	Beneficiaries with DD
Age Group	Children
Numerator/Denominator	Numerator: One or more dental visits with a dental practitioner during the measurement year. Any visit with a dental practitioner during the measurement year meets criteria Denominator: Beneficiaries 2–20 years of age continuously enrolled during the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Annual Dental Visit (ADV)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 1.3: Do adult beneficiaries with DD have the same or improved rates of access to care as a result of the integration of care for beneficiaries with DD?

Percentage of Beneficiaries Who Have a Primary Care Doctor or Practitioner (Measure 1-4)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they do have a primary care doctor or practitioner Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from National Core Indicator (NCI) survey in other states
Measure Steward	NCI
Measure Name	Has a primary care doctor or practitioner
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences

Percentage of Beneficiaries Who Had a Complete Physical Exam in the Past Year (Measure 1-5)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they had a physical exam in the past year Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Had a complete physical exam in the past year
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Percentage of Beneficiaries Who Had a Dental Exam in the Past Year (Measure 1-6)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they had a dental exam in the past year Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Had a dental exam in the past year

Percentage of Beneficiaries Who Had a Dental Exam in the Past Year (Measure 1-6)	
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Percentage of Beneficiaries Who Had an Eye Exam in the Past Year (Measure 1-7)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they had an eye exam in the past year Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Had an eye exam in the past year
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Percentage of Beneficiaries Who Had an Influenza Vaccine in the Past Year (Measure 1-8)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they had a flu vaccine in the past year Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Had a flu vaccine in the past year
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Hypothesis 2—Quality of care will maintain or improve over the wavier demonstration period.

Research Question 2.1: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or higher rates of preventative care compared to baseline rates and out-of-state comparisons?

Percentage of Adult Beneficiaries with a Breast Cancer Screening (Measure 2-1)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had one or more mammograms in the measurement period Denominator: Number of women aged 52 to 74 continuously enrolled from October 1 two years prior to the measurement year through December 31 of the measurement year with no more than one gap in enrollment of up to 45 days for each full calendar year of continuous enrollment
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Breast Cancer Screening (BCS)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Adult Beneficiaries with a Cervical Cancer Screening (Measure 2-2)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had cervical cytology in the measurement period Denominator: Number of women aged 21 to 64
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Cervical Cancer Screening (CCS)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with Persistent Asthma Who had a Ratio of Controller Medications to Total Asthma Medications of at least 50 Percent (Measure 2-3)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had a ratio of controller medications to total asthma medications of 0.50 or greater

Percentage of Beneficiaries with Persistent Asthma Who had a Ratio of Controller Medications to Total Asthma Medications of at least 50 Percent (Measure 2-3)	
	Denominator: Number of beneficiaries aged 5-64 who were identified as having persistent asthma who were continuously enrolled during the measurement year and the year prior to the measurement year with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Child and Adult Core Sets
Measure Name	Asthma Medication Ratio (AMR)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 2.2: Do child beneficiaries with DD have the same or higher rates of preventative care compared to baseline rates and out-of-state comparisons?

Percentage of Beneficiaries with Well-Child Visits in the Third, Fourth, Fifth, and Sixth Years of Life (Measure 2-4)	
Evaluation Population	Beneficiaries with DD
Age Group	Children
Numerator/Denominator	Numerator: Number of beneficiaries with at least one well-child visit with a PCP during the measurement year Denominator: Number of beneficiaries 3-6 years of age and continuously enrolled with no more than one gap in enrollment of up to 45 days during the measurement year
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Child Core Set
Measure Name	Well-Child Visits in the Third, Fourth, Fifth and Sixth Years of Life (W34)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with an Adolescent Well-Care Visit (Measure 2-5)	
Evaluation Population	Beneficiaries with DD
Age Group	Children
Numerator/Denominator	Numerator: Number of beneficiaries with at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year

Percentage of Beneficiaries with an Adolescent Well-Care Visit (Measure 2-5)	
	Denominator: Number of beneficiaries aged 12-21 and continuously enrolled during the measurement year with no more than one gap of up to 45 days
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Child Core Set
Measure Name	Adolescent Well-Care Visits (AWC)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with an Influenza Vaccine (Measure 2-6)	
Evaluation Population	Beneficiaries with DD
Age Group	Children
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had an influenza vaccine during the measurement year Denominator: Number of beneficiaries aged 18 and younger
Comparison Population	N/A
Measure Steward	N/A
Data Source	• State eligibility and enrollment data • Arizona State Immunization Information System
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Research Question 2.3: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or better management of behavioral health conditions compared to baseline rates and out-of-state comparisons?

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 2-7)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator and a follow-up visit with a mental health practitioner within 7 days after discharge Denominator: Number of beneficiaries 6 years of age or older who were hospitalized for treatment of selected mental illness or intentional self-harm with continuous enrollment 30 days after discharge
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Child and Adult Core Sets

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 2-7)	
Measure Name	Follow-Up After Hospitalization for Mental Illness (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Adult Beneficiaries Who Remained on an Antidepressant Medication Treatment (Measure 2-8)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who remained on an antidepressant medication treatment for: 1) at least 84 days, and 2) at least 180 days Denominator: Number of beneficiaries aged 18 and older who were treated with antidepressant medication and had a diagnosis of major depression who were continuously enrolled from 105 days prior to the index prescription start date (IPSD) through 231 days after the IPSD with no more than one gap in enrollment of up to 45 days during the continuous enrollment period
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Antidepressant Medication Management (AMM)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with a Screening for Depression and Follow-Up Plan (Measure 2-9)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of beneficiaries age 12 and older with a positive screen and follow-up plan documented Denominator: Number of beneficiaries age 12 and older screened for depression using and agree appropriate standardized depression tool
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Child and Adult Core Sets
Measure Name	Screening for Depression and Follow-Up Plan (CDF)
Data Source	• State eligibility and enrollment data • Claims/encounter data

Percentage of Beneficiaries with a Screening for Depression and Follow-Up Plan (Measure 2-9)	
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries Receiving Mental Health Services (Inpatient, Intensive Outpatient or Partial Hospitalization, Outpatient, Emergency Department [ED], or Telehealth) (Measure 2-10)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of beneficiaries utilizing mental health services Denominator: Number of member months, divided by 12
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Mental Health Utilization (MPT)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 2.4: Do adult beneficiaries who are elderly and/or with a physical disability and adult beneficiaries with DD have the same or better management of prescriptions compared to baseline rates and out-of-state comparisons?

Percentage of Adult Beneficiaries with Monitoring for Persistent Medications (Measure 2-11)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had at least one therapeutic monitoring test in the measurement period Denominator: Number of beneficiaries aged 18 and older who received at least 180 treatment days of ambulatory medication in the measurement period continuously enrolled in the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Annual Monitoring for Patients on Persistent Medications (MPM)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis

Percentage of Adult Beneficiaries with Monitoring for Persistent Medications (Measure 2-11)	
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with Opioid Use at High Dosage (Measure 2-12)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who received prescriptions for opioids with an average daily dosage greater than or equal to 90 morphine milligram equivalents (MME) over a period of 90 days or more Denominator: Number of beneficiaries age 18 and older with two or more prescriptions for opioids on different days with a cumulative days' supply of 15 or more with continuous enrollment during the measurement year with no more than one gap of up to 31 days
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Use of Opioids at High Dosage in Persons Without Cancer (OHD)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or a decrease in the rate supports the hypothesis Integration evaluation: no change or a decrease in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-Differences

Percentage of Beneficiaries with a Concurrent Use of Opioids and Benzodiazepines (Measure 2-13)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator with concurrent use of prescription opioids and benzodiazepines Denominator: Number of beneficiaries age 18 and older with 2 or more prescriptions for opioids on different days with a cumulative days' supply of 15 or more with continuous enrollment during the measurement year with no more than one gap of up to 31 days
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Concurrent Use of Opioids and Benzodiazepines (COB)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or a decrease in the rate supports the hypothesis Integration evaluation: no change or a decrease in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 2.5: Do beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD have the same or higher rates of utilization of care compared to baseline rates and out-of-state comparisons?

Number of ED Visits Per 1,000 Member Months (Measure 2-14)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of ED visits Denominator: Number of member months, divided by 1,000
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Child Code Set and NCQA
Measure Name	Ambulatory Care (AMB): ED Visits
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Number of Inpatient Stays Per 1,000 Member Months (Measure 2-15)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of total inpatient stays Denominator: Number of member months, divided by 1,000
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Inpatient Utilization—General Hospital/Acute Care (IPU)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Adult Inpatient Discharges with an Unplanned Readmission within 30 Days (Measure 2-16)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of acute inpatient stays in the denominator followed by an unplanned acute readmission within 30 days Denominator: Number of acute inpatient stays for beneficiaries aged 18 to 64

Percentage of Adult Inpatient Discharges with an Unplanned Readmission within 30 Days (Measure 2-16)	
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Plan All-Cause Readmissions (PCR)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	Renewal evaluation: no change or a decrease in the rate supports the hypothesis Integration evaluation: no change or a decrease in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-Differences

Hypothesis 3—Quality of life for beneficiaries will maintain or improve over the waiver demonstration period.

Research Question 3.1: Do beneficiaries have the same or higher rates of living in their own home as a result of the ALTCS waiver renewal?

Percentage of Beneficiaries Residing in Their Own Home (Measure 3-1)	
Evaluation Population	Beneficiaries who are elderly and/or with a physical disability and beneficiaries with DD
Age Group	Children and Adults
Numerator/Denominator	Numerator: Number of AHCCCS beneficiaries who live in their own home Denominator: AHCCCS beneficiaries
Comparison Population	N/A
Measure Steward	Arizona Health Care Cost Containment System (AHCCCS)
Data Source	• Prepaid Medical Management Information System (PMMIS) • AHCCCS Customer Eligibility (ACE)
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Type of Residence for Adult Beneficiaries with DD (Measure 3-2)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they reside in their own home Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Type of Residence
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis

Type of Residence for Adult Beneficiaries with DD (Measure 3-2)	
	Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Research Question 3.2: Do adult beneficiaries have the same or higher rates of feeling satisfied with their living arrangements as a result of the integration of care for beneficiaries with DD?

Percentage of Beneficiaries Who Want to Live Somewhere Else (Measure 3-3)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they want to live somewhere else Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Wants to live somewhere else
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Percentage of Beneficiaries Who Believe Services and Supports Help Them Live a Good Life (Measure 3-4)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated services and supports help them live a good life Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Services and supports help the person live a good life
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Research Question 3.3: Do adult beneficiaries have the same or higher rates of feeling engaged as a result of the integration of care for beneficiaries with DD?

Percentage of Beneficiaries Able to Go Out and Do Things S/He Likes to Do in the Community (Measure 3-5)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they are able to go out and do things in the community Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Able to go out and do the things s/he like to do in the community
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Percentage of Beneficiaries Who Have Friends Who are Not Staff or Family Members (Measure 3-6)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they have friends who are not staff or family members Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Has friends who are not staff or family members
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Percentage of Beneficiaries Who Decide or Has Input in Deciding Their Daily Schedule (Measure 3-7)	
Evaluation Population	Beneficiaries with DD
Age Group	Adults
Numerator/Denominator	Numerator: Number of respondents to NCI survey who indicated they have input in deciding their daily schedule Denominator: Number of respondents to NCI survey
Comparison Population	Respondents from NCI survey in other states
Measure Steward	NCI
Measure Name	Decides or has input in deciding daily schedule

Percentage of Beneficiaries Who Decide or Has Input in Deciding Their Daily Schedule (Measure 3-7)	
Data Source	NCI survey
Desired Direction	Renewal evaluation: no change or an increase in the rate supports the hypothesis Integration evaluation: no change or an increase in the rate supports the hypothesis
Analytic Approach	Difference-in-differences

Hypothesis 4—ALTCS encourages and/or facilitates care coordination among PCPs and behavioral health practitioners.

Research Question 4.1: Did Department of Economic Security/Division of Developmental Disabilities (DES/DDD) or its contracted plans encounter barriers during the integration of care for beneficiaries with DD?

DES/DDD and Its Contracted Plans' Barriers During Transition (Measure 4-1)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews with AHCCCS, DES/DDD, and plans
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 4.2: What care coordination strategies did DES/DDD and its contracted plans implement as a result of integration of care?

DES/DDD and Its Contracted Plans' Care Coordination Activities (Measure 4-2)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews with AHCCCS, DES/DDD, and plans
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 4.3: Did DES/DDD or its contracted plans encounter barriers to implementing care coordination strategies?

DES/DDD and Its Contracted Plans' Barriers to Implementing Care Coordination Strategies (Measure 4-3)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A

DES/DDD and Its Contracted Plans' Barriers to Implementing Care Coordination Strategies (Measure 4-3)	
Measure Steward	N/A
Data Source	Key informant interviews with AHCCCS, DES/DDD, and plans
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 4.4: Did AHCCCS encounter barriers related to integration of care for beneficiaries with DD?

AHCCCS' Reported Barriers Before, During, and Shortly After the Integration of Care (Measure 4-4)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews with AHCCCS
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 4.5: Did providers encounter barriers related to integration of care for beneficiaries with DD?

Providers' Reported Barriers Before, During, and Shortly After the Integration of Care (Measure 4-5)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Provider focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

CMDP

Hypothesis 1—Access to care will be maintained or increase during the demonstration.

Research Question 1.1: Do CMDP beneficiaries have the same or increased access to primary care practitioners (PCPs) and specialists in the remeasurement period compared to the baseline?

Percentage of Children and Adolescents with Access to Primary Care Practitioners (Measure 1-1)	
Numerator/Denominator	Numerator: One or more visits with a PCP during the measurement year for beneficiaries 1-6 years of age. One or more visits with a PCP during the measurement year or the year prior for beneficiaries 7-19 years of age Denominator: Beneficiaries 1-19 years of age with continuous enrollment of: • The measurement year for beneficiaries 1-6 years of age with no more than one gap in enrollment of up to 45 days • The measurement year and the year prior for beneficiaries 7-19 years of age with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment
Comparison Population	Similar beneficiaries in another state
Measure Steward	Centers for Medicare & Medicaid Services (CMS) Child Core Set
Measure Name	Children and Adolescents' Access to Primary Care Practitioners (CAP-CH)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of Beneficiaries with an Annual Dental Visit (Measure 1-2)	
Numerator/Denominator	Numerator: One or more dental visits with a dental practitioner during the measurement year. Any visit with a dental practitioner during the measurement year meets criteria Denominator: Beneficiaries 2–20 years of age continuously enrolled during the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Measure Name	Annual Dental Visit (ADV)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Hypothesis 2—Quality of care for beneficiaries enrolled in CMDP will be maintained or improve during the demonstration.

Research Question 2.1: Do CMDP beneficiaries have the same or higher rates of preventive or wellness services in the remeasurement period compared to the baseline?

Percentage of Beneficiaries with Well-Child Visits in the Third, Fourth, Fifth, and Sixth Years of Life (Measure 2-1)	
Numerator/Denominator	Numerator: Number of beneficiaries with at least one well-child visit with a PCP during the measurement year

Percentage of Beneficiaries with Well-Child Visits in the Third, Fourth, Fifth, and Sixth Years of Life (Measure 2-1)	
	Denominator: Number of beneficiaries 3-6 years of age with continuous enrollment during the measurement year and with no more than one gap in enrollment of up to 45 days
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Measure Name	Well-Child Visits in the Third, Fourth, Fifth and Sixth Years of Life (W34)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of Beneficiaries with an Adolescent Well-Care Visit (Measure 2-2)	
Numerator/Denominator	Numerator: Number of beneficiaries with at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year Denominator: Number of beneficiaries aged 12-21 and continuously enrolled with no more than one gap of up to 45 days during the measurement year
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Measure Name	Adolescent Well-Care Visits
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of Children Two Years of Age with Appropriate Immunization Status (Measure 2-3)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had: four diphtheria, tetanus and acellular pertussis (DTaP); three polio (IPV); one measles, mumps and rubella (MMR); three Hemophilus influenza type B (HiB); three hepatitis B (HepB), one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza (flu) vaccines by their second birthday. The measure calculates a rate for each vaccine and nine separate combination rates. Denominator: Number of children who turn 2 years of age during the measurement year.
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Data Source	• State eligibility and enrollment data • Arizona State Immunization Information System
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences

Percentage of Children Two Years of Age with Appropriate Immunization Status (Measure 2-3)	
	• Pre-test/post-test

Percentage of Adolescents 13 Years of Age with Appropriate Immunizations (Measure 2-4)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had: one dose of meningococcal vaccine, one tetanus, diphtheria toxoids and acellular pertussis (Tdap) vaccine, and have completed the human papillomavirus (HPV) vaccine series by their 13th birthday. The measure calculates a rate for each vaccine and two combination rates. Denominator: Number of adolescents 13 years of age.
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Data Source	• State eligibility and enrollment data • Arizona State Immunization Information System
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Research Question 2.2: Do CMDP beneficiaries have the same or better management of chronic conditions in the remeasurement period compared to the baseline?

Percentage of Beneficiaries Ages 5 to 18 Who Were Identified as Having Persistent Asthma and Had a Ratio of Controller Medications of 0.50 or Greater During the Measurement Year (Measure 2-5)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who were identified as having persistent asthma and had a ratio of controller medications to total asthma medication of 0.50 or greater during the measurement year Denominator: Number of beneficiaries aged 5-18 who were identified as having persistent asthma and continuously enrolled during the measurement year and year prior to the measurement year, with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment
Comparison Population	Similar beneficiaries in another state
Measure Steward	National Committee for Quality Assurance (NCQA)
Measure Name	Asthma Medication Ratio (AMR)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Research Question 2.3: Do CMDP beneficiaries have the same or better management of behavioral health conditions in the remeasurement period compared to the baseline?

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 2-6)	
Numerator/Denominator	Numerator: Number of beneficiaries with a discharge for mental illness and a follow-up visit with a mental health practitioner within 7 days after discharge Denominator: Number of beneficiaries 6 to 17 years of age or older who were hospitalized for treatment of selected mental illness or intentional self-harm with continuous enrollment 30 days after discharge
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Measure Name	Follow-Up After Hospitalization for Mental Illness (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of Children and Adolescents on Antipsychotics with Metabolic Monitoring (Measure 2-7)	
Numerator/Denominator	Numerator: Number of children and adolescents 1 – 17 years of age who had two or more antipsychotic prescriptions and had metabolic testing Denominator: Number of beneficiaries aged 1 to 17 with at least two antipsychotic medication dispensing events of the same or different mediations, on different dates of service during the measurement year, and continuous enrollment during the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Similar beneficiaries in another state
Measure Steward	NCQA
Measure Name	Metabolic Monitoring for Children and Adolescents on Antipsychotics (APM)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of Beneficiaries with Screening for Depression and Follow-Up Plan (Measure 2-8)	
Numerator/Denominator	Numerator: Number of beneficiaries screened for depression using a standardized tool and, if positive, a follow-up plan is documented on the date of the positive screen Denominator: Number of beneficiaries age 12 to 17 with an outpatient visit during the measurement year
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Measure Name	Screening for Depression and Follow-Up Plan: Ages 12 – 17 (CDF-CH)
Data Source	• State eligibility and enrollment data • Claims/encounter data

Percentage of Beneficiaries with Screening for Depression and Follow-Up Plan (Measure 2-8)	
	• Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of Children and Adolescents with Use of Multiple Concurrent Antipsychotics (Measure 2-9)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator on two or more concurrent antipsychotic medications for at least 90 consecutive days during the measurement period Denominator: Number of beneficiaries aged 1 to 17 with 90 days of continuous antipsychotic mediation treatment during the measurement period and with no more than one gap in enrollment of up to 45 days during the measurement year
Comparison Population	Similar beneficiaries in another state
Measure Steward	CMS Child Core Set
Measure Name	Use of Multiple Concurrent Antipsychotics in Children and Adolescents (APC-CH)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	The same rate or a decrease in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Number of Beneficiaries Receiving Mental Health Services (inpatient, intensive outpatient or partial hospitalization, outpatient, emergency department [ED], or telehealth) (Measure 2-10)	
Numerator/Denominator	Numerator: Number of inpatient mental health services Denominator: Number of member months, divided by 1,000
Comparison Population	Similar beneficiaries in another state
Measure Steward	NCQA
Measure Name	Mental Health Utilization—Inpatient (MPT)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	N/A
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Research Question 2.4: Do CMDP beneficiaries have the same or lower hospital utilization in the remeasurement period compared to the baseline?

Number of ED Visits Per 1,000 Member Months (Measure 2-11)	
Numerator/Denominator	Numerator: Number of ED visits Denominator: Number of member months, divided by 1,000
Comparison Population	Similar beneficiaries in another state
Measure Steward	NCQA
Measure Name	Ambulatory Care—ED Visits (AMB)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	N/A
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Number of Inpatient Stays Per 1,000 Member Months (Measure 2-12)	
Numerator/Denominator	Numerator: Number of total inpatient stays Denominator: Number of member months, divided by 1,000
Comparison Population	Similar beneficiaries in another state
Measure Steward	NCQA
Measure Name	Inpatient Utilization—General Hospital/Acute Care (IPU)
Data Source	• State eligibility and enrollment data • Claims/encounter data • Aggregate rates for similar beneficiaries in other states
Desired Direction	N/A
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Hypothesis 3—CMDP encourages and/or facilitates care coordination among PCPs and behavioral health practitioners.

Research Question 3.1: What barriers did CMDP anticipate/encounter during the integration?

CMDP's Anticipated/Reported Barriers During Transition (Measure 3-1)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	• Key informant interviews • Provider focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 3.2: What care coordination strategies did CMDP plan/implement during integration?

CMDP's Planned/Reported Care Coordination Activities (Measure 3-2)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	• Key informant interviews • Provider focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 3.3: What barriers to implementing care coordination strategies did the CMDP anticipate/encounter?

CMDP's Anticipated/Reported Barriers in Implementing Care Coordination Strategies (Measure 3-3)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	• Key informant interviews • Provider focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

RBHA

Hypothesis 1—Access to care for adult beneficiaries with a serious mental illness (SMI) enrolled in a RBHA will be maintained or increase during the demonstration

Research Question 1.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or increased access to primary care services compared to prior to the demonstration renewal?

Percentage of Adults Who Accessed Preventive/Ambulatory Health Services (Measure 1-1)	
Numerator/Denominator	Numerator: Number of beneficiaries with an ambulatory or preventive care visit Denominator: Number of beneficiaries 20 years and older continuously enrolled for the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Out-of-State comparison group
Measure Steward	National Committee for Quality Assurance (NCQA)
Measure Name	Adults' Access to Preventive/Ambulatory Health Services (AAP)
Data Source	• State eligibility and enrollment data

Percentage of Adults Who Accessed Preventive/Ambulatory Health Services (Measure 1-1)	
	• Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries Who Reported They Received Care as Soon as They Needed (Measure 1-2)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get needed care right away Denominator: Number of respondents to getting needed care survey question
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	In the last 6 months, when you needed care right away, how often did you get care as soon as you needed?
Data Source	Beneficiary survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Percentage of Beneficiaries Who Reported They Were Able to Schedule an Appointment for a Checkup or Routine Care at a Doctor's Office or Clinic as Soon as They Needed (Measure 1-3)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get an appointment for routine care as soon as they needed Denominator: Number of respondents to getting appointment for routine care survey question
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	In the last 6 months, how often did you get an appointment for a check-up or routine care at a doctor's office or clinic as soon as you needed?
Data Source	Beneficiary survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Percentage of Beneficiaries Who Reported They Were Able to Schedule an Appointment with a Specialist as Soon as They Needed (Measure 1-4)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get an appointment with a specialist as soon as they needed Denominator: Number of respondents to getting appointment with a specialist survey question
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	In the last 6 months, how often did you get an appointment to see a specialist as soon as you needed?
Data Source	Beneficiary survey

Percentage of Beneficiaries Who Reported They Were Able to Schedule an Appointment with a Specialist as Soon as They Needed (Measure 1-4)	
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Research Question 1.2: Do adult beneficiaries with an SMI enrolled in RBHA have the same or increased access to substance abuse treatment compared to prior to the demonstration renewal?

Percentage of Beneficiaries Who Had Initiation of Alcohol and Other Drug (AOD) Abuse or Dependence Treatment (Measure 1-5)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode Denominator: Number of beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis and 60 days continuous enrollment prior to the episode and 48 days after the index episode
Comparison Population	Out-of-State Comparison
Measure Steward	Centers for Medicare & Medicaid Services (CMS) Adult Core Set
Measure Name	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment: Initiation of AOD Treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries Who Had Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 1-6)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode and two or more engagement episodes within 34 days of the initiation episode Denominator: Number of beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis and 60 days continuous enrollment prior to the episode and 48 days after the index episode
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment: Engagement of AOD Treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Hypothesis 2—Quality of care for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration

Research Question 2.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher rates of preventive or wellness services compared to prior to demonstration renewal?

Percentage of Beneficiaries Who Reported Having a Flu Shot or Nasal Flu Spray (Measure 2-1)	
Numerator/Denominator	Numerator: Number of beneficiaries stating they had a flu shot or nasal flu spray since July 1 Denominator: Number of respondents to survey question about flu shot or spray
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	Have you had either a flu shot or flu spray in the nose since July 1, <year>?
Data Source	Beneficiary survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Research Question 2.2: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of chronic conditions compared to prior to the demonstration renewal?

Percentage of Beneficiaries with Persistent Asthma Who Had a Ratio of Controller Medications to Total Asthma Medications of at Least 50 Percent? (Measure 2-2)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had a ratio of controller medications to total asthma medications of 0.50 or greater Denominator: Number of beneficiaries aged 19-64 who were identified as having persistent asthma who were continuously enrolled during the measurement year and the year prior to the measurement year with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Asthma Medication Ratio (AMR)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with Schizophrenia or Bipolar Disorder Using Antipsychotic Medications Who Had a Diabetes Screening Test (Measure 2-3)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator with a diabetes screening test Denominator: Number of beneficiaries age 18-64 with schizophrenia, schizoaffective disorder or bipolar disorder, who were dispensed an antipsychotic medication and who were continuously enrolled for the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Out-of-State Comparison

Percentage of Beneficiaries with Schizophrenia or Bipolar Disorder Using Antipsychotic Medications Who Had a Diabetes Screening Test (Measure 2-3)	
Measure Steward	CMS Adult Core Set
Measure Name	Diabetes Screening for People with Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications (SSD)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with Schizophrenia Who Adhered to Antipsychotic Medications (Measure 2-4)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who remained on an antipsychotic medication for at least 80 percent of their treatment period Denominator: Number of beneficiaries aged 19 to 64 with schizophrenia or schizoaffective disorder and were dispensed antipsychotic medication and who were continuously enrolled during the measurement year with no more than one gap in enrollment of up to 45 days
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 2.3: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of behavioral health conditions compared to prior to the demonstration renewal?

Percentage of Beneficiaries Who Remained on Antidepressant Medication Treatment (Measure 2-5)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who remained on an antidepressant medication treatment for: 1) at least 84 days, and 2) at least 180 days Denominator: Number of beneficiaries aged 18 and older who were treated with antidepressant medication and had a diagnosis of major depression who were continuously enrolled from 105 days prior to the index prescription start date (IPSD) through 231 days after the IPSD with no more than one gap in enrollment of up to 45 days during the continuous enrollment period
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Antidepressant Medication Management (AMM)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis

Percentage of Beneficiaries Who Remained on Antidepressant Medication Treatment (Measure 2-5)	
Analytic Approach	• Pre-test/post-test • Difference-in-difference

Percentage of Beneficiaries with a Follow-up Visit After Hospitalization for Mental Illness (Measure 2-6)	
Numerator/Denominator	Numerator: Number of beneficiaries with a discharge for mental illness and a follow-up visit with a mental health practitioner within 7 days after discharge. Denominator: Number of beneficiaries 18 years of age or older who were hospitalized for treatment of selected mental illness or intentional self-harm with continuous enrollment 30 days after discharge.
Comparison Population	NCQA
Measure Steward	CMS Adult Core Set
Measure Name	Follow-Up After Hospitalization for Mental Illness (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with a Follow-up Visit After Emergency Department (ED) Visit for Mental Illness (Measure 2-7)	
Numerator/Denominator	Numerator: Number of ED visits in the denominator with a follow-up visit for mental illness within 7 days of an ED visit for mental illness. Denominator: Number of ED visits for beneficiaries 18 years of age and older with a principal diagnosis of mental illness or intentional self-harm with continuous enrollment from the date of the ED visit through 30 days after the ED visit
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Follow-Up After Emergency Department Visit for Mental Illness (FUM)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with Follow-up After ED Visit for Alcohol and Other Drug Abuse or Dependence (Measure 2-8)	
Numerator/Denominator	Numerator: Number of ED visits in the denominator with a follow-up visit for alcohol or other drug (AOD) abuse within 7 days of the ED visit. Denominator: Number of ED visits for beneficiaries 18 years of age and older with a principal diagnosis of AOD abuse or dependence and continuously enrolled from the date of the ED visit through 30 days after the ED visit
Comparison Population	Out-of-State Comparison

Percentage of Beneficiaries with Follow-up After ED Visit for Alcohol and Other Drug Abuse or Dependence (Measure 2-8)	
Measure Steward	NCQA
Measure Name	Follow-Up After ED Visit for Alcohol and Other Drug Abuse or Dependence (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with a Screening for Clinical Depression and Follow-up Plan (Measure 2-9)	
Numerator/Denominator	Numerator: Number of beneficiaries age 18 and older with a positive screen and follow-up plan documented. Denominator: Number of beneficiaries age 18 and older screened for depression
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Screening for Depression and Follow-Up Plan (CDF)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries Receiving Mental Health Services (Total and by Inpatient, Intensive Outpatient or Partial Hospitalization, Outpatient, ED, or Telehealth) (Measure 2-10)	
Numerator/Denominator	Numerator: Number of beneficiaries utilizing mental health services. Stratified by the following services: • Inpatient. • Intensive outpatient or partial hospitalization. • Outpatient. • ED. • Telehealth. • Any service. Denominator: Number of member months, divided by 12
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Mental Health Utilization (MPT)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A

Percentage of Beneficiaries Receiving Mental Health Services (Total and by Inpatient, Intensive Outpatient or Partial Hospitalization, Outpatient, ED, or Telehealth) (Measure 2-10)	
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 2.4: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or better management of opioid prescriptions compared to prior to the demonstration renewal?

Percentage of Beneficiaries Who Have Prescriptions for Opioids at a High Dosage (Measure 2-11)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who received prescriptions for opioids with an average daily dosage greater than or equal to 90 morphine milligram equivalents (MME) over a period of 90 days or more. Denominator: Number of beneficiaries age 18 and older with two or more prescriptions for opioids on different days with a cumulative days' supply of 15 or more.
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Use of Opioids at High Dosage in Persons Without Cancer (OHD)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Beneficiaries with Concurrent Use of Opioids and Benzodiazepines (Measure 2-12)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator with concurrent use of prescription opioids and benzodiazepines. Denominator: Number of beneficiaries age 18 and older with 2 or more prescriptions for opioids on different days with a cumulative days' supply of 15 or more.
Comparison Population	Out-of-State Comparisons
Measure Steward	CMS Adult Core Set
Measure Name	Concurrent Use of Opioids and Benzodiazepines (COB)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Research Question 2.5: Do adult beneficiaries with an SMI enrolled in a RBHA have the same lower tobacco usage compared to prior to the demonstration renewal?

Percentage of beneficiaries who indicated smoking cigarettes or using tobacco (Measure 2-13)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they smoked every day or some days Denominator: Number of respondents to smoking and tobacco use survey question
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	Do you now smoke cigarettes or use tobacco every day, some days, or not at all?
Data Source	Beneficiary survey
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Research Question 2.6: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or lower hospital utilization compared to prior to the demonstration renewal?

Number of ED Visits per 1,000 Member Months (Measure 2-14)	
Numerator/Denominator	Numerator: Number of ED Visits Denominator: Number of member months, divided by 1,000
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Ambulatory Care (AMB): ED Visits
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Number of Inpatient Stays per 1,000 Member Months (Measure 2-15)	
Numerator/Denominator	Numerator: Number of total inpatient stays. Denominator: Number of member months, divided by 1,000.
Comparison Population	Out-of-State Comparison
Measure Steward	NCQA
Measure Name	Inpatient Utilization—General Hospital/Acute Care (IPU)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Percentage of Inpatient Discharges with An Unplanned Readmission Within 30 days (Measure 2-16)	
Numerator/Denominator	Numerator: Number of acute inpatient stays in the denominator followed by an unplanned acute readmission within 30 days. Denominator: Number of acute inpatient stays for beneficiaries aged 18 to 64.
Comparison Population	Out-of-State Comparison
Measure Steward	CMS Adult Core Set
Measure Name	Plan All-Cause Readmissions (PCR)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	No change or a decrease in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test • Difference-in-differences

Hypothesis 3—Health outcomes for adult beneficiaries with an SMI enrolled in a RBHA will be maintained or improve during the demonstration.

Research Question 3.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher rating of health compared to prior to the demonstration renewal?

Percentage of Beneficiaries Who Reported a High Rating of Overall Health (Measure 3-1)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of overall health Denominator: Number of respondents to survey question regarding overall health
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	In general, how would you rate your overall health?
Data Source	Beneficiary Survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Percentage of Beneficiaries Who Reported a High Rating of Overall Mental or Emotional Health (Measure 3-2)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of mental or emotional health Denominator: Number of respondents to survey question regarding mental or emotional health
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	In general, how would you rate your overall mental or emotional health?
Data Source	Beneficiary Survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Hypothesis 4—Adult beneficiary satisfaction in RBHA health plans will be maintained or improve over the waiver demonstration period.

Research Question 4.1: Do adult beneficiaries with an SMI enrolled in a RBHA have the same or higher satisfaction in their health care compared to prior to the demonstration renewal?

Percentage of Beneficiaries Who Reported a High Rating of Overall Healthcare (Measure 4-1)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of their healthcare Denominator: Number of respondents to survey question regarding satisfaction of healthcare
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	Using any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible, what number would you use to rate all your health care in the last 6 months?
Data Source	Beneficiary Survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Percentage of Beneficiaries Who Reported a High Rating of Health Plan (Measure 4-2)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating they had a high rating of their overall health plan Denominator: Number of respondents to survey question regarding satisfaction of overall health plan
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	Using any number from 0 to 10, where 0 is the worst health plan possible and 10 is the best health plan possible, what number would you use to rate your health plan?
Data Source	Beneficiary Survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Research Question 4.2: Do adult beneficiaries with an SMI enrolled in a RBHA perceive their doctors to have the same or better care coordination compared to prior to the demonstration renewal?

Percentage of Beneficiaries Who Reported Their Doctor Seemed Informed About the Care They Received from Other Health Providers (Measure 4-3)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating their personal doctor seemed informed about the care they received from other health providers Denominator: Number of respondents to survey question regarding whether their doctor seemed informed about the care they received from other health providers
Comparison Population	N/A
Measure Steward	NCQA
CAHPS Question	In the last 6 months, how often did your personal doctor seem informed and up-to-date about the care you got from these doctors or other health providers?

Percentage of Beneficiaries Who Reported Their Doctor Seemed Informed About the Care They Received from Other Health Providers (Measure 4-3)	
Data Source	Beneficiary survey
Desired Direction	No change or an increase in the rate supports the hypothesis
Analytic Approach	Pre-test/post-test

Hypothesis 5—RBHAs encourage and/or facilitate care coordination among primary care practitioners (PCPs) and behavioral health practitioners.

Research Question 5.1: What care coordination strategies are the RBHAs conducting for their beneficiaries with an SMI?

Health Plans' Reported Care Coordination Activities for Beneficiaries with an SMI (Measure 5-1)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 5.2: Have care coordination strategies for beneficiaries with an SMI changed as a result of AHCCCS Complete Care?

Reported Changes in Health Plans' Care Coordination Strategies for Beneficiaries with an SMI (Measure 5-2)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 5.3: What care coordination strategies is AHCCCS conducting for its beneficiaries with an SMI?

AHCCCS's Reported Care Coordination Strategies and Activities for the SMI Population Served by the RBHAs (Measure 5-3)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A

AHCCCS's Reported Care Coordination Strategies and Activities for the SMI Population Served by the RBHAs (Measure 5-3)	
Measure Steward	N/A
Data Source	Key informant interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 5.4: What care coordination strategies and/or activities are providers conducting for their Medicaid patients with an SMI served by the RBHAs?

Providers' Reported Care Coordination Strategies and Activities for Their Medicaid Patients with an SMI (Measure 5-4)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Provider focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

PQC

Hypothesis 1—Eliminating prior quarter coverage will increase the likelihood and continuity of enrollment.

Research Question 1.1: Do eligible people without prior quarter coverage enroll in Medicaid at the same rates as other eligible people with prior quarter coverage?

Percentage of Medicaid Enrollees by Eligibility Group Out of Estimated Eligible Medicaid Recipients (Measure 1-1)	
Numerator/Denominator	Numerator: Number of beneficiaries covered by Medicaid (HINSCAID). Denominator: Number of individuals likely eligible for Medicaid last year based on IPUMS survey data on family income (FTOTINC), number of own children in household (NCHILD) and disability (DIFFREM, DIFFCARE, DIFFPHYS, DIFFMOB, DIFFSENS,).
Comparison Population	Out-of-State Comparison
Measure Steward	N/A
Data Source	Integrated Public Use Microdata Series (IPUMS) American Community Surveys (ACS)
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Percentage of New Medicaid Enrollees by Eligibility Group, As Identified by Those Without a Recent Spell of Medicaid Coverage Out of Estimated Eligible Medicaid Recipients (Measure 1-2)	
Numerator/Denominator	Numerator: Number of beneficiaries beginning enrollment in Medicaid.

Percentage of New Medicaid Enrollees by Eligibility Group, As Identified by Those Without a Recent Spell of Medicaid Coverage Out of Estimated Eligible Medicaid Recipients (Measure 1-2)	
	Denominator: Number of individuals likely eligible for Medicaid based on IPUMS survey data on family income (FTOTINC), number of own children in household (NCHILD) and disability (DIFFREM, DIFFCARE, DIFFPHYS, DIFFMOB, DIFFSENS). Re-weighted to represent full Arizona population.
Comparison Population	N/A
Measure Steward	N/A
Data Source	State enrollment and eligibility data; IPUMS ACS
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Pre-test/post-test

Number of Medicaid Enrollees Per Month by Eligibility Group and/or Per-Capita of State (Measure 1-3)	
Numerator/Denominator	Numerator: Number of beneficiaries beginning enrollment in Medicaid Denominator: Estimated current year population of Arizona
Comparison Population	N/A
Measure Steward	N/A
Data Source	State enrollment and eligibility data; State of Arizona Office of Economic Opportunity
Desired Direction	N/A
Analytic Approach	Rapid-cycle reporting—Statistical process control chart

Number of New Medicaid Enrollees Per Month by Eligibility Group, as Identified by Those Without a Recent Spell of Medicaid Coverage (Measure 1-4)	
Numerator/Denominator	Numerator: Number of beneficiaries beginning enrollment in Medicaid who did not have Medicaid coverage for at least six months prior Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	State enrollment and eligibility data
Desired Direction	N/A
Analytic Approach	Rapid-cycle reporting—Statistical process control chart

Research Question 1.2: What is the likelihood of enrollment continuity for those without prior quarter coverage compared to other Medicaid beneficiaries with prior quarter coverage?

Percentage of Medicaid Beneficiaries Due for Renewal Who Complete the Renewal Process (Measure 1-5)	
Numerator/Denominator	Numerator: Beneficiaries completing the renewal process Denominator: Beneficiaries enrolled in Medicaid who were due for renewal during previous 12 months
Comparison Population	Aggregate Data for Other State

Percentage of Medicaid Beneficiaries Due for Renewal Who Complete the Renewal Process (Measure 1-5)	
Measure Steward	N/A
Data Source	State eligibility and enrollment data; other state aggregate data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test • Interrupted time series

Average Number of Months with Medicaid Coverage (Measure 1-6)	
Numerator/Denominator	Numerator: Number of full months with Medicaid coverage Denominator: Number of Medicaid beneficiaries
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State eligibility and enrollment data; other state aggregate data
Desired Direction	An increase in the number of months supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test • Interrupted time series

Research Question 1.3: Do beneficiaries without prior quarter coverage who disenroll from Medicaid have shorter enrollment gaps than other beneficiaries with prior quarter coverage?

Percentage of Medicaid Beneficiaries Who Re-enroll After A Gap of Up to Six Months (Measure 1-7)	
Numerator/Denominator	Numerator: Number of beneficiaries who re-enrolled in Medicaid during evaluation period after a gap of up to 6 months Denominator: Number of beneficiaries who disenrolled from Medicaid during the first six months of evaluation period
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State eligibility and enrollment data; other state aggregate data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test • Interrupted time series

Average Number of Months Without Medicaid Coverage for Beneficiaries Who Re-Enroll After a Gap of Up to Six Months (Measure 1-8)	
Numerator/Denominator	Numerator: Number of months without Medicaid coverage after disenrolling Denominator: Number of beneficiaries who disenrolled from Medicaid during the first six months of evaluation period and subsequently re-enrolled

Average Number of Months Without Medicaid Coverage for Beneficiaries Who Re-Enroll After a Gap of Up to Six Months (Measure 1-8)	
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State eligibility and enrollment data; other state aggregate data
Desired Direction	A decrease in the number of months without coverage supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test • Interrupted time series

Average Number of Gaps in Medicaid Coverage for Beneficiaries Who Re-Enroll After a Gap of Up to Six Months (Measure 1-9)	
Numerator/Denominator	Numerator: Number of gaps in Medicaid coverage. A gap is defined as one day or more without Medicaid enrollment Denominator: Number of beneficiaries who disenrolled from Medicaid during the first six months of evaluation period and subsequently re-enrolled
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State eligibility and enrollment data; other state aggregate data
Desired Direction	A decrease in the number of gaps supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Average Number of Days Per Gap in Medicaid Coverage for Beneficiaries Who Re-Enroll After a Gap of Up to Six Months (Measure 1-10)	
Numerator/Denominator	Numerator: Number of gap days in Medicaid coverage Denominator: Number of gaps in coverage for beneficiaries who disenrolled from Medicaid during the first six months of evaluation period and subsequently re-enrolled. A gap is defined as one day or more without Medicaid enrollment
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State eligibility and enrollment data; other state aggregate data
Desired Direction	A decrease in the number of days per gap supports the hypothesis
Analytic Approach	• Difference-in-differences • Pre-test/post-test

Hypothesis 2—Eliminating prior quarter coverage will increase enrollment of eligible people when they are healthy relative to those eligible people who have the option of prior quarter coverage.

Research Question 2.1: Do newly enrolled beneficiaries without prior quarter coverage have higher self-assessed health status than continuously enrolled beneficiaries?

Beneficiary Reported Rating of Overall Health (Measure 2-1)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated high overall health rating in response to CAHPS question regarding overall health Denominator: Number of respondents to overall health survey question among beneficiaries who have not had Medicaid coverage for the first six months of evaluation period
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase in the rating of overall health supports the hypothesis
Analytic Approach	Comparison of means

Beneficiary Reported Rating of Overall Mental or Emotional Health (Measure 2-2)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated high overall mental or emotional health rating in response to Consumer Assessment of Healthcare Providers and Systems (CAHPS®) question regarding overall mental or emotional health[D-1] Denominator: Number of respondents to overall mental or emotional health survey question among beneficiaries who have not had Medicaid coverage for the first six months of evaluation period
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase in the rating of overall mental or emotional health supports the hypothesis
Analytic Approach	Comparison of means

Percentage of Beneficiaries Who Reported Prior Year Emergency Room (ER) Visit (Measure 2-3)	
Numerator/Denominator	Numerator: Number of beneficiaries who reported any ER visits during previous 12 months Denominator: Number of respondents to ER visit survey question among beneficiaries who have not had Medicaid coverage for the first six months of evaluation period
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Comparison of means

Percentage of Beneficiaries Who Reported Prior Year Hospital Admission (Measure 2-4)	
Numerator/Denominator	Numerator: Number of beneficiaries who reported any overnight hospital stays during previous 12 months Denominator: Number of respondents to overnight hospital stay survey question among beneficiaries who have not had Medicaid coverage for the first six months of evaluation period

D-1 CAHPS is a registered trademark of the Agency for Healthcare Quality and Research.

Percentage of Beneficiaries Who Reported Prior Year Hospital Admission (Measure 2-4)	
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Comparison of means

Percentage of Beneficiaries Who Reported Getting Healthcare Three or More Times for The Same Condition or Problem (Measure 2-5)	
Numerator/Denominator	Numerator: Number of beneficiaries who received healthcare services three or more times for the same condition Denominator: Number of respondents to multiple services for same condition survey question among beneficiaries who have not had Medicaid coverage for the first six months of evaluation period
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Comparison of means

Hypothesis 3—Health outcomes will be better for those without prior quarter coverage compared to other Medicaid beneficiaries with prior quarter coverage.

Research Question 3.1: Do beneficiaries without prior quarter coverage have better health outcomes than compared to baseline rates and out-of-state comparisons with prior quarter coverage?

Beneficiary Reported Rating of Overall Health for All Beneficiaries (Measure 3-1)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated high overall health rating in response to CAHPS question regarding overall health Denominator: Number of respondents to overall health survey question
Comparison Population	Aggregate Data for Other State; Out-of-State Comparison
Measure Steward	N/A
Data Source	State beneficiary survey; other state aggregate data; BRFSS
Desired Direction	An increase in the rating of overall health supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Beneficiary Reported Rating of Overall Mental or Emotional Health for All Beneficiaries (Measure 3-2)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated high overall mental or emotional health rating in response to CAHPS question regarding overall health Denominator: Number of respondents to overall mental or emotional health survey question
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State beneficiary survey; other state aggregate data
Desired Direction	An increase in the rating of overall mental or emotional health supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Hypothesis 4—Eliminating prior quarter coverage will not have adverse financial impacts on consumers.

Research Question 4.1: Does the prior quarter coverage waiver lead to changes in the incidence of beneficiary medical debt?

Percentage of Beneficiaries Who Reported Medical Debt (Measure 4-1)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating outstanding medical debt or difficulty paying medical bills Denominator: Number of respondents to outstanding medical debt or difficulty paying medical bills survey question
Comparison Population	Out-of-State Comparison
Measure Steward	N/A
Data Source	State beneficiary survey; Behavioral Risk Factors Surveillance System (BRFSS)
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Comparison to other states

Hypothesis 5—Eliminating prior quarter coverage will not adversely affect access to care.

Research Question 5.1: Do beneficiaries without prior quarter coverage have the same or higher rates of office visits compared to baseline rates and out-of-state comparisons with prior quarter coverage?

Beneficiary Response to Getting Needed Care Right Away (Measure 5-1)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get needed care right away Denominator: Number of respondents to getting needed care survey question
Comparison Population	Aggregate Data for Other State
Measure Steward	National Committee for Quality Assurance (NCQA)
Data Source	State beneficiary survey; other state aggregate data
Desired Direction	An increase in the rate supports the hypothesis

Beneficiary Response to Getting Needed Care Right Away (Measure 5-1)	
Analytic Approach	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Beneficiary Response to Getting an Appointment for a Check-Up or Routine Care at a Doctor's Office or Clinic (Measure 5-2)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get an appointment for a check-up or routine care at a doctor's office or clinic Denominator: Number of respondents to get an appointment for a check-up or routine care at a doctor's office or clinic survey question
Comparison Population	Aggregate Data for Other State
Measure Steward	NCQA
Data Source	State beneficiary survey; other state aggregate data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Research Question 5.2: Do beneficiaries without prior quarter coverage have the same or higher rates of service and facility utilization compared to baseline rates and out-of-state comparisons with prior quarter coverage?

Percentage of Beneficiaries with A Visit to A Specialist (e.g., Eye Doctor, ENT, Cardiologist) (Measure 5-3)	
Numerator/Denominator	Numerator: Number of beneficiaries with a visit to a specialist during previous 12 months Denominator: Number of beneficiaries enrolled in Medicaid during previous 12 months
Comparison Population	Aggregate Data for Other State
Measure Steward	N/A
Data Source	State eligibility and enrollment data; claims/encounter data; other state aggregate data
Desired Direction	No difference/an increase in the rate supports the hypothesis
Analytic Approach	• Difference-in-differences • Comparison to national benchmarks • Comparison to historical AHCCCS rates • Pre-test/post-test

Hypothesis 6—Eliminating prior quarter coverage will not result in reduced member satisfaction.

Research Question 6.1: Do beneficiaries without prior quarter coverage have the same or higher satisfaction with their healthcare compared to baseline rates and out-of-state comparisons with prior quarter coverage?

Beneficiary Rating of Overall Healthcare (Measure 6-1)	
Numerator/Denominator	Numerator: Number of beneficiaries reporting a high-level of satisfaction with overall healthcare Denominator: Number of respondents to overall healthcare satisfaction survey question
Comparison Population	N/A
Measure Steward	NCQA
Data Source	State beneficiary survey
Desired Direction	No difference/an increase in the rating of overall healthcare supports the hypothesis
Analytic Approach	Pre-test/post-test

Hypothesis 7—Eliminating prior quarter coverage will generate cost savings over the term of the waiver.

Research Question 7.3: Do costs to non-AHCCCS entities stay the same or decrease after implementation of the waiver compared to before?

Reported Costs for Uninsured and/or Likely Eligible Medicaid Recipients Among Potentially Impacted Providers and/or Provider Networks (Measure 7-1)	
Numerator/Denominator	Numerator: Total reported uncompensated care costs among likely Medicaid population, including Medicaid shortfalls. Denominator: Total number of facilities reporting uncompensated care costs.
Comparison Population	Out-of-State Comparison
Measure Steward	N/A
Data Source	• HCRIS • HCUP-SID • Provider Focus Groups
Desired Direction	Lower is better
Analytic Approach	• Difference-in-differences • Interrupted time series • Qualitative synthesis

Hypothesis 8—Education and outreach activities by AHCCCS will increase provider understanding about the elimination of PQC.

Research Question 8.1: What activities did AHCCCS perform to educate beneficiaries and providers about changes to retroactive eligibility?

AHCCCS' Education Activities (Measure 8-1)	
Numerator/Denominator	N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key Informant Interviews
Desired Direction	N/A

AHCCCS' Education Activities (Measure 8-1)	
Analytic Approach	Qualitative synthesis

Providers' Knowledge on Eliminating Prior Quarter Coverage (Measure 8-2)	
Numerator/Denominator	N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Provider Focus Groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

AHCCCS' Reported Barriers to Providing Education on Eliminating Prior Quarter Coverage (Measure 8-3)	
Numerator/Denominator	N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key Informant Interviews
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

TI

Hypothesis 1—The TI program will improve physical and behavioral health care integration for children.

Research Question 1.1: What is the percentage of providers that have an executed agreement with Health Current and receive Admission-Discharge-Transfer (ADT) alerts?

Percentage of Participating Pediatric Primary Care and Behavioral Health care Practices That Have an Executed Agreement with Health Current (Measure 1-1)	
Numerator/Denominator	Numerator: Number of pediatric primary care and behavioral health care practices with an executed agreement with Health Current Denominator: Number of pediatric primary care and behavioral health care practices
Comparison Population	Practitioners not participating in TI
Measure Steward	Not Applicable (N/A)
Data Source	Administrative program data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Rapid cycle reporting

Percentage of Participating Pediatric Primary Care and Behavioral Health care Practices That Routinely Receives ADT Alerts (Measure 1-2)	
Numerator/Denominator	Numerator: Number of pediatric primary care and behavioral health care practices with an executed agreement with Health Current and Health Current confirmation of routine receipt of ADT alerts Denominator: Number of pediatric primary care and behavioral health care practices
Comparison Population	Practitioners not participating in TI
Measure Steward	N/A
Data Source	Administrative program data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Rapid cycle reporting

Research Question 1.2: Do children subject to the TI program have higher rates of screening and well-child visits compared to those who are not subject to the demonstration?

Percentage of Beneficiaries with a Well-Child Visit in the Third, Fourth, Fifth, and Sixth Years of Life (Measure 1-3)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who have at least one well-child visit with any primary care provider during the measurement year Denominator: Number of beneficiaries with a behavioral health diagnosis who are age 3–6 years as of the last calendar day of the measurement year
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	Centers for Medicare & Medicaid Services (CMS) Child Core Set
Measure Name	Well-child visits in the third, fourth, fifth and sixth years of life (W34)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Percentage of Beneficiaries with a Depression Screening and Follow-Up Plan (Measure 1-4)	
Numerator/Denominator	Numerator: Number of beneficiaries who were screened for depression using a standardized tool and, if positive, a follow-up plan is documented on the date of the positive screen Denominator: Number of beneficiaries aged 12-17 during the measurement year who had an outpatient visit
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Child Core Set
Measure Name	Screening for depression and follow-up plan (CDF)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model

Percentage of Beneficiaries with a Depression Screening and Follow-Up Plan (Measure 1-4)	
	• Difference-in-differences • Interrupted time series

Percentage of Beneficiaries with an Adolescent Well-Care Visit (Measure 1-5)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had at least one well-care visit during the measurement year Denominator: Number of beneficiaries aged 12 to 21 during the measurement year who had no more than 1 gap of up to 45 days and were enrolled on the anchor date
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Child Core Set
Measure Name	Adolescent well-care visits (AWC)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Beneficiary Response to Getting Needed Care Right Away (Measure 1-6)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get needed car right away Denominator: Number of respondents to getting needed care survey question
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	National Committee for Quality Assurance (NCQA)
CAHPS Question	In the last 6 months, when your child needed care right away, how often did your child get care as soon as he or she needed?
Data Source	Beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Chi-square test

Research Question 1.3: Do children subject to the TI program have higher rates of follow-up after hospitalization or an emergency department (ED) visit for mental illness than those who are not subject to the demonstration?

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 1-7)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had a follow-up visit with a mental health provider within seven days of discharge Denominator: Number of beneficiaries aged 6 to 17 during the measurement year who had continuous enrollment for 30 days after a discharge for mental illness
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Child Core Set

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 1-7)	
Measure Name	Follow-up after hospitalization for mental illness (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question 1.4: Do parents/guardians of children subject to the program perceive their doctors have better care coordination than those not subject to the demonstration?

Beneficiary Response to Their Child's Doctor Seeming Informed About the Care Their Child Received from Other Health Providers (Measure 1-8)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating that their child's doctor seemed informed about the care their child received from other health providers Denominator: Number of respondents to survey questions regarding whether their child's doctor seemed informed about the care their child received from other health providers
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	NCQA
CAHPS Question	In the last 6 months, how often did your child's personal doctor seem informed and up-to-date about the care your child got from these doctors or other health providers?
Data Source	Beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Chi-square test

Hypothesis 2—The TI program will improve physical and behavioral health care integration for adults.

Research Question 2.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?

Percentage of Participating Adult Primary Care and Behavioral Health care Practices That Have an Executed Agreement with Health Current (Measure 2-1)	
Numerator/Denominator	Numerator: Number of adult primary care and behavioral health care practices with an executed agreement with Health Current Denominator: Number of adult primary care and behavioral health care practices
Comparison Population	Practitioners not participating in TI
Measure Steward	N/A
Data Source	Administrative program data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Rapid cycle reporting

Percentage of Participating Adult Primary Care and Behavioral Health care Practices that Routinely Receives ADT Alerts (Measure 2-2)	
Numerator/Denominator	Numerator: Number of adult primary care and behavioral health care practices with an executed agreement with Health Current Denominator: Number of adult primary care and behavioral health care practices
Comparison Population	Practitioners not participating in TI
Measure Steward	N/A
Data Source	Administrative program data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Rapid cycle reporting

Research Question 2.2: Do adults subject to the TI program have higher rates of screening than those who are not subject to the demonstration?

Percentage of Beneficiaries with a Depression Screening and Follow-Up Plan if Positive (Measure 2-3)	
Numerator/Denominator	Numerator: Number of beneficiaries who were screened for depression using a standardized tool and, if positive, a follow-up plan is documented on the date of the positive screen Denominator: Number of beneficiaries aged 18 and over during the measurement year who had an outpatient visit
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Adult Core Set
Measure Name	Screening for depression and follow-up plan (CDF)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Beneficiary Response to Getting Needed Care Right Away (Measure 2-4)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating the ability to get needed care right away Denominator: Number of respondents to getting needed care survey question
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	NCQA
CAHPS Question	In the last 6 months, when you needed care right away, how often did you get care as soon as you needed?
Data Source	Beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Chi-square test

Research Question 2.3: Do adults subject to the TI program have lower rates of ED utilization than those who are not subject to the demonstration?

Number of ED Visits per 1,000 Member Months (Measure 2-5)	
Numerator/Denominator	Numerator: Number of ED visits Denominator: Number of beneficiary months in intervention/comparison group aged 18 and older, divided by 1,000
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	NCQA
Measure Name	Ambulatory care (AMB): emergency department visits
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series • Chi-square test

Number of ED Visits for Substance Use Disorder (SUD) or Opioid Use Disorder (OUD) per 1,000 Member Months (Measure 2-6)	
Numerator/Denominator	Numerator: Number of ED visits with a SUD or OUD-related diagnosis Denominator: Number of beneficiary months in intervention/comparison group aged 18 and older, divided by 1,000
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Adult Core Set
Measure Name	Follow-up after emergency department visit for alcohol and other drug abuse or dependence (FUA)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series • Chi-square test

Research Question 2.4: Do adults subject to the TI program have higher rates of follow-up after hospitalization or an ED visit for mental illness than those who are not subject to the demonstration?

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 2-7)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had a follow-up visit with a mental health provider within seven days of discharge Denominator: Number of beneficiaries aged 18 and over during the measurement year who had continuous enrollment for 30 days after a discharge for mental illness
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers

Percentage of Beneficiaries with a Follow-Up Visit After Hospitalization for Mental Illness (Measure 2-7)	
Measure Steward	CMS Adult Core Set
Measure Name	Follow-up after hospitalization for mental illness (FUH)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Percentage of Beneficiaries with a Follow-Up Visit After an ED Visit for Mental Illness (Measure 2-8)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had a follow-up visit with any provider within seven days of discharge Denominator: Number of beneficiaries aged 18 and older who had continuous enrollment for 30 days after an ED visit for mental illness
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Adult Core Set
Measure Name	Follow-up after emergency department visit for mental illness (FUM)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question 2.5: Do adults subject to the TI program have higher rates of alcohol and drug abuse treatment and adherence than those who were not subject to the demonstration?

Percentage of Beneficiaries Who Had Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 2-9)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode. Rates will be reported separately for alcohol, opioid, other drug, and total. Denominator: Number of beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis, 60 days continuous enrollment prior to the episode and 48 days after the index episode, with no gaps during the enrollment period
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and engagement of alcohol and other drug abuse or dependence treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model

Percentage of Beneficiaries Who Had Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 2-9)	
	• Difference-in-differences • Interrupted time series

Percentage of Beneficiaries Who Had Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 2-10)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode and two or more engagement episodes within 34 days of the initiation episode. Rates will be reported separately for alcohol, opioid, other drug, and total. Denominator: Number of beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis, 60 days continuous enrollment prior to the episode and 48 days after the index episode, with no gaps during the enrollment period
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and engagement of alcohol and other drug abuse or dependence treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Percentage of Beneficiaries with OUD Receiving Any Medication Assisted Treatment (MAT) (Measure 2-11)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator receiving any kind of MAT Denominator: Number of beneficiaries aged 18 and over during the measurement year diagnosed with OUD
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers
Measure Steward	N/A
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question 2.6: Do adults subject to the TI program perceive their doctors have better care coordination than those not subject to the demonstration?

Beneficiary Response to Their Doctor Seeming Informed About the Care They Received from Other Health Providers (Measure 2-12)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating their doctor seemed informed about the care they received from other health care providers Denominator: Number of respondents to the survey question of whether their doctor seemed informed about the care they received from other health care providers
Comparison Population	Beneficiaries not assigned to, nor received care from TI participating providers

Beneficiary Response to Their Doctor Seeming Informed About the Care They Received from Other Health Providers (Measure 2-12)	
CAHPS Question	In the last 6 months, how often did your personal doctor seem informed and up-to-date about the care you got from these doctors or other health providers?
Measure Steward	NCQA
Data Source	Beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Chi-square test

Hypothesis 3—The TI program will improve care coordination for Arizona Health Care Cost Containment System (AHCCCS) enrolled adults released from criminal justice facilities.

Research Question 3.1: What is the percentage of providers that have an executed agreement with Health Current and receive ADT alerts?

Percentage of Integrated Practices Participating in the Justice Transition Project That Have an Executed Agreement with Health Current (Measure 3-1)	
Numerator/Denominator	Numerator: Number of practices participating in the justice transition project with an executed agreement with Health Current Denominator: Number of practices participating in the justice transition project
Comparison Population	Practitioners participating in justice transition project not participating in TI
Measure Steward	N/A
Data Source	Administrative program data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Rapid cycle reporting

Percentage of Integrated Practices Participating in the Justice Transition Project That Routinely Receives ADT Alerts (Measure 3-2)	
Numerator/Denominator	Numerator: Number of practices participating in the justice transition project with an executed agreement with Health Current and Health Current confirmation of routine receipt of ADT alerts Denominator: Number of practices participating in the justice transition project
Comparison Population	Practitioners participating in justice transition project not participating in TI
Measure Steward	N/A
Data Source	Administrative program data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Rapid cycle reporting

Research Question 3.2: Do adult beneficiaries who are recently released from a criminal justice facility and subject to the TI program have higher rates of access to care than those who were not subject to the demonstration?

Percentage of Recently Released Beneficiaries Who Had a Preventive/Ambulatory Health Service Visit (Measure 3-3)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries in the denominator who had one or more ambulatory or preventive care visits during the measurement year Denominator: Number of recently released beneficiaries age 20-44 years during the measurement period recently released from a criminal justice facility and assigned to a probation or parole office
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	NCQA
Measure Name	Adults' access to preventative/ambulatory health services (AAP)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Recently Released Beneficiary Response to Getting Needed Care Right Away (Measure 3-4)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries indicating getting needed care right away Denominator: Number of recently released respondents to the survey question regarding getting needed care right away
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	NCQA
CAHPS Question	In the last 6 months, when you needed care right away, how often did you get care as soon as you needed?
Data Source	Beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Chi-square test

Recently Released Beneficiary Response to Getting Routine Care Right Away (Measure 3-5)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries indicating getting routine care right away Denominator: Number of recently released respondents to the survey question regarding getting routine care right away
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	NCQA
CAHPS Question	In the last 6 months, how often did you get an appointment for a check-up or routine care at a doctor's office or clinic as soon as you needed?
Data Source	Beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Chi-square test

Research Question 3.3: Do adult beneficiaries who are recently released from a criminal justice facility and subject to the TI program have higher rates of alcohol and drug abuse treatment and adherence to treatment than those who were not subject to the demonstration?

Percentage of Recently Released Beneficiaries Who Had Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 3-6)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode Denominator: Number of recently released beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis, 60 days continuous enrollment prior to the episode and 48 days after the index episode, with no gaps during the enrollment period
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and engagement of alcohol and other drug abuse or dependence treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Percentage of Recently Released Beneficiaries Who Had Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (Measure 3-7)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries in the denominator who had initiation of treatment within 14 days of the index episode and two or more engagement episodes within 34 days of the initiation episode Denominator: Number of recently released beneficiaries aged 18 and over during the measurement year with an alcohol or opioid diagnosis, 60 days continuous enrollment prior to the episode and 48 days after the index episode, with no gaps during the enrollment period
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	CMS Adult Core Set
Measure Name	Initiation and engagement of alcohol and other drug abuse or dependence treatment (IET)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Percentage of Recently Released Beneficiaries with OUD Receiving Any Medication Assisted Treatment (MAT) (Measure 3-8)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries in the denominator receiving any kind of MAT Denominator: Number of recently released beneficiaries aged 18 and over during the measurement year diagnosed with OUD

Percentage of Recently Released Beneficiaries with OUD Receiving Any Medication Assisted Treatment (MAT) (Measure 3-8)	
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	N/A
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question 3.4: Do adult beneficiaries recently released from a criminal justice facility and subject to the TI program have lower rates of ED utilization than those who were not subject to the demonstration?

Number ED Visits per 1,000 Member Months for Recently Released Beneficiaries (Measure 3-9)	
Numerator/Denominator	Numerator: Number of ED visits for recently released beneficiaries Denominator: Number of beneficiary months for recently released beneficiaries aged 18 and older, divided by 1,000
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	NCQA
Measure Name	Ambulatory care (AMB): emergency department visits
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Number of ED Visits for SUD or OUD per 1,000 Member Months for Recently Released Beneficiaries (Measure 3-10)	
Numerator/Denominator	Numerator: Number of ED visits with a SUD or OUD-related diagnosis for recently released beneficiaries Denominator: Number of beneficiary months for recently released beneficiaries aged 18 and older, divided by 1,000
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	CMS Adult Core Set
Measure Name	Follow-up after emergency department visit for alcohol and other drug abuse or dependence (FUA)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A

Number of ED Visits for SUD or OUD per 1,000 Member Months for Recently Released Beneficiaries (Measure 3-10)	
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Research Question 3.5: Do adult beneficiaries recently released from a criminal justice facility and subject to the TI program have better management of opioid prescriptions than those who were not subject to the demonstration?

Percentage of Recently Released Beneficiaries Who Have a Prescription for Opioids at a High Dosage (Measure 3-11)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries in the denominator with an average daily dosage ≥ 90 Morphine Milligram Equivalent during the opioid episode Denominator: Number of recently released beneficiaries aged 18 and older who had no more than a 1-month gap in enrollment and had 2 or more prescription claims for opiates on different dates of service with a cumulative supply of 15 or more days during the measurement year
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	CMS Adult Core Set
Measure Name	Use of opioids at high dosage in persons without cancer (OHD)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	N/A
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Percentage of Recently Released Beneficiaries Who Have Prescriptions for Concurrent use of Opioids and Benzodiazepines (Measure 3-12)	
Numerator/Denominator	Numerator: Number of recently released beneficiaries in the denominator with two or more claims for benzodiazepines with different dates of service and concurrent use of opioids and benzodiazepines for 30 or more cumulative days Denominator: Number of recently released beneficiaries aged 18 and older during the measurement year with no more than one gap of up to 31 days and had 2 or more prescription claims for opiates on different dates of service with a cumulative days' supply of 15 or more days
Comparison Population	Beneficiaries transitioning from the criminal justice system who are not assigned to, nor received care from practitioners participating in the justice transition project and participating in TI
Measure Steward	CMS Adult Core Set
Measure Name	Concurrent use of opioids and benzodiazepines (COB)
Data Source	• State eligibility and enrollment data • Claims/encounter data
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	• Hierarchical linear/generalized linear model • Difference-in-differences • Interrupted time series

Hypothesis 5—Providers will increase the level of care integration over the course of the demonstration.

Research Question 5.1: Do providers progress across the Substance Abuse and Mental Health Services Administration (SAMHSA) national standard of six levels of integrated health care?

Percentage of Providers Transitioning from Level 1 or Level 2 (Coordinated Care) to Level 3 or Level 4 (Co-Located Care) (Measure 5-1)	
Numerator/Denominator	Numerator: Number of providers who indicated their integration level is Level 3 or Level 4 (co-located care) at the end of the measurement year Denominator: Number of providers who indicated their integration level is Level 1 or Level 2 (coordinated care) in the previous measurement year
Comparison Population	N/A
Measure Steward	N/A
Data Source	Program data from provider attestations
Desired Direction	An increase in rate supports the hypothesis
Analytic Approach	Descriptive impact analysis

Percentage of Providers Transitioning from Level 3 or Level 4 (Co-Located Care) to Level 5 or Level 6 (Integrated Care) (Measure 5-2)	
Numerator/Denominator	Numerator: Number of providers who indicated their integration level is Level 5 or Level 6 (integrated care) at the end of the measurement year Denominator: Number of providers who indicated their integration level is Level 3 or Level 4 (co-located care) in the previous measurement year
Comparison Population	N/A
Measure Steward	N/A
Data Source	Program data from provider attestations
Desired Direction	An increase in rate supports the hypothesis
Analytic Approach	Descriptive impact analysis

Research Question 5.2: Do providers increase level of integration within each broader category (i.e., coordinated, co-located, and integrated care) during the demonstration period?

Percentage of Providers Transitioning from Level 1 to Level 2 Integration (Measure 5-3)	
Numerator/Denominator	Numerator: Number of providers who indicated their integration level is level 2 at the end of the measurement year Denominator: Number of providers who indicated their integration level is level 1 in the previous measurement year
Comparison Population	N/A
Measure Steward	N/A
Data Source	Program data from provider attestations
Desired Direction	An increase in rate supports the hypothesis
Analytic Approach	Descriptive impact analysis

Percentage of Providers Transitioning from Level 3 to Level 4 Integration (Measure 5-4)	
Numerator/Denominator	Numerator: Number of providers who indicated their integration level is level 4 at the end of the measurement year Denominator: Number of providers who indicated their integration level is level 3 in the previous measurement year
Comparison Population	N/A
Measure Steward	N/A
Data Source	Program data from provider attestations
Desired Direction	An increase in rate supports the hypothesis
Analytic Approach	Descriptive impact analysis

Percentage of Providers Transitioning from Level 5 to Level 6 Integration (Measure 5-5)	
Numerator/Denominator	Numerator: Number of providers who indicated their integration level is level 6 at the end of the measurement year Denominator: Number of providers who indicated their integration level is level 5 in the previous measurement year
Comparison Population	N/A
Measure Steward	N/A
Data Source	Program data from provider attestations
Desired Direction	An increase in rate supports the hypothesis
Analytic Approach	Descriptive impact analysis

Hypothesis 6—Providers will conduct care coordination activities.

Research Question 6.1: Did AHCCCS encounter barriers related to the pre-implementation and implementation phases of TI?

AHCCCS' Reported Barriers Before, During, and Shortly Following the Implementation of TI (Measure 6-1)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Key informant interview
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 6.2: Did providers encounter barriers related to the pre-implementation and implementation phases of TI?

Providers' Reported Barriers Before, During, and Shortly Following the Implementation of TI (Measure 6-2)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Provider focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

E. Beneficiary-Level Data Sources Reviewed

Numerous out-of-state sources of beneficiary-level data were considered for each evaluation design plan. Most data sources do not contain key data elements necessary for inclusion in the design plans. A description of these data sources and rationale for inclusion or exclusion is provided in the Comparison Populations—Out-of-State Comparison Groups section. There are two primary uses for each data source: (1) including the same survey questions in an Arizona member beneficiary survey conducted for this evaluation and utilizing the out-of-state data as a comparison group, or (2) utilizing the out-of-state data for both the intervention and comparison groups. There are significant limitations to either approach. Under the first approach, since the survey was not fielded during the baseline period, only a single, post-implementation data point would be included in the summative evaluation. This would not provide the basis from which to draw any causal inferences. Under the second approach, many of these data sources are limited by the absence of a state identifier (on public use data) and by a sufficient number of Arizona Medicaid respondents to generate sufficient statistical power for meaningful analysis without pooling multiple years together. Additionally, some data sources are limited in relevant health-related outcomes pertinent to the demonstration. Table E-1 provides a summary of each data source considered, its applicability, and its limitations.

Legend for Table E-1

	Subpopulation Identification	Outcomes Measures/Matching Factors
○	Not available	None
◔	Low approximation	Few weak variables
◑	Partial identification or approximation	Many weak variables
◕	Good approximation	Few strong variables
●	Highly accurate identification	Many strong variables

Table E-1: Summary of Data Sources Considered

Requirement	BRFSS	NHIS (National Health Interview Survey)	NHANES (National Health and Nutrition Examination Survey)	NSCH (National Survey of Children's Health)	MEPS (Medical Expenditure Panel Survey)	IPUMS-ACS	NSDUH (National Survey on Drug Use and Health)
Beneficiary Level	✓	✓	✓	✓	✓	✓	✓
Medicaid Indicator	✗	✓	✓	✗	✓	✓	✓
State	✓	✗	✗	✓	✗	✓	✗
Subpopulations							
Medicaid expansion (AW)	◑	◔	◑	○	◑	◑	○
Foster children (CMDP)	○	●	○	●	○	○	○
SMI adults (RBHA)	○	○	○	○	○	○	◑
DD/EPD (ALTCS)	○	◕	○	◕	◑	◔	○
High-risk BH (TI)	○	○	○	○	○	○	○
Relevant Outcomes/Measures	◕	●	◑	◕	●	◕	◑
Adjustment/Matching Factors	◑	◑	◑	●	●	◔	◔
Survey Administration Period	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Survey Lag/Latest Year	2018	2018	2015-2016	2017	2017	2018	2018
Anticipated Medicaid sample sizes from most recent year	3,954 (Nationally)[1]	11,666 (Nationally)	2,474 (Nationally)	90 (Arizona)[2] 4,202 (Nationally)[2]	~8,400 (Nationally)	28,773 (Arizona)[2] 1,204,557 (Nationally)[2]	7,831 (Nationally)
Notes on Limitations for Use	Medicaid indicator is collected as part of an optional module. State participation varies year to year, and Arizona has not collected this information during relevant time period.	The state indicator is not provided as part of public use files.	During a single survey year, about 15 counties are selected out of approximately 3,100 counties in the United States. NHANES was not designed to produce regional or sub-regional estimates and no geographic data are released on the publicly available data files.	No indicator specifically for Medicaid.	The state indicator is not provided as part of public use files.		The state indicator is not provided as part of public use files.
Program Application	PQC, ACC	None	None	None	None	AW, PQC	None

[1]Anticipated Medicaid sample sizes are derived from responses from states which contained the optional Healthcare Access module.
[2]Anticipated Medicaid sample sizes are derived from responses to a question pertaining to public health insurance coverage.

F. Methodological Considerations of COVID-19 Pandemic

Pandemic Methodology Adjustments

The coronavirus disease 2019 (COVID-19) pandemic in the United States began in approximately March 2020 and is ongoing at the time of drafting the evaluation design plan. The extent of the COVID-19 infection rate is geographically variable, both within Arizona, as well as across the United States. The rate of positive cases throughout Arizona according to the Arizona Department of Health Services is 759.3 per 100,000, with county-level rates varying from 125 per 100,000 in Greenlee County to 2,954 per 100,000 in Apache County.[F-1] According to the Centers for Disease Control and Prevention (CDC), within the Southwest region of the United States, Arizona has a demonstrably higher rate of COVID infection per 100,000 population, at 730.5, with comparisons rates per 100,000 of 439.4 (California), 442.7 (Nevada), 563.9 (Utah), 536.2 (Colorado) and 504.2 (New Mexico).[F-2] Additionally, social distancing and stay at home orders to curb the severity and intensity of the pandemic across state and local jurisdictions were enacted with variable timing across the United States and the Southwest region. Arizona's stay at home order took effect on March 31, 2020, while surrounding states enacted their order as early as March 19 (California), March 24 (New Mexico), March 26 (Colorado), March 27 (Utah), and April 1 (Nevada).[F-3]

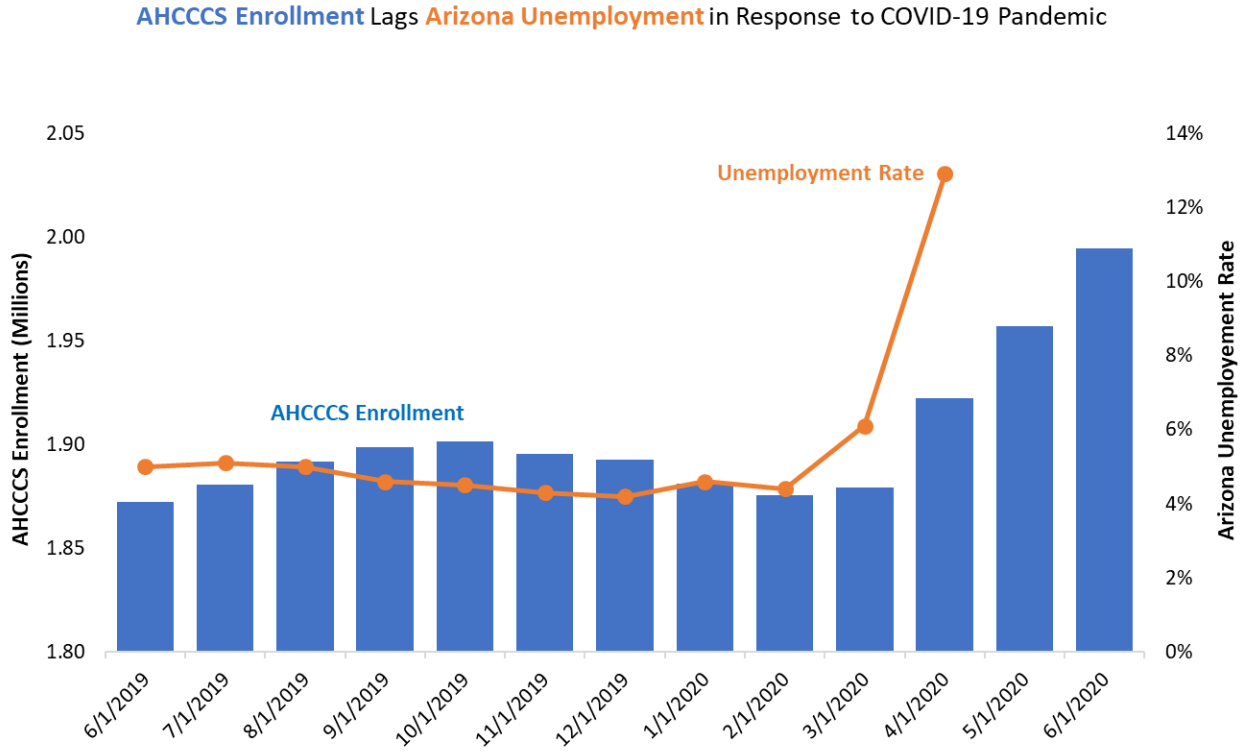
The scope and scale of the COVID-19 pandemic has already impacted the planned execution of some components of this design plan, and appears that it may continue to do so in the near future. Additionally, the pandemic forces the independent evaluator to consider methods that would allow the disentanglement of the Arizona Health Care Cost Containment System (AHCCCS) program impacts from results driven by COVID-19 or the policy response within Arizona and other states. The next section details the aspects of the COVID-19 pandemic that are most likely to impact the execution of data collection efforts. The subsequent section describes the methodological considerations would ideally be addressed in any study to disentangle program impacts from COVID impacts.

Impacts on Data Collection Efforts

The unprecedented loss of jobs and subsequent instability in the economy have resulted in a substantial increase in Medicaid enrollment. Figure F-1 shows the initial spike in unemployment followed by an increase in AHCCCS enrollment in the wake of COVID-19, as expected.

[F-1] Data obtained on June 22, 2020 from https://www.azdhs.gov/preparedness/epidemiology-disease-control/infectious-disease-epidemiology/covid-19/dashboards/index.php.
[F-2] Data obtained on June 22, 2020 from https://www.cdc.gov/covid-data-tracker/index.html#cases.
[F-3] Data obtained on June 22, 2020 from https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html.

Figure F-1: AHCCCS Enrollment and Unemployment



Source: AHCCCS Population by Category Report (June 2020); Arizona Office of Economic Opportunity. Unemployment rate is not seasonally adjusted for accurate comparison to AHCCCS enrollment.

The influx of members is consistent with a shift in demographics toward a more commercial base of members. This is not dissimilar to the increase in Medicaid enrollment following the 2008/2009 Great Recession, albeit on a substantially more compressed time frame. Furthermore, the increase in unemployment directly and indirectly results in lower state revenue through reduced state income tax and reduced sales tax due, in part to loss of jobs and economic hardship among consumers but also due to social distancing efforts and statewide stay-at-home orders. Therefore, the financial impact of COVID-19, while not directly tied to the evaluation of Arizona's demonstration, is important to factor into the evaluation particularly as it relates to the cost-effectiveness component.[F-4, F-5] Increased enrollments are likely to be tied to substantial shifts in the disease conditions and comorbidities of the Medicaid population during the pandemic, and to increase the demand on aggregate spending by AHCCCS. Additionally, to the extent that increases in enrollments are not met with concomitant increases in network capacity, there may be increased expenditures for care and barriers to the access and delivery of care that should be accounted for in the cost effectiveness analysis. To the extent that the increased spending is experienced

[F-4] For example, in order to assist providers in responding to the pandemic, AHCCCS advanced $41 million of provider incentive payments as part of the Targeted Investments program for disbursement in May 2020, ahead of the planned distribution in Fall 2020.

[F-5] "Arizona Medicaid Program Advances $41 Million in Provider Payments to Address COVID-19 Emergency." April 27, 2020. AHCCCS News Release, Available at: https://azahcccs.gov/shared/News/GeneralNews/AHCCCSAdvancesFortyOneMilProviderPayments.html. Accessed on: Jun 23, 2020.

by specific programs such as AHCCCS Complete Care (ACC), cost sustainability calculations will need to be adjusted to account for a denominator consistent with the non-pandemic population.

Beyond increasing Medicaid enrollments and expenditures, the COVID-19 pandemic is likely to impact the delivery of care in many direct ways. For example, social distancing efforts and stay at home orders have created a period during which the demand for many services were effectively reduced to near zero through interruptions in routine care. Second, managed care plans are likely to have experienced greater demand in handling increased enrollments and ensuring timely payment to contracted providers. Third, many program-specific strategies to assist with the integration of care may have been curtailed due to COVID-19. The combinations of the sustained increase in enrollment and delays or gaps in routine care may increase rate denominators while simultaneously decreasing numerators, leading to reduced performance measure rates.

Beneficiary surveys will also be impacted by the pandemic, both in terms of timing, and in potential responses. If, the beneficiary composition has changed or is not representative of a non-COVID Medicaid population then responses may not be generalizable. Additionally, beneficiaries may be impacted by disruptions in health care and their experience of care may be different than had they been surveyed either before COVID, or sufficiently after the impacts of COVID had dissipated. AHCCCS is planning on conducting a large-scale survey as part of its external quality review (EQR) contract in mid-2020, which will provide the independent evaluator an opportunity to leverage large sample sizes across many of the populations planned for surveys. The delay in fielding the survey; however, means that the data collected will be less proximate to the implementation of the AHCCCS programs being evaluated, and could result in rates that are less reflective of the experience of care associated with the AHCCCS programs, and more reflective of the experience of care during the COVID-19 pandemic.

While the COVID-19 pandemic will also impact provider focus groups and key informant interviews, the independent evaluator will follow the State's guidance on whether the State is comfortable proceeding with such data collection. The potential disruption among providers and key informants must be balanced alongside expedient data collection to minimize recall bias on several important programs. For example, one important aspect of the evaluation is to assess stakeholders' perspectives regarding the integration of care that took place under ACC, which, as of the drafting of this evaluation design plan, occurred approximately 21 months ago. Additional significant delays in qualitative data collection will worsen not only the recollection of key informants but also the reliability of contact information for individuals who may have left the organization(s).

The COVID-19 pandemic has already exerted an arguably substantial force on the State of Arizona, its health care system, and its Medicaid population. In an ideal evaluation, the independent evaluator would be able to control for many of these issues during the analysis. The ability to do so in the current context of AHCCCS' Section 1115 Waiver evaluation will be dependent on the availability of data, and how long the pandemic may be extended by multiple waves of infections throughout the United States. The next section provides details on potential methodological tools that could be used to disentangle program impacts from COVID-19 impacts.

Impacts on Methodology

Lacking random assignment to treatments, the evaluation approached outlined in this evaluation design plan represents a number of strong quasi-experimental designs, including propensity score matching (PSM) with difference-in-differences (DiD) regression, interrupted time series (ITS) analysis, and regression discontinuity (RD) models. One of the strongest quasi-experimental designs, PSM with DiD, makes use of a matched comparison group of Medicaid members that are similar to those receiving treatment under the various AHCCCS programs in terms of demographics, disease conditions, and comorbidities. For programs that were implemented

across their respective populations of eligible members in Arizona (e.g., ACC, Regional Behavioral Health Authority [RBHA], Comprehensive Medical and Dental Program [CMDP], Arizona Long Term Care System [ALTCS], and Prior Quarter Coverage [PQC]), no eligible comparison group realistically exists within the State. An eligible population could therefore be drawn from another state, provided specific criteria were met. Ideally, the comparison state would have Medicaid members demographically similar to Arizona; a Medicaid system that was similar to Arizona in terms of eligibility, enrollment, and pre-integration policies and programs; a COVID-19 infection rate or likely infection rate (accounting for differentials in testing) comparable to Arizona; and have had a state policy response to COVID-19 that was similar to Arizona. This combination of factors represents a particularly difficult challenge to surmount in identifying an eligible comparison group. The independent evaluator continues to work toward identifying states that could be suitable candidates, either individually or combined and weighted to better reflect Arizona's unique characteristics for inclusion in the evaluation, under the assumption that data will be available if such a comparator state or states are identified.

In addition to identifying eligible populations of members from other states that can suitably serve as counterfactuals to the AHCCCS treatment populations, several analytic tools can be used to attempt to disentangle the impact of COVID-19 from the impacts of the AHCCCS programs.

For measures that utilize monthly data points, months in which COVID-19 was expected to impact outcomes may be removed from the analysis. This analysis can serve as a robustness test, identifying how sensitive the conclusions are to the inclusion or exclusion of the COVID-19 months. If such a difference is identified, the independent evaluator will need to explore the data further to understand the detailed nature of the results, and ascertain the mechanisms by which the removal of the COVID-19 months makes a difference in results.

As an alternative to removing COVID-19 months, controls may be used to assess the severity and/or duration of effects from the pandemic. Measures such as monthly case counts, intensive care unit (ICU) utilization, or monthly unemployment rates could serve as potential instrumental variables to control for the impact of COVID-19. To the extent that eligible comparison group members are drawn from different states, this approach could be confounded by the differential preparedness of states to respond to the COVID-19 pandemic, as well as their differential policy responses.

For measures that do not utilize monthly data points, results for calendar year ending (CYE) 2020 and possibly CYE 2021 may be excluded or evaluated separately. Ideally, a comparison group would be used to support an analytic approach such as DiD. The choice of time frames to exclude, and ultimate impact on the statistical power of the data and model used will depend, in large part, on how long the impacts of the COVID-19 pandemic continue into the future.

Finally, results may be stratified by geography, age, race/ethnicity and other demographic factors to assess the external validity of differential responses to demonstration policies that may be influenced by the pandemic. To the extent that COVID-19 impacts were differentially experienced by subgroups of the Medicaid populations being evaluated, the independent evaluator could assess the impact of AHCCCS programs on stratified subgroups, controlling for COVID-19. All results will be interpreted in context of the pandemic and its likely impact on outcomes using both theory and similar outcomes from other states and/or national benchmarks where possible.

While each of the approaches outlined is seated in standard quasi-experimental design methods, many rely on the strong assumption of having valid and reliable data available for the populations and measures of interest. Furthermore, as the COVID-19 pandemic continues, and Arizona continues to worsen as of June 22, 2020, it is unclear how long the pandemic will impact outcomes for beneficiaries receiving services through AHCCCS and its managed care plans and providers. To the extent that data is available, and the COVID-19 pandemic is limited

in time, the independent evaluator will have an increased chance to isolate program effects from pandemic effects. The longer that the pandemic impacts are drawn out over time, the more difficult it will be to disentangle program impacts from pandemic impacts.

G. AHCCCS Works Evaluation Design Plan

Appendix G contains the Arizona Health Care Cost Containment System (AHCCCS) Works evaluation design plan.

Arizona Health Care Cost Containment System

AHCCCS Works

Evaluation Design Plan

July 2020

This program is operated under an 1115 Research and Demonstration Waiver initially approved by the Centers for Medicare & Medicaid Services (CMS) on January 18, 2019.

HSAG HEALTH SERVICES ADVISORY GROUP

Table of Contents

1. Background

On January 18, 2019, Centers for Medicare & Medicaid Services (CMS) approved Arizona's request to amend its Section 1115 Demonstration project, entitled "Arizona Health Care Cost Containment System (AHCCCS)," in accordance with Section 1115(a) of the Social Security Act. The federal approval authorized Arizona's Medicaid Program to implement community engagement requirements for able bodied adult beneficiaries who are 19 to 49 years old and fall within the Group VIII population (individuals with incomes between 0 and 138 percent of the Federal Poverty Level who are not otherwise eligible for Medicaid in any other category).

Arizona's community engagement program, known as "AHCCCS Works," is designed to encourage qualifying beneficiaries to use existing community services and resources in order to gain and maintain meaningful employment, job training, education, or volunteer service experience. Beneficiaries who are required to comply with AHCCCS Works will participate in at least 80 hours of community engagement activities per month. Beneficiaries may satisfy community engagement requirements through a variety of qualifying activities including:

- Employment (including self-employment)
- Education (less than full-time education)
- Job or life skills training
- Job search activities
- Community service

Upon becoming subject to the community engagement requirements, beneficiaries will receive an initial three - month orientation period in which to become familiar with the AHCCCS Works program. During this period, the beneficiary will receive information about the community engagement requirements, how to comply, and how to access available community engagement resources. After the three-month orientation period, beneficiaries who do not complete at least 80 hours of community engagement per month will be suspended from AHCCCS coverage for two months, and then be automatically reinstated. The AHCCCS Works requirements will not apply to individuals who meet any of the following conditions:

- Pregnant women and women up to the end of the month in which the 60th day of post-pregnancy occurs
- Former foster care youth up to age 26
- Beneficiaries who are members of federally recognized tribe
- Beneficiaries determined to have a serious mental illness (SMI)
- Beneficiaries currently receiving temporary or permanent long-term disability benefits from a private insurer or from the state or federal government, including workers compensation benefits
- Beneficiaries who are medically frail
- Beneficiaries who are in active treatment with respect to a substance use disorder (SUD)
- Full time high school, trade school, college or graduate students
- Victims of domestic violence
- Beneficiaries who are homeless
- Designated caretakers of a child under age 18
- Caregivers who are responsible for the care of an individual with a disability

- Beneficiaries who have an acute medical condition
- Beneficiaries who are receiving Supplemental Nutrition Assistance Program (SNAP), Cash Assistance, or Unemployment Insurance income benefits
- Beneficiaries participating in other AHCCCS approved work programs
- Beneficiaries not mentioned above who have a disability as defined by federal disabilities rights laws (ADA, Section 504, and Section 1557) who are unable to participate in AW Requirements for disability-related reasons

The AHCCCS Works demonstration is approved effective from January 18, 2019, through September 30, 2021.[1-1] However, on October 17, 2019, AHCCCS notified CMS that Arizona will be postponing the implementation of AHCCCS Works until further notice, citing ongoing litigation regarding Medicaid community engagement programs.[1-2] If and when implemented, the evaluation of this demonstration will test, in part, whether the demonstration increases the employment rates, income, and health status for those beneficiaries. As of October 2017, there were 398,519 individuals in the Group VIII eligibility category, including members eligible for exemption.[1-3] AHCCCS had originally requested to implement AHCCCS Works through a three staged phase-in approach, beginning with the most urbanized counties in Spring/Summer 2020, semi-urbanized counties in Spring/Summer 2021, and ending with least urbanized counties in Spring/Summer 2022. When the program is implemented, these dates will be revised accordingly.

AHCCCS' goal is to increase employment, employment opportunities, and activities to enhance employability, increase financial independence, and improve health outcomes of beneficiaries.[1-4] The objectives include increasing the number of beneficiaries with earned income and/or the capacity to earn income, reducing enrollment, and reducing the amount of "churn" (individuals moving on and off Medicaid repeatedly) by encouraging of greater access to employment and employer sponsored health insurance or health insurance through the Federally-Facilitated Marketplace.[1-5]

[1-1] CMS Approval Letter. Centers for Medicare & Medicaid Services. https://www.azahcccs.gov/Resources/Downloads/CMSApprovalLetter.pdf. Accessed on Jun 10, 2019.

[1-2] Snyder, J, (October 17, 2019) *RE: Implementation of AHCCCS Works*, letter to Acting Director Lynch, Center for Medicare and Medicaid Services. Available at https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/Health-Care-Cost-Containment-System/az-hccc-postponement-ltr-ahcccs-works-10172019.pdf. Accessed on Oct 23, 2019.

[1-3] Arizona Section 1115 Waiver Amendment Request: AHCCCS Works Waiver. Arizona Health Care Cost Containment System. https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/az-hccc-pa6.pdf, Page 6 of 683. Accessed on Jun 10, 2019.

[1-4] CMS Approval Letter. Centers for Medicare & Medicaid Services. https://www.azahcccs.gov/Resources/Downloads/CMSApprovalLetter.pdf, Page 4 of 19. Accessed on Jun 10, 2019.

[1-5] Arizona Section 1115 Waiver Amendment Request: AHCCCS Works Waiver. Arizona Health Care Cost Containment System. https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/az/az-hccc-pa6.pdf, Page 11 of 683. Accessed on Jun 10, 2019.

2. Evaluation Questions and Hypotheses

The overarching goals of the Arizona Health Care Cost Containment System (AHCCCS) Works demonstration are to encourage beneficiaries to obtain employment and undertake additional community engagement activities to reduce beneficiaries' reliance on public assistance programs and promote health and wellness.

The primary purpose of this evaluation is to determine whether the AHCCCS Works demonstration waiver is achieving these goals. To develop hypotheses and research questions associated with these goals, AHCCCS developed a logic model which relates the inputs and activities of the program (i.e., requiring 80 hours of community engagement activities per month) to anticipated initial, intermediate, and long-term outcomes, which are associated with hypotheses.

Logic Model

As the Centers for Medicare & Medicaid Services (CMS) notes in its letter to State Medicaid Directors dated January 11, 2018, engaging in the activities required by AHCCCS Works has been shown to improve health and well-being.[2-1] For instance, education "can lead to improved health by increasing health knowledge and healthy behaviors."[2-2] A growing body of literature relates broader social determinants of health, including specific factors that AHCCCS Works targets such as employment, income, and education.[2-3] Therefore, increased employment, income, and education resulting from the community engagement requirements should lead to improved health outcomes and reduced reliance on Medicaid, thereby promoting sustainability of the program.

Figure 2-1 illustrates that, given resources to allow AHCCCS beneficiaries subject to the demonstration requirements to log qualifying hours, the intended outcome is for these recipients to engage in and report 80 or more hours of community engagement activities per month.[2-4] Since these activities include employment, job-seeking activities, job training or education, AHCCCS anticipates that initial outcomes of the demonstration will raise rates of beneficiaries engaging in these activities. With increased rates of beneficiaries gaining employment or engaging in educational activities, beneficiaries' income and educational attainment will increase in the intermediate term. In the long term, this will reduce reliance on public assistance and improve beneficiaries' health and well-being. Hypotheses associated with these outcomes are denoted in parentheses in the logic model (hypotheses descriptions can be found in Table 2-1).

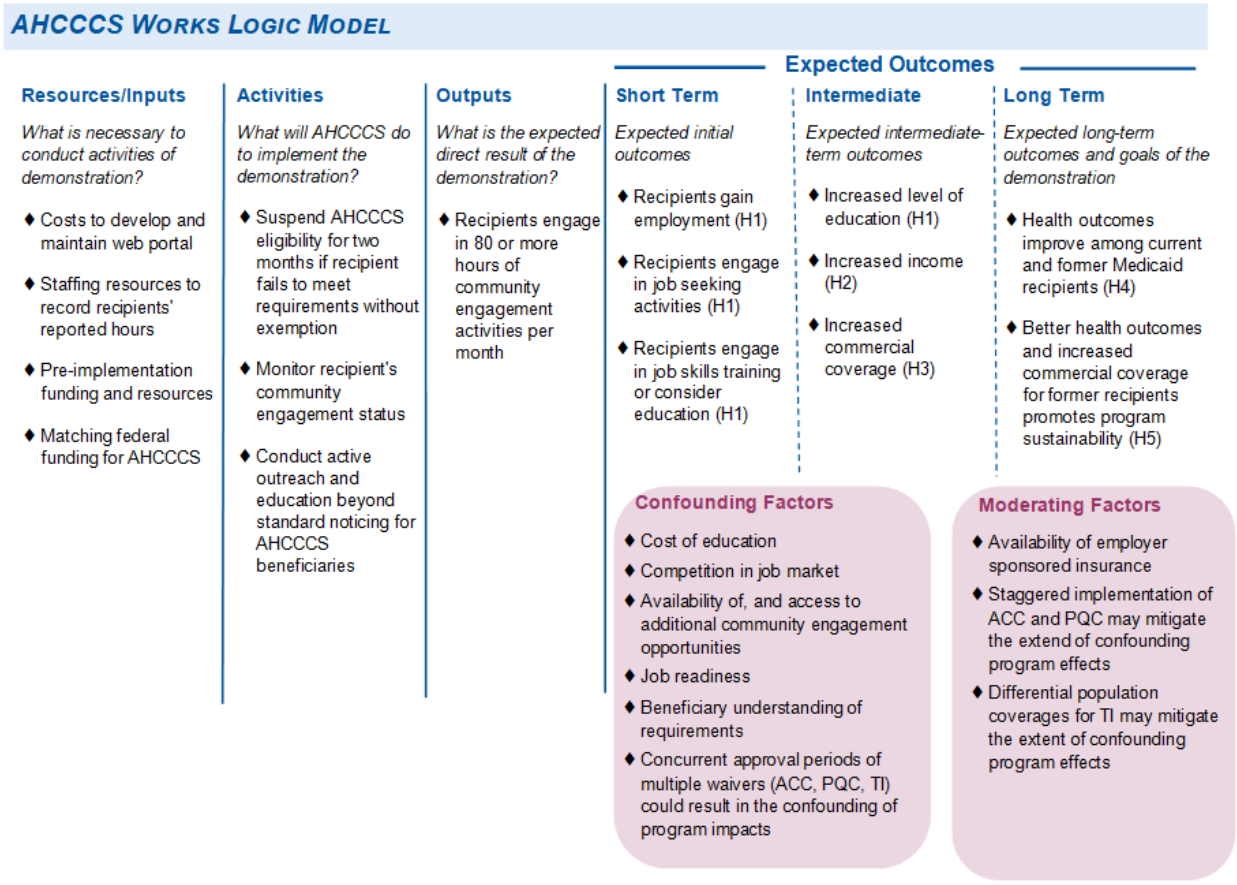
[2-1] Centers for Medicare & Medicaid Services. Opportunities to Promote Work and Community Engagement Among Medicaid Directors. Jan 11, 2018. Available at: https://www.medicaid.gov/federal-policy-guidance/downloads/smd18002.pdf. Accessed on Jun 14, 2019.

[2-2] Ibid.

[2-3] Braveman, P., & Gottlieb, L. (2014). The social determinants of health: it's time to consider the causes of the causes. Public health reports (Washington, D.C.: 1974), 129 Suppl 2(Suppl 2), 19–31. doi:10.1177/00333549141291S206.

[2-4] Beneficiaries can log hours either through a web-based portal, through telephone, or in-person.

Figure 2-1: AHCCCS Works Logic Model



Note: PQC: Prior Quarter Coverage, TI: Targeted Investments, ACC: AHCCCS Complete Care

As shown in the logic model above under "Confounding Factors" and "Moderating Factors", there are several concurrent programs and components to the demonstration that may affect certain groups of beneficiaries. The figure below depicts the relationship between demonstration components, AHCCCS programs and policy changes, and populations covered by AHCCCS.

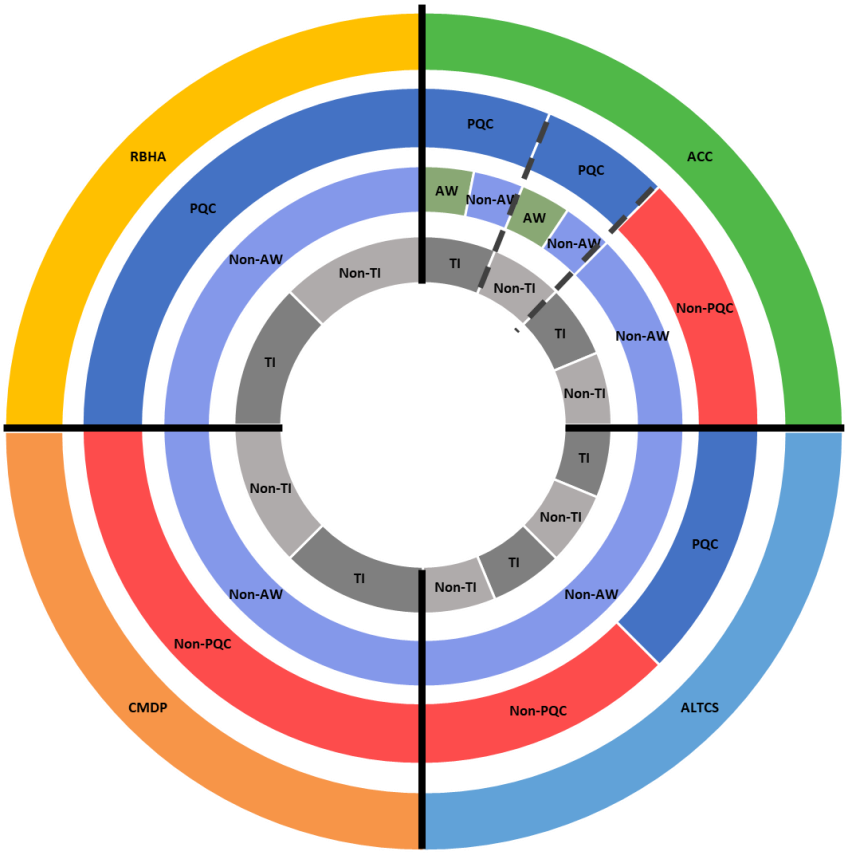
Most AHCCCS beneficiaries in the managed care system have coverage through one of four different programs:

1. **AHCCCS Complete Care (ACC)**—Covers the following populations:
   a. Adults who are not determined to have an SMI (excluding beneficiaries enrolled with Department of Economic Security/Division of Developmental Disabilities [DES/DDD]);
   b. Children, including those with special health care needs (excluding beneficiaries enrolled with DES/DDD and Department of Child Safety/CMDP); and
   c. Beneficiaries determined to have an SMI who opt out of a Regional Behavioral Health Authority (RBHA) and transfer to an ACC for the provision of physical health services.
2. **Arizona Long Term Care System (ALTCS)**—Covers beneficiaries with an intellectual or developmental disability (ALTCS-DD) and beneficiaries who are elderly or physically disabled (ALTCS-EPD).

3. **Comprehensive Medical and Dental Program (CMDP)**—Covers beneficiaries in custody of the Department of Child Safety (DCS).
4. **Regional Behavioral Health Authority (RBHA)**—Covers adult beneficiaries with a serious mental illness (SMI).

AHCCCS Works will impact all Group VIII adults with the exception of those meeting certain exemption criteria. All Group VIII beneficiaries receive their behavioral and medical health care through an ACC plan. The Prior Quarter Coverage (PQC) waiver impacts all adults on AHCCCS.[2-5] Therefore, evaluations that only cover children (i.e., CMDP) will not be affected by PQC, and evaluations that only cover adults (i.e., AHCCCS Works, RBHA) will be impacted entirely by PQC (with few exceptions). The Targeted Investments (TI) program is designed to encourage participating practitioners to provide integrated care for their beneficiaries. This impacts all children and adult beneficiaries attributed or assigned to TI-participating practitioners; however, it does not impact beneficiaries who are not attributed or assigned to practitioners who are not participating in TI. Therefore, the TI program is expected to impact every eligibility category. Figure 2-2 illustrates that the populations covered by ACC, CMDP, ALTCS, and RBHA are mutually exclusive and that each of these may have a subset impacted by AHCCCS Works, PQC, and/or TI.

Figure 2-2: Population Relationships Across Waivers



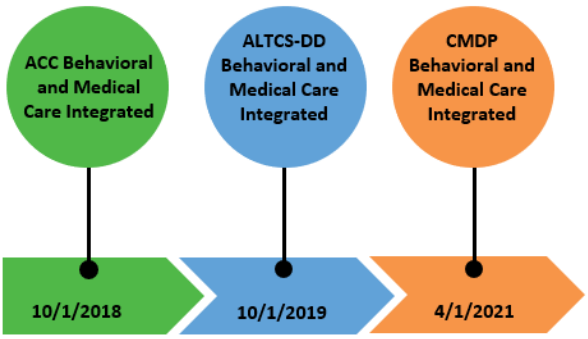
Note: The size of each segment does not represent population size. AW: AHCCCS Works.

[2-5] Exceptions include children under the age of 19 and women who are pregnant or 60 days post-partum.

The four broad populations for each evaluation, with few exceptions, are distinct and mutually exclusive. For example, beneficiaries with an SMI may opt-out of RBHA coverage and instead choose an ACC plan that is available in their region. Children in the custody of DCS with an intellectual or developmental disability are covered through ALTCS-DD.

Historically, RBHA provided behavioral health coverage for much of the AHCCCS population, while medical care was provided through other plans. Prior to and during the demonstration renewal period, AHCCCS has made several structural changes to care delivery by integrating behavioral and medical care at the payer level. This integration process began with the award of the Mercy Maricopa Integrated Care (MMIC) contract in 2013, effective April 2014. MMIC was a RBHA that, in addition to providing behavioral health coverage for most AHCCCS beneficiaries in central Arizona, provided integrated physical and behavioral healthcare coverage for adult beneficiaries with an SMI in Maricopa county. In October 2015, RBHA contractors statewide began providing integrated care for their beneficiaries with an SMI. On October 1, 2018, AHCCCS conducted its largest care integration initiative by transitioning all acute care beneficiaries who do not have an SMI to seven AHCCCS Complete Care (ACC) integrated health plans, which provided coverage for physical and behavioral care. Beginning October 1, 2019, AHCCCS integrated behavioral and physical healthcare for the DES/DDD population covered through ALTCS (ALTCS-DD). Beneficiaries enrolled in CMDP will transition to integrated behavioral and physical health care services care under the CMDP waiver beginning April 1, 2021. The diagram below depicts a timeline of the payer-level integration of behavioral health and medical health care for the ACC, ALTCS-DD, and CMDP populations.

Figure 2-3: Timeline of Payer-Level Integration of Behavioral Health and Medical Health Care



Hypotheses and Research Questions

To comprehensively evaluate the AHCCCS Works demonstration waiver, six hypotheses will be tested using 22 research questions. Table 2-1 lists the six hypotheses and Table 2-2 through Table 2-6 lists research questions and measures for each hypothesis.

Table 2-1: AHCCCS Works Hypotheses

Hypotheses	
1	Medicaid beneficiaries subject to the community engagement requirement will have higher employment and education levels than Medicaid beneficiaries not subject to the requirement.
2	Medicaid beneficiaries subject to the community engagement requirement will have higher average income than Medicaid beneficiaries not subject to the requirement.

Hypotheses	
3	Medicaid beneficiaries subject to the community engagement requirement will have a higher likelihood of transitioning to commercial health insurance after separating from Medicaid than Medicaid beneficiaries not subject to the requirement.
4	Current and former Medicaid beneficiaries subject to the community engagement requirement will have better health outcomes than Medicaid beneficiaries not subject to the requirement.
5	The community engagement requirement will promote Medicaid program sustainability through cost-effective care.
6	Assessment of AHCCCS Works Implementation.

Where possible, outcomes among beneficiaries subject to the demonstration will be compared against outcomes among beneficiaries not subject to the demonstration—either those meeting exemption criteria, or those in traditional, Non-group VIII eligibility groups.

Hypothesis 1 will test whether the demonstration ultimately results in higher employment and education levels for beneficiaries subject to the requirements. The measures to test this hypothesis and answer associated research questions are listed below in Table 2-2. Improvements in these outcomes would support the demonstration's goal of increasing employment and education opportunities among its targeted beneficiaries.

Table 2-2: Hypothesis 1 Research Questions and Measures

Hypothesis 1—Medicaid beneficiaries subject to the community engagement requirement will have higher employment and education levels than Medicaid beneficiaries not subject to the requirement.	
Research Question 1.1: Does the community engagement requirement lead to increased job seeking activities for those subject to the requirements compared to those who are not?	
1-1	Percentage of beneficiaries who did not work during the previous week who actively sought a job during the past four weeks
1-2	Percentage of beneficiaries who met community engagement criteria through job search activities
Research Question 1.2: Does the community engagement requirement lead to increased rates of education enrollment or employment training programs?	
1-3	Percentage of beneficiaries attending school or an Employment Support and Development program
1-4	Percentage of beneficiaries who met community engagement criteria through attending school or an Employment Support and Development program
Research Question 1.3: Are beneficiaries subject to the community engagement requirement more likely to be employed (including new and sustained employment) compared to those who are not?	
1-5	Percentage of beneficiaries who usually worked at least 20 hours per week during previous year
1-6	Percentage of beneficiaries employed during each month of measurement year
1-7	Number of weeks worked last year (including as unpaid family worker, and paid vacation/sick leave)
Research Question 1.4: Do beneficiaries who initially comply through activities other than employment gain employment within certain time periods?	
1-8	Percentage of beneficiaries initially compliant through activities other than employment employed at 6 months, 1 year, and 2 years after enrollment or implementation.

Hypothesis 1—Medicaid beneficiaries subject to the community engagement requirement will have higher employment and education levels than Medicaid beneficiaries not subject to the requirement.	
Research Question 1.5: Is employment among individuals subject to community engagement requirements sustained over time, including after separating from Medicaid?	
1-9	Percentage of beneficiaries employed continuously for a year or more since enrollment or implementation.
Research Question 1.6: Does the community engagement requirement lead to better education outcomes?	
1-10	Beneficiaries' reported highest grade or level of education completed

Through increased rates of employment and/or hours worked, Hypothesis 2 will test whether the income among beneficiaries subject to the demonstration increases as a result. The measure and associated research question are presented in Table 2-3.

Table 2-3: Hypothesis 2 Research Questions and Measures

Hypothesis 2—Medicaid beneficiaries subject to the community engagement requirement will have higher average income than Medicaid beneficiaries not subject to the requirement.	
Research Question 2.1: Does the community engagement requirement increase income?	
2-1	Average monthly earnings
2-2	Average beneficiary reported personal income

A core theoretical underpinning of the AHCCCS Works demonstration program is that increased rates of employment and income should lead to decreased reliance on the Medicaid program, a stated goal of the program. Hypothesis 3 seeks to determine the impact of the demonstration on uptake of commercial insurance. The measures and associated research questions are presented in Table 2-4. Increases in commercial coverage among former Medicaid beneficiaries who were subject to the community engagement requirements could suggest that the demonstration had its intended impact to successfully reduce their reliance on Medicaid while maintaining healthcare coverage. A possible unintended consequence, however, is for these beneficiaries to separate from Medicaid but not maintain healthcare coverage. To measure this, the independent evaluator will survey former Medicaid beneficiaries who recently separated to determine whether they had periods where they were not covered by any health insurance.

Table 2-4: Hypothesis 3 Research Questions and Measures

Hypothesis 3—Medicaid beneficiaries subject to the community engagement requirement will have a higher likelihood of transitioning to commercial health insurance after separating from Medicaid than Medicaid beneficiaries not subject to the requirement.	
Research Question 3.1: Does the community engagement requirement lead to increased take-up of commercial insurance, including employer-sponsored insurance (ESI) and Marketplace plans?	
3-1	Enrollment in commercial coverage within one year after Medicaid disenrollment
3-2	Percentage of beneficiaries with a job that offers ESI
3-3	Percentage of beneficiaries with a job that offers ESI and who enroll in ESI
Research Question 3.2: Is new ESI coverage sustained over time after implementation of community engagement requirements?	

Hypothesis 3—Medicaid beneficiaries subject to the community engagement requirement will have a higher likelihood of transitioning to commercial health insurance after separating from Medicaid than Medicaid beneficiaries not subject to the requirement.	
3-4	Percentage of beneficiaries who still have ESI coverage 1 and 2 years after initial take-up of ESI
3-5	Percentage of beneficiaries with Medicaid coverage 1 and 2 years after initial take-up of ESI
3-6	Percentage of beneficiaries uninsured 1 and 2 years after initial take-up of ESI
Research Question 3.3: Are beneficiaries with ESI able to pay premiums and meet other cost-sharing responsibilities, such as deductibles and copayments?	
3-7	Percentage of beneficiaries with ESI who reported problems paying insurance or medical bills
3-8	Reported out-of-pocket medical spending among beneficiaries with ESI
Research Question 3.4: Is the community engagement requirement associated with coverage losses (if people transition off Medicaid and do not enroll in commercial health insurance?)	
3-9	Average number of months beneficiaries reported being uninsured
3-10	Average number of months uninsured
Research Question 3.5: Are beneficiaries subject to the community engagement requirement more likely to lose eligibility due to increased income than beneficiaries not subject to the requirement?	
3-11	Percentage of beneficiaries disenrolling from Medicaid due to income exceeding limit
3-12	Percentage of non-exempt AHCCCS Works beneficiaries losing Medicaid eligibility per month, by discontinuance category
Research Question 3.6: At what rates are beneficiaries subject to the community engagement requirement suspended due to noncompliance?	
3-13	Percentage of non-exempt AHCCCS Works beneficiaries suspended due to noncompliance per month

Hypothesis 4 seeks to determine the impact of the demonstration on health outcomes among both current and former beneficiaries who recently separated from Medicaid. One of the overarching goals of the demonstration waiver is to increase the health outcomes of those subject to the community engagement requirements through increased rates of employment, education, and other community engagement activities. Table 2-5 presents the measures and survey questions that will be used to measure health outcomes.

Table 2-5: Hypothesis 4 Research Questions and Measures

Hypothesis 4—Current and former Medicaid beneficiaries subject to the community engagement requirement will have better health outcomes than Medicaid beneficiaries not subject to the requirement.	
Research Question 4.1: Does the community engagement requirement lead to improved health outcomes?	
4-1	Beneficiary reported rating of overall health
4-2	Beneficiary reported rating of overall mental or emotional health
4-3	Percentage of beneficiaries who reported prior year emergency room (ER) visit

Hypothesis 4—Current and former Medicaid beneficiaries subject to the community engagement requirement will have better health outcomes than Medicaid beneficiaries not subject to the requirement.	
4-4	Percentage of beneficiaries who reported prior year hospital admission

A key requirement of a section 1115 waiver evaluation is to assess the impact of the demonstration on a state Medicaid program's financial sustainability.[2-6, 2-7] To that end, the independent evaluator will assess cost effectiveness of the demonstration with Hypothesis 5. Because cost effectiveness will not be evaluated solely based on the outcome of specific financial measurements, no specific measures are included under Hypothesis 5. The independent evaluator will calculate costs and savings associated with administrative activities and service expenditures. The cost of the program will include costs greater than the projected costs had the demonstration not been implemented. Program savings will be identified as reductions in administrative and/or service expenditures beyond those projected had the integration of care not been implemented. Additional non-monetary benefits (costs) will also be identified related to improvements (declines) in any of the above measures for which a monetary value cannot be assigned. The approach for assessing cost-effectiveness of the program is described in detail in the Cost-Effectiveness Analysis section. The measures and associated research questions are presented in Table 2-6.

Table 2-6: Hypothesis 5 Research Questions and Measures

Hypothesis 5—The community engagement requirement will promote Medicaid program sustainability through cost-effective care.
Research Question 5.1: What are the costs associated with implementation and maintenance of AHCCCS Works?
Research Question 5.2: What are the benefits/savings associated with the AHCCCS Works program?

Part of the evaluation of the AHCCCS Works demonstration will consist of an implementation assessment. The following research questions will be answered through a range of data sources, including administrative program data, beneficiary surveys and/or focus groups, and key informant interviews with subject matter experts at AHCCCS. The measures and associated research questions are presented in Table 2-7.

Table 2-7: Hypothesis 6 Research Questions and Measures

Hypothesis 6—Assessment of AHCCCS Works Implementation	
Research Question 6.1: What is the distribution of activities beneficiaries engage in to meet community engagement requirements? How have these changed over time?	
6-1	Breakdown of community engagement compliance by category, over time (e.g. monthly)
Research Question 6.2: What are common barriers to compliance with community engagement requirements?	
6-2	Beneficiaries' reported barriers to community engagement compliance

[2-6] Centers for Medicare & Medicaid Services. Evaluation Design Guidance for Section 1115 Eligibility and Coverage Demonstrations. Available at: https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/ce-evaluation-design-guidance.pdf. Accessed on: Jun 14, 2019.

[2-7] Centers for Medicare & Medicaid Services. Arizona Medicaid Section 1115 Demonstration Special Terms and Conditions. Jan 18, 2017. Available at: https://www.azahcccs.gov/shared/Downloads/News/FORSTATEArizonaAHCCCSSTCAndAuthorities_W_TIPFinal.pdf. Accessed on Jun 20, 2019.

Hypothesis 6—Assessment of AHCCCS Works Implementation	
Research Question 6.3: Do beneficiaries report that they have the necessary support services to meet community engagement requirements?	
6-3	Beneficiaries' reported support services for meeting community engagement requirements
Research Question 6.4: Do beneficiaries understand the requirements, including how to satisfy them and the consequences of noncompliance?	
6-4	Beneficiaries' reported awareness of community engagement requirements, how to report hours, and consequences of noncompliance
Research Question 6.5: How many beneficiaries are required to actively report their status, including exemptions, good cause circumstances, and qualifying activities?	
6-5	Number and percentage of beneficiaries required to actively report exemptions
6-6	Number and percentage of beneficiaries required to actively report good cause circumstances
6-7	Number and percentage of beneficiaries required to report qualifying activities
Research Question 6.6: Are beneficiaries who are disenrolled for noncompliance with community engagement requirements more or less likely to re-enroll than beneficiaries who disenroll for other reasons?	
6-8	Percentage of beneficiaries re-enrolling in Medicaid after a gap in coverage of at least 1 month and 3 months

3. Methodology

The primary goal of an impact assessment in policy and program evaluation is to identify the impact of the policy or program. To accomplish this, a comparison of outcomes between the intervention group and a valid counterfactual—the intervention group had they not been exposed to the intervention—must be made. The gold standard for experimental design is a randomized controlled trial which would be implemented by first identifying an intervention population, and then randomly assigning individuals to the intervention and the rest to a comparison group, which would serve as the counterfactual. However, random assignment is rarely feasible or desirable in practice, particularly as it relates to healthcare policies.

As such, a variety of quasi-experimental or observational methodologies have been developed for evaluating the effect of policies on outcomes. The research questions presented in the previous section will be addressed through at least one of these methodologies. The selected methodology largely depends on data availability factors relating to: (1) data to measure the outcomes; (2) data for a valid comparison group; and (3) data collection during the time periods of interest—typically defined as the year prior to implementation and annually thereafter. Table 3-1 illustrates a sampling of analytic approaches that could be used as part of the evaluation and whether the approach requires data gathered at the baseline (i.e., pre-implementation), requires a comparison group, or allows for causal inference to be drawn. It also notes key requirements unique to a particular approach.

Table 3-1: Sampling of Analytic Approaches

Analytic Approach	Baseline Data	Comparison Group	Allows Causal Inference	Notes
Randomized Controlled Trial		✓	✓	Requires full randomization of intervention and comparison group.
Difference-in-Differences	✓	✓	✓	Trends in outcomes should be similar between comparison and intervention groups at baseline.
Panel Data Analysis	✓		✓	Requires sufficient data points both prior to and after implementation.
Regression Discontinuity		✓	✓	Program eligibility must be determined by a threshold
Interrupted Time Series	✓		✓	Requires sufficient data points prior to implementation.
Cohort Analysis	✓			
Cross-Sectional Analysis		✓		

Given that Arizona Health Care Cost Containment System (AHCCCS) Works only impacts the Group VIII Medicaid expansion population between ages 19 and 49, Group VIII beneficiaries aged 50 and over may serve as a counterfactual in a regression discontinuity design. To account for differences between the two groups, propensity score matching, or weighting may be used to identify comparison group beneficiaries who share similar characteristics to those in the intervention (i.e., Group VIII beneficiaries between the ages of 19 and 49 subject to the waiver requirements).

Evaluation Design Summary

For measures in which a valid comparison group and baseline data are available, a difference-in-differences (DiD) study design will be used as the foundation for the analysis. The DiD study design will leverage two additional aspects of the demonstration that can help establish causality. The DiD study design will incorporate a regression discontinuity (RD) analysis by utilizing beneficiaries above the cutoff age of 49 as a comparison group. In addition, the stepped wedge implementation of the program will allow for the use of AHCCCS Works beneficiaries aged 19 to 49 in regions yet to implement the program as a comparison group. By leveraging pre-implementation baseline data, the independent evaluator can effectively conduct an RD analysis in the baseline to identify any "jumps" in the outcome at the age cutoff prior to implementation. This will serve as an expected change in rates during the evaluation period.

Outcomes that rely on state administrative data pertaining to employment and income have the potential to have repeated intra-year (e.g., monthly) measurements taken both prior to and after implementation. This can serve to build pre- and post-implementation trends in outcomes. With this frequency of data, a comparative interrupted time series or repeated measures DiD analysis can be utilized. A comparative interrupted time series design is similar to the DID approach, but with the benefit of being able to assess changes in *trends* in the outcome in addition to changes in the *level* of the outcome (averaged across pre- and post- implementation time periods), as given by a two-time period DiD approach.

Intervention and Comparison Populations

For purposes of the evaluation, some measures rely on capturing outcomes among former Medicaid beneficiaries in addition to current Medicaid beneficiaries. Former Medicaid beneficiaries from both groups will be included in the evaluation of these measures.

Intervention Population

As described in the Background, the intervention group will consist of "able-bodied" Group VIII beneficiaries. Specifically, beneficiaries aged 19 to 49 eligible through Medicaid expansion will be the intervention population. In Arizona, the adult expansion population is defined by the following eligibility categories:

- Childless adults, 0-100 percent Federal Poverty Level (FPL) (Prop 204 Restoration)
- Adult expansion, 100-133 percent FPL

However, not all beneficiaries in these eligibility categories will be subject to the demonstration requirements. Specifically, those meeting the following criteria will be exempt:[3-1]

- Pregnant women and women up to the end of the month in which the 60th day of post-pregnancy occurs
- Former foster care youth up to age 26
- Beneficiaries who are members of a federally recognized tribe
- Beneficiaries determined to have a serious mental illness (SMI)

[3-1] Note, some exemptions are listed explicitly for full transparency as to certain groups that will not be impacted, such as those aged 50 or above.

- Beneficiaries currently receiving temporary or permanent long-term disability benefits from a private insurer or from the state or federal government, including workers compensation benefits
- Beneficiaries who are medically frail
- Beneficiaries who are in active treatment with respect to a substance use disorder (SUD)
- Full time high school, trade school, college or graduate students
- Victims of domestic violence
- Beneficiaries who are homeless
- Designated caretakers of a child under age 18
- Caregivers who are responsible for the care of an individual with a disability
- Beneficiaries who have an acute medical condition
- Beneficiaries who are receiving Supplemental Nutrition Assistance Program (SNAP), Cash Assistance, or Unemployment Insurance income benefits
- Beneficiaries participating in other AHCCCS approved work programs
- Beneficiaries not mentioned above who have a disability as defined by federal disabilities rights laws (ADA, Section 504, and Section 1557) who are unable to participate in AW Requirements for disability-related reasons

Comparison Populations

AHCCCS does not maintain or have access to an all-payer claims database from which to feasibly pull commercial insurance claims and enrollment information to identify low income commercial insurance enrollees. As a result, the evaluation design will rely on:

- AHCCCS beneficiaries above the eligibility threshold of age 49
- Prospective AHCCCS Works beneficiaries in other regions resulting from staged rollout of implementation

Identification of AHCCCS beneficiaries above the eligibility threshold of age 49

Adult Medicaid expansion beneficiaries aged 50 or above who would otherwise be eligible for AHCCCS Works will be used as a comparison group in a regression discontinuity (RD) design. Medicaid eligibility categories will be used to identify beneficiaries in the Group VIII population and beneficiary date of birth will be used to identify those who are aged 50 or above. Although the RD design can allow for causal inferences when the age threshold is not associated with any other changes, the results are typically not generalizable to beneficiaries far from the age cutoff. The independent evaluator will determine the appropriate bandwidth around the age threshold for both the comparison and target groups for inclusion in the final analysis.

Propensity score matching may be used to identify a subset of the eligible comparison group that is most similar to the intervention population based on observable characteristics, including demographic factors and health conditions prior to implementation of the waiver.[3-2] Propensity score matching has been used extensively to match

[3-2] See, e.g., Selecting the Best Comparison Group and Evaluation Design: A Guidance Document for State Section 1115 Demonstration Evaluations" for a detailed discussion of appropriate evaluation designs based on comparison group strategies (https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/comparison-grp-evaldsgn.pdf).

individuals from an eligible comparison group to individuals in the intervention group.[3-3] However, there are several risks to the use of propensity scores and subsequent matching on the propensity score (Table 3-2).

Table 3-2: Propensity Score Risks

Risk	Description
Insufficient coverage	Not enough individuals in the eligible comparison group similar enough to intervention population for 1:1 matching.
Unbalanced groups	Observable characteristics of the intervention and comparison groups after matching are not balanced.

When confronted with insufficient coverage, the independent evaluator should first explore alternative specifications in either the propensity score model and/or the matching algorithm before moving to alternative approaches. For example, instead of a typical 1:1 greedy matching algorithm, the independent evaluator could explore matching with replacement or optimal matching algorithms.[3-4] If alternative matching algorithms do not yield a matched comparison group with sufficient coverage and balance, then propensity score weighting can be explored as the next step. Propensity score weighting utilizes the full eligible comparison group and assigns a higher statistical weight to beneficiaries who are predicted to be part of the intervention but were not. A risk of this methodology is that the analysis may be dominated by a handful of beneficiaries with extremely high weights.

Balance between the matched comparison and intervention groups will be assessed using a three-pronged approach to evaluate the similarity between the intervention group and comparison groups across observable characteristics, or covariates. Table 3-3 summarizes each of the three prongs.

Table 3-3: Assessment Approaches

Assessment Approach	Advantage	Cautionary Note
Covariate-level statistical testing	Provides quantitative evidence, or lack thereof, of significant differences between matched groups	Susceptible to false positives for large sample sizes and false negatives for small sample sizes
Standardized differences	Does not rely on sample size	No universal threshold to indicate balance or unbalance
Omnibus test	Provides a single quantitative assessment of balance across all covariates as a whole	Susceptible to false positives for large sample sizes and false negatives for small sample sizes

Each of these approaches ultimately assesses the similarity of the *mean* of the distribution for each covariate. Additional metrics pertaining to the distribution should also be considered as part of the balance assessment, such as reporting the standard deviations.[3-5]

[3-3] Guo, S., and Fraser, M.W., (2010) *Propensity Score Analysis: Statistical Methods and Applications,* SAGE Publications, Inc., Thousand Oaks, CA; or Austin, P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate behavioral research*, *46*(3), 399–424. doi:10.1080/00273171.2011.568786; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144483/

[3-4] See, e.g., Austin P. C. (2014). A comparison of 12 algorithms for matching on the propensity score. *Statistics in medicine*, 33(6), 1057–1069. doi:10.1002/sim.6004; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4285163/

[3-5] Austin P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate behavioral research*, *46*(3), 399–424. doi:10.1080/00273171.2011.568786; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144483/

Prospective AHCCCS Works Beneficiaries in Other Regions Resulting from Staged Rollout of Implementation

AHCCCS anticipates implementing AHCCCS Works through a three-stage phase-in approach, beginning with the most urbanized counties, semi-urbanized counties a year later, and ending with least urbanized counties one year after that. This provides an opportunity to leverage beneficiaries not yet subject to the waiver requirements as a comparison group for beneficiaries who are subject to the requirements for early phase-in stages. However, since the geographical phase-in is based on urbanicity there may be systematic differences between the groups. The independent evaluator will assess the viability of utilizing beneficiaries not yet subject to the requirements from the staged rollout as a potential comparison group. The independent evaluator may also leverage the regression discontinuity design and the stepped wedge design as a comparative regression discontinuity using beneficiaries in regions that have yet to implement the program as a comparison group across all age ranges.

Out-of-State Comparison Groups

The independent evaluator will consider utilizing an out-of-state comparison group if data are available and complete enough to support rigorous statistical testing of outcomes. One possible data source for beneficiary-level data is through national surveys, such as the Behavioral Risk Factors Surveillance System (BRFSS), the National Health Interview Survey (NHIS), or Integrated Public Use Microdata Series American Community Survey (IPUMS ACS). When considering such data sources, there are several pieces that need to align in order to leverage the data source in the evaluation. First, ideally beneficiary-level data should be available, which will allow for identification of additional key features to control for in statistical testing. Second, the data source must include a method to identify Medicaid beneficiaries. Third, the data source must include state indicators to separate Medicaid beneficiaries in Arizona from other states. Fourth, the data source should include a method to identify specific subpopulations of interest, specifically Medicaid expansion beneficiaries. Fifth, the data source must contain relevant outcomes to measure that are pertinent to the waiver evaluation. Finally, the timing of survey administration and lag time in data availability should be taken into consideration as it relates to the implementation of AHCCCS Works and the demonstration renewal period.

Each of the above datasets provide beneficiary level data and state indicators, BRFSS, however, does not contain a Medicaid indicator for all states. The Medicaid indicator in BRFSS is part of an optional module collected by only six states in 2017 and 11 states in 2016, and Arizona is not included in either year. It is possible for future analyses to consider this data source if Arizona participates in the optional module to identify Medicaid beneficiaries. Responses from Medicaid beneficiaries in other states may be used as an out of state comparison group for measures from state beneficiary surveys asking the same questions; specifically, data for AHCCCS Works beneficiaries for Measure 4-1 (*Beneficiary reported rating of overall health for all beneficiaries*).

IPUMS ACS contains Medicaid and state indicators, and data on family income and number of children, which could be used to proxy Medicaid expansion beneficiaries. The independent evaluator will consider utilizing this data source for a selection of measures, as indicated in Table 3-5. A comparison of possible data sources, their requirements, limitations, and anticipated utility is described in Appendix E. A difference-in-differences study design will be used to compare changes in rates for comparison states against changes in rates for Arizona respondents before and after implementation of the demonstration. Due to the staged rollout of the demonstration in Arizona, the independent evaluator may leverage county codes in the IPUMS ACS data to further refine the estimated eligible population in Arizona based on county urbanicity and additional county characteristics to support a triple differences-in-differences study design.

Another potential source for beneficiary-level data is the Transformed Medicaid Statistical Information System (T-MSIS) maintained and collected by the Centers for Medicare & Medicaid Services (CMS). It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support individual-level matching to AHCCCS Works beneficiaries. However, as

of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group. If these data become available in time for the summative evaluation report, the independent evaluator will examine the completeness and viability of using these data in the analyses. With robust beneficiary-level data covering the baseline period and multiple years during the demonstration period (if not the entire demonstration period), then more robust methods can be employed to estimate the effect of the demonstration on outcomes. Measures that utilize administrative claims/encounter data or enrollment and eligibility data may use methods such as propensity score matching or reweighting to construct a valid out-of-state comparison group from similar states with a Medicaid expansion population that have not implemented a work requirement waiver.

Identifying Comparison States

For measures in which individual level data are not available, the selection of states used for an out-of-state comparison group will be based on similarity to Arizona in terms of overall demographics and Medicaid programs and policies. In addition to sharing demographic factors and similar Medicaid policies, comparison state(s) should not have a major change in Medicaid policies during either the baseline or evaluation period. Selection of states will be conducted on a measure-by-measure basis depending on the available data and state willingness to share data.

Evaluation Periods

AHCCCS Works is anticipated to be in effect beginning Spring/Summer 2020 with the initial demonstration approved through September 2021. Due to the timing of the Interim Evaluation Report the time period to be covered by the interim evaluation has yet to be determined at the time of writing this Evaluation Design Plan. The baseline period will be the year prior to implementation. The Summative Evaluation Report will cover one full year of the waiver with six months of claims/encounter data run out. Table 3-4 presents time frames for each of the evaluation periods.

Table 3-4: AHCCCS Works Evaluation Periods

Evaluation Periods	Time Frame
Baseline	Year prior to implementation
Interim Evaluation*	To Be Determined
Summative Evaluation	First two years of demonstration

*Approval for the waiver ends September 30, 2021.

Propensity score matching will be used to identify a valid comparison group, which will rely on administrative claims data collected during the baseline period. Claims data for AHCCCS typically have a six- to nine-month lag, which would allow adequate time to identify the comparison group prior to the end of the first demonstration year.

Evaluation Measures

Table 3-5 details the proposed measure(s), study populations, data sources and proposed analytic methods that will be used to evaluate the AHCCCS Works program. Detailed measure specifications can be found in Appendix D.

Table 3-5: AHCCCS Works Evaluation Design Measures

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Hypothesis 1—Medicaid beneficiaries subject to the community engagement requirement will have higher employment and education levels than Medicaid beneficiaries not subject to the requirement.				
Research Question 1.1: Does the community engagement requirement lead to increased job seeking activities for those subject to the requirements compared to those who are not?	1-1: Percentage of beneficiaries who did not work during the previous week who actively sought a job during the past four weeks	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group	• State beneficiary survey • IPUMS ACS	• Regression discontinuity • Difference-in-differences
	1-2: Percentage of beneficiaries who met community engagement criteria through job search activities	N/A	Eligibility and program monitoring data	• Compare outcomes during first three months (i.e., orientation period) against outcomes for subsequent months • Rapid cycle reporting – statistical process control chart
Research Question 1.2: Does the community engagement requirement lead to increased rates of education enrollment or employment training programs?	1-3: Percentage of beneficiaries attending school or an Employment Support and Development program	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group	• State beneficiary survey • IPUMS ACS	• Regression discontinuity • Difference-in-differences
	1-4: Percentage of beneficiaries who met community engagement criteria through attending school or an Employment Support and Development program	N/A	Eligibility and program monitoring data	• Compare outcomes during first three months (i.e., orientation period) against outcomes for subsequent months • Rapid cycle reporting – statistical process control chart
Research Question 1.3: Are beneficiaries subject to the community engagement requirement more likely to be employed (including new and sustained employment) compared to those who are not?	1-5: Percentage of beneficiaries who usually worked at least 20 hours per week during previous year	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group	• State beneficiary survey • IPUMS ACS	• Regression discontinuity • Difference-in-differences
	1-6: Percentage of beneficiaries employed during each month of measurement year	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	Eligibility and income data	• Regression discontinuity • Comparative interrupted time series • Difference-in-differences • Rapid cycle reporting – statistical process control chart

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	1-7: Number of weeks worked last year (including as unpaid family worker, and paid vacation/sick leave)	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group	• State beneficiary survey • IPUMS ACS	• Regression discontinuity • Difference-in-differences
Research Question 1.4: Do beneficiaries who initially comply through activities other than employment gain employment within certain time periods?	1-8: Percentage of beneficiaries initially compliant through activities other than employment employed at 6 months, 1 year, and 2 years after enrollment or implementation	N/A	Eligibility and program monitoring data	Descriptive analysis of employment status at 6 months, 1 year, and 2 years post-enrollment among those who initially met requirement through non-employment activities
Research Question 1.5: Is employment among individuals subject to community engagement requirements sustained over time, including after separating from Medicaid?	1-9: Percentage of beneficiaries employed continuously for a year or more since enrollment or implementation	N/A	State beneficiary survey	Comparison of regression-adjusted means in employment 1- and 2-years post-enrollment among: 1. Those who were already employed at enrollment or implementation 2. Those who gained employment in the first six months of enrollment 3. Those who did not gain employment in the first six months of enrollment
Research Question 1.6: Does the community engagement requirement lead to better education outcomes?	1-10: Beneficiaries' reported highest grade or level of education completed	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group	• State beneficiary survey • IPUMS ACS	• Regression discontinuity • Difference-in-differences
Hypothesis 2—Medicaid beneficiaries subject to the community engagement requirement will have higher average income than Medicaid beneficiaries not subject to the requirement.				
Research Question 2.1: Does the community engagement requirement increase income?	2-1: Average monthly earnings	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	• Eligibility and income data • HEAplus	• Regression discontinuity • Comparative interrupted time series • Difference-in-differences • Rapid cycle reporting – statistical process control chart

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	2-2: Average beneficiary reported personal income	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group	• State beneficiary survey • IPUMS ACS	• Regression discontinuity • Difference-in-differences
Hypothesis 3—Medicaid beneficiaries subject to the community engagement requirement will have a higher likelihood of transitioning to commercial health insurance after separating from Medicaid than Medicaid beneficiaries not subject to the requirement.				
Research Question 3.1: Does the community engagement requirement lead to increased take-up of commercial insurance, including employer-sponsored insurance (ESI) and Marketplace plans?	3-1: Enrollment in commercial coverage within one year after Medicaid disenrollment	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State beneficiary survey	• Regression discontinuity • Difference-in-differences
	3-2: Percentage of beneficiaries with a job that offers ESI	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State beneficiary survey	• Regression discontinuity • Difference-in-differences
	3-3: Percentage of beneficiaries with a job that offers ESI and who enroll in ESI	N/A	State beneficiary survey	Descriptive analysis of ESI take-up among those offered and eligible for ESI
Research Question 3.2: Is new ESI coverage sustained over time after implementation of community engagement requirements?	3-4: Percentage of beneficiaries who still have ESI coverage 1 and 2 years after initial take-up of ESI	N/A	State beneficiary survey	Descriptive analysis of coverage at 1 and 2 years after initial ESI take-up
	3-5: Percentage of beneficiaries with Medicaid coverage 1 and 2 years after initial take-up of ESI	N/A	State beneficiary survey	Descriptive analysis of coverage at 1 and 2 years after initial ESI take-up
	3-6: Percentage of beneficiaries uninsured 1 and 2 years after initial take-up of ESI	N/A	State beneficiary survey	Descriptive analysis of coverage at 1 and 2 years after initial ESI take-up
Research Question 3.3: Are beneficiaries with ESI able to pay premiums and meet other cost-sharing responsibilities,	3-7: Percentage of beneficiaries with ESI who reported problems paying insurance or medical bills	N/A	State beneficiary survey	Descriptive analysis of reported beneficiary cost sharing for former demonstration beneficiaries who transitioned to ESI

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
such as deductibles and copayments?	3-8: Reported out-of-pocket medical spending among beneficiaries with ESI	N/A	State beneficiary survey	Descriptive analysis of reported beneficiary cost sharing for former demonstration beneficiaries who transitioned to ESI
Research Question 3.4: Is the community engagement requirement associated with coverage losses (if people transition off Medicaid and do not enroll in commercial health insurance?)	3-9: Average number of months beneficiaries reported being uninsured	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State beneficiary survey	• Regression discontinuity • Difference-in-differences
	3-10: Average number of months uninsured	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State tax data (1095B)	• Regression discontinuity • Difference-in-differences
Research Question 3.5: Are beneficiaries subject to the community engagement requirement more likely to lose eligibility due to increased income than beneficiaries not subject to the requirement?	3-11: Percentage of beneficiaries disenrolling from Medicaid due to income exceeding limit	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	Eligibility and enrollment data	• Comparative interrupted time series • Regression discontinuity • Difference-in-differences
	3-12: Percentage of non-exempt AHCCCS Works beneficiaries losing Medicaid eligibility per month, by discontinuance category	N/A	Eligibility and enrollment data	Rapid cycle reporting – statistical process control chart
Research Question 3.6: At what rates are beneficiaries subject to the community engagement requirement suspended due to noncompliance?	3-13: Percentage of non-exempt AHCCCS Works beneficiaries suspended due to noncompliance per month	N/A	Eligibility and program monitoring data	Rapid cycle reporting – statistical process control chart
Hypothesis 4—Current and former Medicaid beneficiaries subject to the community engagement requirement will have better health outcomes than Medicaid beneficiaries not subject to the requirement.				
Research Question 4.1: Does the community engagement requirement lead to improved health outcomes?	4-1: Beneficiary reported rating of overall health	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	• State beneficiary survey • BRFSS	• Regression discontinuity • Difference-in-differences
	4-2: Beneficiary reported rating of overall mental or emotional health	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State beneficiary survey	• Regression discontinuity • Difference-in-differences

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
	4-3: Percentage of beneficiaries who reported prior year emergency room (ER) visit	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State beneficiary survey	• Regression discontinuity • Difference-in-differences
	4-4: Percentage of beneficiaries who reported prior year hospital admission	• Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout	State beneficiary survey	• Regression discontinuity • Difference-in-differences
Hypothesis 5—The community engagement requirement will promote Medicaid program sustainability through cost-effective care.				
Research Question 5.1: What are the costs associated with implementation and maintenance of AHCCCS Works?	There are no specific measures associated with this hypothesis; see Cost-Effectiveness Analysis Section for additional detail	N/A	N/A	Cost-effectiveness analysis
Research Question 5.2: What are the benefits/savings associated with the AHCCCS Works program?				
Hypothesis 6—Assessment of AHCCCS Works Implementation.				
Research Question 6.1: What is the distribution of activities beneficiaries engage in to meet community engagement requirements? How have these changed over time?	6-1: Breakdown of community engagement compliance by category, over time (e.g. monthly)	N/A	Compliance and monitoring data	• Compare outcomes during first three months (i.e., orientation period) against outcomes for subsequent months • Rapid cycle reporting – statistical process control chart
Research Question 6.2: What are common barriers to compliance with community engagement requirements?	6-2: Beneficiaries' reported barriers to CE compliance	N/A	Beneficiary focus groups	Qualitative synthesis

Research Question	Measure(s)	Comparison Group(s)	Data Source(s)	Analytic Approach
Research Question 6.3: Do beneficiaries report that they have the necessary support services to meet community engagement requirements?	6-3: Beneficiaries' reported support services for meeting CE requirements	N/A	• Beneficiary focus groups • State beneficiary survey	• Qualitative synthesis • Post-implementation trend analysis
Research Question 6.4: Do beneficiaries understand the requirements, including how to satisfy them and the consequences of noncompliance?	6-4: Beneficiaries' reported awareness of CE requirements, how to report hours, and consequences of noncompliance	N/A	Beneficiary focus groups	Qualitative synthesis
Research Question 6.5: How many beneficiaries are required to actively report their status, including exemptions, good cause circumstances, and qualifying activities?	6-5: Number and percentage of beneficiaries required to actively report exemptions	N/A	Compliance and monitoring data	Post-implementation trend analysis
	6-6: Number and percentage of beneficiaries required to actively report good cause circumstances	N/A	Compliance and monitoring data	Post-implementation trend analysis
	6-7: Number and percentage of beneficiaries required to report qualifying activities	N/A	Compliance and monitoring data	Post-implementation trend analysis
Research Question 6.6: Are beneficiaries who are disenrolled for noncompliance with community engagement requirements more or less likely to re-enroll than beneficiaries who disenroll for other reasons?	6-8: Percentage of beneficiaries re-enrolling in Medicaid after a gap in coverage of at least 1 month and 3 months	N/A	• Eligibility and enrollment data • Compliance and monitoring data	Comparison of regression-adjusted probability of re-enrollment among AHCCCS Works beneficiaries who were: 1) Disenrolled for noncompliance 2) Disenrolled for reasons other than noncompliance

Data Sources

Multiple data sources will be utilized to evaluate the six research hypotheses for the AHCCCS Works evaluation. Data collection will include administrative and survey-based data such as Consumer Assessment of Healthcare Providers and Systems (CAHPS®), CAHPS-like survey questions. Administrative data sources include information extracted from Prepaid Medical Management Information System (PMMIS) and Health-e-Arizona Plus (HEAplus).[3-6] PMMIS and HEAplus will be used to collect, manage and maintain Medicaid recipient files

[3-6] CAHPS is a registered trademark of the Agency for Healthcare Research and Quality (AHRQ).

(i.e., eligibility, enrollment, demographics, income, community engagement compliance), fee-for-service (FFS) claims, managed care encounter data, income and program compliance data. The combination of survey and the administrative data sources mentioned earlier will be used to assess the six research hypotheses.

State Beneficiary Survey Data

State beneficiary surveys will be used to assess beneficiaries' healthcare coverage and employment status before and during the AHCCCS Works program implementation. These surveys will be an important data source for community engagement demonstration evaluations because the independent evaluator will need to capture information from beneficiaries after they separate from Medicaid in order to answer pertinent questions to the demonstration. Therefore, these instruments will include specific survey items designed to elicit information that addresses research hypotheses regarding member employment, income, health status and coverage transitions.

The survey questions will be designed to capture elements of the waiver Special Terms and Conditions (STCs) that cannot be addressed through administrative data. These surveys will be particularly crucial for former Medicaid beneficiaries as there will be limited administrative data for those individuals. The following concepts and hypotheses will be addressed in the beneficiary surveys:

1. **Employment status**—Hypothesis 1 states that Medicaid beneficiaries subject to community engagement requirements will have higher employment levels, including work in subsidized, unsubsidized, or self-employed settings, than Medicaid beneficiaries not subject to the requirements.
2. **Income**—Hypothesis 2 states that community engagement requirements will increase the average income of Medicaid beneficiaries subject to the requirements, compared to Medicaid beneficiaries not subject to the requirements.
3. **Transition to commercial health**—Hypothesis 3 states that community engagement requirements will increase the likelihood that Medicaid beneficiaries' transition to commercial health insurance after separating from Medicaid, compared to Medicaid beneficiaries not subject to the requirements.
4. **Health outcomes**—Hypothesis 4 states that community engagement requirements will improve the health outcomes of current and former Medicaid beneficiaries subject to the requirements, compared to Medicaid beneficiaries not subject to the requirements.

The independent evaluator will conduct longitudinal surveys during the baseline and measurement periods. Ideally, the independent evaluator will survey beneficiaries at the baseline before demonstration implementation; however, if the independent evaluator is unable to do so, they will conduct a baseline survey after implementation with retrospective survey questions clearly indicating time periods before demonstration policies are expected to affect beneficiaries' behavior or other outcomes. AHCCCS and its independent evaluator will aim to collect baseline data before the effective date of AHCCCS Works. The sampling frame for the survey will be identified through eligibility and enrollment data, with specific enrollment requirements being finalized upon inspection of the data. Typically, beneficiaries are drawn from beneficiaries continuously enrolled during the last six months of the measurement period, with no more than a one-month gap in enrollment. However, due to the special nature of this demonstration, surveys will also be sent to eligible beneficiaries who recently disenrolled from Medicaid. The independent evaluator will leverage several strategies to identify current contact information for beneficiaries who disenroll from Medicaid. These strategies include cross-referencing addresses with the National Change of Address database or requesting email and phone information. This contact information would serve to build follow-up surveys in longitudinal data collection.

Stratified random sampling by managed care organization (MCO) will be used to construct a statistically valid sample at the plan level. The typical sample size, as recommended by the National Committee for Quality

Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS®) Specifications for Survey Measures requires a sample size of 1,350 beneficiaries for the CAHPS 5.0 Adult Medicaid Health Plan Survey, which will serve as a template for the survey instrument used in this evaluation. An oversample of at least 10 percent for each plan will be applied to ensure an adequate number of respondents to each CAHPS measure. The maximum number of surveys that need to be sent per plan is estimated to be 1,485. Historical response rates for the Arizona Acute Care Adult population are approximately 22 percent, which would correspond to 327 completed adult surveys per plan. Across seven plans, the total number of completed surveys is anticipated to be approximately 2,289. An adult sample of 2,289 would have 0.8 power to identify a single percentage estimate of a 50 percent rate with a margin of error of 2.05 percent, or be able to identify a difference of rates between 50 percent and 54.1 percent with an alpha level of 0.05 and a two-tailed test. Because plan sampling will be disproportionate to overall plan membership statewide, plan-level weights will be reweighted to adjust for proportionality when calculating aggregate rates. Because evaluations for several concurrent waivers are planned, the State and its independent evaluator will seek to streamline survey administration across evaluations to minimize the number of separate survey rounds required, thereby minimizing the burden on beneficiaries and maximizing the response rate. Therefore, the sampling strategy described above may be revised based on enrollment across waivers. The instrument content will be derived from a number of sources. The format will be similar to the CAHPS Adult Medicaid Health Plan Survey, including elements as necessary from national surveys (e.g., IPUMS ACS) as suggested in CMS evaluation and monitoring guidance and detailed in Appendix D.[3-7]

To maximize response rates, a mixed-mode methodology for survey data collection will be used. The addition of email reminders, when data are available, or pre-notification letters to beneficiaries, has shown to increase response rates and will be incorporated into survey administration. Additionally, to the extent possible, the independent evaluator will align multiple demonstration surveys to minimize the number of surveys members receive and to increase response rates across all demonstrations with overlapping populations. A range of sampling protocols will be considered including simple random samples, stratified random samples, multistage stratifications (i.e., cluster), and targeted oversamples.

One of the anticipated challenges is contacting the hard-to-reach and disenrolled populations. Collection of data for beneficiaries who have left Medicaid will be critical to understanding the impact of the community engagement requirements associated with AHCCCS Works. The independent evaluator's approach will rely on identifying those who recently disenrolled and developing a robust set of survey questions targeted at this group. This method of primary data collection will allow the independent evaluator to measure outcomes for beneficiaries for whom AHCCCS no longer has administrative data.

One limitation to sending surveys for those who have left Medicaid is that these methods are subject to data reliability concerns. Only the recently disenrolled can be considered for survey sampling in the event an individual moves in the intervening time between disenrollment and survey administration. To the extent data are available in the HEAplus system and can be linked to former Medicaid beneficiaries, contact information from this system can be used for these individuals. Additionally, data in the HEAplus system can be leveraged to gather information on the employment status and financial well-being of beneficiaries who leave the Medicaid program.

Administrative Data

AHCCCS's demonstration evaluation will allow the opportunity to utilize data from several sources (i.e., PMMIS and HEAplus) to determine the impact of AHCCCS Works. The administrative data sources are necessary to

[3-7] Matulewicz. H., Bradley, K., Wagner, S., "Beneficiary Survey Design and Administration for Eligibility and Coverage Demonstration Evaluations," *Mathematica*, June 2018. Available at: https://www.medicaid.gov/medicaid/section-1115-demo/downloads/evaluation-reports/1115-beneficiary-survey-guide.pdf. Accessed Oct 22, 2019.

address the six research hypotheses primarily relating to income, insurance coverage, search for employment, educational activities, Medicaid enrollment, Medicaid eligibility, and cost savings, and to identify a valid comparison group.

Managed care encounters will be limited to final, paid status claims/encounters. Interim transaction and voided records will be excluded from all evaluations because these types of records introduce a level of uncertainty (from matching adjustments and third-party liabilities to the index claims) that can impact reported rates and cost calculations.

Beneficiary Focus Groups and Key Informant Interviews

Beneficiary focus groups and key informant interviews will be conducted through semi-structured interview protocols, transcribed, and imported into MAXQDA where the data will be coded to permit qualitative analysis. The transcripts, coding methodologies, and coded data will be used to answer the appropriate research questions.

National Datasets

Data from the Integrated Public Use Microdata Series American Community Survey (IPUMS ACS) may be utilized for certain measures pertaining to health insurance coverage, income, education, and labor force to provide an out of state comparison group. The IPUMS ACS is a "database providing access to over sixty integrated, high-precision samples of the American population drawn from sixteen federal censuses, from the American Community Surveys of 2000-present."[3-8] The independent evaluator will extract data that include demographic information, employment, disability, income data and program participation such as Medicaid enrollment information in order to identify a suitable comparison group.

The independent evaluator will consider utilizing an out-of-state comparison group using beneficiary-level data if data are available and complete enough to support rigorous statistical testing of outcomes. One such source for beneficiary-level data, is the Transformed Medicaid Statistical Information System (T-MSIS) maintained and collected by the Centers for Medicare & Medicaid Services (CMS). All 50 states and Washington D.C., and two territories are currently submitting data monthly.[3-9] It is expected that T-MSIS will provide microdata containing information on eligibility, enrollment, demographics, and claims/encounters, which will support individual-level matching to AHCCCS Works beneficiaries. However, as of the submission date of this evaluation design plan, these data are not yet available, and the independent evaluator should be prepared to rely on alternative data sources for the comparison group.

One measure may utilize data from BRFSS as out-of-state comparison groups. BRFSS is a health-focused telephone survey developed by the Centers for Disease Control and Prevention (CDC) that collects data from approximately 400,000 adults annually across all 50 states, Washington D.C., and three territories.[3-10] The questionnaire generally consists of two components: a core component and an optional component. Measure 4-1 (Beneficiary reported rating of overall health) will utilize data from BRFSS core module Health Status in conjunction with Medicaid coverage indicator from optional module Healthcare Access to compare against responses for a similar question among AHCCCS Works beneficiaries [3-11], with the recognition that the target

[3-8] IPUMS. Available at: https://usa.ipums.org/usa/intro.shtml. Accessed on: Feb 11, 2020.
[3-9] "Transformed Medicaid Statistical Information System (T-MSIS)," Centers for Medicare and Medicaid Services. Available at: https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html. Accessed on: Feb 11, 2020.
[3-10] "About BRFSS," Centers for Disease Control and Prevention; https://www.cdc.gov/brfss/about/index.htm; last accessed Feb 11, 2020.
[3-11] CAHPS surveys for this evaluation will be administered through both mail and telephone, while BRFSS is administered exclusively through telephone. This difference in survey administration mode may lead to biased comparisons.

population of AHCCCS Works – adult Medicaid expansion beneficiaries – may be systematically different from Medicaid respondents identified in BRFSS.

To provide an understanding of the capabilities of the data for performing statistical analyses, the independent evaluator will calculate the statistical power associated with any out-of-state comparison group data using national datasets and report the results.

Analytic Methods

The evaluation reporting will meet traditional standards of scientific and academic rigor, as appropriate and feasible for each aspect of the evaluation (e.g., for the evaluation design, data collection and analysis, and the interpretation and reporting of findings). The Demonstration evaluation will use the best available data, will use controls and adjustments where appropriate and available, and will report the limitations of data and the limitations' effects on interpreting the results. Several analytic approaches will be considered for this evaluation, including:

1. Regression discontinuity (RD)
2. Difference-in-differences (DiD)
3. Comparative interrupted time series (CITS)
4. Post-implementation trend analysis
5. Rapid cycle reporting – statistical process control chart
6. Qualitative Synthesis

Regression Discontinuity

RD design can be used in situations where selection for the intervention is determined by a cutoff value. Because the demonstration will only impact Group VIII adults between the ages of 19 and 49, it is possible to use a regression discontinuity design consisting of beneficiaries aged 50 or older as a comparison group. There are two primary approaches that can be taken when using an RD design, which are not necessarily mutually exclusive. Indeed, the independent evaluator is encouraged to follow both to assess the robustness of findings and sensitivity in results to alternative specifications.

The first approach is a parametric estimation of the outcome; that is, all individuals in the eligible population are included in the analysis, such that those over 49 years of age will serve as a comparison group to those aged between 19 and 49 years. Under this approach, the relationship between the assignment variable, age, and the outcome will need to be carefully inspected to assess for nonlinearity. The advantage of this approach is that all, or most, individuals can be included in the analysis, which results in greater statistical power and external validity if the functional form between the assignment variable and outcome is accurately specified.

The second approach restricts the sample pool to those only just below or just above the threshold, sometimes referred to as a nonparametric approach or local linear regression. Because the sample pool is restricted to those within some bandwidth around the threshold, any bias resulting from the potentially unknown relationship between the assignment variable and the outcome are mitigated. To support survey-based measures under this approach, individuals on either side of the threshold age (49) will be oversampled to ensure adequate survey responses and sample size. The cost of restricting the sample population is reduced external validityas the resulting estimates often will not apply to those far from the threshold. In other words, findings from an analysis using only those between, for example, 45 and 55 years of age are not expected to apply for younger or older individuals far from the threshold.

The basic estimation of the parametric model is:

$$Y = \beta_0 + \beta_1 D + \beta_2(f(X - c)) + \varepsilon$$

Where D is a dummy indicator for intervention group, X is the individual's age, and c is the cutoff value, which in this application is 50, and $f(\cdot)$ is a functional form specification. The parameter β_0 is the average outcome at the cutoff point, and β_1 represents the difference in outcomes between the two groups at the cutoff point, or more simply, the effect of the demonstration on the outcome Y.[3-12]

The basic nonparametric model estimation is:

$$Y = \alpha + \tau D + \beta_l(X - c) + (\beta_r - \beta_l)D(X - c) + \varepsilon$$

where $c - h \leq X \leq c + h$ and β_l represents the slope coefficient on the left-hand side of the cutoff (i.e., those younger than 50) and β_r represents the slope coefficient on the right-hand side of the cutoff (i.e., those age 50 or older).

In this specification, h is a given bandwidth or window around the cutoff point. The independent evaluator will ultimately determine this value and test alternative specifications with wider or narrower windows.

Additional covariates can be incorporated into the parametric and nonparametric models to control for observable differences across individuals.

There are three primary assumptions and threats to the RD design:[3-13]

- The relationship between the assignment variable (i.e., age) and outcome must be identifiable and accurately modeled.
- All other factors that affect the outcome should not also jump at the threshold value.
- The effect of the demonstration is constant across all values of the assignment variable (i.e., age).

Difference-in-Differences

A DiD analysis will be performed on all measures for which baseline and evaluation period data are available for both the intervention and comparison groups. This analysis will compare the changes in the rates or outcomes between the baseline period and the evaluation period for the two populations. This allows for expected costs and rates for the matched intervention group to be calculated by considering expected changes in outcomes had the policy not been implemented. This is done by subtracting the average change in the comparison group from the average change in the intervention group, thus removing biases from the evaluation period comparisons due to permanent differences between the two groups. In other words, any changes in the outcomes caused by factors external to the policy would apply to both groups equally, and the DiD methodology will remove the potential bias. The result is a clearer picture of the actual effect of the program on the evaluated outcomes. The generic DiD model is:

$$Y_{it} = \beta_0 + \beta_1 X_i + \beta_2 R_t + \beta_3(R_t * X_i) + \boldsymbol{\gamma}\mathbf{D'}_{\boldsymbol{it}} + u_{it}$$

[3-12] Lee, D.S., and Lemieux, T., (2010) "Regression Discontinuity Designs in Economics," *Journal of Economic Literature*, 48(2): 281-355.
[3-13] Ibid.

where Y_{it} is the outcome of interest for individual *i* in time period *t*. R_t is a dummy variable for the remeasurement time period (i.e., evaluation period). The dummy variable X_i identifies the intervention group with a 1 and the comparison group with a 0. The vector **D'** will include all covariates used in the propensity score matching to ensure comparability of the groups for any measure-specific subgrouping (e.g., to address non-response bias) and $\boldsymbol{\gamma}$ is the related coefficient vector. The coefficient, β_1, identifies the average difference between the groups prior to the effective date of the policy. The time period dummy coefficient, β_2, captures the change in outcome between baseline and evaluation time periods. The coefficient of interest, β_3, is the coefficient for the interaction term, $R_t * X$, which is the same as the dummy variable equal to one for those observations in the intervention group in the remeasurement period. This represents the estimated effect of the waiver on the intervention group, conditional on the included observable covariates. The final DiD estimate is:

$$\hat{\beta}_3 = \left(\bar{y}_{T,R} - \bar{y}_{\mathrm{T,B}}\right) - \left(\bar{y}_{\mathrm{C,R}} - \bar{y}_{\mathrm{C,B}}\right) \mid \mathbf{D}'$$

Assuming trends in the outcome between the comparison and intervention groups are approximately parallel during the baseline period, the estimate will provide the expected costs and rates without intervention. If the β_3 coefficient is significantly different from zero, then it is reasonable to conclude that the outcome differed between the intervention and comparison group after the policy went into effect. In addition to assessing the degree of statistical significance for the result, as represented by the p-value associated with β_3, the results will be interpreted in a broader context of clinical and practical significance.[3-14]

Triple Difference-in-Differences

For measures that use an out-of-state comparison group, comparisons can be made through a triple difference-in-differences (DDD) approach, which is a more robust analysis than the conventional DiD approach described above.[3-15] The conventional DiD approach will use an in-state comparison group consisting of counties that have yet to implement AHCCCS Works based on urbanicity. If changes in the measured outcomes are caused by differences in urbanicity rather than the policy change, then the DiD results will be biased. A DDD design would introduce an additional comparison group consisting of individuals residing in counties out-of-state with similar urbanicity and other characteristics to counties implementing AHCCCS Works. Let *U* denote out-of-state counties with similar characteristics as AHCCCS Works counties, the DDD regression model is given by:

$$Y_{it} = \beta_0 + \beta_1 X_i + \beta_2 U_i + \beta_3 (X_i * U_i) + \beta_4 R_t + \beta_5 (X_i * R_t) + \beta_6 (U_i * R_t) + \beta_7 (X_i * R_t * U_i) + \boldsymbol{\gamma} \mathbf{D}'_{\boldsymbol{it}} + u_{it}$$

The coefficient of interest in this equation is the triple-differences estimator β_7 which represents the incremental difference between AHCCCS Works counties and non-AHCCCS Works counties, while netting out the changes among out of state counties with similar urbanicity. This approach is designed to control for changes in outcomes between counties of similar urbanicity across states and changes in outcomes within the state.

[3-14] Results from statistical analyses will be presented and interpreted in a manner that is consistent with the spirit of recent guidance put forth in *The American Statistician.* Ronald L. Wasserstein, Allen L. Schirm & Nicole A. Lazar (2019) Moving to a World Beyond "p < 0.05", The American Statistician, 73:sup1, 1-19, DOI: 10.1080/00031305.2019.1583913.

[3-15] Wing, C., Simon, K., and Bello-Gomez, R.A., "Designing Difference in Difference Studies: Best Practices for Public Health Policy Research," *Annu. Rev. Public Health* 2018. 39:453–69.

Comparative Interrupted Time Series

Measures for which data are collected with sufficient frequency prior to and after policy implementation, can use a CITS approach.[3-16] The CITS approach yields several advantages over a two-time period DiD. First, it controls for differences in baseline trends between the intervention and comparison groups. Second, the CITS approach can estimate changes in both the level of the outcome at the point of intervention and trends in the outcome, whereas the typical DiD approach evaluates changes in the outcomes averaged across the pre- and post-implementation periods. Finally, by virtue of additional data points, the statistical power of the analysis is increased. However, this may not necessarily translate into improved precision of the estimates due to the potential for increased variability in the outcome as the time between measurement decreases. The generic CITS regression model is:

$$Y_{it} = \beta_0 + \beta_1 X_i + \beta_2 R_t + \beta_3 (R_t X_i) + \beta_4 T_t + \beta_5 (T_t X_i) + \beta_6 (T_t R_t) + \beta_7 (X_i R_t T_t) + \boldsymbol{\gamma} \mathbf{D'}_{\boldsymbol{it}} + u_{it}$$

Where Y_{it} is the outcome of interest for individual *i* in time period *t* and X_i, R_t and $\mathbf{D'}_{\boldsymbol{it}}$ are as previously defined in the DiD section. The addition of the variable T_t represents a liner time trend since the start of the baseline period, where the first time period is coded as 0. The coefficient β_3 indicates the difference between intervention and comparison groups in the level of the outcome immediately after the intervention. The coefficient β_4 is the pre-intervention trend for the comparison group, β_5 represents the difference in the trend of the outcome between intervention and comparison groups prior to intervention, β_6 represents the change in the trend for the comparison group after intervention, and β_7 represents the difference between comparison and intervention groups in the trend of the outcome after implementation compared to the pre-implementation trends (similar to a DiD estimate in the slopes).[3-17] Importantly, both the CITS and DiD models can be extended to include multiple comparison groups, allowing for the possibility to use both potential comparison groups simultaneously in the evaluation.

Post-Implementation Trend Analysis

Beneficiary survey data will be utilized to evaluate measures pertaining to job seeking activities and education or job skills using a DiD framework. While survey data allows for the collection of data among former Medicaid beneficiaries and comparison groups, these outcomes may also be collected more frequently through administrative program data for the post-implementation intervention group. As such, the higher frequency and alternative data source can be used to supplement the findings from these measures. Although these data will only be collected after implementation of the program, the fact that beneficiaries will have a three-month orientation period before they are liable to lose Medicaid coverage due to noncompliance, does allow in effect a brief quasi-pre-implementation period. Three data points is not enough to reliably determine a trend, but these data can be leveraged to compare against future data points through trending analysis; such analysis may include:

- Statistical test of three-month "baseline" against time period after the three-month orientation period.
- Statistical test of three-month "baseline" against last three months in the data series.
- Linear or non-linear regression of outcomes over time.

[3-16] The independent evaluator will determine the viability of using monthly data in the analysis by evaluating the number of data points and variability in the outcome. It is possible for data collected at a relatively high-frequency to yield a large degree of variation, rendering this approach less viable.

[3-17] See, e.g., Linden, A., (2015) "Conducting interrupted time-series analysis for single- and multiple-group comparisons," *The Stata Journal*, 15(2), pp. 480-500. https://journals.sagepub.com/doi/pdf/10.1177/1536867X1501500208.

This analysis is designed to leverage additional data to supplement the primary findings for these measures to provide additional context and detail pertaining to trends in the intervention population's compliance with community engagement requirements. This analysis is not meant to determine the impact of the demonstration on employment, education, or job readiness training.

Rapid Cycle Reporting – Statistical Process Control Chart

Measures in which outcomes can be collected monthly are also conducive to rapid cycle reporting. Rapid cycle reporting provides an early warning of possible unintended consequences. These measures are primarily intended for waiver impact monitoring prior to the analyses that will be contained in the evaluation reports. Rapid cycle reporting measures will be presented on a regular schedule as determined by the independent evaluator using statistical process control charts. Statistical process control charts will be utilized as the tool to identify changes in time series data—data points or trends that depart from a baseline level of variation. This will be helpful in quickly identifying concerns requiring further investigation.

Qualitative Synthesis

To answer important questions related to implementation of AHCCCS Works, and to identify and understand barriers encountered by beneficiaries and AHCCCS, a series of semi-structured focus groups with beneficiaries and key informant interviews with representatives from ACCCHS will be conducted to obtain results for three measures. Focus group participants will be randomly selected from each implementation county.

Focus Group Methodology

The independent evaluator will work with AHCCCS to identify potential locations and demographic characteristics desired for focus group attendees and may attempt to identify community partners willing to aid in focus group facilitation and recruitment. Two to three locations will be selected to correspond with the populations targeted in the three successive waves of implementation planned for the AHCCCS Works program, beginning with intensely urbanized and ending with rural communities. In addition, members will be recruited who represent appropriate race/ethnicity and socioeconomic status, as well as current enrollment in AHCCCS or recent disenrollment from AHCCCS. Candidates will be between the ages of 19 and 49, and not be members of any of the groups specifically excused from compliance with AHCCCS Works, (those categories listed on p. 3-3 above.)

To increase the probability of having adequate attendance for each focus group discussion, the independent evaluator will attempt to work with community-based organizations who have an established history of working with the AHCCCS population in each geographic area to identify a convenience sample of up to 10 possible focus group participants for each discussion. If there are not at least 10 willing participants identified through the CBO recruitment process, other sources of data such as AHCCCS enrollment data may be used to pull a random sample of potential participants who meet the focus group participant criteria. During the focus group participant scheduling process, schedulers will collect demographic information to confirm participant criteria are met. Each focus group participant will be asked to complete, sign, and submit a standard consent form for participation in the voluntary focus group, which will be reviewed in person with each participant to confirm their understanding prior to collecting the signed form. Copies of each participant's signed form will be mailed upon request.

The independent evaluator recommends providing all focus group participants with a $25 gift card to a specific grocery store or Walmart. Participants should also be offered transportation to and from the focus group location, either by select vendors or ride share services, or otherwise according to a plan developed with AHCCCS. The independent evaluator will confirm transportation appointments, including all special needs, with the

transportation vendor prior to focus group dates/times, and will provide a phone number to focus group participants to call or text if they experienced any issues with the scheduled transportation.

Focus groups will last approximately 90 minutes. The selected facilitator should have prior experience in quality improvement, conducting focus group discussions with AHCCCS or Medicaid recipients, performing barrier analyses, and providing innovative program improvement recommendations. Focus group questions will be semi-structured allowing for open-ended responses and drilled down using relevant prompts following the Six Sigma "5 Whys" technique for root cause analysis. The questions will focus on beneficiaries' own descriptions of the barriers they encountered, the support services they needed to meet CE requirements, and their understanding of the CE requirements, including how to satisfy them and the consequences of noncompliance. The question protocol will be reviewed and approved by AHCCCS. The focus group discussions will be audio recorded and transcribed.

Key Informant Interviews

Key informant interviewees will be recruited from nominees identified by AHCCCS, with a goal of recruiting up to five interviewees. A limited number of key informant interviews should be sufficient in this scenario because there will be a limited number of staff at the agency with a working knowledge of the activities associated with the demonstration, and the challenges and successes that accompanied the implementation. Interviews will invite input from appropriate individuals identified by AHCCCS as having experience and subject matter expertise regarding the barriers and support services necessary to meet CE requirements and their perception of AHCCCS beneficiaries' understanding of the requirements for compliance and the consequences of noncompliance. Key informant interviews will be used efficiently to help frame appropriate questions for focus groups and to help identify potential community partners for recruiting focus group attendees, in addition to their primary goal of gaining their subject matter expertise regarding the beneficiary barriers to compliance with the AHCCCS Works program.

A flexible protocol will be developed for the semi-structured interviews. Early focus groups or interviews will inform the development and choice of topics and help inform the selection of additional interview subjects to round out the list of individuals to be interviewed for this project. It is not anticipated that financial incentives for participation would be required for current agency employees, however, key informants who are no longer employed might be offered an incentive such as a $100.00 gift card to encourage participation. Open-ended questions will be used to maximize the diversity and richness of responses and ensure a more holistic understanding of the subject's experience. Probing follow-up questions will be used as appropriate to elicit additional detail and understanding of critical points, terminology, and perspectives. The sessions will be recorded and transcribed with participant consent.

Synthesis

The information obtained from these focus groups and interviews will be synthesized with the results from other quantitative data analyses to provide an in-depth discussion of each of the domains/objectives to be considered. As the key informant interviews are being conducted, the independent evaluator will perform ongoing and iterative review of the interview responses and notes to identify overall themes and common response patterns. Unique responses that are substantively interesting and informative will also be noted and may be used to develop probing questions for future interviews. The results of these preliminary analyses will be used to document the emergent and overarching themes related to each research question. The documentation of emergent themes will be reviewed in an iterative manner to determine if responses to interview questions are continuing to provide new perspectives and answers, or if the responses are converging on a common set of response patterns indicating saturation on a particular interview question. As additional interview data are collected, the categories, themes, and relationships will be adjusted to reflect the broader set of concepts and different types of relationships

identified. The documentation of emergent themes will also be used as an initial starting point for organizing the analysis of the interview data once all interviews are completed.

Following the completion of the focus groups and key informant interviews, the interview notes and transcripts will be reviewed using standard qualitative analysis techniques. The data will first be examined through open-coding to identify key concepts and themes that may not have been captured as emergent themes during previous analyses. After identifying key concepts, axial coding techniques will be used to develop a more complete understanding of the relationships among categories identified by respondents in the data. The open and axial coding will be performed with a focus on identifying the dimensionality and breadth of responses to the research questions posed for the overall project. Interviewee responses will be identified through the analysis to illustrate and contextualize the conclusions drawn from the research and will be used to support the development of the final report.

Cost-Effectiveness Analysis

To evaluate the sustainability of the demonstration component and its impacts on costs, the independent evaluator will estimate costs and savings associated with the renewal of the waiver. Total costs will be comprised of both medical costs and administrative costs.

Costs and savings will be estimated based on an actuarial approach. The actuarial method will create a "hypothetical comparison group" by trending the cost experience of a waiver population during a baseline period prior to renewal of the waiver forward in time to the evaluation period(s) following renewal of the waiver. The trended costs will represent an estimate of the costs for the waiver population during the evaluation period(s) as if the waiver had never been renewed. Thus, the actuarial method will compare the trended actual costs of the waiver population in a baseline period to the actual costs for the waiver population during the evaluation period(s) to estimate savings.

There are two separate definitions of "medical cost" that will be evaluated, resulting in two separate estimates of total costs and savings. "Expenditure costs" represent the direct expenditures by the state for the provision of Medicaid services, identified as the medical cost component of the capitation payments. "Service costs" represent the cost to the plans of providing the included Medicaid services. A different approach will be used for each type of medical cost.

The method to estimate "expenditure cost" savings will compare the trended medical cost component for the waiver population from baseline capitation rates to the average medical cost component paid in the evaluation period(s). The independent contractor will ensure that the service packages included in the capitation rates are similar in both the baseline and evaluation period(s). If the service packages are different, adjustments will be made to ensure the capitation rates for both the trended baseline and the evaluation period(s) represent the same package of services. Typically, these adjustments will be made based on fee for service claims or specific medical cost components included in the capitation payments during the baseline period.

The medical cost component in both the baseline for the evaluation period(s) will be based on the carriers' filed premium rates or other available documents that identify medical costs. Other adjustments for other medical-cost-related components such as risk corridor payment adjustments, cost sharing reduction payments, deductible funding, changes in medical technology or clinical guidance, changes in reimbursement rates, and the cost of wraparound services, will be included in both the baseline and evaluation period(s) estimates. These adjustments will be done as appropriate based on state and federal Medicaid policies in place for each waiver population during the period for which costs are being calculated. For the comparison group (trended baseline medical cost component), medical cost projections will be developed based on baseline program claims/encounter data that

will be trended and adjusted for demographic changes, acuity differences, and programmatic changes as well as the other factors described above, as appropriate for specific periods, state policies, and waiver populations. The data for developing both the trended baseline and evaluation period cost estimates will be based on data provided to AHCCCS as a part of the capitation rate-setting and certification process.

The method for calculating "service cost" savings will involve comparing the trended baseline period medical cost component from the capitation rate to the plans' actual cost of providing Medicaid services to the waiver population in the evaluation period(s).

For both the baseline and evaluation periods, the average medical cost will be calculated based on claims/encounter data, while ensuring identical service packages in both periods. The baseline medical cost estimates will be trended forward from the baseline period and will be adjusted for the items listed above as necessary and appropriate.

Administrative costs will be estimated based on administrative amounts included in specific waiver premium rate filings in the baseline and evaluation period(s). This approach will be used since the allocation of actual administrative costs for waiver populations is typically difficult for plans to more accurately estimate. Adjustments will be made to account for changes in administrative activity requirements between the baseline and evaluation period(s). Adjustments will also be made to the baseline estimate to account for inflationary and state policy changes and waiver population factors as necessary and appropriate.

Total costs for both groups will be calculated as the sum of the medical and administrative cost estimates. This will result in two different total cost estimates, one for each of the approaches used to estimate medical costs described above.

The independent evaluator will work with AHCCCS to ensure that all cost calculations incorporate all appropriate adjustments to adequately account for changes in service packages, administrative cost structures, and/or national/state policy that directly or indirectly impact the costs of providing Medicaid services to the waiver population across the baseline and evaluation period(s).

Costs and benefits will be isolated to the AHCCCS Works demonstration component to the extent possible using the strategies described in the Disentangling Confounding Events section below.

Disentangling Confounding Events

During the current demonstration renewal period, AHCCCS has implemented several programs that could confound the estimated impact of AHCCCS Works on measured outcomes. The Targeted Investments (TI) program was implemented by October 2019. The TI program provides practices with funds specifically to encourage better care coordination and integrated care for their beneficiaries. As such, beneficiaries impacted by the TI program may receive higher levels of integrated care, thereby introducing potentially confounding program effects if the target and comparison groups are differentially impacted by TI. The independent evaluator may identify those impacted by TI and utilize statistical controls to disentangle effects of TI beneficiaries on the AHCCCS Works program.

Beginning on July 1, 2019, AHCCCS eliminated prior quarter coverage (PQC) for most Medicaid adults.[3-18] This program may introduce confounding effects since impacted beneficiaries may alter their future care-seeking or enrollment and disenrollment decisions. The independent evaluator may leverage the differential timing between

[3-18] Pregnant women, women who are 60 days or less postpartum, and infants and children under 19 years of age are excluded.

the introduction of AHCCCS Works and effective date of the elimination of PQC to help reduce the potential confounding effects.

4. Methodology Limitations

There are several limitations to the proposed evaluation design. First, many hypotheses and research questions pertain to measuring outcomes for former Medicaid beneficiaries. Arizona Health Care Cost Containment System (AHCCCS) does not maintain an all-payor claims database (APCD) in which data from commercial insurance may be available. Instead of utilizing Medicaid and APCD administrative data, the primary data source for much of the evaluation will rely on surveys. This should not preclude causal inferences about the effects of the demonstration but could introduce biases during the execution phase of the evaluation. For example, if response rates are materially and structurally different between intervention and comparison groups, and more importantly, between current and former Medicaid beneficiaries, these differences can bias the final evaluation if inadequately accounted for in the evaluation.

Another limitation or risk to the analysis is the availability of a comparison group. Because AHCCCS Works impacts virtually all able-bodied adults in Medicaid expansion eligibility groups, those who are exempt or eligible for non-expansion Medicaid may be systematically different. Propensity score matching will be the primary tool used to identify members from the exempt and/or non-expansion population who share similar characteristics to those in the intervention. While this is a proven technique and has been used in the past to conduct evaluations on a Medicaid expansion population, there are analytical risks to this technique that may ultimately hinder the ability to draw causal inferences. These risks and mitigation strategies are discussed above in the Intervention and Comparison Populations section.

5. Reporting

Following its annual evaluation of the Arizona Health Care Cost Containment System (AHCCCS) Works and subsequent synthesis of the results, AHCCCS and its independent evaluator will prepare two reports of the findings and how the results compare to the research hypotheses. Both the interim evaluation report and the final summative evaluation report will be produced in alignment with Special Terms and Conditions (STCs) and the schedule of deliverables listed in Table 5-1 (See Appendix C for a detailed timeline.).

Table 5-1: Schedule of Deliverables for the AHCCCS Works Evaluation

Deliverable	Date
AHCCCS Works Evaluation Design (STC #72)	
AHCCCS submits AHCCCS Works Waiver Evaluation Design Plan to Centers for Medicare & Medicaid Services (CMS)	07/17/2019
AHCCCS submits a revised draft Evaluation Design within sixty (60) calendar days after receipt of CMS' comments.	TBD
AHCCCS to post final approved AHCCCS Works Waiver Evaluation Design Plan on the State's website within 30 days of approval by CMS	TBD
AHCCCS presentation to CMS on approved Evaluation Design	As Requested
Evaluation Report(s)	
Quarterly: AHCCCS to report progress of Demonstration to CMS (STC #52)	60 days after the quarter
AHCCCS to post AHCCCS Works Interim Evaluation Report on the State's website for public comment	TBD
Interim Evaluation Report (STC #76)	TBD
AHCCCS submits a Final Interim Evaluation Report within sixty (60) calendar days after receipt of CMS' comments.	TBD
Final Summative Evaluation Report (STC #77)	March 30, 2023
AHCCCS submits a Final Summative Evaluation Report within sixty (60) calendar days after receipt of CMS' comments.	TBD
AHCCCS presentation to CMS on Final Summative Evaluation Report (STC #73)	As Requested

Each evaluation report will present results in a clear, accurate, concise, and timely manner. At minimum, all written reports will include the following nine sections:

1. The **Executive Summary** concisely states the goals for the Demonstration, presenting the key findings, the context of policy-relevant implications, and recommendations.
2. The **General Background Information about the Demonstration** section succinctly traces the development of the program from the recognition of need to the present degree of implementation. This section will also include a discussion of the State's implementation of the AHCCCS Works program along with its successes and challenges.
3. The **Evaluation Questions and Hypotheses** section focuses on programmatic goals and strategies with the research hypotheses and associated evaluation questions.

4. The **Methodology** section will include the evaluation design with the research hypotheses and associated measures, along with the type of study design; targeted and comparison populations and stakeholders; data sources that include data collection field, documents, and collection agreements; and analysis techniques with controls for differences in groups or with other State interventions, including sensitivity analyses when conducted.
5. The **Methodological Limitations** section is a summary of the evaluation designs limitations including its strengths and weaknesses.
6. The **Results** section is a summary of the key findings and outcomes of each hypothesis and research question.
7. The **Conclusions** section is a description of the effectiveness and impact of the Demonstration.
8. The **Interpretations, Policy Implications, and Interactions with Other State Initiatives** section contains the policy-relevant and contextually appropriate interpretations of the conclusions, including the existing and expected impact of the Demonstration within the health delivery system in Arizona in the context of the implications for state and federal health policy, including the potential for successful strategies to be replicated in other state Medicaid programs. In addition, this section contains the interrelations between the Demonstration and other aspects of Arizona's Medicaid program, including interactions with other Medicaid waivers and other federal awards affecting service delivery, health outcomes, and the cost of care under Medicaid.
9. The **Lessons Learned and Recommendations** section discusses the opportunities for revisions to future demonstrations, based on the information collected during the evaluation.

All reports, including the Evaluation Design, will be posted on the State Website within 30 days of the approval of each document to ensure public access to evaluation documentation and to foster transparency. AHCCCS will notify the Centers for Medicare & Medicaid Services (CMS) prior to publishing any results based on the Demonstration evaluation for CMS' review and approval. The reports' appendices will present more granular results and supplemental findings. AHCCCS will work with CMS to ensure the transmission of all required reports and documentation occurs within approved communication protocols.

Content of Interim Report

The interim report will be made publicly available prior to the waiver renewal application deadline of December 31, 2020. Due to the abbreviated time for analysis, the interim report will consist of a status update regarding the execution of the evaluation design plan, preliminary analyses of key informant interviews conducted early enough for inclusion in the report, and a detailed and complete analytic plan for the waiver evaluation, including survey administration details (e.g., sampling frame, survey instrument, and sampling strategy to align surveys across programs).

Content of Summative Report

The final summative report will be delivered to CMS within 500 days of the demonstration end and will contain the full results of all measures described in this evaluation design plan and in the final analytic plan contained in the Interim Report.

A. Independent Evaluator

Arizona Health Care Cost Containment System (AHCCCS) will select an independent evaluator with experience and expertise to conduct a scientific and rigorous Medicaid Section 1115 waiver evaluation meeting all of the requirements specified in the Special Terms and Conditions (STCs).[A-1] The independent evaluator will be required to have the following qualifications:

- Knowledge of public health programs and policy.
- Experience in healthcare research and evaluation.
- Understanding of AHCCCS programs and populations.
- Expertise with conducting complex program evaluations.
- Relevant work experience.
- Skills in data management and analytic capacity.
- Medicaid experience and technical knowledge.

Based on State protocols, AHCCCS will follow established policies and procedures to acquire an independent entity or entities to conduct the AHCCCS Works program evaluation. In addition, AHCCCS will ensure that the selected independent evaluator does not have any conflicts of interest and will require the independent evaluator to sign a "No Conflict of Interest" statement.

[A-1] Centers for Medicare & Medicaid Services. Arizona Medicaid Section 1115 Demonstration Special Terms and Conditions. Jan 18, 2017. Available at: https://www.azahcccs.gov/shared/Downloads/News/FORSTATEArizonaAHCCCSSTCAndAuthorities_W_TIPFinal.pdf. Accessed on Jun 20, 2019.

B. Evaluation Budget

Due to the complexity and resource requirements of the Arizona Health Care Cost Containment System (AHCCCS) Works, AHCCCS will need to conduct a competitive procurement to obtain the services of an independent evaluator to perform the services outlined in this evaluation design. Upon selection of an evaluation vendor, a final budget will be prepared in collaboration with the selected independent evaluator. Table B-1 displays the proposed budget shell that will be used for submitting total costs for AHCCCS Works.

The costs presented in Table B-1 will include the total estimated cost, as well as a breakdown of estimated staff, administrative and other costs for all aspects of the evaluation such as any survey and measurement development, quantitative and qualitative data collection and cleaning analyses and report generation. A final budget will be submitted once a final independent evaluator has been selected. The total estimated cost for this evaluation is $513,573, the estimate assumes that a single independent evaluator will conduct all required AHCCCS waiver evaluations.

Table B-1: Proposed Budget AHCCCS Works

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Key Informant Interviews					
Instrument Design					
Staff Costs	$ -	$ -	$ 5,792	$ -	$ -
Administrative Costs	$ -	$ -	$ 4,208	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ -**	**$ 10,000**	**$ -**	**$ -**
Administration					
Staff Costs	$ -	$ -	$ 10,345	$ -	$ -
Administrative Costs	$ -	$ -	$ 7,515	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ -**	**$ 17,860**	**$ -**	**$ -**
Provider Focus Groups					
Instrument Design					
Staff Costs	$ -	$ -	$ 6,516	$ -	$ -
Administrative Costs	$ -	$ -	$ 4,734	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ -**	**$ 11,250**	**$ -**	**$ -**
Administration					
Staff Costs	$ -	$ -	$ 8,103	$ -	$ -
Administrative Costs	$ -	$ -	$ 5,887	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ -**	**$ 13,990**	**$ -**	**$ -**
Member/Beneficiary Surveys					

Evaluation Area/Task	Year 1	Year 2	Year 3	Year 4	Year 5
Instrument Design					
Staff Costs	$ 4,512	$ 3,718	$ 3,718	$ -	$ -
Administrative Costs	$ 3,278	$ 2,702	$ 2,702	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 7,790**	**$ 6,420**	**$ 6,420**	**$ -**	**$ -**
Administration					
Staff Costs	$ 5,524	$ 5,524	$ 5,524	$ -	$ -
Administrative Costs	$ 4,014	$ 4,014	$ 4,014	$ -	$ -
Other Costs	$ 9,653	$ 9,653	$ 9,653		
Total Costs	**$ 19,191**	**$ 19,191**	**$ 19,191**	**$ -**	**$ -**
Claims Data Measure Calculations					
Claims Data Collection/Validation					
Staff Costs	$ -	$ 2,908	$ 1,153	$ -	$ -
Administrative Costs	$ -	$ 2,112	$ 837	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 5,020**	**$ 1,990**	**$ -**	**$ -**
Code Development/Execution					
Staff Costs	$ -	$ 10,426	$ 5,815	$ -	$ -
Administrative Costs	$ -	$ 7,574	$ 4,225	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ -**	**$ 18,000**	**$ 10,040**	**$ -**	**$ -**
Analysis and Reporting					
Interviews/Surveys/Claims Data Analysis					
Staff Costs	$ 10,003	$ 29,209	$ 39,513	$ 59,310	$ 2,381
Administrative Costs	$ 7,267	$ 21,221	$ 28,707	$ 43,090	$ 1,729
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 17,270**	**$ 50,430**	**$ 68,220**	**$ 102,400**	**$ 4,110**
Interim/Summative/Rapid-Cycle Reports					
Staff Costs	$ 16,310	$ 11,347	$ 9,522	$ 17,793	$ 5,722
Administrative Costs	$ 11,850	$ 8,243	$ 6,918	$ 12,927	$ 4,158
Other Costs	$ -	$ -	$ -	$ -	$ -
Total Costs	**$ 28,160**	**$ 19,590**	**$ 16,440**	**$ 30,720**	**$ 9,880**
Total	**$ 72,411**	**$ 118,651**	**$ 175,401**	**$ 133,120**	**$ 13,990**

C. Timeline and Milestones

The following project timeline has been prepared for the Arizona Health Care Cost Containment System (AHCCCS) Works program evaluation outlined in the preceding sections. This timeline should be considered preliminary and subject to change based upon approval of the Evaluation Design and implementations of the AHCCCS Works program. A final detailed timeline will be developed upon selection of the independent evaluator tasked with conducting the evaluation.

Figure C-1 outlines the proposed timeline and tasks for conducting the AHCCCS Works program evaluation.

Figure C-1: AHCCCS Works Evaluation Project Timeline

Task	CY2019	CY2020				CY2021				CY2022				CY2023			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Prepare and Implement Study Design																	
Conduct kick-off meeting																	
Prepare methodology and analysis plan																	
Data Collection																	
Obtain Arizona Medicaid claims/encounter																	
Obtain Arizona Medicaid member, provider, and eligibility/enrollment data																	
Obtain financial data																	
Integrate data; generate analytic dataset																	
Conduct Analysis																	
Rapid Cycle Assessment																	
Prepare and calculate metrics																	
Generate reports																	
Non-Survey Analyses																	
Prepare and calculate metrics																	
Conduct statistical testing and comparison																	
CAHPS/CAHPS-like Survey Analyses																	
Develop survey instrument																	
Field survey; collect satisfaction data																	
Conduct survey analyses																	
Reporting																	
Draft Interim Evaluation Report																	
Final Interim Evaluation Report																	
Draft Summative Evaluation Report																	
Final Summative Evaluation Report																	

Note: Timeline based on approval for the waiver after September 30, 2021.

D. Proposed Measure Specifications

The tables in this section provide the detailed measure specifications for the Arizona Health Care Cost Containment System (AHCCCS) Works program evaluation.

Hypothesis 1—Medicaid beneficiaries subject to the community engagement requirement will have higher employment and education levels than Medicaid beneficiaries not subject to the requirement.

Research Question 1.1: Does the community engagement requirement lead to increased job seeking activities for those subject to the requirements compared to those who are not?

Percentage of Beneficiaries Who Did Not Work During the Previous Week Who Actively Sought a Job During the Past Four Weeks (Measure 1-1)	
Numerator/Denominator	Numerator: Number of beneficiaries responding they actively sought a job within the past four weeks (and did not work during the previous week) Denominator: Number of respondents to survey question who did not work during the previous week
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group
Measure Steward	N/A
Data Source	• State beneficiary survey • Integrated Public Use Microdata Series American Community Survey (IPUMS ACS)
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Percentage of Beneficiaries Who Met Community Engagement Criteria Through Job Search Activities (Measure 1-2)	
Numerator/Denominator	Numerator: Number of beneficiaries who met the community engagement criteria through job search activities Denominator: Number of non-exempt AHCCCS Works beneficiaries
Comparison Population	N/A
Measure Steward	N/A
Data Source	Eligibility and program monitoring data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Compare outcomes during first month or three months (i.e., orientation period) against outcomes for subsequent months • Rapid cycle reporting – statistical process control chart

Research Question 1.2: Does the community engagement requirement lead to increased rates of education enrollment or employment training programs?

Percentage of Beneficiaries Attending School or an Employment Support and Development Program (Measure 1-3)	
Numerator/Denominator	Numerator: Number of beneficiaries reported attendance of school or an Employment Support and Development program, or both, full time Denominator: Number of respondents to attendance of school or an Employment Support and Development program survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out of state comparison group
Measure Steward	N/A
Data Source	• State beneficiary survey • IPUMS ACS
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Percentage of Beneficiaries Who Met Community Engagement Criteria Through Attending School or an Employment Support and Development Program (Measure 1-4)	
Numerator/Denominator	Numerator: Number of beneficiaries who met community engagement criteria through less than full-time education and job or life skills training Denominator: Number of non-exempt AHCCCS Works beneficiaries
Comparison Population	N/A
Measure Steward	N/A
Data Source	Eligibility and program monitoring data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Compare outcomes during first month or three months (i.e., orientation period) against outcomes for subsequent months • Rapid cycle reporting – statistical process control chart

Research Question 1.3: Are beneficiaries subject to the community engagement requirement more likely to be employed (including new and sustained employment) compared to those who are not?

Percentage of Beneficiaries Who Usually Worked at Least 20 Hours per Week During Previous Year (Measure 1-5)	
Numerator/Denominator	Numerator: Number of beneficiaries who reported usually working at least 20 hours per week during the time they were working, including paid vacation and sick leave Denominator: Number of respondents to hours usually worked per week survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group

Percentage of Beneficiaries Who Usually Worked at Least 20 Hours per Week During Previous Year (Measure 1-5)	
Measure Steward	N/A
Data Source	• State beneficiary survey • IPUMS ACS
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Percentage of Beneficiaries Employed During Each Month of the Measurement Year (Measure 1-6)	
Numerator/Denominator	Numerator: Number of beneficiaries indicating employment, including part-time, full-time, or self-employed Denominator: Number of beneficiaries in intervention/comparison group
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	Eligibility and income data
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Comparative interrupted time series • Difference-in-differences • Rapid cycle reporting – statistical process control chart

Number of Weeks Worked Last Year (Including as Unpaid Family Worker, and Paid Vacation/Sick Leave) (Measure 1-7)	
Numerator/Denominator	Numerator: Beneficiaries reported number of weeks worked last year (including as unpaid family worker, and paid vacation/sick leave) Denominator: Number of respondents to weeks worked survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group
Measure Steward	N/A
Data Source	• State beneficiary survey • IPUMS ACS
Desired Direction	An increase in the number of weeks worked supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Research Question 1.4: Do beneficiaries who initially comply through activities other than employment gain employment within certain time periods?

Percentage of Beneficiaries Initially Compliant Through Activities Other Than Employment Employed at 6 Months, 1 Year, and 2 Years After Enrollment or Implementation (Measure 1-8)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who are compliant through employment 6 months, 1 year, or 2 years after enrollment or implementation Denominator: Number of beneficiaries compliant through activities other than employment during the first three months of enrollment or implementation
Comparison Population	N/A
Measure Steward	N/A
Data Source	Eligibility and program monitoring data
Desired Direction	An increase supports the hypothesis
Analytic Approach	Descriptive analysis of employment status at 6 months, 1 year, and 2 years post-enrollment among those who initially met requirement through non-employment activities

Research Question 1.5: Is employment among individuals subject to community engagement requirements sustained over time, including after separating from Medicaid?

Percentage of Beneficiaries Employed Continuously for a Year or More Since Enrollment or Implementation (Measure 1-9)	
Numerator/Denominator	Numerator: Number of beneficiaries in the denominator who are employed, 1 year or 2 years after enrollment or implementation. Denominator: Three denominators will be calculated. Number of beneficiaries who: (1) were already employed at enrollment or implementation, (2) gained employment in the first six months of enrollment or implementation, and (3) did not gain employment in the first six months of enrollment or implementation.
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase supports the hypothesis
Analytic Approach	Comparison of regression-adjusted means in employment 1- and 2-years post-enrollment among: 1) Those who were already employed at enrollment or implementation 2) Those who gained employment in the first six months of enrollment 3) Those who did not gain employment in the first six months of enrollment

Research Question 1.6: Does the community engagement requirement lead to better education outcomes?

Beneficiaries Reported Highest Grade or Level of Education Completed (Measure 1-10)	
Numerator/Denominator	Numerator: Beneficiaries reported highest grade or level of education completed Denominator: Number of respondents to highest grade or level of education completed survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group
Measure Steward	N/A
Data Source	• State beneficiary survey

Beneficiaries Reported Highest Grade or Level of Education Completed (Measure 1-10)	
	• IPUMS ACS
Desired Direction	An increase in the level of education supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Hypothesis 2—Medicaid beneficiaries subject to the community engagement requirement will have higher average income than Medicaid beneficiaries not subject to the requirement.

Research Question 2.1: Does the community engagement requirement increase income?

Average Monthly Earnings (Measure 2-1)	
Numerator/Denominator	Numerator: Beneficiaries monthly earnings as reported in Health-e-Arizona Plus (HEAplus) Denominator: Number of beneficiaries in intervention/comparison group
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	• Eligibility and income data • HEAplus
Desired Direction	An increase in earnings supports the hypothesis
Analytic Approach	• Regression discontinuity • Comparative interrupted time series • Difference-in-differences • Rapid cycle reporting – statistical process control chart

Average Beneficiary Reported Personal Income (Measure 2-2)	
Numerator/Denominator	Numerator: Beneficiaries reported personal income Denominator: Number of respondents to personal income survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout • Out-of-state comparison group
Measure Steward	N/A
Data Source	• State beneficiary survey • IPUMS ACS, variable INCTOT
Desired Direction	An increase in income supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Hypothesis 3—Medicaid beneficiaries subject to the community engagement requirement will have a higher likelihood of transitioning to commercial health insurance after separating from Medicaid than Medicaid beneficiaries not subject to the requirement.

Research Question 3.1: Does the community engagement requirement lead to increased take-up of commercial insurance, including employer-sponsored insurance (ESI) and Marketplace plans?

Enrollment in Commercial Coverage Within One Year After Medicaid Disenrollment (Measure 3-1)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated gaining commercial coverage within one year after Medicaid disenrollment Denominator: Number of respondents to commercial coverage survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Percentage of Beneficiaries with a Job That Offers ESI (Measure 3-2)	
Numerator/Denominator	Numerator: Number of respondents who indicated their job offers ESI Denominator: Number of respondents who are employed
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Percentage of Beneficiaries with a Job That Offers ESI and Who Enroll in ESI (Measure 3-3)	
Numerator/Denominator	Numerator: Number of respondents who enroll in ESI Denominator: Number of respondents who are employed at a job that offers ESI (Measure 3-2 numerator)
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Descriptive analysis of ESI take-up among those offered and eligible for ESI

Research Question 3.2: Is new ESI coverage sustained over time after implementation of community engagement requirements?

Percentage of Beneficiaries who Still Have ESI Coverage 1 and 2 Years After Initial Take-up of ESI (Measure 3-4)	
Numerator/Denominator	Numerator: Number of respondents who remained in ESI coverage 1 and 2 years after initial take-up of ESI Denominator: Number of respondents who enrolled in ESI
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	Descriptive analysis of coverage at 1 and 2 years after initial ESI take-up

Percentage of Beneficiaries with Medicaid Coverage 1 and 2 Years After Initial Take-up of ESI (Measure 3-5)	
Numerator/Denominator	Numerator: Number of respondents who are enrolled in Medicaid 1 and 2 years after initial take-up of ESI Denominator: Number of respondents who enrolled in ESI
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Descriptive analysis of coverage at 1 and 2 years after initial ESI take-up

Percentage of Beneficiaries Uninsured 1 and 2 Years After Initial Take-up of ESI (Measure 3-6)	
Numerator/Denominator	Numerator: Number of respondents who are uninsured 1 and 2 years after initial take-up of ESI Denominator: Number of respondents who enrolled in ESI
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Descriptive analysis of coverage at 1 and 2 years after initial ESI take-up

Research Question 3.3: Are beneficiaries with ESI able to pay premiums and meet other cost-sharing responsibilities such as deductibles and copayments?

Percentage of Beneficiaries with ESI Who Reported Problems Paying Insurance or Medical Bills (Measure 3-7)	
Numerator/Denominator	Numerator: Number of respondents who indicated problems paying premiums for insurance or medical bills Denominator: Number of respondents who enrolled in ESI
Comparison Population	N/A

Percentage of Beneficiaries with ESI Who Reported Problems Paying Insurance or Medical Bills (Measure 3-7)	
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Descriptive analysis of reported beneficiary cost sharing for former demonstration beneficiaries who transitioned to ESI

Reported Out-of-Pocket Medical Spending Among Beneficiaries with ESI (Measure 3-8)	
Numerator/Denominator	Numerator: Reported out-of-pocket medical spending among respondents to survey question Denominator: Number of respondents who enrolled in ESI
Comparison Population	N/A
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	Descriptive analysis of reported beneficiary cost sharing for former demonstration beneficiaries who transitioned to ESI

Research Question 3.4: Is the community engagement requirement associated with coverage losses (if people transition off Medicaid and do not enroll in commercial health insurance)?

Average Number of Months Beneficiaries Reported Being Uninsured (Measure 3-9)	
Numerator/Denominator	Numerator: Beneficiaries response to number of full months without insurance coverage Denominator: Number of respondents to full months without insurance survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in months uninsured supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Average Number of Months Uninsured (Measure 3-10)	
Numerator/Denominator	Numerator: Number of full months without insurance coverage Denominator: Number of beneficiaries in intervention/comparison group
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A

Average Number of Months Uninsured (Measure 3-10)	
Data Source	State tax data (1095B)
Desired Direction	A decrease in months uninsured supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Research Question 3.5: Are beneficiaries subject to the community engagement requirement more likely to lose eligibility due to increased income than beneficiaries not subject to the requirement?

Percentage of Beneficiaries Disenrolling from Medicaid Due to Income Exceeding Limit (Measure 3-11)	
Numerator/Denominator	Numerator: Number of full months without insurance coverage Denominator: Number of beneficiaries in intervention/comparison group
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	Eligibility and enrollment data
Desired Direction	N/A
Analytic Approach	• Comparative interrupted time series • Regression discontinuity • Difference-in-differences

Percentage of Non-Exempt AHCCCS Works Beneficiaries Losing Medicaid Eligibility per Month, by Discontinuance Category (Measure 3-12)	
Numerator/Denominator	Numerator: Number of beneficiaries who have a Medicaid eligibility end date within the month Denominator: Number of non-exempt AHCCCS Works beneficiaries
Comparison Population	N/A
Measure Steward	N/A
Data Source	Eligibility and enrollment data
Desired Direction	N/A
Analytic Approach	Rapid cycle reporting – statistical process control chart

Research Question 3.6: At what rates are beneficiaries subject to the community engagement requirement suspended due to noncompliance?

Percentage of Non-exempt AHCCCS Works Beneficiaries Suspended Due to Noncompliance Per Month (Measure 3-13)	
Numerator/Denominator	Numerator: Number of beneficiaries who were suspended from Medicaid during the month due to noncompliance Denominator: Number of non-exempt AHCCCS Works beneficiaries
Comparison Population	N/A

Percentage of Non-exempt AHCCCS Works Beneficiaries Suspended Due to Noncompliance Per Month (Measure 3-13)	
Measure Steward	N/A
Data Source	Eligibility and program monitoring data
Desired Direction	N/A
Analytic Approach	Rapid cycle reporting – statistical process control chart

Hypothesis 4—Current and former Medicaid beneficiaries subject to the community engagement requirement will have better health outcomes than Medicaid beneficiaries not subject to the requirement.

Research Question 4.1: Does the community engagement requirement lead to improved health outcomes?

Beneficiary Reported Rating of Overall Health (Measure 4-1)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated high overall health rating in response to Consumer Assessment of Healthcare Providers and Systems (CAHPS®) question regarding overall health[D-1] Denominator: Number of respondents to overall health survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	NCQA
Data Source	State beneficiary survey; Behavioral Risk Factors Surveillance System (BRFSS)
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Beneficiary Reported Rating of Overall Mental or Emotional Health (Measure 4-2)	
Numerator/Denominator	Numerator: Number of beneficiaries who indicated high overall mental or emotional health rating in response to CAHPS question regarding overall health Denominator: Number of respondents to overall mental or emotional health survey question
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	NCQA
Data Source	State beneficiary survey
Desired Direction	An increase in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

[D-1] CAHPS is a registered trademark of the Agency for Healthcare Research and Quality.

Percentage of Beneficiaries Who Reported Prior Year Emergency Room (ER) Visit (Measure 4-3)	
Numerator/Denominator	Numerator: Number of beneficiaries who reported ER visits during previous 12 months Denominator: Number of respondents to ER visit survey questions
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Percentage of Beneficiaries Who Reported Prior Year Hospital Admission (Measure 4-4)	
Numerator/Denominator	Numerator: Number of beneficiaries who reported overnight hospital stays during previous 12 months Denominator: Number of respondents to overnight hospital stay survey questions
Comparison Population	Similar members not subject to community engagement requirements • Beneficiaries above the eligibility threshold of age 49 • Beneficiaries from staged rollout
Measure Steward	N/A
Data Source	State beneficiary survey
Desired Direction	A decrease in the rate supports the hypothesis
Analytic Approach	• Regression discontinuity • Difference-in-differences

Hypothesis 6—Assessment of AHCCCS Works Implementation.

Research Question 6.1: What is the distribution of activities beneficiaries engage in to meet community engagement requirements? How have these changed over time?

Breakdown of Community Engagement Compliance by Category, Over Time (e.g., Monthly) (Measure 6-1)	
Numerator/Denominator	Numerator: Number of beneficiaries meeting community engagement criteria by category Denominator: Number of beneficiaries meeting community engagement criteria
Comparison Population	N/A
Measure Steward	N/A
Data Source	Compliance and monitoring data
Desired Direction	N/A
Analytic Approach	• Compare outcomes during first three months (i.e., orientation period) against outcomes for subsequent months • Rapid cycle reporting – statistical process control chart

Research Question 6.2: What are common barriers to compliance with community engagement requirements?

Beneficiaries' Reported Barriers to Community Engagement Compliance (Measure 6-2)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Beneficiary focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 6.3: Do beneficiaries report that they have the necessary support services to meet community engagement requirements?

Beneficiaries' Reported Support Services for Meeting Community Engagement Requirements (Measure 6-3)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	• Beneficiary focus groups • State beneficiary survey
Desired Direction	N/A
Analytic Approach	• Qualitative synthesis • Post-implementation trend analysis

Research Question 6.4: Do beneficiaries understand the requirements, including how to satisfy them and the consequences of noncompliance?

Beneficiaries' Reported Awareness of Community Engagement Requirements, How to Report Hours, and Consequences of Noncompliance (Measure 6-4)	
Numerator/Denominator	Numerator: N/A Denominator: N/A
Comparison Population	N/A
Measure Steward	N/A
Data Source	Beneficiary focus groups
Desired Direction	N/A
Analytic Approach	Qualitative synthesis

Research Question 6.5: How many beneficiaries are required to actively report their status, including exemptions, good cause circumstances, and qualifying activities (i.e. what is the reporting burden on beneficiaries)?

Number and Percentage of Beneficiaries Required to Actively Report Exemptions (Measure 6-5)	
Numerator/Denominator	Numerator: Number of beneficiaries who are actively reporting exemptions to AHCCCS Denominator: Number of exempt beneficiaries
Comparison Population	N/A
Measure Steward	N/A
Data Source	Compliance and monitoring data
Desired Direction	N/A
Analytic Approach	Post-implementation trend analysis

Number and Percentage of Beneficiaries Required to Actively Report Good Cause Circumstances (Measure 6-6)	
Numerator/Denominator	Numerator: Number of beneficiaries who are actively reporting good cause circumstances to waive suspension Denominator: Number of nonexempt beneficiaries
Comparison Population	N/A
Measure Steward	N/A
Data Source	Compliance and monitoring data
Desired Direction	N/A
Analytic Approach	Post-implementation trend analysis

Number and Percentage of Beneficiaries Required to Report Qualifying Activities (Measure 6-7)	
Numerator/Denominator	Numerator: Number of beneficiaries who are actively reporting qualifying activities Denominator: Number of beneficiaries in compliance
Comparison Population	N/A
Measure Steward	N/A
Data Source	Compliance and monitoring data
Desired Direction	N/A
Analytic Approach	Post-implementation trend analysis

Research Question 6.6: Are beneficiaries who are disenrolled for noncompliance with community engagement requirements more or less likely to re-enroll than beneficiaries who disenroll for other reasons?

Percentage of Beneficiaries Re-Enrolling in Medicaid After a Gap in Coverage of At Least 1 Month and 3 Months (Measure 6-8)	
Numerator/Denominator	Numerator: Number of beneficiaries who re-enroll in Medicaid Denominator: Number of beneficiaries with a gap in Medicaid coverage of at least 1 or 3 months.
Comparison Population	N/A
Measure Steward	N/A
Data Source	• Eligibility and enrollment data • Compliance and monitoring data

Percentage of Beneficiaries Re-Enrolling in Medicaid After a Gap in Coverage of At Least 1 Month and 3 Months (Measure 6-8)	
Desired Direction	N/A
Analytic Approach	Comparison of regression-adjusted probability of re-enrollment among AHCCCS Works beneficiaries who were: 1) Disenrolled for noncompliance 2) Disenrolled for reasons other than noncompliance

E. Beneficiary-Level Data Sources Reviewed

Numerous out-of-state sources of beneficiary-level data were considered for each evaluation design plan. Most data sources do not contain key data elements necessary for inclusion in the design plans. A description of these data sources and rationale for inclusion or exclusion is provided in the Comparison Populations—Out-of-State Comparison Groups section. There are two primary uses for each data source: (1) including the same survey questions in an Arizona member beneficiary survey conducted for this evaluation and utilizing the out-of-state data as a comparison group, or (2) utilizing the out-of-state data for both the intervention and comparison groups. There are significant limitations to either approach. Under the first approach, since the survey was not fielded during the baseline period, only a single, post-implementation data point would be included in the summative evaluation. This would not provide the basis from which to draw any causal inferences. Under the second approach, many of these data sources are limited by the absence of a state identifier (on public use data) and by a sufficient number of Arizona Medicaid respondents to generate sufficient statistical power for meaningful analysis without pooling multiple years together. Additionally, some data sources are limited in relevant health-related outcomes pertinent to the demonstration. Table E-1 provides a summary of each data source considered, its applicability, and its limitations.

Legend for Table E-1

	Subpopulation Identification	Outcomes Measures/Matching Factors
○	Not available	None
◔	Low approximation	Few weak variables
◑	Partial identification or approximation	Many weak variables
◕	Good approximation	Few strong variables
●	Highly accurate identification	Many strong variables

Table E-1: Summary of Data Sources Considered

Requirement	BRFSS	NHIS (National Health Interview Survey)	NHANES (National Health and Nutrition Examination Survey)	NSCH (National Survey of Children's Health)	MEPS (Medical Expenditure Panel Survey)	IPUMS-ACS	NSDUH (National Survey on Drug Use and Health)
Beneficiary Level	✓	✓	✓	✓	✓	✓	✓
Medicaid Indicator	✗	✓	✓	✗	✓	✓	✓
State	✓	✗	✗	✓	✗	✓	✗
Subpopulations							
Medicaid expansion (AW)	◑	◔	◑	○	◑	◑	○
Foster children (CMDP)	○	●	○	●	○	○	○
SMI adults (RBHA)	○	○	○	○	○	○	◑
DD/EPD (ALTCS)	○	◕	○	◕	◑	◔	○
High-risk BH (TI)	○	○	○	○	○	○	○
Relevant Outcomes/Measures	◕	●	◑	◕	●	◕	◑
Adjustment/Matching Factors	◑	◑	◑	●	●	◔	◔
Survey Administration Period	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Survey Lag/Latest Year	2018	2018	2015-2016	2017	2017	2018	2018
Anticipated Medicaid sample sizes from most recent year	3,954 (Nationally)[1]	11,666 (Nationally)	2,474 (Nationally)	90 (Arizona)[2] 4,202 (Nationally)[2]	~8,400 (Nationally)	28,773 (Arizona)[2] 1,204,557 (Nationally)[2]	7,831 (Nationally)
Notes on Limitations for Use	Medicaid indicator is collected as part of an optional module. State participation varies year to year, and Arizona has not collected this information during relevant time period.	The state indicator is not provided as part of public use files.	During a single survey year, about 15 counties are selected out of approximately 3,100 counties in the United States. NHANES was not designed to produce regional or sub-regional estimates and no geographic data are released on the publicly available data files.	No indicator specifically for Medicaid.	The state indicator is not provided as part of public use files.		The state indicator is not provided as part of public use files.
Program Application	PQC, ACC	None	None	None	None	AW, PQC	None

[1]Anticipated Medicaid sample sizes are derived from responses from states which contained the optional Healthcare Access module

[2]Anticipated Medicaid sample sizes are derived from responses to a question pertaining to public health insurance coverage.

F. Methodological Considerations of COVID-19 Pandemic

Pandemic Methodology Adjustments

The coronavirus disease 2019 (COVID-19) pandemic in the United States began in approximately March 2020 and is ongoing at the time of drafting the evaluation design plan. The extent of the COVID-19 infection rate is geographically variable, both within Arizona, as well as across the United States. The rate of positive cases throughout Arizona according to the Arizona Department of Health Services is 759.3 per 100,000, with county-level rates varying from 125 per 100,000 in Greenlee County to 2,954 per 100,000 in Apache County.[F-1] According to the Centers for Disease Control and Prevention (CDC), within the Southwest region of the United States, Arizona has a demonstrably higher rate of COVID infection per 100,000 population, at 730.5, with comparisons rates per 100,000 of 439.4 (California), 442.7 (Nevada), 563.9 (Utah), 536.2 (Colorado) and 504.2 (New Mexico).[F-2] Additionally, social distancing and stay at home orders to curb the severity and intensity of the pandemic across state and local jurisdictions were enacted with variable timing across the United States and the Southwest region. Arizona's stay at home order took effect on March 31, 2020, while surrounding states enacted their order as early as March 19 (California), March 24 (New Mexico), March 26 (Colorado), March 27 (Utah), and April 1 (Nevada).[F-3]

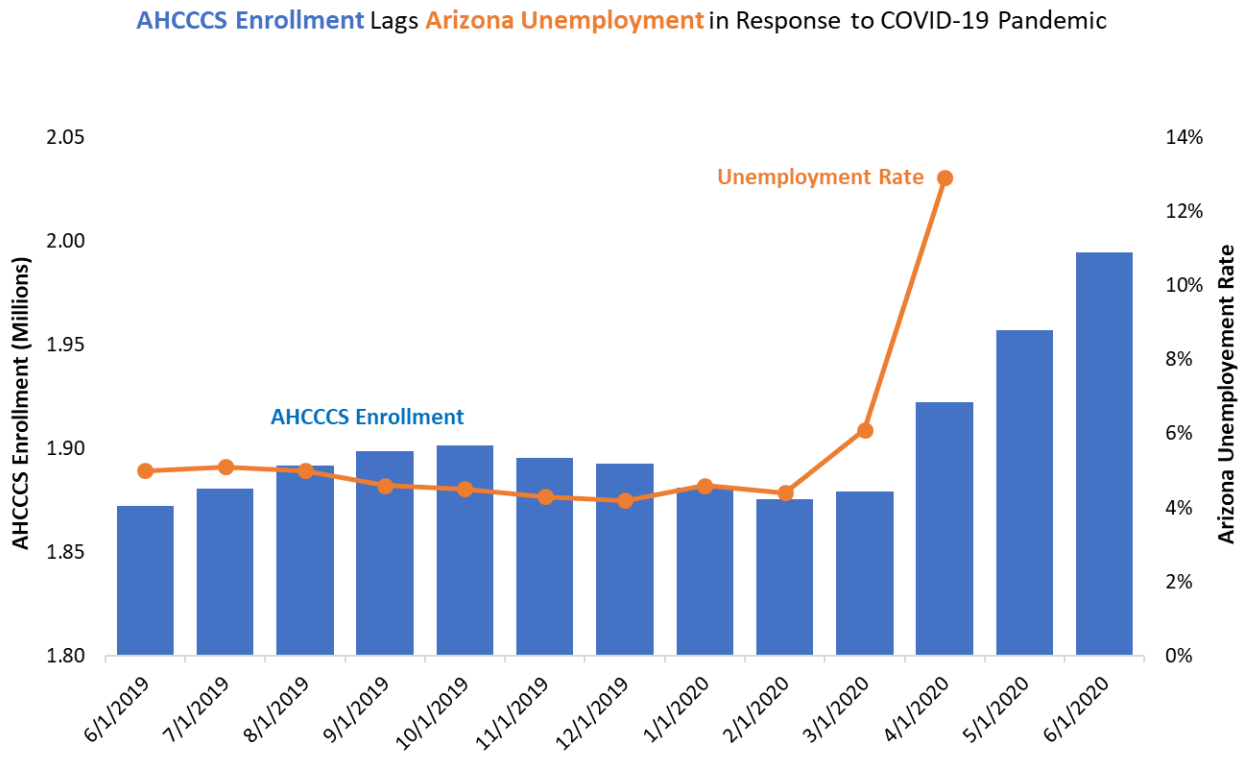
The scope and scale of the COVID-19 pandemic has already impacted the planned execution of some components of this design plan, and appears that it may continue to do so in the near future. Additionally, the pandemic forces the independent evaluator to consider methods that would allow the disentanglement of the Arizona Health Care Cost Containment System (AHCCCS) program impacts from results driven by COVID-19 or the policy response within Arizona and other states. The next section details the aspects of the COVID-19 pandemic that are most likely to impact the execution of data collection efforts. The subsequent section describes the methodological considerations would ideally be addressed in any study to disentangle program impacts from COVID impacts.

Impacts on Data Collection Efforts

The unprecedented loss of jobs and subsequent instability in the economy have resulted in a substantial increase in Medicaid enrollment. Figure F-1 shows the initial spike in unemployment followed by an increase in AHCCCS enrollment in the wake of COVID-19, as expected.

[F-1] Data obtained on June 22, 2020 from https://www.azdhs.gov/preparedness/epidemiology-disease-control/infectious-disease-epidemiology/covid-19/dashboards/index.php.
[F-2] Data obtained on June 22, 2020 from https://www.cdc.gov/covid-data-tracker/index.html#cases.
[F-3] Data obtained on June 22, 2020 from https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html.

Figure F-1: AHCCCS Enrollment and Unemployment



Source: AHCCCS Population by Category Report (June 2020); Arizona Office of Economic Opportunity. Unemployment rate is not seasonally adjusted for accurate comparison to AHCCCS enrollment.

The influx of members is consistent with a shift in demographics toward a more commercial base of members. This is not dissimilar to the increase in Medicaid enrollment following the 2008/2009 Great Recession, albeit on a substantially more compressed time frame. Furthermore, the increase in unemployment directly and indirectly results in lower state revenue through reduced state income tax and reduced sales tax due, in part to loss of jobs and economic hardship among consumers but also due to social distancing efforts and statewide stay-at-home orders. Therefore, the financial impact of COVID-19, while not directly tied to the evaluation of Arizona's demonstration, is important to factor into the evaluation particularly as it relates to the cost-effectiveness component.[F-4, F-5] Increased enrollments are likely to be tied to substantial shifts in the disease conditions and comorbidities of the Medicaid population during the pandemic, and to increase the demand on aggregate spending by AHCCCS. Additionally, to the extent that increases in enrollments are not met with concomitant increases in network capacity, there may be increased expenditures for care and barriers to the access and delivery of care that should be accounted for in the cost effectiveness analysis. To the extent that the increased spending is experienced

[F-4] For example, in order to assist providers in responding to the pandemic, AHCCCS advanced $41 million of provider incentive payments as part of the Targeted Investments program for disbursement in May 2020, ahead of the planned distribution in Fall 2020.

[F-5] "Arizona Medicaid Program Advances $41 Million in Provider Payments to Address COVID-19 Emergency." April 27, 2020. AHCCCS News Release, Available at: https://azahcccs.gov/shared/News/GeneralNews/AHCCCSAdvancesFortyOneMilProviderPayments.html. Accessed on: Jun 23, 2020.

by specific programs such as AHCCCS Complete Care (ACC), cost sustainability calculations will need to be adjusted to account for a denominator consistent with the non-pandemic population.

Beyond increasing Medicaid enrollments and expenditures, the COVID-19 pandemic is likely to impact the delivery of care in many direct ways. For example, social distancing efforts and stay at home orders have created a period during which the demand for many services were effectively reduced to near zero through interruptions in routine care. Second, managed care plans are likely to have experienced greater demand in handling increased enrollments and ensuring timely payment to contracted providers. Third, many program-specific strategies to assist with the integration of care may have been curtailed due to COVID-19. The combinations of the sustained increase in enrollment and delays or gaps in routine care may increase rate denominators while simultaneously decreasing numerators, leading to reduced performance measure rates.

Beneficiary surveys will also be impacted by the pandemic, both in terms of timing, and in potential responses. If, the beneficiary composition has changed or is not representative of a non-COVID Medicaid population then responses may not be generalizable. Additionally, beneficiaries may be impacted by disruptions in health care and their experience of care may be different than had they been surveyed either before COVID, or sufficiently after the impacts of COVID had dissipated. AHCCCS is planning on conducting a large-scale survey as part of its external quality review (EQR) contract in mid-2020, which will provide the independent evaluator an opportunity to leverage large sample sizes across many of the populations planned for surveys. The delay in fielding the survey; however, means that the data collected will be less proximate to the implementation of the AHCCCS programs being evaluated, and could result in rates that are less reflective of the experience of care associated with the AHCCCS programs, and more reflective of the experience of care during the COVID-19 pandemic.

While the COVID-19 pandemic will also impact provider focus groups and key informant interviews, the independent evaluator will follow the State's guidance on whether the State is comfortable proceeding with such data collection. The potential disruption among providers and key informants must be balanced alongside expedient data collection to minimize recall bias on several important programs. For example, one important aspect of the evaluation is to assess stakeholders' perspectives regarding the integration of care that took place under ACC, which, as of the drafting of this evaluation design plan, occurred approximately 21 months ago. Additional significant delays in qualitative data collection will worsen not only the recollection of key informants but also the reliability of contact information for individuals who may have left the organization(s).

The COVID-19 pandemic has already exerted an arguably substantial force on the State of Arizona, its health care system, and its Medicaid population. In an ideal evaluation, the independent evaluator would be able to control for many of these issues during the analysis. The ability to do so in the current context of AHCCCS' Section 1115 Waiver evaluation will be dependent on the availability of data, and how long the pandemic may be extended by multiple waves of infections throughout the United States. The next section provides details on potential methodological tools that could be used to disentangle program impacts from COVID-19 impacts.

Impacts on Methodology

Lacking random assignment to treatments, the evaluation approached outlined in this evaluation design plan represents a number of strong quasi-experimental designs, including propensity score matching (PSM) with difference-in-differences (DiD) regression, interrupted time series (ITS) analysis, and regression discontinuity (RD) models. One of the strongest quasi-experimental designs, PSM with DiD, makes use of a matched comparison group of Medicaid members that are similar to those receiving treatment under the various AHCCCS programs in terms of demographics, disease conditions, and comorbidities. For programs that were implemented across their respective populations of eligible members in Arizona (e.g., ACC, Regional Behavioral Health Authority [RBHA], Comprehensive Medical and Dental Program [CMDP], Arizona Long Term Care System

[ALTCS], and Prior Quarter Coverage [PQC]), no eligible comparison group realistically exists within the State. An eligible population could therefore be drawn from another state, provided specific criteria were met. Ideally, the comparison state would have Medicaid members demographically similar to Arizona; a Medicaid system that was similar to Arizona in terms of eligibility, enrollment, and pre-integration policies and programs; a COVID-19 infection rate or likely infection rate (accounting for differentials in testing) comparable to Arizona; and have had a state policy response to COVID-19 that was similar to Arizona. This combination of factors represents a particularly difficult challenge to surmount in identifying an eligible comparison group. The independent evaluator continues to work toward identifying states that could be suitable candidates, either individually or combined and weighted to better reflect Arizona's unique characteristics for inclusion in the evaluation, under the assumption that data will be available if such a comparator state or states are identified.

In addition to identifying eligible populations of members from other states that can suitably serve as counterfactuals to the AHCCCS treatment populations, several analytic tools can be used to attempt to disentangle the impact of COVID-19 from the impacts of the AHCCCS programs.

For measures that utilize monthly data points, months in which COVID-19 was expected to impact outcomes may be removed from the analysis. This analysis can serve as a robustness test, identifying how sensitive the conclusions are to the inclusion or exclusion of the COVID-19 months. If such a difference is identified, the independent evaluator will need to explore the data further to understand the detailed nature of the results, and ascertain the mechanisms by which the removal of the COVID-19 months makes a difference in results.

As an alternative to removing COVID-19 months, controls may be used to assess the severity and/or duration of effects from the pandemic. Measures such as monthly case counts, intensive care unit (ICU) utilization, or monthly unemployment rates could serve as potential instrumental variables to control for the impact of COVID-19. To the extent that eligible comparison group members are drawn from different states, this approach could be confounded by the differential preparedness of states to respond to the COVID-19 pandemic, as well as their differential policy responses.

For measures that do not utilize monthly data points, results for calendar year ending (CYE) 2020 and possibly CYE 2021 may be excluded or evaluated separately. Ideally, a comparison group would be used to support an analytic approach such as DiD. The choice of time frames to exclude, and ultimate impact on the statistical power of the data and model used will depend, in large part, on how long the impacts of the COVID-19 pandemic continue into the future.

Finally, results may be stratified by geography, age, race/ethnicity and other demographic factors to assess the external validity of differential responses to demonstration policies that may be influenced by the pandemic. To the extent that COVID-19 impacts were differentially experienced by subgroups of the Medicaid populations being evaluated, the independent evaluator could assess the impact of AHCCCS programs on stratified subgroups, controlling for COVID-19. All results will be interpreted in context of the pandemic and its likely impact on outcomes using both theory and similar outcomes from other states and/or national benchmarks where possible.

While each of the approaches outlined is seated in standard quasi-experimental design methods, many rely on the strong assumption of having valid and reliable data available for the populations and measures of interest. Furthermore, as the COVID-19 pandemic continues, and Arizona continues to worsen as of June 22, 2020, it is unclear how long the pandemic will impact outcomes for beneficiaries receiving services through AHCCCS and its managed care plans and providers. To the extent that data is available, and the COVID-19 pandemic is limited in time, the independent evaluator will have an increased chance to isolate program effects from pandemic effects. The longer that the pandemic impacts are drawn out over time, the more difficult it will be to disentangle program impacts from pandemic impacts.

Appendix B. Full Measure Calculation Results

Table B-1–Table B-11 provide full measure calculation results for the six Arizona waiver programs.

AHCCCS Complete Care (ACC)

Table B-1: ACC Full Measure Calculations

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
2-1	2-1	Percentage of adults who accessed preventive/ambulatory health services	590,707	77.3%	613,992	76.2%	589,389	76.9%	607,192	75.7%	692,648	72.9%	N/A	N/A
2-1	2-2	Percentage of children and adolescents who accessed PCPs	518,596	88.4%	543,487	86.8%	517,811	86.9%	515,597	86.7%	556,608	84.0%	N/A	N/A
2-1	2-3	Percentage of beneficiaries under 21 with an annual dental visit	577,074	59.8%	591,204	60.6%	555,904	61.0%	562,485	59.8%	605,672	48.5%	N/A	N/A
2-2	2-7	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment (Total)	37,937	41.7%	38,239	42.4%	38,232	44.2%	39,758	44.8%	40,206	44.5%	45,151	44.8%
2-2	2-8	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment (Total)	37,937	12.6%	38,239	12.8%	38,232	14.3%	39,758	16.1%	40,206	15.7%	45,151	17.0%
3-1	3-1	Percentage of beneficiaries with a well-child visit in the first 15 months of life											N/A	N/A
3-1	3-1	0 Visits (lower is better)	34,715	4.6%	30,893	5.1%	29,465	2.9%	28,485	2.6%	32,274	3.2%	N/A	N/A
3-1	3-1	1 Visit	34,715	3.8%	30,893	3.9%	29,465	3.0%	28,485	2.9%	32,274	3.2%	N/A	N/A
3-1	3-1	2 Visits	34,715	4.6%	30,893	4.3%	29,465	3.9%	28,485	3.5%	32,274	4.4%	N/A	N/A
3-1	3-1	3 Visits	34,715	6.6%	30,893	5.9%	29,465	5.5%	28,485	5.4%	32,274	5.5%	N/A	N/A
3-1	3-1	4 Visits	34,715	9.7%	30,893	8.9%	29,465	8.7%	28,485	8.5%	32,274	9.1%	N/A	N/A
3-1	3-1	5 Visits	34,715	14.7%	30,893	13.8%	29,465	13.7%	28,485	13.5%	32,274	15.1%	N/A	N/A
3-1	3-1	6+ Visits (higher is better)	34,715	56.0%	30,893	58.1%	29,465	62.4%	28,485	63.6%	32,274	59.5%	N/A	N/A
3-1	3-2	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life	131,739	60.9%	133,510	60.8%	127,285	61.3%	127,780	63.0%	135,135	53.2%	N/A	N/A
3-1	3-3	Percentage of beneficiaries with an adolescent well-care visit	252,194	38.8%	265,082	39.0%	251,193	40.3%	261,396	41.6%	292,785	33.0%	N/A	N/A
3-1	3-4	Percentage of children two years of age with appropriate immunization status	--	--	--	--	--	--	--	--	--	--	--	--
3-1	3-5	Percentage of adolescents 13 years of age with appropriate immunizations	--	--	--	--	--	--	--	--	--	--	--	--
3-2	3-7	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	15,735	58.9%	16,647	59.4%	15,819	58.5%	13,940	65.7%	14,245	72.0%	N/A	N/A

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
3-3	3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)	18,382	45.1%	18,761	44.1%	18,094	41.8%	19,901	42.3%	22,101	44.1%	N/A	N/A
3-3	3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)	18,382	26.2%	18,761	24.2%	18,094	22.9%	19,901	23.3%	22,101	24.7%	N/A	N/A
3-3	3-9	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	9,668	48.8%	11,459	48.4%	12,758	49.6%	14,319	46.9%	14,286	50.0%	16,496	48.4%
3-3	3-10	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for mental illness	4,619	47.9%	4,354	47.5%	4,133	49.3%	3,872	48.7%	3,294	47.4%	4,395	45.4%
3-3	3-11	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for alcohol and other drug abuse or dependence	9,318	23.0%	8,971	21.7%	8,323	20.9%	8,021	19.6%	8,074	19.1%	9,976	19.6%
3-3	3-12	Percentage of beneficiaries with a screening for clinical depression and follow-up plan	--	--	--	--	--	--	--	--	--	--	--	--
3-3	3-13	Percentage of beneficiaries receiving mental health services (no desired direction)												
3-3	3-13	Any	16,571,633	9.2%	17,029,303	9.7%	16,378,404	10.5%	16,392,861	11.7%	17,202,665	11.5%	18,242,167	12.9%
3-3	3-13	ED	16,571,633	0.1%	17,029,303	0.1%	16,378,404	0.1%	16,392,861	0.1%	17,202,665	0.1%	N/A	N/A
3-3	3-13	Intensive outpatient or partial hospitalization	16,571,633	0.5%	17,029,303	0.5%	16,378,404	0.5%	16,392,861	0.6%	17,202,665	0.5%	N/A	N/A
3-3	3-13	Inpatient	16,571,633	0.7%	17,029,303	0.8%	16,378,404	0.9%	16,392,861	1.0%	17,202,665	1.0%	N/A	N/A
3-3	3-13	Outpatient	16,571,633	9.0%	17,029,303	9.4%	16,378,404	10.2%	16,392,861	11.3%	17,202,665	11.0%	N/A	N/A
3-3	3-13	Telehealth	16,571,633	0.4%	17,029,303	0.5%	16,378,404	0.7%	16,392,861	0.8%	17,202,665	1.7%	N/A	N/A
3-4	3-14	Percentage of adult beneficiaries who have prescriptions for opioids at a high dosage (lower is better)	62,751	13.3%	52,473	13.5%	36,604	12.4%	30,974	11.1%	27,520	9.6%	N/A	N/A
3-4	3-15	Percentage of adult beneficiaries with concurrent use of opioids and benzodiazepines (lower is better)	75,698	17.0%	62,718	15.3%	43,551	12.1%	33,828	6.9%	30,188	5.1%	N/A	N/A
3-5	3-16	Number of ED visits per 1,000 member months (no desired direction)	17,946,873	58.0	18,409,801	55.6	17,890,950	54.6	17,718,987	53.3	18,282,471	42.5	18,242,167	54.6
3-5	3-17	Number of inpatient stays per 1,000 member months (no desired direction)	17,946,873	7.9	18,409,801	7.7	17,890,950	7.9	17,718,987	7.8	18,282,471	7.0	18,242,167	7.5
3-5	3-18	Percentage of adult inpatient discharges with an unplanned readmission within 30 days (lower is better)	51,082	15.7%	54,404	16.6%	54,323	16.8%	56,150	17.3%	52,652	16.7%	56,714	17.1%

Note: Results for measures 3-4, 3-5, and 3-12 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in ACC.
RQ: research question; Denom: denominator; ED: emergency department; PCP: primary care practitioner

Table B-2: ACC Full Measure Calculations – Child

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
2-1	2-1	Percentage of adults who accessed preventive/ambulatory health services												
2-1	2-2	Percentage of children and adolescents who accessed PCPs												
2-1	2-3	Percentage of beneficiaries under 21 with an annual dental visit	514,686	62.6%	524,953	63.5%	494,510	63.7%	498,369	62.6%	530,113	51.0%		
2-2	2-7	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment (Total)	1,568	36.9%	1,488	36.1%	1,538	38.5%	1,798	40.1%	1,714	41.3%	2,052	39.9%
2-2	2-8	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment (Total)	1,568	10.7%	1,488	10.5%	1,538	10.1%	1,798	11.0%	1,714	9.6%	2,052	10.1%
3-1	3-1	Percentage of beneficiaries with a well-child visit in the first 15 months of life												
3-1	3-1	0 Visits (lower is better)												
3-1	3-1	1 Visit												
3-1	3-1	2 Visits												
3-1	3-1	3 Visits												
3-1	3-1	4 Visits												
3-1	3-1	5 Visits												
3-1	3-1	6+ Visits (higher is better)												
3-1	3-2	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life												
3-1	3-3	Percentage of beneficiaries with an adolescent well-care visit												
3-1	3-4	Percentage of children two years of age with appropriate immunization status												
3-1	3-5	Percentage of adolescents 13 years of age with appropriate immunizations												
3-2	3-7	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	8,404	66.5%	8,391	67.7%	7,521	67.4%	6,543	74.1%	6,303	80.9%		
3-3	3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)												
3-3	3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)												
3-3	3-9	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	2,166	67.1%	2,400	70.8%	2,799	70.8%	3,108	67.9%	2,835	70.1%	3,598	66.1%
3-3	3-10	Percentage of beneficiaries with a follow-up visit within 7-days after emergency department (ED) visit for mental illness	956	67.3%	1,059	69.5%	1,118	73.7%	1,070	71.5%	880	70.4%	1,200	65.9%

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
3-3	3-11	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for alcohol and other drug abuse or dependence	366	10.4%	334	9.3%	324	9.8%	320	8.5%	319	7.1%	532	8.1%
3-3	3-12	Percentage of beneficiaries with a screening for clinical depression and follow-up plan	--	--	--	--	--	--	--	--	--	--		
3-3	3-13	Percentage of beneficiaries receiving mental health services (no desired direction)												
3-3	3-13	Any	7,490,829	7.3%	7,644,480	7.8%	7,308,337	8.8%	7,229,179	9.7%	7,380,866	9.3%	7,947,300	10.5 %
3-3	3-13	ED	7,490,829	0.0%	7,644,480	0.0%	7,308,337	0.0%	7,229,179	0.1%	7,380,866	0.0%		
3-3	3-13	Intensive outpatient or partial hospitalization	7,490,829	0.2%	7,644,480	0.2%	7,308,337	0.2%	7,229,179	0.2%	7,380,866	0.1%		
3-3	3-13	Inpatient	7,490,829	0.3%	7,644,480	0.4%	7,308,337	0.5%	7,229,179	0.5%	7,380,866	0.5%		
3-3	3-13	Outpatient	7,490,829	7.3%	7,644,480	7.8%	7,308,337	8.8%	7,229,179	9.7%	7,380,866	9.2%		
3-3	3-13	Telehealth	7,490,829	0.3%	7,644,480	0.3%	7,308,337	0.5%	7,229,179	0.7%	7,380,866	1.2%		
3-4	3-14	Percentage of adult beneficiaries who have prescriptions for opioids at a high dosage (lower is better)												
3-4	3-15	Percentage of adult beneficiaries with concurrent use of opioids and benzodiazepines (lower is better)												
3-5	3-16	Number of ED visits per 1,000 member months (no desired direction)	8,151,626	42.0	8,328,554	39.5	8,056,675	39.6	7,898,522	39.3	7,954,947	29.0	7,947,300	42.7
3-5	3-17	Number of inpatient stays per 1,000 member months (no desired direction)	8,151,626	1.9	8,328,554	1.8	8,056,675	1.9	7,898,522	1.9	7,954,947	1.6	7,947,300	1.9
3-5	3-18	Percentage of adult inpatient discharges with an unplanned readmission within 30 days (lower is better)												

Note: Results for measures 3-4, 3-5, and 3-12 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in ACC.
RQ: research question; Denom: denominator; ED: emergency department; PCP: primary care practitioner

Table B-3: ACC Full Measure Calculations – Adult

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
2-1	2-1	Percentage of adults who accessed preventive/ambulatory health services												
2-1	2-2	Percentage of children and adolescents who accessed PCPs												
2-1	2-3	Percentage of beneficiaries under 21 with an annual dental visit	62,380	37.4%	66,243	37.7%	61,386	38.7%	64,116	38.2%	75,559	30.8%		
2-2	2-7	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment (Total)	36,368	41.9%	36,751	42.7%	36,694	44.4%	37,960	45.1%	38,492	44.6%	43,099	45.0%

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
2-2	2-8	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment (Total)	36,368	12.7%	36,751	12.9%	36,694	14.5%	37,960	16.3%	38,492	16.0%	43,099	17.3%
3-1	3-1	Percentage of beneficiaries with a well-child visit in the first 15 months of life												
3-1	3-1	0 Visits (lower is better)												
3-1	3-1	1 Visit												
3-1	3-1	2 Visits												
3-1	3-1	3 Visits												
3-1	3-1	4 Visits												
3-1	3-1	5 Visits												
3-1	3-1	6+ Visits (higher is better)												
3-1	3-2	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life												
3-1	3-3	Percentage of beneficiaries with an adolescent well-care visit												
3-1	3-4	Percentage of children two years of age with appropriate immunization status												
3-1	3-5	Percentage of adolescents 13 years of age with appropriate immunizations												
3-2	3-7	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	7,332	50.2%	8,255	51.1%	8,298	50.5%	7,397	58.3%	7,942	65.0%		
3-3	3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)												
3-3	3-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)												
3-3	3-9	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	7,501	43.5%	9,059	42.4%	9,960	43.6%	11,211	41.0%	11,451	45.0%	12,898	43.4%
3-3	3-10	Percentage of beneficiaries with a follow-up visit within 7-days after emergency department (ED) visit for mental illness	3,663	42.8%	3,295	40.5%	3,015	40.3%	2,801	39.9%	2,414	39.0%	3,195	37.7%
3-3	3-11	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for alcohol and other drug abuse or dependence	8,953	23.5%	8,637	22.2%	7,999	21.4%	7,701	20.0%	7,755	19.6%	9,444	20.2%
3-3	3-12	Percentage of beneficiaries with a screening for clinical depression and follow-up plan	--	--	--	--	--	--	--	--	--	--		

RQ	Meas Num	Measure Description	2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
3-3	3-13	Percentage of beneficiaries receiving mental health services (no desired direction)												
3-3	3-13	Any	9,080,448	10.8%	9,384,554	11.1%	9,069,775	11.9%	9,163,402	13.2%	9,821,719	13.2%	10,294,867	14.9%
3-3	3-13	ED	9,080,448	0.1%	9,384,554	0.1%	9,069,775	0.1%	9,163,402	0.1%	9,821,719	0.1%		
3-3	3-13	Intensive outpatient or partial hospitalization	9,080,448	0.7%	9,384,554	0.8%	9,069,775	0.8%	9,163,402	0.9%	9,821,719	0.8%		
3-3	3-13	Inpatient	9,080,448	1.0%	9,384,554	1.2%	9,069,775	1.3%	9,163,402	1.4%	9,821,719	1.4%		
3-3	3-13	Outpatient	9,080,448	10.5%	9,384,554	10.8%	9,069,775	11.4%	9,163,402	12.6%	9,821,719	12.4%		
3-3	3-13	Telehealth	9,080,448	0.6%	9,384,554	0.6%	9,069,775	0.8%	9,163,402	0.9%	9,821,719	2.1%		
3-4	3-14	Percentage of adult beneficiaries who have prescriptions for opioids at a high dosage (lower is better)												
3-4	3-15	Percentage of adult beneficiaries with concurrent use of opioids and benzodiazepines (lower is better)												
3-5	3-16	Number of ED visits per 1,000 member months (no desired direction)	9,794,575	71.4	10,080,630	69.0	9,833,728	66.9	9,819,983	64.6	10,327,238	52.9	10,294,867	63.9
3-5	3-17	Number of inpatient stays per 1,000 member months (no desired direction)	9,794,575	12.9	10,080,630	12.6	9,833,728	12.8	9,819,983	12.6	10,327,238	11.2	10,294,867	11.8
3-5	3-18	Percentage of adult inpatient discharges with an unplanned readmission within 30 days (lower is better)												

Note: Results for measures 3-4, 3-5, and 3-12 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in ACC.
RQ: research question; Denom: denominator; ED: emergency department; PCP: primary care practitioner

Arizona Long Term Care System (ALTCS)

Table B-4: ALTCS-DD Full Measure Calculations

RQ	Meas Num	Measure Description	2015		2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
1-1	1-1	Percentage of beneficiaries who accessed preventive/ambulatory health services	12,011	87.1%	12,528	87.8%	13,195	88.0%	13,843	88.7%	14,583	89.4%	15,339	87.8%	N/A	N/A
1-2	1-2	Percentage of children and adolescents who accessed primary care practitioners	14,890	91.1%	15,448	91.2%	16,144	91.0%	16,902	91.0%	17,676	91.6%	18,683	91.1%	N/A	N/A
1-2	1-3	Percentage of beneficiaries under 21 with an annual dental visit	15,840	55.5%	16,433	53.4%	17,115	56.4%	17,932	57.1%	18,881	53.2%	19,986	40.2%	N/A	N/A
2-1	2-1	Percentage of adult beneficiaries with a breast cancer screening	937	43.9%	922	45.7%	953	46.2%	995	45.1%	1,017	44.0%	1,038	42.0%	N/A	N/A
2-1	2-2	Percentage of adult beneficiaries with a cervical cancer screening	3,863	17.8%	3,995	17.4%	4,124	16.5%	4,300	16.3%	4,440	15.8%	4,561	14.0%	N/A	N/A

RQ	Meas Num	Measure Description	2015		2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
2-1	2-3	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	575	77.1%	594	79.0%	630	79.8%	629	76.2%	630	82.1%	660	86.7%	N/A	N/A
2-2	2-4	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life	3,082	52.2%	3,059	51.2%	3,140	53.5%	3,297	56.9%	3,559	58.9%	3,831	52.5%	N/A	N/A
2-2	2-5	Percentage of beneficiaries with an adolescent well-care visit	8,023	39.8%	8,540	43.1%	9,014	43.3%	9,556	45.9%	10,086	48.1%	10,733	42.4%	N/A	N/A
2-3	2-7	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	366	68.3%	368	69.2%	399	75.2%	471	73.6%	478	73.2%	472	73.4%	495	74.7%
2-3	2-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)	67	52.3%	69	45.9%	83	51.8%	90	47.3%	107	59.3%	105	47.8%	N/A	N/A
2-3	2-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)	67	38.8%	69	33.1%	83	33.0%	90	35.7%	107	45.1%	105	28.7%	N/A	N/A
2-3	2-9	Percentage of beneficiaries with a screening for depression and follow-up plan	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-3	2-10	Percentage of beneficiaries receiving mental health services (no desired direction)														
2-3	2-10	Any	332,095	31.2%	346,227	31.5%	362,205	32.0%	379,862	32.1%	400,025	33.4%	420,781	32.4%	423,723	33.3%
2-3	2-10	ED	332,095	0.2%	346,227	0.3%	362,205	0.2%	379,862	0.2%	400,025	0.3%	420,781	0.3%	N/A	N/A
2-3	2-10	Intensive outpatient or partial hospitalization	332,095	0.9%	346,227	0.9%	362,205	1.1%	379,862	1.1%	400,025	1.2%	420,781	0.9%	N/A	N/A
2-3	2-10	Inpatient	332,095	1.2%	346,227	1.2%	362,205	1.2%	379,862	1.3%	400,025	1.3%	420,781	1.2%	N/A	N/A
2-3	2-10	Outpatient	332,095	31.1%	346,227	31.4%	362,205	31.9%	379,862	32.0%	400,025	33.3%	420,781	32.0%	N/A	N/A
2-3	2-10	Telehealth	332,095	0.4%	346,227	0.7%	362,205	0.8%	379,862	1.3%	400,025	1.3%	420,781	3.5%	N/A	N/A
2-4	2-11	Percentage of adult beneficiaries with monitoring for persistent medications (Total)	398	72.6%	413	79.3%	408	83.8%	429	79.8%	470	83.2%	476	79.2%	N/A	N/A
2-4	2-12	Percentage of beneficiaries with opioid use at high dosage (lower is better)	24	8.5%	119	10.0%	106	8.5%	91	9.6%	69	4.3%	53	5.7%	N/A	N/A
2-4	2-13	Percentage of beneficiaries with a concurrent use of opioids and benzodiazepines (lower is better)	179	16.7%	173	18.6%	151	18.4%	116	20.4%	84	16.6%	66	13.6%	N/A	N/A
2-5	2-14	Number of ED visits per 1,000 member months (no desired direction)	335,340	44.47	349,528	45.96	365,766	43.86	383,627	43.75	404,494	43.14	424,435	32.90	423,723	44.56
2-5	2-15	Number of inpatient stays per 1,000 member months (no desired direction)	335,340	10.77	349,528	9.80	365,766	9.65	383,627	9.78	404,494	9.69	424,435	7.96	423,723	9.45

RQ	Meas Num	Measure Description	2015		2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
2-5	2-16	Percentage of adult inpatient discharges with an unplanned readmission within 30 days (lower is better)	1,591	14.7%	1,458	13.3%	1,559	14.8%	1,681	15.3%	1,817	14.1%	1,621	13.6%	1,700	13.4%

Note: Results for measure 2-9 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rates are weighted by beneficiaries' duration of enrollment in ALTCS-DD and ALTCS-EPD.
RQ: research question; Denom: denominator; ED: emergency department

Table B-5: ALTCS-EPD Full Measure Calculations

RQ	Meas Num	Measure Description	2015		2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
1-1	1-1	Percentage of beneficiaries who accessed preventive/ambulatory health services	23,177	88.6%	22,686	91.0%	22,591	91.4%	22,955	92.0%	23,756	93.2%	23,166	91.4%	N/A	N/A
2-1	2-1	Percentage of adult beneficiaries with a breast cancer screening	4,220	28.0%	3,480	31.1%	3,383	34.3%	3,331	33.5%	3,326	36.6%	3,423	34.4%	N/A	N/A
2-1	2-2	Percentage of adult beneficiaries with a cervical cancer screening	3,052	21.4%	2,916	23.3%	2,817	23.7%	2,821	24.4%	2,852	24.8%	2,811	23.7%	N/A	N/A
2-1	2-3	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	79	65.9%	62	67.7%	63	73.5%	61	62.7%	55	60.6%	62	63.8%	N/A	N/A
2-3	2-7	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	142	21.4%	169	29.9%	191	31.3%	185	36.5%	206	39.0%	128	38.0%	148	34.5%
2-3	2-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)	230	61.3%	206	63.2%	199	54.8%	225	59.0%	287	55.7%	260	55.6%	N/A	N/A
2-3	2-8	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)	230	44.2%	206	45.7%	199	47.0%	225	40.8%	287	39.2%	260	41.0%	N/A	N/A
2-3	2-9	Percentage of beneficiaries with a	--	--	--	--	--	--	--	--	--	--	--	--	--	--

RQ	Meas Num	Measure Description	2015		2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
		screening for depression and follow-up plan														
2-3	2-10	Percentage of beneficiaries receiving mental health services (no desired direction)														
2-3	2-10	Any	306,285	19.8%	304,429	19.7%	304,690	20.3%	309,842	22.1%	319,078	24.3%	318,017	23.4%	337,886	26.5%
2-3	2-10	ED	306,285	0.1%	304,429	0.1%	304,690	0.2%	309,842	0.2%	319,078	0.2%	318,017	0.2%	N/A	N/A
2-3	2-10	Intensive outpatient or partial hospitalization	306,285	0.2%	304,429	0.3%	304,690	0.3%	309,842	0.2%	319,078	0.5%	318,017	0.4%	N/A	N/A
2-3	2-10	Inpatient	306,285	7.4%	304,429	6.9%	304,690	6.5%	309,842	6.1%	319,078	5.9%	318,017	5.8%	N/A	N/A
2-3	2-10	Outpatient	306,285	13.7%	304,429	14.2%	304,690	15.1%	309,842	17.0%	319,078	19.6%	318,017	18.0%	N/A	N/A
2-3	2-10	Telehealth	306,285	0.1%	304,429	0.1%	304,690	0.4%	309,842	0.8%	319,078	0.9%	318,017	3.5%	N/A	N/A
2-4	2-11	Percentage of adult beneficiaries with monitoring for persistent medications (Total)	1,742	95.9%	1,913	92.5%	1,574	91.2%	1,507	92.2%	1,656	94.8%	1,624	93.5%	N/A	N/A
2-4	2-12	Percentage of beneficiaries with opioid use at high dosage (lower is better)	410	23.5%	1,427	25.8%	1,337	24.9%	1,199	20.7%	1,204	18.2%	1,098	15.9%	N/A	N/A
2-4	2-13	Percentage of beneficiaries with a concurrent use of opioids and benzodiazepines (lower is better)	1,848	36.3%	1,571	36.3%	1,510	32.0%	1,373	26.7%	1,210	18.7%	1,108	15.5%	N/A	N/A
2-5	2-14	Number of ED visits per 1,000 member months (no desired direction)	324,396	63.60	322,707	68.00	323,886	71.16	330,088	69.91	338,965	74.78	339,097	56.60	337,886	71.95
2-5	2-15	Number of inpatient stays per 1,000 member months (no desired direction)	324,396	37.11	322,707	39.20	323,886	42.57	330,088	43.58	338,965	47.48	339,097	37.92	337,886	40.96
2-5	2-16	Percentage of adult inpatient discharges with an unplanned readmission within 30 days (lower is better)	3,839	19.2%	3,863	18.9%	4,055	19.3%	4,117	19.6%	4,562	20.0%	3,863	20.7%	4,047	21.2%

Note: Results for measure 2-9 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rates are weighted by beneficiaries' duration of enrollment in ALTCS-DD and ALTCS-EPD.
RQ: research question; Denom: denominator; ED: emergency department

Comprehensive Medical and Dental Program (CMDP)

Table B-6: CMDP Full Measure Calculations

RQ	Meas Num	Measure Description	2015		2016		2017		2018		2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
1-1	1-1	Percentage of children and adolescents with access to PCPs	12,293	95.4%	14,350	95.3%	13,718	94.2%	11,707	95.0%	10,494	95.3%	11,129	93.7%	N/A	N/A
1-1	1-2	Percentage of beneficiaries with an annual dental visit	12,412	67.6%	14,404	66.3%	13,351	70.2%	11,426	72.6%	10,297	73.6%	10,801	66.3%	N/A	N/A
2-1	2-1	Percentage of beneficiaries with well-child visits in the third, fourth, fifth, and sixth years of life	3,581	68.9%	4,152	69.4%	3,797	69.8%	3,147	69.6%	2,866	74.2%	3,041	67.2%	N/A	N/A
2-1	2-2	Percentage of beneficiaries with an adolescent well-care visit	3,925	60.6%	4,619	61.3%	4,451	63.2%	4,096	67.0%	3,772	68.4%	3,990	60.3%	N/A	N/A
2-1	2-3	Percentage of children two years of age with appropriate immunization status	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-1	2-4	Percentage of adolescents 13 years of age with appropriate immunizations	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-2	2-5	Percentage of beneficiaries ages 5 to 18 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	168	68.3%	172	74.4%	160	73.7%	134	74.9%	107	80.5%	93	79.1%	N/A	N/A
2-3	2-6	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	354	55.2%	468	62.0%	485	63.2%	535	67.1%	600	66.2%	627	65.3%	721	62.3%
2-3	2-7	Percentage of children and adolescents on antipsychotics with metabolic monitoring	929	50.5%	1,072	50.2%	1,005	55.0%	1,008	57.8%	954	46.5%	996	38.7%	N/A	N/A
2-3	2-8	Percentage of beneficiaries with screening for depression and follow-up plan	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-3	2-9	Percentage of children and adolescents with use of multiple concurrent antipsychotics (lower is better)	756	2.3%	875	1.8%	821	0.6%	832	0.6%	774	0.9%	805	1.1%	N/A	N/A
2-3	2-10	Percentage of beneficiaries receiving mental health services (no desired direction)														
2-3		Any	183,591	36.5%	203,589	36.9%	188,914	40.0%	163,715	48.6%	149,178	57.1%	155,598	57.5%	N/A	N/A
2-3		ED	183,591	0.1%	203,589	0.0%	188,914	0.1%	163,715	0.1%	149,178	0.4%	155,598	0.6%	N/A	N/A
2-3		Intensive outpatient or partial hospitalization	183,591	1.6%	203,589	1.6%	188,914	1.7%	163,715	1.5%	149,178	1.9%	155,598	1.6%	N/A	N/A
2-3		Inpatient	183,591	2.6%	203,589	2.9%	188,914	3.2%	163,715	4.2%	149,178	4.8%	155,598	4.9%	N/A	N/A
2-3		Outpatient	183,591	36.3%	203,589	36.6%	188,914	39.8%	163,715	48.3%	149,178	56.8%	155,598	57.0%	N/A	N/A
2-3		Telehealth	183,591	0.6%	203,589	1.1%	188,914	1.4%	163,715	2.4%	149,178	4.0%	155,598	7.7%	N/A	N/A
2-4	2-11	Number of ED visits per 1,000 member months (no desired direction)	195,897	44.3	212,284	41.8	195,322	40.9	169,678	42.1	155,903	46.1	161,687	35.0	N/A	N/A
2-4	2-12	Number of inpatient stays per 1,000 member months (no desired direction)	195,897	3.3	212,284	3.1	195,322	2.8	169,678	3.1	155,903	3.5	161,687	3.2	N/A	N/A

Note: Rates for measures 2-3, 2-4, and 2-8 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in CMDP.
RQ: research question; Denom: denominator; ED: emergency department; PCP: primary care practitioners

Regional Behavioral Health Authority (RBHA)

Table B-7: RBHA Full Measure Calculations, 2012–2015

RQ	Meas Num	Measure Description	2012		2013		2014		2015	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
1-1	1-1	Percentage of adults who accessed preventive/ambulatory health services	27,915	84.1%	29,165	92.8%	31,210	93.5%	36,972	92.0%
1-2	1-5	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment (Total)	4,027	46.6%	4,361	47.0%	4,543	50.1%	5,987	42.6%
1-2	1-6	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment (Total)	4,027	3.1%	4,361	1.6%	4,543	1.9%	5,987	6.9%
2-2	2-2	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	42	60.9%	399	59.5%	585	44.7%	593	50.1%
2-2	2-3	Percentage of beneficiaries with schizophrenia or bipolar disorder using antipsychotic medications who had a diabetes screening test	6,173	80.1%	7,466	79.4%	9,292	79.1%	9,937	81.2%
2-2	2-4	Percentage of beneficiaries with schizophrenia who adhered to antipsychotic medications	4,300	57.5%	5,387	58.5%	6,263	53.3%	6,879	52.7%
2-3	2-5	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)	1,112	39.3%	1,504	46.3%	1,740	44.2%	2,545	42.5%
2-3	2-5	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)	1,112	23.3%	1,504	27.5%	1,740	26.9%	2,545	26.4%
2-3	2-6	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	N/A	N/A	4,928	40.1%	5,357	47.2%	6,665	65.1%
2-3	2-7	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for mental illness	1,645	56.1%	1,543	59.3%	1,815	61.0%	2,000	62.0%
2-3	2-8	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for alcohol and other drug abuse or dependence	855	18.8%	875	18.4%	1,014	17.5%	1,408	21.6%
2-3	2-9	Percentage of beneficiaries with a screening for depression and follow-up plan	--	--	--	--	--	--	--	--
2-3	2-10	Percentage of beneficiaries receiving mental health services (no desired direction)								
2-3	2-10	Any	351,223	73.6%	373,922	83.4%	416,155	85.5%	472,501	82.5%
2-3	2-10	ED	351,223	0.0%	373,922	0.1%	416,155	0.4%	472,501	0.9%
2-3	2-10	Intensive outpatient or partial hospitalization	351,223	12.3%	373,922	13.2%	416,155	12.8%	472,501	12.1%
2-3	2-10	Inpatient	351,223	12.2%	373,922	13.1%	416,155	13.2%	472,501	14.2%
2-3	2-10	Outpatient	351,223	72.8%	373,922	82.9%	416,155	85.0%	472,501	81.9%
2-3	2-10	Telehealth	351,223	0.1%	373,922	0.8%	416,155	1.6%	472,501	2.1%
2-4	2-11	Percentage of beneficiaries who have prescriptions for opioids at a high dosage (lower is better)	1,582	20.2%	1,660	20.9%	1,868	19.0%	2,041	18.8%
2-4	2-12	Percentage of beneficiaries with concurrent use of opioids and benzodiazepines (lower is better)	5,300	43.7%	5,459	41.9%	6,097	39.2%	6,695	34.7%
2-5	2-14	Number of ED visits per 1,000 member months (no desired direction)	359,731	145.9	386,711	140.8	437,450	141.9	487,965	142.1
2-5	2-15	Number of inpatient stays per 1,000 member months (no desired direction)	359,731	22.7	386,711	21.4	437,450	20.5	487,965	18.6
2-5	2-16	Percentage of inpatient discharges with an unplanned readmission within 30 days (lower is better)	10,241	22.1%	11,621	22.5%	11,594	21.6%	13,556	22.8%

Note: Results for measure 2-9 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in RBHA.
RQ: research question; Denom: denominator; ED: emergency department

Table B-8: RBHA Full Measure Calculations, 2016–2018

RQ	Meas Num	Measure Description	2016		2017		2018	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
1-1	1-1	Percentage of adults who accessed preventive/ambulatory health services	34,326	93.0%	35,123	92.4%	35,420	91.8%
1-2	1-5	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment (Total)	5,252	42.9%	5,147	44.5%	5,119	44.9%
1-2	1-6	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment (Total)	5,252	8.7%	5,147	9.8%	5,119	11.0%
2-2	2-2	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	564	54.8%	620	50.1%	695	51.7%
2-2	2-3	Percentage of beneficiaries with schizophrenia or bipolar disorder using antipsychotic medications who had a diabetes screening test	10,373	77.8%	10,495	77.4%	10,594	75.8%
2-2	2-4	Percentage of beneficiaries with schizophrenia who adhered to antipsychotic medications	7,354	57.8%	7,569	60.4%	7,703	55.4%
2-3	2-5	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)	2,167	45.7%	2,054	46.2%	2,057	43.5%
2-3	2-5	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)	2,167	28.9%	2,054	27.7%	2,057	24.8%
2-3	2-6	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	6,756	70.7%	7,497	70.6%	7,897	70.0%
2-3	2-7	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for mental illness	1,755	62.7%	1,674	63.8%	1,467	61.5%
2-3	2-8	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for alcohol and other drug abuse or dependence	1,364	21.1%	1,369	19.7%	1,160	21.0%
2-3	2-9	Percentage of beneficiaries with a screening for depression and follow-up plan	--	--	--	--	--	--
2-3	2-10	Percentage of beneficiaries receiving mental health services (no desired direction)						
2-3	2-10	Any	460,510	85.9%	473,111	86.4%	480,365	85.9%
2-3	2-10	ED	460,510	1.5%	473,111	1.5%	480,365	1.2%
2-3	2-10	Intensive outpatient or partial hospitalization	460,510	14.3%	473,111	14.8%	480,365	14.9%
2-3	2-10	Inpatient	460,510	14.9%	473,111	16.0%	480,365	16.3%
2-3	2-10	Outpatient	460,510	85.4%	473,111	85.9%	480,365	85.3%
2-3	2-10	Telehealth	460,510	2.8%	473,111	4.2%	480,365	6.7%
2-4	2-11	Percentage of beneficiaries who have prescriptions for opioids at a high dosage (lower is better)	4,884	17.2%	4,255	16.2%	3,272	12.8%
2-4	2-12	Percentage of beneficiaries with concurrent use of opioids and benzodiazepines (lower is better)	5,570	31.8%	4,899	27.6%	3,722	20.7%
2-5	2-14	Number of ED visits per 1,000 member months (no desired direction)	472,144	140.3	484,549	136.8	496,832	123.5
2-5	2-15	Number of inpatient stays per 1,000 member months (no desired direction)	472,144	16.8	484,549	16.6	496,832	15.4
2-5	2-16	Percentage of inpatient discharges with an unplanned readmission within 30 days (lower is better)	12,197	22.3%	13,165	24.5%	13,100	23.5%

Note: Results for measure 2-9 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in RBHA.
RQ: research question; Denom: denominator; ED: emergency department

Table B-9: RBHA Full Measure Calculations, 2019–Adjusted 2020

RQ	Meas Num	Measure Description	2019		2020		Adjusted 2020	
			Denom[1]	Rate[1]	Denom[1]	Rate[1]	Denom[1]	Rate[1]
1-1	1-1	Percentage of adults who accessed preventive/ambulatory health services	35,389	91.7%	37,974	90.4%	N/A	N/A
1-2	1-5	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment (Total)	4,632	42.2%	4,502	41.9%	4,581	42.7%
1-2	1-6	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment (Total)	4,632	11.2%	4,502	10.1%	4,581	11.2%
2-2	2-2	Percentage of beneficiaries with persistent Asthma who had a ratio of controller medications to total Asthma medications of at least 50 percent	612	54.9%	626	63.1%	N/A	N/A
2-2	2-3	Percentage of beneficiaries with schizophrenia or bipolar disorder using antipsychotic medications who had a diabetes screening test	10,754	78.5%	10,375	76.2%	N/A	N/A
2-2	2-4	Percentage of beneficiaries with schizophrenia who adhered to antipsychotic medications	7,843	56.5%	7,541	60.8%	N/A	N/A
2-3	2-5	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (84 days)	2,131	42.5%	1,965	41.7%	N/A	N/A
2-3	2-5	Percentage of adult beneficiaries who remained on an antidepressant medication treatment (180 days)	2,131	24.2%	1,965	24.0%	N/A	N/A
2-3	2-6	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	7,924	68.5%	7,861	66.9%	8,841	67.9%
2-3	2-7	Percentage of beneficiaries with a follow-up visit within 7-days after emergency department (ED) visit for mental illness	1,207	58.6%	1,052	56.8%	1,234	57.9%
2-3	2-8	Percentage of beneficiaries with a follow-up visit within 7-days after ED visit for alcohol and other drug abuse or dependence	1,008	19.3%	1,007	19.9%	1,139	21.2%
2-3	2-9	Percentage of beneficiaries with a screening for depression and follow-up plan	--	--	--	--	--	--
2-3	2-10	Percentage of beneficiaries receiving mental health services (no desired direction)						
2-3	2-10	Any	474,099	84.8%	495,560	82.3%	510,633	83.5%
2-3	2-10	ED	474,099	1.0%	495,560	0.8%	N/A	N/A
2-3	2-10	Intensive outpatient or partial hospitalization	474,099	15.1%	495,560	12.9%	N/A	N/A
2-3	2-10	Inpatient	474,099	16.4%	495,560	15.8%	N/A	N/A
2-3	2-10	Outpatient	474,099	84.2%	495,560	81.5%	N/A	N/A
2-3	2-10	Telehealth	474,099	7.3%	495,560	10.8%	N/A	N/A
2-4	2-11	Percentage of beneficiaries who have prescriptions for opioids at a high dosage (lower is better)	2,845	11.5%	2,346	11.3%	N/A	N/A
2-4	2-12	Percentage of beneficiaries with concurrent use of opioids and benzodiazepines (lower is better)	3,072	11.0%	2,581	9.0%	N/A	N/A
2-5	2-14	Number of ED visits per 1,000 member months (no desired direction)	498,762	116.6	515,688	101.5	510,633	117.0
2-5	2-15	Number of inpatient stays per 1,000 member months (no desired direction)	498,762	15.3	515,688	15.3	510,633	15.7
2-5	2-16	Percentage of inpatient discharges with an unplanned readmission within 30 days (lower is better)	14,682	26.9%	13,061	26.1%	13,940	26.0%

Note: Results for measure 2-9 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
[1]Reported denominator and rate have been weighted by beneficiaries' duration of enrollment in RBHA.
RQ: research question; Denom: denominator; ED: emergency department

Prior Quarter Coverage (PQC)

Table B-10: PQC Full Measure Calculations

RQ	Meas Num	Measure Description	SFY 2018		SFY 2019		SFY 2020	
			Denominator	Rate	Denominator	Rate	Denominator	Rate
1-1	1-1	Percentage of estimated eligible Medicaid recipients enrolled, by eligibility group						
1-1	1-1	Eligible - Total	1,459,810	38.9%	1,435,146	39.1%	1,425,829	38.3%
1-1	1-1	Eligible - Adult	961,150	36.3%	928,879	36.3%	929,467	36.9%
1-1	1-1	Eligible - Disabled (FTW)	93,825	25.5%	100,584	30.2%	104,928	25.2%
1-1	1-1	Eligible - Parent	244,852	57.6%	244,616	55.1%	214,771	51.0%
1-1	1-1	Eligible - Senior (DIS)	72,468	43.2%	76,979	43.9%	81,731	47.7%
1-1	1-1	Eligible - SSI Aged	87,515	25.1%	84,088	28.9%	94,932	29.3%
1-1	1-2	Percentage of estimated eligible Medicaid recipients newly enrolled, by eligibility group						
1-1	1-2	Eligible - Total	1,459,810	11.1%	1,435,146	11.3%	1,425,829	12.1%
1-1	1-2	Eligible - Adult	961,150	11.3%	928,879	11.7%	929,467	12.5%
1-1	1-2	Eligible - Disabled (FTW)	93,825	0.4%	100,584	0.4%	104,928	0.4%
1-1	1-2	Eligible - Parent	244,852	17.0%	244,616	17.0%	214,771	20.7%
1-1	1-2	Eligible - Senior (DIS)	72,468	0.9%	76,979	0.8%	81,731	0.7%
1-1	1-2	Eligible - SSI Aged	87,515	12.1%	84,088	12.6%	94,932	10.6%
1-2	1-5	Percentage of Medicaid beneficiaries due for renewal who complete the renewal process	1,940,533	77.1%	1,876,170	75.9%	1,107,199	76.0%
1-2	1-6	Average number of months with Medicaid coverage	1,011,262	9.76	979,405	9.88	1,004,831	9.94
1-3	1-7	Percentage of Medicaid beneficiaries who re-enroll after a gap of up to six months	140,622	24.9%	125,260	24.6%	130,475	26.3%
1-3	1-8	Average number of months without Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months	34,951	2.27	30,787	2.25	34,269	2.12
1-3	1-9	Average number of gaps in Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months	34,951	1.20	30,787	1.21	34,269	1.23
1-3	1-10	Average number of days per gap in Medicaid coverage for beneficiaries who re-enroll after a gap of up to six months	41,971	56.83	37,269	55.66	42,195	51.65
5-2	5-3	Percentage of beneficiaries with a visit to a specialist	1,011,262	41.1%	979,405	41.6%	1,004,831	40.1%

Note: Year 1 of PQC baseline period extends from July 1, 2017, through June 30, 2018. Year 2 extends from July 1, 2018, through June 30, 2019. Data from IPUMS used in measures 1-1, and 1-2 utilize 2017 and 2018 data, for years 1 and 2, respectively.
RQ: research question; Denom: denominator;

Targeted Investments (TI)

Table B-11: TI Full Measure Calculations

RQ	Meas Num	Measure Description	2015		2016		2020		Adjusted 2020	
			Denom	Rate	Denom	Rate	Denom	Rate	Denom	Rate
1-2	1-3	Percentage of beneficiaries with a well-child visit in the third, fourth, fifth, and sixth years of life	19,961	74.1%	23,874	70.3%	27,219	65.8%	N/A	N/A
1-2	1-4	Percentage of beneficiaries with a depression screening and follow-up plan	--	--	--	--	--	--	--	--
1-2	1-5	Percentage of beneficiaries with an adolescent well-care visit	26,231	59.0%	33,208	57.4%	39,129	53.5%	N/A	N/A
1-3	1-7	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	1,103	67.0%	1,566	71.5%	1,680	73.4%	2,529	72.8%
2-2	2-3	Percentage of beneficiaries with a depression screening and follow-up plan	--	--	--	--	--	--	--	--

RQ	Meas Num	Measure Description	2015		2016		2020		Adjusted 2020	
			Denom	Rate	Denom	Rate	Denom	Rate	Denom	Rate
2-3	2-5	Number of ED visits per 1,000 member months (no desired direction)	1,101,647	102.60	1,401,803	96.63	1,517,606	72.61	1,965,466	87.13
2-3	2-6	Number of ED visits for substance use disorder (SUD) or opioid use disorder (OUD) per 1,000 member months (no desired direction)	1,101,647	1.96	1,401,803	2.04	1,517,606	1.52	1,965,466	1.71
2-4	2-7	Percentage of beneficiaries with a follow-up visit within 7-days after hospitalization for mental illness	3,964	59.0%	5,529	61.3%	6,535	59.7%	11,474	61.3%
2-4	2-8	Percentage of beneficiaries with a follow-up visit within 7-days after emergency department (ED) visit for mental illness	1,578	54.8%	1,752	58.0%	1,108	53.3%	2,040	53.0%
2-5	2-9	Percentage of beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment								
2-5	2-9	Total	9,102	46.0%	10,667	48.0%	9,505	46.0%	14,456	45.4%
2-5	2-9	Alcohol	3,045	45.6%	3,499	48.4%	3,240	45.2%	5,054	43.2%
2-5	2-9	Opioid	1,584	52.2%	2,275	53.6%	2,080	53.9%	3,060	53.7%
2-5	2-9	Other Drug	5,043	44.8%	5,615	46.7%	5,098	45.3%	8,394	43.1%
2-5	2-10	Percentage of beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment								
2-5	2-10	Total	9,102	14.1%	10,667	15.6%	9,505	15.8%	14,456	17.1%
2-5	2-10	Alcohol	3,045	11.4%	3,499	14.1%	3,240	13.8%	5,054	14.3%
2-5	2-10	Opioid	1,584	20.6%	2,275	17.5%	2,080	25.2%	3,060	27.1%
2-5	2-10	Other Drug	5,043	12.3%	5,615	15.0%	5,098	12.1%	8,394	13.8%
2-5	2-11	Percentage of Beneficiaries with OUD Receiving Any Medication Assisted Treatment (OUD-MAT)	5,647	23.5%	8,052	18.9%	11,054	42.1%	N/A	N/A
3-2	3-3	Percentage of recently released beneficiaries who had a preventive/ambulatory health service visit	N/A	N/A	1,536	74.2%	2,842	68.9%	N/A	N/A
3-3	3-6	Percentage of recently released beneficiaries who had initiation of alcohol and other drug abuse or dependence treatment								
3-3	3-6	Total	N/A	N/A	574	55.9%	792	49.2%	1,166	50.3%
3-3	3-6	Alcohol	N/A	N/A	195	57.9%	224	48.2%	308	50.0%
3-3	3-6	Opioid	N/A	N/A	133	61.7%	177	66.1%	273	66.3%
3-3	3-6	Other Drug	N/A	N/A	299	55.5%	512	46.3%	727	47.2%
3-3	3-7	Percentage of recently released beneficiaries who had engagement of alcohol and other drug abuse or dependence treatment								
3-3	3-7	Total	N/A	N/A	574	21.6%	792	18.1%	1,166	20.2%
3-3	3-7	Alcohol	N/A	N/A	195	21.0%	224	16.1%	308	18.5%
3-3	3-7	Opioid	N/A	N/A	133	24.8%	177	26.6%	273	28.9%
3-3	3-7	Other Drug	N/A	N/A	299	19.4%	512	14.6%	727	15.1%
3-3	3-8	Percentage of Beneficiaries with OUD Receiving Any Medication Assisted Treatment (OUD-MAT)	N/A	N/A	574	16.9%	1,447	33.1%	N/A	N/A
3-4	3-9	Number of ED visits per 1,000 member months for recently released beneficiaries (no desired direction)	N/A	N/A	31,762	136.86	55,002	134.12	77,313	141.33
3-4	3-10	Number of ED visits for SUD or OUD per 1, 000 member months for recently released beneficiaries (no desired direction)	N/A	N/A	31,762	8.50	55,002	7.22	77,313	6.88
3-5	3-11	Percentage of recently released beneficiaries who have prescriptions for opioids at a high dosage (lower is better)	N/A	N/A	191	13.1%	55	9.1%	N/A	N/A
3-5	3-12	Percentage of recently released beneficiaries who have prescriptions for concurrent use of opioids and benzodiazepines (lower is better)	N/A	N/A	241	19.5%	73	4.1%	N/A	N/A

Note: Results for measures 1-4 and 2-3 are not presented due to insufficient data and calculated rates that are artificially low from using administrative data.
RQ: research question; Denom: denominator; ED: emergency department; SUD: substance use disorder; OUD: opioid use disorder

Appendix C. ALTCS NCI Supplemental Tables

Table C-1–Table C-6 provide further details on Research Questions 1.3, 3.1, 3.2, and 3.3 regarding the Arizona Long Term Care System–developmentally disabled (ALTCS–DD) population. The data sources are the 2015–2016 Adult Consumer Survey (ACS) and the 2017–2018 In-Person Survey (IPS) administered for the National Core Indicators (NCI) project. The 2015–2016 survey represents the baseline period measurement, and the 2017–2018 survey represents the evaluation period measurement. Using a tool provided by NCI, it was possible to stratify each measure by six beneficiary characteristics that may be related to outcomes:

- **Age** (18–22, 23–34, 35–54, 55–74, *75 and above*)
- **Sex** (Male, Female)
- **Race/Ethnicity** (American Indian/Alaska Native, *Asian,* Black, or African American, *Pacific Islander,* White, Hispanic/Latino, *Other Race Not Listed, Two or More Races, Don't Know*)
- **Type of Residence** (*Intermediate Care Facility for Individuals with Intellectual Disability [ICF/ID], nursing home or other institutional setting;* Group residential setting [group home]; Own home or apartment; Parent or relative's home; Foster care/host home)
- **Level of ID** (Mild ID, Moderate ID, Severe ID, *Profound ID,* diagnosed but unspecified level, *ID diagnosis status unknown,* No ID diagnosis)
- **Preferred Means of Communication** (Spoken, Gestures/body language, *Sign language/finger spelling, Communication aid/device, Other*)

Rates for italicized categories did not meet minimum data quality standards and are not shown in the tables below.

The tables below show changes in rates between the baseline period and the evaluation period for each DD adult population subgroup for each measure. Statistical tests were conducted and results were examined to determine whether the outcomes moved in the desired direction (improved), moved opposite the desired direction (worsened), or did not exhibit a statistically significant change.[C-1]

Research Question 1.3: Do adult beneficiaries with DD have the same or improved rates of access to care as a result of the integration of care for beneficiaries with DD?

Table C-1–Table C-3 presents stratified rates and changes over time for Measures 1-4 through 1-8 from Research Question 1.3 regarding access to care. There were few statistically significant changes, but where there were changes, almost all indicated improved access to care. Notable findings include:

- Between the baseline and evaluation periods, several survey respondent subgroups experienced statistically significant improvements in the percentage having had a physical exam in the past year, including:
  - Those in the 18–22 age range, with a 15-percentage point increase to 83 percent.
  - Female respondents, with an 8-percentage point increase to 89 percent.
  - Black or African American respondents, with a 31-percentage point increase to 88 percent.
  - Hispanic/Latino respondents, with a 12-percentage point increase to 87 percent.
  - Those living in a parent or relative’s home, with a 9-percentage point increase to 85 percent.
  - Those who prefer spoken communication, with a 6-percentage point increase to 86 percent.

[C-1] Statistical significance was determined based on the traditional confidence level of 95 percent.

- Between the baseline and evaluation periods, two survey respondent subgroups experienced statistically significant improvements in the percentage having had a dental exam in the past year, including:
  - Hispanic/Latino respondents, with a 26-percentage point increase to 77 percent.
  - Those with severe ID, with a 32-percentage point increase to 80 percent.
- Between the baseline and evaluation periods, one survey respondent subgroup experienced statistically significant worsening in the percentage having received a flu vaccination in the past year:
  - Those in the 23–34 age range, with a 14-percentage point decrease to 66 percent.

Table C-1: Research Question 1.3

Respondent Characteristics	Measure 1-4: Has a primary care doctor or practitioner			Measure 1-5: Had a complete physical exam in the past year		
Age	Baseline	Evaluation	Pre-Post	Baseline	Evaluation	Pre-Post
18–22	98%	98%	0% (1.000)	68%	83%	15% (0.037)
23–34	99%	98%	-1% (0.423)	83%	88%	5% (0.203)
35–54	95%	96%	1% (0.695)	81%	86%	5% (0.305)
55–74	95%	97%	2% (0.573)	90%	89%	-1% (0.866)
Sex						
Male	98%	96%	-2% (0.165)	81%	85%	4% (0.243)
Female	97%	99%	2% (0.159)	81%	89%	8% (0.042)
Race/Ethnicity						
American Indian or Alaska Native	100%	92%	-8% (0.166)	-	83%	-
Black or African American	100%	100%	0% (1.000)	57%	88%	31% (0.017)
White	97%	97%	0% (1.000)	84%	87%	3% (0.346)
Hispanic/Latino	96%	98%	2% (0.386)	75%	87%	12% (0.038)
Type of Residence						
Group residential setting	98%	96%	-2% (0.408)	89%	91%	2% (0.642)
Own home or apartment	93%	100%	7% (0.088)	85%	79%	-6% (0.523)
Parent or relative's home	98%	97%	-1% (0.450)	76%	85%	9% (0.014)
Foster care/host home	97%	97%	0% (1.000)	85%	97%	12% (0.081)
Level of ID						
Mild ID	98%	97%	-1% (0.602)	79%	87%	8% (0.107)
Moderate ID	96%	97%	1% (0.613)	82%	85%	3% (0.491)
Severe ID	98%	94%	-4% (0.331)	79%	92%	13% (0.078)
Diagnosed but unspecified level	100%	100%	0% (1.000)	-	85%	-
No ID diagnosis	96%	100%	4% (0.103)	77%	88%	11% (0.130)
Preferred Means of Communication						
Spoken	97%	97%	0% (1.000)	80%	86%	6% (0.048)
Gestures/body language	97%	99%	2% (0.377)	79%	88%	9% (0.159)

"–" indicates the cell did not meet minimum data quality requirements for reporting.
Source: National Core Indicators (NCI), 2015–2016 Adult Consumer Arizona Survey and 2017-2018 In-Person Arizona Survey.

Notes: N = 476 for 2015-2016 and total N = 493 for 2017-2018. Sample size varies across measures and between different types of respondent characteristics. Categories with no cells meeting minimum data quality requirements were omitted from the table. For further information see the NCI website at https://www.nationalcoreindicators.org/survey-reports/.
[1]Change in Rate compares the average rate in the evaluation period to the baseline period using a pre/post model.

Table C-2: Research Question 1.3 (Continued)

Respondent Characteristics	Measure 1-6: Had a dental exam in the past year			Measure 1-7: Had an eye exam in the past year		
Age	2015-2016	2017-2018	Pre/Post Change in Rate[1]	2015-2016	2017-2018	Pre/Post Change in Rate[1]
18–22	79%	88%	9% (0.178)	63%	70%	7% (0.451)
23–34	73%	81%	8% (0.113)	58%	58%	0% (1.000)
35–54	74%	81%	7% (0.233)	58%	55%	-3% (0.699)
55–74	77%	75%	-2% (0.815)	72%	67%	-5% (0.615)
Sex						
Male	76%	80%	4% (0.327)	63%	60%	-3% (0.575)
Female	74%	82%	8% (0.097)	57%	60%	3% (0.646)
Race/Ethnicity						
American Indian or Alaska Native	-	83%	-	-	-	-
Black or African American	68%	75%	7% (0.599)	-	57%	-
White	82%	83%	1% (0.785)	64%	61%	-3% (0.562)
Hispanic/Latino	51%	77%	26% (0.001)	57%	56%	-1% (0.911)
Type of Residence						
Group residential setting	74%	82%	8% (0.193)	72%	63%	-9% (0.249)
Own home or apartment	75%	68%	-7% (0.570)	73%	71%	-2% (0.873)
Parent or relative's home	72%	80%	8% (0.064)	52%	56%	4% (0.490)
Foster care/host home	90%	86%	-4% (0.619)	67%	70%	3% (0.809)
Level of ID						
Mild ID	75%	84%	9% (0.113)	65%	65%	0% (1.000)
Moderate ID	82%	80%	-2% (0.683)	64%	61%	-3% (0.659)
Severe ID	48%	80%	32% (0.004)	-	50%	-
Diagnosed but unspecified level	-	74%	-	-	57%	-
No ID diagnosis	79%	79%	0% (1.000)	60%	62%	2% (0.852)
Preferred Means of Communication						
Spoken	76%	82%	6% (0.084)	62%	58%	-4% (0.388)
Gestures/body language	64%	76%	12% (0.180)	52%	65%	13% (0.271)

"–" indicates the cell did not meet minimum data quality requirements for reporting.
Source: National Core Indicators (NCI), 2015–2016 Adult Consumer Arizona Survey and 2017-2018 In-Person Arizona Survey.
Notes: N = 476 for 2015-2016 and total N = 493 for 2017-2018. Sample size varies across measures and between different types of respondent characteristics. Categories with no cells meeting minimum data quality requirements were omitted from the table. For further information see the NCI website at https://www.nationalcoreindicators.org/survey-reports/.
[1]Change in Rate compares the average rate in the evaluation period to the baseline period using a pre/post model.

Table C-3: Research Question 1.3 (Continued)

Respondent Characteristics	Measure 1-8: Had a flu vaccine in the past year		
Age	2015-2016	2017-2018	Pre/Post Change in Rate[1]
18–22	71%	74%	3% (0.788)
23–34	80%	66%	-14% (0.046)
35–54	77%	76%	-1% (0.901)
55–74	93%	88%	-5% (0.474)
Sex			
Male	78%	70%	-8% (0.163)
Female	83%	79%	-4% (0.504)
Race/Ethnicity			
American Indian or Alaska Native	-	-	-
Black or African American	-	-	-
White	77%	73%	-4% (0.458)
Hispanic/Latino	80%	75%	-5% (0.590)
Type of Residence			
Group residential setting	85%	86%	1% (0.879)
Own home or apartment	-	71%	-
Parent or relative's home	73%	66%	-7% (0.265)
Foster care/host home	-	89%	-
Level of ID			
Mild ID	80%	74%	-6% (0.443)
Moderate ID	86%	75%	-11% (0.094)
Severe ID	-	84%	-
Diagnosed but unspecified level	-	-	-
No ID diagnosis	70%	68%	-2% (0.873)
Preferred Means of Communication			
Spoken	82%	75%	-7% (0.132)
Gestures/body language	71%	72%	1% (0.931)

"–" indicates the cell did not meet minimum data quality requirements for reporting.
Source: National Core Indicators (NCI), 2015–2016 Adult Consumer Arizona Survey and 2017-2018 In-Person Arizona Survey.
Notes: N = 476 for 2015-2016 and total N = 493 for 2017-2018. Sample size varies across measures and between different types of respondent characteristics. Categories with no cells meeting minimum data quality requirements were omitted from the table. For further information see the NCI website at https://www.nationalcoreindicators.org/survey-reports/.
[1]Change in Rate compares the average rate in the evaluation period to the baseline period using a pre/post model.

Research Question 3.1: Do beneficiaries have the same or higher rates of living in their own home as a result of the ALTCS waiver renewal?

Table C-4 presents stratified rates and changes over time for Measure 3-2 from Research Question 3.1. For this measure, the proportion of beneficiaries living in their own home is disaggregated into those living in their own home or apartment and those living in the home of a parent or other relative. Notable findings include:

- Between the baseline and evaluation periods, just one survey respondent subgroup experienced statistically significant changes in the percentage living in their own home:
  - The percentage of males living in a parent or relative's home decreased by 8 percentage points to 58 percent.
  - The combined percentage of males living in their own home or apartment or living in a parent or relative's home decreased by 9 percentage points to 66 percent.

Table C-4: Research Question 3.1

Respondent Characteristics	Measure 3-2: Type of Residence (Own home or apartment)			Measure 3-2: Type of Residence (Parent or relative's home)			Measure 3-2: Type of Residence (Combined)		
Age	2015-2016	2017-2018	Pre/Post Change in Rate[1]	2015-2016	2017-2018	Pre/Post Change in Rate[1]	2015-2016	2017-2018	Pre/Post Change in Rate[1]
18–22	6%	2%	-4% (0.176)	82%	85%	3% (0.590)	88%	87%	-1% (0.840)
23–34	8%	8%	0% (1.000)	68%	67%	-1% (0.834)	76%	75%	-1% (0.819)
35–54	10%	9%	-1% (0.778)	53%	48%	-5% (0.410)	63%	57%	-6% (0.313)
55–74	19%	19%	0% (1.000)	24%	11%	-13% (0.059)	43%	30%	-13% (0.137)
Sex									
Male	9%	8%	-1% (0.668)	66%	58%	-8% (0.049)	75%	66%	-9% (0.018)
Female	12%	10%	-2% (0.528)	53%	56%	3% (0.553)	65%	66%	1% (0.836)
Race/Ethnicity									
American Indian or Alaska Native	4%	4%	0% (1.000)	43%	48%	5% (0.724)	47%	52%	5% (0.725)
Black or African American	7%	8%	1% (0.888)	57%	48%	-9% (0.506)	64%	56%	-8% (0.546)
White	11%	10%	-1% (0.694)	57%	54%	-3% (0.466)	68%	64%	-4% (0.308)
Hispanic/Latino	10%	8%	-2% (0.604)	75%	67%	-8% (0.198)	85%	75%	-10% (0.070)
Level of ID									
Mild ID	14%	15%	1% (0.815)	58%	49%	-9% (0.138)	72%	64%	-8% (0.158)
Moderate ID	4%	7%	3% (0.225)	63%	62%	-1% (0.847)	67%	69%	2% (0.689)
Severe ID	0%	2%	2% (0.340)	64%	55%	-9% (0.363)	64%	57%	-7% (0.477)
Diagnosed but unspecified level	17%	4%	-13% (0.126)	61%	48%	-13% (0.358)	78%	52%	-26% (0.056)
No ID diagnosis	15%	11%	-4% (0.490)	63%	65%	2% (0.808)	78%	76%	-2% (0.782)
Preferred Means of Communication									
Spoken	11%	11%	0% (1.000)	59%	55%	-4% (0.277)	70%	66%	-4% (0.249)
Gestures/body language	3%	1%	-2% (0.370)	62%	61%	-1% (0.901)	65%	62%	-3% (0.706)

"–" indicates the cell did not meet minimum data quality requirements for reporting.
Source: National Core Indicators (NCI), 2015–2016 Adult Consumer Arizona Survey and 2017-2018 In-Person Arizona Survey.
Notes: N = 476 for 2015-2016 and total N = 493 for 2017-2018. Sample size varies across measures and between different types of respondent characteristics. Categories with no cells meeting minimum data quality requirements were omitted from the table. For further information see the NCI website at https://www.nationalcoreindicators.org/survey-reports/.
[1]Change in Rate compares the average rate in the evaluation period to the baseline period using a pre/post model.

Research Question 3.2: Do adult beneficiaries have the same or higher rates of feeling satisfied with their living arrangements as a result of the integration of care for beneficiaries with DD?

Table C-5 presents stratified rates and changes over time for Measures 3-3 and 3-4 from Research Question 3.2; notable findings include:

- Between the baseline and evaluation periods, there were no statistically significant changes in the percentage of surveyed DD adults who wanted to live somewhere else.
- Between the baseline and evaluation periods, six survey respondent subgroups showed statistically significant decreases in the percentage who agreed that services and supports help the person live a good life, including:
  - Respondents aged 55–74, with a 17-percentage point decline, to 81 percent.
  - Female respondents, with a 5-percentage point decline to 93 percent.
  - White respondents, with a 4-percentage point decline to 93 percent.
  - Hispanic/Latino respondents, with a 10-percentage point decline to 89 percent.
  - Those living in a parent or relative's home, with a 5-percentage point decline to 93 percent.
  - Those who prefer spoken communication, with a 5-percentage point decline to 92 percent.

Table C-5: Research Question 3.2

Respondent Characteristics	Measure 3-3: Wants to live somewhere else			Measure 3-4: Services and supports help the person live a good life		
Age	2015-2016	2017-2018	Pre/Post Change in Rate[1]	2015-2016	2017-2018	Pre/Post Change in Rate[1]
18–22	12%	17%	5% (0.400)	98%	93%	-5% (0.129)
23–34	13%	12%	-1% (0.795)	96%	94%	-2% (0.425)
35–54	11%	10%	-1% (0.818)	97%	94%	-3% (0.298)
55–74	23%	15%	-8% (0.348)	98%	81%	-17% (0.008)
Sex						
Male	13%	12%	-1% (0.758)	96%	92%	-4% (0.077)
Female	14%	13%	-1% (0.799)	98%	93%	-5% (0.034)
Race/Ethnicity						
Black or African American	4%	-	-	100%	-	-
White	15%	13%	-2% (0.541)	97%	93%	-4% (0.045)
Hispanic/Latino	12%	13%	1% (0.849)	99%	89%	-10% (0.007)
Type of Residence						
Group residential setting	21%	19%	-2% (0.756)	95%	92%	-3% (0.450)
Own home or apartment	20%	17%	-3% (0.732)	93%	89%	-4% (0.538)
Parent or relative's home	10%	11%	1% (0.738)	98%	93%	-5% (0.009)
Foster care/host home	6%	4%	-2% (0.735)	100%	100%	0% (1.000)
Level of ID						
Mild ID	13%	14%	1% (0.818)	96%	91%	-5% (0.104)
Moderate ID	12%	11%	-1% (0.799)	98%	93%	-5% (0.051)
Severe ID	11%	-	-	97%	-	-
No ID diagnosis	14%	12%	-2% (0.764)	97%	93%	-4% (0.329)
Preferred Means of Communication						
Spoken	14%	14%	0% (1.000)	97%	92%	-5% (0.006)
Gestures/body language	12%	7%	-5% (0.499)	98%	96%	-2% (0.622)

"–" indicates the cell did not meet minimum data quality requirements for reporting.
Source: National Core Indicators (NCI), 2015–2016 Adult Consumer Arizona Survey and 2017-2018 In-Person Arizona Survey.
Notes: N = 476 for 2015-2016 and total N = 493 for 2017-2018. Sample size varies across measures and between different types of respondent characteristics. Categories with no cells meeting minimum data quality requirements were omitted from the table. For further information see the NCI website at https://www.nationalcoreindicators.org/survey-reports/.
[1]Change in Rate compares the average rate in the evaluation period to the baseline period using a pre/post model.

Research Question 3.3: Do adult beneficiaries have the same or higher rates of feeling engaged as a result of the integration of care for beneficiaries with DD?

Table C-6 presents stratified rates and changes over time for Measure 3-5 and 3-6 from Research Question 3.3. NCI no longer provides stratified rates for Measure 3-7, so that measure is not reported here. Notable findings include:

- Between the baseline and evaluation periods, nine survey respondent subgroups showed statistically significant decreases in the percentage who agreed that they are able to go out and do the things they like in the community, including:
  - DD survey respondents aged 18–22 and 35–54; the former registered a 9-percentage point decline to 88 percent, while the latter saw a decline of 15 percentage points to 76 percent.
  - Male and female survey respondents; the former registered a decline of 6 percentage points to 86 percent, while the latter saw a decline of 13 percentage points to 82 percent.
  - White survey respondents, with a 6-percentage point decline to 86 percent.
  - Those living in a parent or relative's home, with a 10-percentage point decline to 86 percent.
  - Those with a Mild or Moderate level of ID; the former registered a decline of 9 percentage points to 84 percent, while the latter saw a decline of 10 percentage points to 85 percent.
  - Those who prefer spoken communication, with an 8-percentage point decline to 85 percent.
- Between the baseline and evaluation periods, two survey respondent subgroups showed statistically significant decreases in the percentage who reported having friends who were not staff or family members, including:
  - DD survey respondents aged 35–54, with a 19-percentage point decline to 47 percent.
  - Those who prefer communicating with gestures or body language, with a 31 percent decline to 26 percent.

Table C-6: Research Question 3.3

Respondent Characteristics	Measure 3-5: Able to go out and do the things s/he like to do in the community			Measure 3-6: Has friends who are not staff or family members		
Age	2015-2016	2017-2018	Pre/Post Change in Rate[1]	2015-2016	2017-2018	Pre/Post Change in Rate[1]
18–22	97%	88%	-9% (0.035)	77%	70%	-7% (0.343)
23–34	93%	88%	-5% (0.139)	63%	69%	6% (0.271)
35–54	91%	76%	-15% (0.004)	66%	47%	-19% (0.006)
55–74	92%	83%	-9% (0.209)	60%	53%	-7% (0.523)
Sex						
Male	92%	86%	-6% (0.048)	64%	59%	-5% (0.291)
Female	95%	82%	-13% (0.000)	70%	64%	-6% (0.264)
Race/Ethnicity						
American Indian or Alaska Native	-	76%	-	-	62%	-
Black or African American	100%	-	-	75%	-	-
White	92%	86%	-6% (0.040)	66%	66%	0% (1.000)
Hispanic/Latino	94%	85%	-9% (0.071)	64%	53%	-11% (0.160)
Type of Residence						
Group residential setting	87%	82%	-5% (0.395)	67%	53%	-14% (0.075)
Own home or apartment	93%	83%	-10% (0.168)	67%	73%	6% (0.562)
Parent or relative's home	96%	86%	-10% (0.000)	68%	65%	-3% (0.511)
Foster care/host home	90%	79%	-11% (0.255)	61%	56%	-5% (0.706)
Level of ID						
Mild ID	93%	84%	-9% (0.025)	67%	66%	-1% (0.868)
Moderate ID	95%	85%	-10% (0.007)	69%	59%	-10% (0.087)
Severe ID	100%	-	-	65%	-	-
Diagnosed but unspecified level	-	-	-	-	-	-
No ID diagnosis	88%	91%	3% (0.622)	68%	74%	6% (0.503)
Preferred Means of Communication						
Spoken	93%	85%	-8% (0.002)	68%	66%	-2% (0.600)
Gestures/body language	98%	-	-	57%	26%	-31% (0.012)

"–" indicates the cell did not meet minimum data quality requirements for reporting.
Source: National Core Indicators (NCI), 2015–2016 Adult Consumer Arizona Survey and 2017-2018 In-Person Arizona Survey.
Notes: N = 476 for 2015-2016 and total N = 493 for 2017-2018. Sample size varies across measures and between different types of respondent characteristics. Categories with no cells meeting minimum data quality requirements were omitted from the table. For further information see the NCI website at https://www.nationalcoreindicators.org/survey-reports/.
[1]Change in Rate compares the average rate in the evaluation period to the baseline period using a pre/post model.