

# UTAH 1115 PRIMARY CARE NETWORK DEMONSTRATION WAIVER EVALUATION DESIGN

Prepared by: Matt Davis, PhD  
Rodney W. Hopkins, M.S.  
Kristen West, MPA



## INTRODUCTION

In October 2017, the Utah Department of Health (UDOH), Division of Medicaid and Health Financing (DMHF) received a five-year extension to its 1115 Primary Care Network (PCN) Demonstration Waiver. This extension adds covered benefits and continues providing health coverage to eight vulnerable population groups, some of whom are not eligible for Medicaid under the state plan.

This proposal will both track the general performance of the 1115 waiver and evaluate demonstration impacts and outcomes. Results of the evaluation will be presented in a series of annual reports, as well as interim and final evaluation reports. This draft proposal identifies the general design and approach of the evaluation in response to the required Special Terms and Conditions (STC's).

### A. GENERAL BACKGROUND INFORMATION

Utah's 1115 PCN Demonstration Waiver (hereinafter referred to as "Demonstration") is a statewide waiver that was originally approved on February 8, 2002 and implemented on July 1, 2002. Since that time, the Demonstration has been extended and amended several times to add additional benefits and Medical programs. Most recently, the Demonstration was amended and approved on October 31, 2017 with an approval period through June 30, 2022. The evaluation will cover the Demonstration approval period.

#### Waiver Population Groups

The Demonstration authorizes the State of Utah to administer the following medical programs and benefits:

- PCN Program (Demonstration Population I) - Provides a limited package of preventive and primary care benefits to adults age 19-64.
- Current Eligibles - Provides a slightly reduced benefit package for adults receiving Parent/Caretaker Relative (PCR) Medicaid.
- Utah's Premium Partnership Program (UPP) (Demonstration Populations III, V & VI) - Provides premium assistance to pay the individual's or family's share of monthly premium costs of employer sponsored insurance or COBRA.
- Targeted Adult Medicaid- Provides state plan Medicaid benefits to a targeted group of adults without dependent children.
- Former Foster Care Youth from Another State- Provides state plan Medicaid benefits to former foster care youth from another state up to age 26.
- Dental Benefits for Individuals who are Blind or Disabled- Provides dental benefits to individuals age 18 and older with blindness or disabilities.
- Substance Use Disorder (SUD) Residential Treatment- Allows the State to provide a broad continuum of care which includes SUD residential treatment in an Institution for Mental Disease (IMD) for all Medicaid eligible individuals.

## **B. EVALUATION QUESTIONS & HYPOTHESES**

The primary goals of the waiver are to increase access, improve quality, and expand coverage to eligible Utahns. To accomplish these goals, the Demonstration includes several key activities including enrollment of new populations, quality improvement, and benefit additions or changes. This evaluation plan will describe how the University of Utah's Social Research Institute (SRI) will document the implementation of the key goals of the Demonstration, the changes associated with the waiver including the service outputs, and most importantly, the outcomes achieved over the course of the Demonstration.

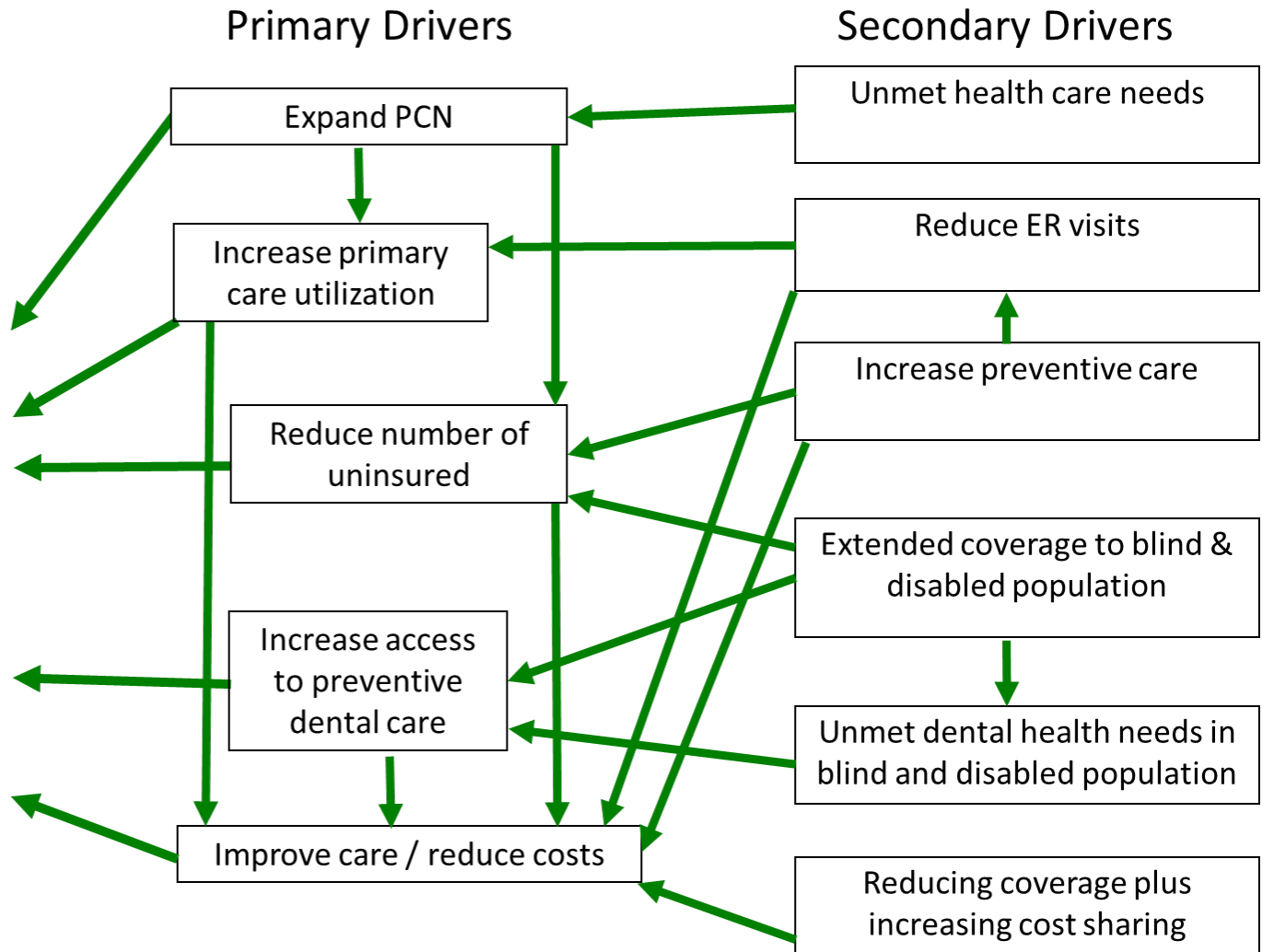
### **Evaluation Purpose**

SRI will conduct an evaluation of the Utah 1115 PCN Demonstration Waiver by establishing research questions and a study design that is responsive to the hypotheses identified by UDOH. SRI will collaborate with UDOH and the Utah State Division of Substance Abuse and Mental Health (DSAMH) to obtain the appropriate data to conduct the analysis needed to complete the required evaluation reports on an annual basis and at each subsequent renewal or extension of the demonstration waiver. This includes an evaluation of the overall waiver and the SUD component, which will be described in a separate document.

**Driver Diagram**

**Aim:** Utah 1115 Demonstration will improve and extend healthcare coverage to targeted population groups on a cost neutral basis.

- Outcome Measures:**
1. Improve access to primary care
  2. Maintain continuity of care
  3. Reduce non-emergent ER visits
  4. Reduce uncompensated care costs

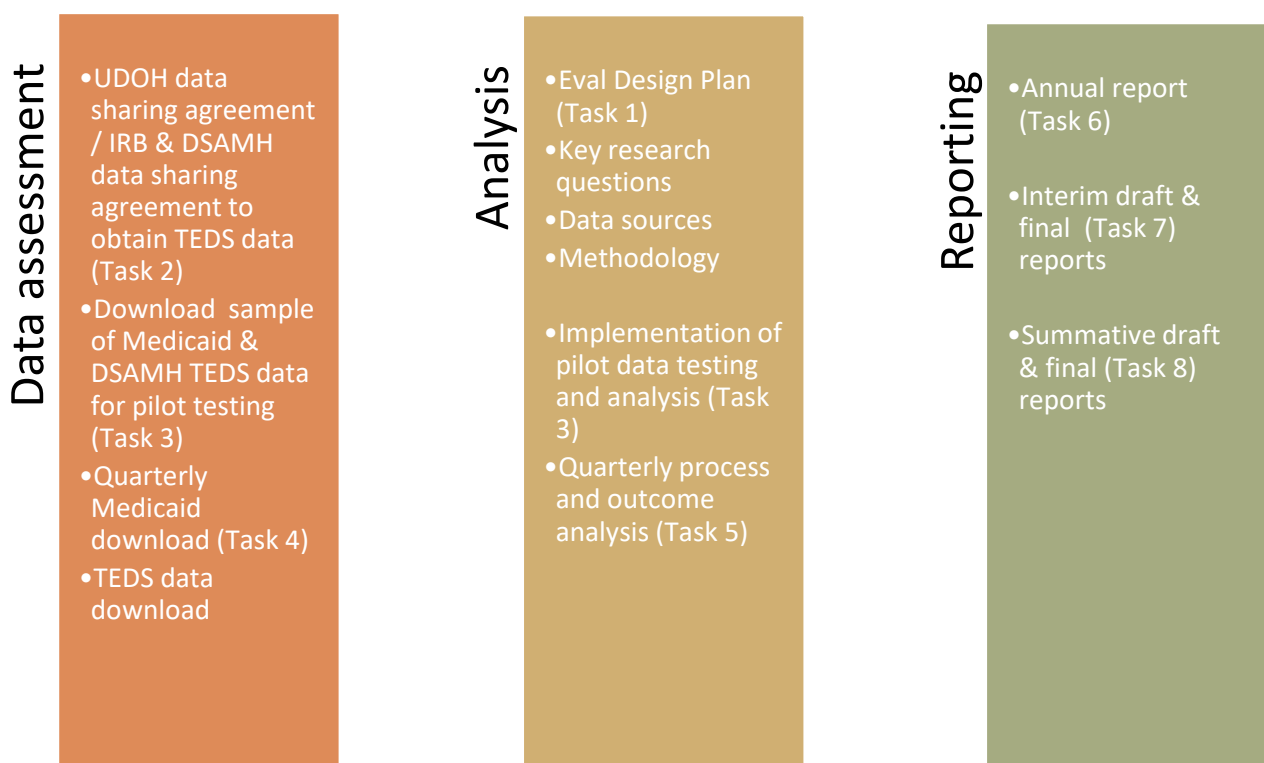


## C. METHODOLOGY

### Evaluation Approach

To evaluate the different components of the waiver demonstration, we envision three main phases of work: (1) data assessment and collection, (2) analysis, and (3) reporting. The last phase will include both reporting of waiver findings to UDOH in response to the STC's and also providing written summary reports for submission to the Centers for Medicare and Medicaid Services (CMS). The first key task—development of the evaluation design plan—appears at the top of Figure 1. This plan will specify the key research questions the evaluation will address for each demonstration component, as well as the primary data sources and methodologies that will be used. This plan will guide decision making at all levels of the study and drive the content of the reporting tasks.

**Figure 1. Project vision**



### 1. Evaluation Design

Due to the unique target population groups included in the Demonstration evaluation, a combination of design approaches will be implemented. For example, for some targeted groups a traditional pre / post comparison will be an option. While other groups will consist of a post-only assessment where the target population will serve as its own comparison group. Finally, for other targeted groups we are exploring the potential of using a comparison group(s) from other states with similar target populations. A time series design will be employed for most of the individual analysis using pre-Demonstration as a baseline where possible and then using the first year as baseline where no pre-Demonstration data are available due to the nature of the individual target population.

The specific evaluation questions to be addressed are based on the following criteria:

- 1) Potential for improvement, consistent with the key goals of the Demonstration;
- 2) Potential for measurement, including (where possible and relevant) baseline measures that can help to isolate the effects of Demonstration initiatives and activities over time; and
- 3) Potential to coordinate with the UDOH's ongoing performance evaluation and monitoring efforts.

Once research questions are selected to address the Demonstration's major program goals and activities, specific variables and measures will then be identified to correspond to each research question. Finally, a process for identifying data sources that are most appropriate and efficient in answering each of the evaluation questions will be identified. The evaluation team will use all available data sources. The timing of data collection periods will vary depending on the data source, and on the specific Demonstration activity.

## **2. Target and Comparison Populations**

There are seven identified target populations in this evaluation design. Specifically, those include: 1) adults age 19-64 who are now eligible for limited preventive and primary care (PCN), 2) a reduced benefit package for Current Eligibles, 3) UPP individuals who receive premium assistance to purchase employer sponsored insurance, 4) targeted adults without dependent children, 5) former foster care youth from another state up to age 26 years, 6) blind or disabled individuals 18 years or older needing dental benefits, and 7) substance abuse disorder treatment (including residential services) for all Medicaid members.

Comparison population groups in this design will vary. For some the target population will serve as its own comparison group, where the research question will compare service utilization differences across the demonstration period. Other groups will have a comparison population from other states. Some groups may not have an appropriate comparison, based on the scope of the expanded target population.

## **3. Evaluation Period**

Data to be used for the evaluation will span the entire Demonstration period (11/1/2017 – 6/30/2022) and for targeted population groups where comparable pre-demonstration data is available, retrospective data to June 30, 2016 will be used. Similarly, where comparable target-population specific data from other states may be available, data would be analyzed from 6-30-2016 through 6-30-2022.

#### **4. Evaluation Measures**

Utah Medicaid Claims, Medicaid Data Warehouse, BRFSS health insurance questions, HEDIS Medicaid Adult Core Set measures, and Medicaid claims data from other states for potential comparison group use where appropriate.

#### **5. Data Sources**

UDOH and DSAMH (SUD-specific demonstration component) will provide a clean data file to the independent evaluator under an approved data sharing and IRB agreement.

#### **6. Analytic Methods**

A combination of quantitative statistical methods will be used for the analysis. Specific measures will be utilized for each demonstration as detailed in Table 1. While the Demonstration seeks to increase service provision and promote quality care, observed changes may be attributed to the Demonstration itself and/or external factors, including other State- or national-level policy or market changes or trends. For each Demonstration activity, a conceptual framework will be developed depicting how specific Demonstration goals, tasks, activities, and outcomes are causally connected to serve as the basis for the evaluation methodology. Methods chosen will attempt to account for any known or possible external influences and their potential interactions with the Demonstration's goals and activities. The evaluation will seek to isolate the effects of the Demonstration on the observed outcomes in several ways:

- 1) To the extent possible, credible contextual information will be gathered that attempts to isolate the contribution to any observed effects as well as describe the relative contributions of other factors that may influence the observed effects. This will include documenting any relevant legal, regulatory, or policy changes or other trends – including the sequence, scope, and duration of such changes that are likely to influence the observed outcomes.
- 2) Where possible and relevant, the evaluation will incorporate baseline measures and account for trends for each of the selected variables included in the evaluation. Data for each of the targeted variables and measures will be collected regularly so that changes in outcome measures and variables can be observed on a longitudinal basis.
- 3) The evaluation will compare rates of performance and measures with known State benchmarks, where relevant and feasible. Incorporating benchmark measures will allow for external comparisons of demonstration measures to State trends, further isolating the impacts of the Demonstration by controlling for external factors influencing the observed effects.

Each of the federally approved Demonstration waiver components are listed below as a hypotheses, followed by the associated research questions and data sources that SRI will use to conduct the evaluation.

**Table 1: Summary of Demonstration Populations, Hypotheses, Evaluation Questions, Data Sources, and Analytic Approaches.**

<b>Demonstration Population:</b> Current Eligibles - Provides a slightly reduced benefit package.						
<b>Hypothesis 1:</b> The demonstration will not negatively impact the overall well-being, in relation to health status, of Current Eligibles who experience reduced benefits and increased cost sharing.						
<b>Research Questions</b>	<b>Measure Description</b>	<b>Steward</b>	<b>Numerator</b>	<b>Denominator</b>	<b>Data Source</b>	<b>Analytic Approach</b>
<p>What benefits were they eligible to receive and what were the average health care utilization patterns associated with those benefits of those previously enrolled?</p> <p>What were the average costs each member incurred for the benefits they were eligible to receive?</p> <p><b>Post waiver implementation:</b> How many Current Eligibles maintain enrollment and how many new members are there?</p>	<p>Continuity of care pre to post waiver implementation given benefit reduction and increased cost sharing.</p>	<p>UDOH</p>	<p>Changes in enrollment over the course of the Demonstration.</p>		<p>Utah Medicaid claims, Medicaid data warehouse</p>	<p>Descriptive statistics (frequencies and percentages)</p>
			<p>Average Current Eligibles cost share yearly over the course of the Demonstration.</p>	<p>Average Current Eligibles cost share prior to beginning of Demonstration and average Current Eligibles cost share over the entire Demonstration.</p>		
			<p>Current Eligibles at year 2,3,4,5 (yearly over the course of the Demonstration).</p>	<p>Current Eligibles at year 1.</p>		



What was the average benefit utilization before and after pharmacy copays increased?			Pharmacy prescriptions per member per month after copay increase	Pharmacy prescriptions per member per month before copay increase		
<b>Demonstration Population: Primary Care Network-</b> Provides a limited package of preventive and primary care benefits to previously uninsured adults age 19-64.						
<b>Hypothesis 2a:</b> The demonstration will improve well-being in Utah by reducing the number of Utahns without coverage for primary health care.						
What is the difference between the percentages of Utah’s uninsured adults in poverty compared to non-expansion states without an equivalent Demonstration?	Reduce the number of uninsured.	UDOH	Percentage of uninsured adults in poverty in Utah.	Percentages of uninsured adults in poverty in other non-expansion states	Medicaid data warehouse, Medicaid data from other states	Descriptive statistics; chi square tests of significance. Time series analysis comparing target population differences to baseline.
<b>Hypothesis 2b:</b> The demonstration will improve well-being in Utah by improving PCN members access to primary care.						
Research Questions	Measure Description	Steward	Numerator	Denominator	Data Source	Analytic Approach
What are the average health care utilization patterns associated with new PCN members (over a six-month period, 1-year period,	Improve access to primary care.	UDOH	Changes in enrollment over the course of the Demonstration.		Utah Medicaid claims, Medicaid data warehouse, HEDIS Adult Core Set	Descriptive statistics; chi square tests of significance. Time series analysis comparing target population

<p>and over the course of the waiver)?</p> <p>What were the average costs per PCN member for the benefits they were now eligible to receive (over a six-month period, 1-year period, and over the course of the waiver)?</p> <p>How did PCN members average health care utilization patterns change (over a six-month period, 1-year period, and over the course of the waiver)?</p> <p>What are the differences in primary care utilization between traditional and non-traditional programs?</p>			PCN members at year 2,3,4,5 (yearly over the course of the Demonstration).	PCN members at year 1.		differences to baseline.
			Average cost per PCN member at year 2,3,4,5 over the course of the member's enrollment.	Average cost per PCN member in first year of enrollment.		
			Average primary care utilization cost per PCN member at year 2,3,4,5 over the course of the member's enrollment.	Average primary care utilization cost per PCN member in first year of enrollment.		
			Annual primary care utilization per PCN member over the course of the Demonstration.	Average annual primary care utilization for Current Eligibles over the course of the Demonstration.		
<b>Hypothesis 3:</b> The demonstration will reduce the number of unnecessary visits to emergency departments by PCN members.						
<b>Research Questions</b>	<b>Measure Description</b>	<b>Steward</b>	<b>Numerator</b>	<b>Denominator</b>	<b>Data Source</b>	<b>Analytic Approach</b>

<p>How does emergency department utilization differ among PCN Adults with Children, PCN Childless Adults, and Current Eligible members</p> <p>How has non-emergent utilization of emergency department changed over the course of the demonstration (over a six-month period, 1-year period, and over the course of the waiver)?</p> <p><b>Post waiver implementation:</b> How many and what percentage of PCN members utilize emergency department visits (over a six-month, 1-year period, and over the course of the waiver)?</p>	<p>Reduce non-emergent ER visits</p>	<p>UDOH</p>	<p>Emergency department (ED) utilization per PCN member at year 2,3,4,5 over the course of the member’s enrollment.</p>	<p>Emergency department (ED) utilization per PCN member in first year of enrollment.</p>	<p>Utah Medicaid claims, Medicaid data warehouse, HEDIS Adult Core Set</p>	<p>Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population differences to baseline.</p>
			<p>Non-Emergent ED utilization per PCN member at year 2,3,4,5 over the course of the member’s enrollment.</p>	<p>Non-Emergent ED utilization per PCN member in first year of enrollment.</p>		
			<p>Annual ED utilization per PCN member over the course of the Demonstration.</p>	<p>Average annual ED utilization for Current Eligibles over the course of the Demonstration.</p>		
<p><b>Demonstration Population – UPP Enrollees.</b> Previously uninsured parents and adults without dependent children, and CHIP children who use the premium subsidy to enroll in private, employer-sponsored health insurance.</p>						
<p><b>Hypothesis 4:</b> The demonstration will assist previously uninsured individuals in obtaining employer-sponsored health insurance.</p>						

How many UPP members' insurance premiums were paid?	Increasing the number of uninsured who obtain employer-sponsored health insurance	UDOH	Members receiving assistance obtaining employer-sponsored health insurance at year 2,3,4,5 (yearly over the course of the Demonstration).	Members receiving assistance obtaining employer-sponsored health insurance at year 1 (beginning of Demonstration).	Utah Medicaid claims, Medicaid data warehouse	Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population differences to baseline.
What was the total cost of the assistance provided per insured?			Total cost of assistance provided for members at year 2,3,4,5 (yearly over the course of the Demonstration).	Total cost of assistance provided for members at year 1 (beginning of Demonstration).		
<b>Demonstration Population</b> – Targeted Adults. Provides state plan Medicaid benefits to a targeted group of adults without dependent children.						
<b>Hypothesis 5:</b> The demonstration will reduce the number of uninsured Utahns.						
What is the number of individuals covered under this demonstration population who were previously ineligible for Medicaid coverage?	Reduce the number of uninsured.		Targeted adults enrolled over the course of the Demonstration.		Medicaid data warehouse, HEDIS Adult Core Set	Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population pre / post to regional or national averages
<b>Hypothesis 6:</b> The demonstration will improve access to primary care, while also improving the overall health status of the target population.						

<p>What were historical patterns for primary care utilization in Utah?</p> <p>How many and what percentage of the Targeted Adult population had access to primary care services?</p> <p>How many and what percent of other Medicaid members had access to primary care?</p> <p>What primary care services were utilized by targeted adult members?</p> <p>What were the costs associated with these primary care services?</p>	<p>Improve access to primary care.</p>	<p>UDOH</p>	<p>Average primary care utilization rate per Targeted Adult member at year 2,3,4,5 over the course of the member’s enrollment.</p>	<p>Average primary care utilization cost per Targeted Adult member in first year of enrollment.</p>	<p>Utah Medicaid claims, BRFSS insurance questions, HEDIS Adult Core Set</p>	<p>Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population pre / post to regional or national averages</p>
			<p>Average cost per Targeted Adult member at year 2,3,4,5 over the course of the member’s enrollment.</p>	<p>Average cost per Targeted Adult member in first year of enrollment.</p>		
<p><b>Hypothesis 7:</b> The demonstration will reduce the number of non-emergent Emergency Room visits for the chronically homeless population.</p>						
<p>How many and what percentage of the chronically homeless utilized emergency departments?</p>	<p>Reduce non-emergent ER visits</p>	<p>UDOH</p>	<p>Chronically homeless members’ emergency department costs at year 2, 3, 4, 5 over the course of the Demonstration.</p>	<p>Chronically homeless members’ emergency department costs at year 1 (beginning of Demonstration).Baseline in year 1 and compare against that in subsequent years</p>	<p>Utah Medicaid claims, Medicaid data from other states, HEDIS Adult Core Set</p>	<p>Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population pre / post</p>

<p>What were the costs associated with these emergency department visits? What were the health care procedures provided by emergency departments?</p> <p>What is the utilization of both <i>emergent</i> and <i>non-emergent</i> services for the chronically homeless?</p>			<p>Changes over the course of the Demonstration among chronically homeless members and emergency department visits at year 2,3,4,5 (yearly over the course of the Demonstration).</p>	<p>Changes over the course of the Demonstration among chronically homeless and emergency department visits at year 1 (beginning of Demonstration).</p>		<p>to regional or national averages</p>
			<p>Most commonly experienced diagnoses in emergency departments by chronically homeless members, the associated costs, and changes over time.</p>			
			<p>Chronically homeless <i>non-emergent</i> utilization of emergency department costs at year 2,3,4,5 (yearly over the course of the Demonstration).</p>	<p>Chronically homeless <i>non-emergent</i> utilization of emergency department costs at year 1 (beginning of Demonstration).</p>		

**Hypothesis 8:** The demonstration will reduce uncompensated care provided by Utah hospitals.

<p>What were historical costs associated with uncompensated care in Utah hospitals?</p>	<p>Reduce uncompensated care costs</p>	<p>UDOH</p>	<p>Total cost of uncompensated care provided at year 1, 2,3,4,5 (yearly over the course of the Demonstration).</p>	<p>Total cost of uncompensated care prior to Demonstration.</p>	<p>Hospital Costs Reports</p>	<p>Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population pre / post to regional or national averages</p>
<p><b>Demonstration Population – Blind and Disabled Dental</b></p>						
<p><b>Hypothesis 9:</b> The demonstration will reduce the number of individuals who have an emergency dental procedure performed, while increasing the number of members who have a preventive dental service.</p>						
<p>What were historical utilization for members’ emergency dental procedures?  What were the costs associated with these</p>	<p>Improve preventive dental services and reduce emergency dental procedure costs.</p>		<p>Changes in dental services and costs 1, 2,3,4,5 (yearly over the course of the Demonstration).</p>	<p>N/A</p>	<p>Utah Medicaid claims</p>	<p>Descriptive statistics.</p>

<p>emergency dental procedures?</p> <p>What were the historical patterns of preventive dental services?</p> <p>What were the total and per capita costs associated with these preventive dental services?</p>				<p>Average preventive dental care cost per Blind/Disabled Adult member at year 2,3,4,5 over the course of the member's enrollment.</p>		<p>Average preventive dental care cost per Blind/Disabled Adult member in the member's first year of enrollment.</p>		
---	--	--	--	--	--	--	--	--



## D. METHODOLOGICAL LIMITATIONS

The first potential limitation is ensuring each individual analysis is based on unduplicated data. SRI staff will work closely with Utah Medicaid data personnel to avoid duplication. The second limitation has to do with involves making comparisons between Utah Medicaid data and CMS' Medicaid Adult Core Set due to the voluntary nature of submission to NCQA and specification differences with the core set measures. Despite the latter limitation, having a benchmark can be very useful to place state-level in a national and regional context.

## E. SPECIAL METHODOLOGICAL CONSIDERATIONS

There are a few special considerations that are applicable in this demonstration evaluation. These are limitations that prevent the use of a target population from being used for comparison purposes due to the longstanding history of the benefits package. For example both PCN and the benefit package for Current Eligibles are longstanding programs in Utah that have been shown to adequately provide an array of services designed to meet the needs of those groups. Due to their longevity, it will prevent them from being used as a viable comparison group for these components of the Demonstration. Additionally, although we plan to explore the possibility of using data from similar populations in other states without a Demonstration, as comparison group, we have not examined the specific benefit packages in detail to determine the feasibility of this approach.

## F. ATTACHMENTS

### A. Independent Evaluator

The Social Research Institute (SRI) will conduct all activities related to this proposal to fulfill the evaluation requirements of Utah's 1115 PCN Waiver, with specific emphasis on conducting data analysis to ensure timely reporting. SRI was established in 1982 as the research arm of the College of Social Work. Its goal is to be responsive to the needs of community, state, national and international service systems and the people these systems serve. Through collaborative efforts, SRI facilitates innovative research, training and demonstration projects. SRI provides technical assistance and research services in the following functional areas: conducting quantitative and qualitative research; designing and administering surveys; analyzing and reporting data analysis; designing and conducting needs assessments of public health and social service problems and service systems; planning and implementing service delivery programs; evaluating program and policy impacts; training in research methods and data analysis; providing technical assistance.

SRI staff are experienced in complying with state and federal laws regarding protecting human subjects and assuring confidentiality of data. SRI will complete the required IRB applications for this project

including any data sharing agreements that may be necessary. SRI staff comply with generally accepted procedures to safeguard data by ensuring all data is stored on password protected and encrypted computers. Specifically, we use two-factor authentication (2FA) verification as an extra layer of security. All data collection and analysis SRI is responsible for will be based on the agreed upon data collection plan and in accordance with HIPAA-compliant data management systems available to University of Utah researchers.

#### Data Security and Storage

SRI will store UDOH's Medicaid (HIPAA transaction set) in the University's REDCap application. REDCap is a secure database with the ability to create web-accessible forms, continuous auditing, and a flexible reporting system. Controls within REDCap allow researchers to specify differential levels of data access to individuals involved with a REDCap project, including restrictions to HIPAA-sensitive identifiers. REDCap is located on a secure, 21 CFR Part 11 compliant server farm within the Center for High Performance Computing (CHPC) at University of Utah. Data are backed up every hour with the hourly backups being incorporated into the regular backup-recovery data process (nightly, weekly, and monthly), which includes off-site storage. Routine data recovery and disaster recovery plans are in place for all research data. During analysis, de-identified data may be maintained on University of Utah-encrypted computers or hard-drives in compliance with University policy.

#### Independent Evaluator Selection Process

SRI staff have contracted with the Utah Department of Human Services, Division of Child and Family Services (DCFS) to evaluation their IV-E waiver demonstration project for the past 4 years. Simultaneously, SRI also served as the independent evaluator for the State of Idaho's IV-E waiver demonstration for two years. Within the past year, key research staff from DCFS who were familiar with the work performed by SRI staff changed jobs and now work for UDOH Office of Health Care Statistics. As result, when UDOH was trying to locate an independent evaluator a referral was provided and several preliminary meetings and discussions were held. This led to SRI developing a proposal for UDOH to conduct the Demonstration evaluation.

The research team will consist of Rodney W. Hopkins, M.S., Research Assistant Professor, Matt Davis, Ph.D. Associate Professor, Kristen West, MPA., Senior Research Analyst, and Jennifer Zenger, BA, Project Administrator.

Mr. Hopkins in an Assistant Research Professor and has 25 years' experience in conducting program evaluations for local, state, and federal agencies. He has an M.S. and will be the project lead, with responsibility for evaluation design and implementation, data collection, and reporting. He will be .15 FTE.

Dr. Davis is a Clinical Psychologist with expertise in implementation science and program evaluation. He will be .05 FTE on this project.

Kristen West, MPA (.15 FTE) is a Senior Research Analyst with experience conducting multi-year program evaluations for DCFS and JJS. She has expertise with a variety of statistical software programs to analyze data including multi-level regression models, linear regression, and descriptive statistics (SPSS and R). She also has experience developing and data visualization dashboards.

Jennifer Zenger (.05 FTE) is SRI's Project Administrator and has 25 years' experience in budgeting, accounts payable, and working with state and federal agencies. She will be responsible for contract setup, monitoring, and accounting services. The conflict of interest document is attached.

## A. Evaluation Budget

Projected costs for the waiver evaluation are detailed below. Costs include all personnel (salary + benefits), study related costs (mileage), and university indirect (reduced from 49.9% to 14.8% state rate). Year 1 budget begins April 1, 2018 and ends June 30, 2018. Year 2-5 are based on the state fiscal year. An additional 90-day period has also been included, during which SRI will complete the Year 5 Annual Report, Waiver Final Report, and SUD Final Report.

Table 1. Proposed budget

Salaries	ABA	FTE	SALARY	BENEFITS	YEAR I	YEAR II	YEAR III	YEAR IV	YEAR V	90-DAY
<b>Faculty</b>										
Matt Davis	\$102,000	5%	\$ 5,100	\$ 2,059	\$ 1,785	\$ 7,283	\$ 7,428	\$ 7,577	\$ 7,729	\$ 1,971
Rod Hopkins	\$ 91,997	15%	\$ 13,800	\$ 5,877	\$ 4,919	\$ 20,170	\$ 20,471	\$ 20,880	\$ 21,298	\$ 5,431
			\$ 18,900	\$ 7,936	\$ 6,704	\$ 27,453	\$ 27,899	\$ 28,457	\$ 29,027	\$ 7,402
<b>Staff</b>										
Kristen West	\$ 57,222	15%	\$ 8,583	\$ 3,433	\$ 3,004	\$ 12,257	\$ 12,502	\$ 12,752	\$ 13,007	\$ 3,318
Jennifer Zenger	\$ 85,435	5%	\$ 4,272	\$ 1,709	\$ 1,495	\$ 6,100	\$ 6,222	\$ 6,347	\$ 6,473	\$ 1,650
			\$ 12,855	\$ 5,142	\$ 4,499	\$ 18,357	\$ 18,724	\$ 19,099	\$ 19,481	\$ 4,968
Total Staff					\$4,499	\$18,357	\$ 18,724	\$ 19,099	\$ 19,481	\$ 4,968
Total Faculty Salaries					\$6,704	\$27,453	\$ 27,899	\$ 28,457	\$ 29,027	\$ 7,402
Total Fringe Benefits					added in above	added in above	added in above	added in above	added in above	
Travel (1 trip per month to UDOH & DSAMH)					\$65	\$250	\$250	\$250	\$ 250	\$ 65
<b>Total Direct</b>					<b>\$11,268</b>	<b>\$46,060</b>	<b>\$ 46,874</b>	<b>\$ 47,806</b>	<b>\$ 48,757</b>	<b>\$ 12,435</b>
<b>Indirect (F&amp;A) Cost</b>				14.80%	<b>\$1,668</b>	<b>\$ 6,817</b>	<b>\$ 6,937</b>	<b>\$ 7,075</b>	<b>\$ 7,216</b>	<b>\$ 1,840</b>
<b>Grand Total</b>					<b>\$12,936</b>	<b>\$52,877</b>	<b>\$ 53,811</b>	<b>\$ 54,881</b>	<b>\$ 55,973</b>	<b>\$244,754</b>

## Budget Narrative

Rodney Hopkins, M.S., Assistant Research Professor will be the lead on this project and will be responsible for day-to-day activities. He will work (.15 FTE) closely with UDOH and DSAMH staff to ensure appropriate data is available to answer the research questions and execute the data analysis and

reporting. Dr. Davis (.05 FTE) will bring his considerable experience with quantitative analysis to this project. Kristen West, MPA, Senior Research Analyst (.15 FTE) will assist with data analysis and reporting, including data visualization. Jennifer Zenger (.05 FT) is SRI’s Project Administrator. She oversees contract monitoring and the budget.

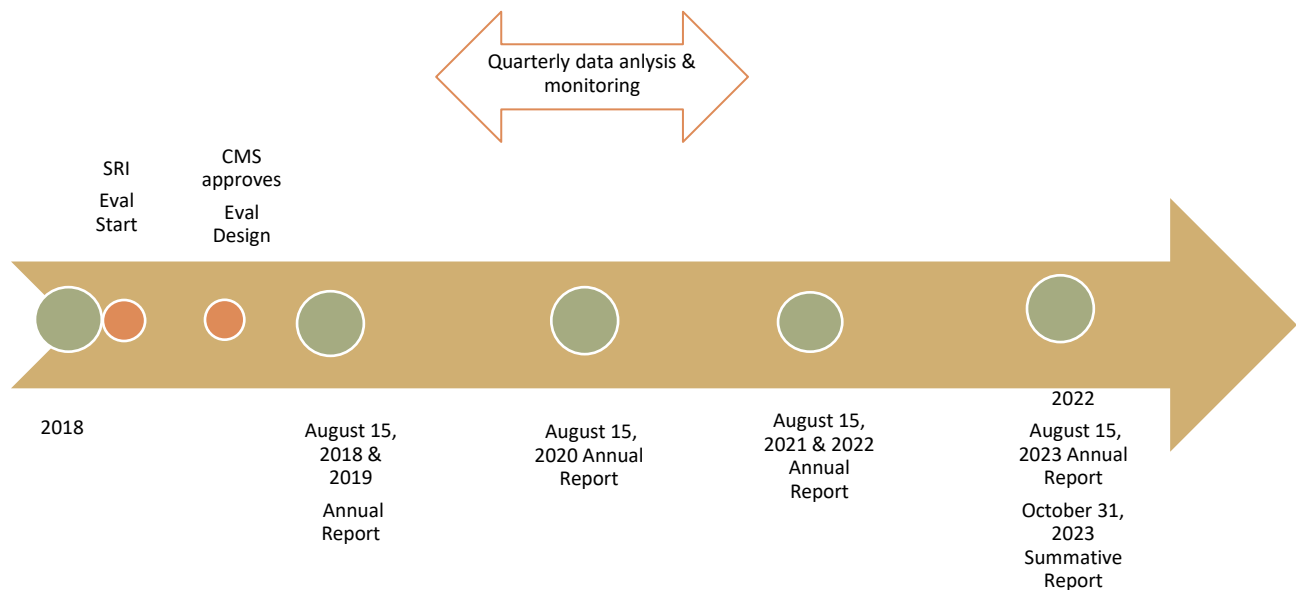
A strength this team brings to the project will be its ability to conduct a thorough and accurate data analysis and provide a professional report that will address each component of the waiver demonstration. Salaries calculated include a 2% increase as of July 1 of each year. University of Utah benefits are calculated at 40%. Year 1 is only a 6-month budget (April 1, 2018 – Sept. 30, 2018).

Local travel will be needed for SRI faculty and staff to attend meetings with UDOH and DSAMH staff. We anticipate one meeting per month.

UDOH state agency to state agency indirect costs calculated at 14.8%.

### B. Timeline and Major Milestones

Figure 2. Waiver Evaluation Timeline



# UTAH 1115 PRIMARY CARE NETWORK DEMONSTRATION WAIVER

# SUBSTANCE USE DISORDER EVALUATION DESIGN

Prepared by: Matt Davis, PhD  
Rodney W. Hopkins, M.S.  
Kristen West, MPA



## INTRODUCTION

In October 2017, the Utah Department of Health (UDOH), Division of Medicaid and Health Financing (DMHF) received a five-year extension to its 1115 Primary Care Network (PCN) Demonstration Waiver. This extension adds covered benefits and continues providing health coverage to eight vulnerable population groups, some of whom are not eligible for Medicaid under the state plan.

This proposal will both track the general performance of the 1115 waiver and evaluate demonstration impacts and outcomes. Results of the evaluation will be presented in a series of annual reports, as well as interim and final evaluation reports. This draft proposal identifies the general design and approach of the evaluation in response to the required Special Terms and Conditions (STC's).

### A. GENERAL BACKGROUND INFORMATION

Utah's 1115 PCN Demonstration Waiver (hereinafter referred to as "Demonstration") is a statewide waiver that was originally approved on February 8, 2002 and implemented on July 1, 2002. Since that time, the Demonstration has been extended and amended several times to add additional benefits and Medical programs. Most recently, the Demonstration was amended and approved on October 31, 2017 with an approval period through June 30, 2022. The evaluation will cover the Demonstration approval period.

#### Waiver Population Groups

The Demonstration authorizes the State of Utah to administer the following medical programs and benefits:

- PCN Program (Demonstration Population I) - Provides a limited package of preventive and primary care benefits to adults age 19-64.
- Current Eligibles - Provides a slightly reduced benefit package for adults receiving Parent/Caretaker Relative (PCR) Medicaid.
- Utah's Premium Partnership Program (UPP) (Demonstration Populations III, V & VI) - Provides premium assistance to pay the individual's or family's share of monthly premium costs of employer sponsored insurance or COBRA.
- Targeted Adult Medicaid- Provides state plan Medicaid benefits to a targeted group of adults without dependent children.
- Former Foster Care Youth from Another State- Provides state plan Medicaid benefits to former foster care youth from another state up to age 26.
- Dental Benefits for Individuals who are Blind or Disabled- Provides dental benefits to individuals age 18 and older with blindness or disabilities.
- Substance Use Disorder (SUD) Residential Treatment- Allows the State to provide a broad continuum of care which includes SUD residential treatment in an Institution for Mental Disease (IMD) for all Medicaid eligible individuals.

This Evaluation Design will focus on the SUD component of the Demonstration which provides a broad continuum of care for all Medicaid eligible individuals. This is an important Medicaid addition due to the significant impact substance use disorders have on the health and well-being of Utahans.

### Substance Use Disorders in the United States

Behavioral health disorders, which include substance use and mental health disorders, affect millions of adolescents and adults in the United States and contribute heavily to the burden of disease.<sup>1,2,3</sup> Illicit drug use, including the misuse of prescription medications, affects the health and well-being of millions of Americans. Cardiovascular disease, stroke, cancer, infection with the human immunodeficiency virus (HIV), hepatitis, and lung disease can all be affected by drug use. Some of these effects occur when drugs are used at high doses or after prolonged use. However, other adverse effects can occur after only one or a few occasions of use.<sup>4</sup> Addressing the impact of substance use alone is estimated to cost Americans more than \$600 billion each year.<sup>5</sup>

Reducing SUD and related problems is critical to Americans' mental and physical health, safety, and quality of life. SUDs occur when the recurrent use of alcohol or other drugs (or both) causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home. These disorders contribute heavily to the burden of disease in the United States. Excessive substance use and SUDs are costly to our nation due to lost productivity, health care, and crime.<sup>6,7,8</sup> Approximately 23.3 million people aged 12 or older in 2016 had SUDs in the past year, including 15.6 million people with an alcohol use disorder and 7.4 million people with an illicit drug use disorder.<sup>9</sup>

Among those dealing with SUDs, opioid misuse, overdose and addiction, occurs in only a subset of individuals prescribed opioid medications for pain relief. However, because many individuals take opioids, the number of Americans affected is significant. According to the Centers for Disease Control and Prevention (CDC), deaths due to prescription opioid pain medication overdose in the US have more than quadrupled from 1999 to 2011.<sup>10</sup> In addition to the increase in drug-related deaths, the rise in opioid prescribing has led to increases in the prevalence of opioid use disorder.<sup>11</sup> Other research has demonstrated that the so-called opioid epidemic has a disproportionate impact on Medicaid beneficiaries. Medicaid beneficiaries are prescribed painkillers at twice the rate of non-Medicaid patients and are at three-to-six times the risk of prescription painkillers overdose.<sup>12,13</sup> North Carolina found that while the Medicaid population represented approximately 20 percent of the overall state population, it accounted for one-third of drug overdose deaths, the majority of which were caused by prescription opioids.<sup>14</sup> One study from the state of Washington found that 45 percent of people who died from prescription opioid overdoses were Medicaid enrollees.<sup>15</sup>

### Substance Use Disorders in Utah

According to the 2016 National Survey of Drug Use and Health, in Utah there were an estimated 134,764 adults in need of treatment for alcohol and/or drug dependence or abuse.<sup>16</sup> For youth in grades 6 through 12 in 2017 there were 11,804 in need of treatment. However, only 13,780 adults and 1,179 youth

received SUD treatment services in FY 2017.<sup>17</sup> Of those in treatment, 46% received outpatient, 21% received intensive outpatient, 21% participated in detox, and 12% participated in residential treatment. Seventy-one percent of those in treatment were retained for 60 or more days. In 2017, Opioids were the top drug of choice at admission (32%).<sup>18</sup>

Utah has experienced a sharp increase in opioid related deaths since 2000. Recent data suggests that the number of deaths due to opioids peaked initially in 2007, then showed a promising decreasing trend through 2010, before increasing dramatically once more from 2011 through 2015. Emergency department encounters data over the same timeframe shows a steady increase through 2012, with a small decrease observed from 2012 to 2014. Males accounted for approximately 60% of opioid deaths in 2013, but the gap between males and females has shrunk so that by 2015 males accounted for only 54% of deaths. For emergency department encounters, the opposite has been true. In the past, females have traditionally accounted for more visits than males. However, similar to the death data, the gap between females and males has been closing. In 2014, the percentage of emergency department encounters for males and females was essentially even (50.3% vs. 49.7% for females and males, respectively).<sup>19</sup>

However, SUDs are preventable and treatable. The Utah State Division of Substance Abuse and Mental Health (DSAMH) has statutory oversight of substance abuse and mental health treatment services statewide through local county authority programs. SUD services are available to all Medicaid members statewide. A full continuum of SUD services becomes even more critical in an effort to address the needs of Medicaid members.<sup>20</sup>

## **B. EVALUATION QUESTIONS & HYPOTHESES**

The primary goals of the waiver are to increase access, improve quality, and expand coverage to eligible Utahans. To accomplish these goals, the Demonstration includes several key activities including enrollment of new populations, quality improvement, and benefit additions or changes. This evaluation plan will describe how the University of Utah's Social Research Institute (SRI) will document the implementation of the key goals of the Demonstration, the changes associated with the waiver including the service outputs, and most importantly, the outcomes achieved over the course of the Demonstration.

### **Evaluation Purpose**

SRI will conduct an evaluation of the Utah 1115 PCN Demonstration Waiver by establishing research questions and a study design that is responsive to the hypotheses identified by UDOH. SRI will collaborate with UDOH and DSAMH to obtain the appropriate data to conduct the analysis needed to complete the required evaluation reports on an annual basis, and at each subsequent renewal or extension of the demonstration waiver. This includes an evaluation of the overall waiver and the SUD component. The SUD evaluation is addressed in this document.



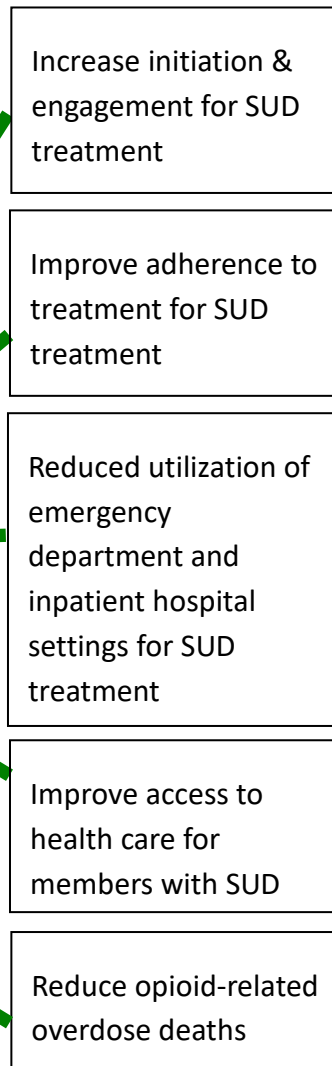
**Driver Diagram**

**Aim: 1115 Demonstration Waiver SUD treatment will improve health and decrease the cost of health care for members**

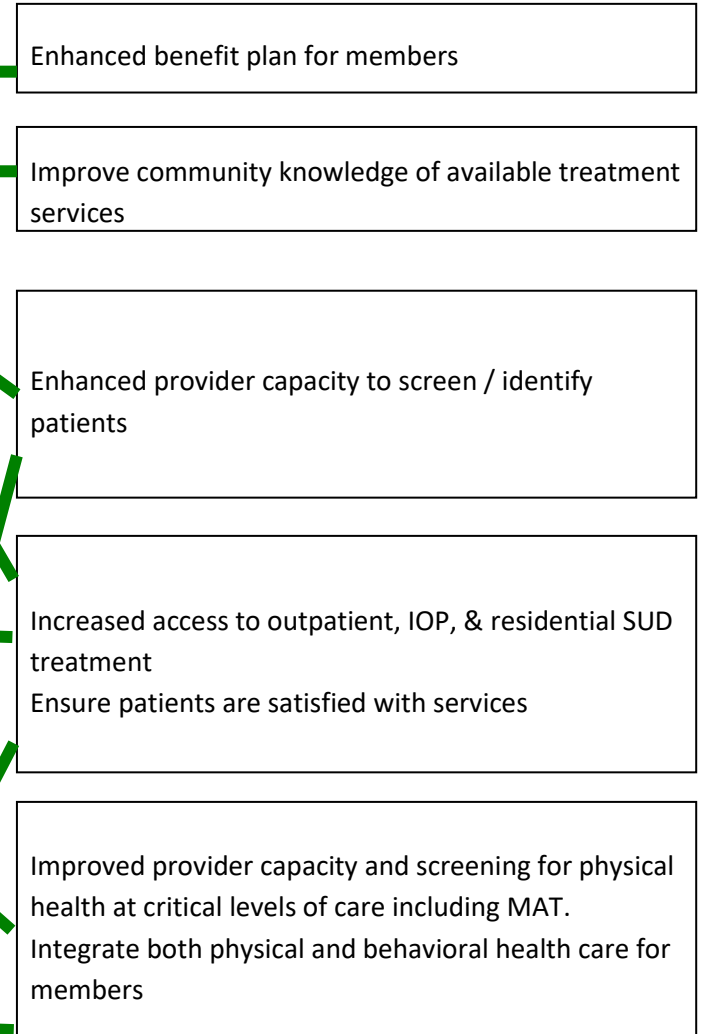
Outcome Measures:

- 1. Increased access to SUD treatment
- 2. Increased utilization of SUD treatment
- 3. Improved health outcomes in SUDs members

**Primary Drivers**



**Secondary Drivers**

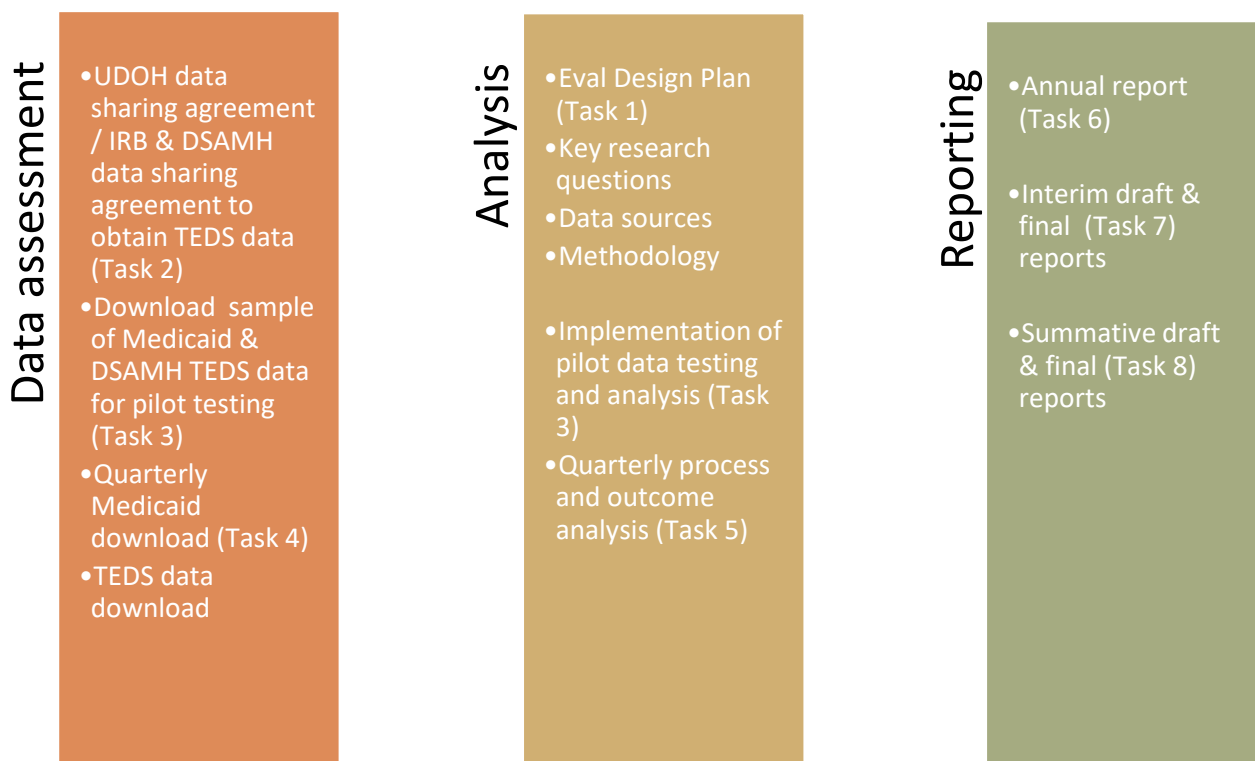


## C. METHODOLOGY

### Evaluation Approach

To evaluate the different components of the waiver demonstration, we envision three main phases of work: (1) data assessment and collection, (2) analysis, and (3) reporting. The last phase will include both reporting of waiver findings to UDOH in response to the STC's and also providing written summary reports for submission to the Centers for Medicare and Medicaid Services (CMS). The first key task—development of the evaluation design plan—appears at the top of Figure 1. This plan will specify the key research questions the evaluation will address for each demonstration component, as well as the primary data sources and methodologies that will be used. This plan will guide decision making at all levels of the study and drive the content of the reporting tasks.

**Figure 1. Project vision**



### 1. Evaluation Design

Due to the unique target population groups included in the Demonstration evaluation, a combination of design approaches will be implemented. For example, for some targeted groups a traditional pre / post comparison will be an option. While other groups will consist of a post-only assessment where the target population will serve as its own comparison group. Finally, for other targeted groups we are exploring the potential of using a comparison group(s) from other states with similar target populations. A time series design will be employed for most of the individual analysis using pre-Demonstration as a baseline where possible and then using the first year as baseline where no pre-Demonstration data are available due to the nature of the individual target population.

The specific evaluation questions to be addressed are based on the following criteria:

- 1) Potential for improvement, consistent with the key goals of the Demonstration;
- 2) Potential for measurement, including (where possible and relevant) baseline measures that can help to isolate the effects of Demonstration initiatives and activities over time; and
- 3) Potential to coordinate with the UDOH's ongoing performance evaluation and monitoring efforts.

Once research questions are selected to address the Demonstration's major program goals and activities, specific variables and measures will then be identified to correspond to each research question. Finally, a process for identifying data sources that are most appropriate and efficient in answering each of the evaluation questions will be identified. The evaluation team will use all available data sources. The timing of data collection periods will vary depending on the data source, and on the specific Demonstration activity.

## **2. Target and Comparison Populations**

The target population includes any Medicaid beneficiary with a SUD.

Comparison population groups in this design will be comprised of the target population, which will serve as its own comparison group longitudinally, where the research question will compare service utilization differences across the demonstration period. The other group that could be used as a comparison population for some of the service categories would be members who previously received SUD treatment services without access to an IMD.

## **3. Evaluation Period**

Data to be used for the evaluation will span the entire Demonstration period (11/1/2017 – 6/30/2022) and for targeted population group and where pre-demonstration data is available for matching SUDs, data prior to the Demonstration will be used.

## **4. Evaluation Measures**

Utah Medicaid Claims, Medicaid Data Warehouse, and DSAMH Treatment Episode Data Set (TEDS) Admission and Discharge data will be used.

## **5. Data Sources**

UDOH and DSAMH will provide a clean data file to the independent evaluator under an approved data sharing and IRB agreement.

## **6. Analytic Methods**

A combination of quantitative statistical methods will be used for the analysis. Specific measures will be utilized for each demonstration as detailed in Table 1. While the Demonstration seeks to increase service provision and promote quality care, observed changes may be attributed to the Demonstration itself and/or external factors, including other State- or national-level policy or market changes or trends. For each Demonstration activity, a conceptual framework will be developed depicting how specific Demonstration goals, tasks, activities, and outcomes are causally connected to serve as the basis for the evaluation methodology. Methods chosen will attempt to account for any known or possible external influences and their potential interactions with the Demonstration's goals and activities. The evaluation will seek to isolate the effects of the Demonstration on the observed outcomes in several ways:

- 1) To the extent possible, credible contextual information will be gathered that attempts to isolate the contribution to any observed effects as well as describe the relative contributions of other factors that may influence the observed effects. This will include documenting any relevant legal, regulatory, or policy changes or other trends – including the sequence, scope, and duration of such changes that are likely to influence the observed outcomes.
- 2) Where possible and relevant, the evaluation will incorporate baseline measures and account for trends for each of the selected variables included in the evaluation. Data for each of the targeted variables and measures will be collected regularly so that changes in outcome measures and variables can be observed on a longitudinal basis.
- 3) The evaluation will compare rates of performance and measures with known State benchmarks, where relevant and feasible. Incorporating benchmark measures will allow for external comparisons of demonstration measures to State trends, further isolating the impacts of the Demonstration by controlling for external factors influencing the observed effects.

The SUD Demonstration waiver component is listed below as a series of hypotheses, followed by the associated research questions and data sources that SRI will use to conduct the evaluation.

**Table 1: Summary of Demonstration Populations, Hypotheses, Evaluation Questions, Data Sources, and Analytic Approaches.**

<b>Evaluation Question: Does the demonstration increase access to and utilization of SUD treatment services?</b>						
<b>Demonstration Goal: Increased rates of identification, initiation, and engagement in treatment for SUDs.</b>						
<b>Evaluation Hypothesis: The demonstration will increase the percentage of members who are referred and engage in treatment for SUDs.</b>						
Driver	Measure Description	Steward	Numerator	Denominator	Data Source	Analytic Approach
Primary Driver <i>(Increase the rates of initiation and engagement in treatment for SUDs)</i>	Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	NQF #0004	Initiation: number of patients who began initiation of treatment through an inpatient admission, outpatient visits, intensive outpatient encounter or partial hospitalization within 14 days of the index episode start date	Patients who were diagnosed with a new episode of alcohol or drug dependency during the first 10 and ½ months of the measurement year	Medicaid claims data / DSAMH TEDS data	Descriptive statistics (frequencies and percentages); chi square tests of significance. Time series analysis comparing target population differences to baseline and to the comparison group
			Engagement: Initiation of treatment and two or more inpatient admissions, outpatient visits, intensive outpatient encounters or partial hospitalizations with any alcohol or drug diagnosis within 30 days after the date of the initiation encounter	Patients who were diagnosed with a new episode of alcohol or drug dependency during the first 10 and ½ months of the measurement year		
Secondary Drivers <i>(Enhance provider and plan capabilities to screen/identify patients for engagement and intervention; Improve community knowledge of available treatment and services)</i>	Community knowledge of available treatment and services	Medicaid DSAMH	Beneficiary survey Adult SUD consumer satisfaction survey		Beneficiary Survey / Adult consumer satisfaction survey	Descriptive statistics

<b>Demonstration Goal: Increased adherence to and retention in treatment for SUDs.</b>						
<b>Evaluation Hypothesis: The demonstration will increase the percentage of members who adhere to treatment of SUDs.</b>						
Primary Drivers <i>(Increase the rates of initiation and engagement in treatment for OUD and SUDs; Improve adherence to treatment for SUDs)</i>	Continuity of Pharmacotherapy for OUD	NQF #3175	Number of members who have at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than seven days	Members who had a diagnosis of OUD and at least one claim for an OUD medication	Medicaid claims data / DSAMH TEDS data	Descriptive statistics (frequencies and percentages); chi square tests of significance. Time series analysis comparing target population differences to baseline and to the comparison group
	Percentage of members with a SUD diagnosis including those with OUD who used services per month	N/A	Number of members who receive a service during the measurement period by service type	Number of members		
Secondary Drivers <i>(Increase access to outpatient, intensive outpatient, and residential treatment for SUD; Improve care coordination and transitions between levels of care)</i>	Length of engagement in treatment	NBHQF Goal 1	Number of members completing 4 <sup>th</sup> treatment session within 30 days	Number of members receiving treatment		
Secondary Driver <i>(Ensure patients are satisfied with services)</i>	Patient experience of care	DSAMH	Adult SUD consumer satisfaction survey		Beneficiary survey / Adult consumer satisfaction survey	Descriptive statistics

<b>Demonstration Goal: Reduced utilization of emergency department and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate through improved access to other continuum of care services.</b>						
<b>Evaluation Hypothesis: The demonstration will decrease the rate of emergency department and inpatient visits within the beneficiary population for SUD.</b>						
Primary Drivers <i>(Reduced utilization of emergency department and inpatient hospital settings for SUD treatment)</i>	Emergency department visits for SUD-related diagnoses and specifically for OUD	NQF 2605	An outpatient visit, intensive outpatient encounter or partial hospitalization with any provider with a primary diagnosis of alcohol or other drug dependence within 7/30 days after emergency department discharge	Members treated and discharged from an emergency department with a primary diagnosis of alcohol or other drug dependence in the measurement year/1000 member months	Medicaid claims data / DSAMH TEDS data	Descriptive statistics (frequencies and percentages); chi square tests of significance. Time series analysis comparing target population differences to baseline and to the comparison group
	Inpatient admissions for SUD and specifically OUD	N/A	Number of members with an inpatient admission for SUD and specifically for OUD	Total number of members/1000 member months		
<b>Evaluation Question: Do members receiving SUD services experience improved health outcomes?</b>						
<b>Demonstration Goal: Improved access to care for physical health conditions among members.</b>						
<b>Evaluation Hypothesis: The demonstration will increase the percentage of members with SUD who experience care for comorbid conditions.</b>						
Primary Drivers <i>(Improve access to care for co-morbid physical health conditions among beneficiaries with SUD)</i>	Number of routine office visits by people with SUD	N/A	Number of members with an SUD diagnosis, and specifically those with OUD, who access physical health care.	Total number of members	Medicaid claims data /	Descriptive statistics; chi square tests of significance comparing target population to baseline and to the comparison group

<b>Evaluation Question: Are rates of opioid-related overdose deaths impacted by the demonstration?</b>						
Demonstration Goal: Reduction in overdose deaths, particularly those due to opioids.						
Evaluation Hypothesis: The demonstration will decrease the rate of overdose deaths due to opioids.						
Primary Driver ( <i>Reduce opioid-related opioid overdose deaths</i> )	Rate of overdose deaths, specifically overdose deaths due to any opioid	N/A	Number of overdose deaths per month and per year	Number of members/1000	Medicaid claims data /	Descriptive statistics; chi square tests of significance comparing target population to baseline and to the comparison group



## D. METHODOLOGICAL LIMITATIONS

The first potential limitation is ensuring each individual analysis is based on unduplicated data. SRI staff will work closely with Utah Medicaid data personnel and DSAMH to ensure the data used for final analysis is as accurate as possible and that error in matching the TEDS Admission and Discharge data set to Medicaid claims data has been minimized to avoid duplication. The second limitation is the potential for error in utilizing SUD members prior to the Demonstration for a comparison group.

## E. ATTACHMENTS

### A. Independent Evaluator

The Social Research Institute (SRI) will conduct all activities related to this proposal to fulfill the evaluation requirements of Utah's 1115 PCN Waiver with specific emphasis on conducting data analysis to ensure timely reporting. SRI was established in 1982 as the research arm of the College of Social Work. Its goal is to be responsive to the needs of community, state, national and international service systems and the people these systems serve. Through collaborative efforts, SRI facilitates innovative research, training and demonstration projects. SRI provides technical assistance and research services in the following functional areas: conducting quantitative and qualitative research; designing and administering surveys; analyzing and reporting data analysis; designing and conducting needs assessments of public health and social service problems and service systems; planning and implementing service delivery programs; evaluating program and policy impacts; training in research methods and data analysis; providing technical assistance.

SRI staff are experienced in complying with state and federal laws regarding protecting human subjects and assuring confidentiality of data. SRI will complete the required IRB applications for this project including any data sharing agreements that may be necessary. SRI staff comply with generally accepted procedures to safeguard data by ensuring all data is stored on password protected and encrypted computers. Specifically, we use two-factor authentication (2FA) verification as an extra layer of security. All data collection and analysis SRI is responsible for will be based on the agreed upon data collection plan and in accordance with HIPAA-compliant data management systems available to University of Utah researchers.

#### Data Security and Storage

SRI will store UDOH's Medicaid (HIPAA transaction set) in the University's REDCap application. REDCap is a secure database with the ability to create web-accessible forms, continuous auditing, and a flexible reporting system. Controls within REDCap allow researchers to specify differential levels of data access to individuals involved with a REDCap project, including restrictions to HIPAA-sensitive identifiers. REDCap is located on a secure, 21 CFR Part 11 compliant server farm within the Center for High Performance Computing (CHPC) at University of Utah. Data are backed up every hour with the

hourly backups being incorporated into the regular backup-recovery data process (nightly, weekly, and monthly), which includes off-site storage. Routine data recovery and disaster recovery plans are in place for all research data. During analysis, de-identified data may be maintained on University of Utah-encrypted computers or hard-drives in compliance with University policy.

#### Independent Evaluator Selection Process

SRI staff have contracted with the Utah Department of Human Services, Division of Child and Family Services (DCFS) to evaluate their IV-E waiver demonstration project for the past 4 years. Simultaneously, SRI also served as the independent evaluator for the State of Idaho's IV-E waiver demonstration for two years. Within the past year, key research staff from DCFS who were familiar with the work performed by SRI staff changed jobs and now work for UDOH Office of Health Care Statistics. As a result, when UDOH was trying to locate an independent evaluator a referral was provided and several preliminary meetings and discussions were held. This led to SRI developing a proposal for UDOH to conduct the Demonstration evaluation.

The research team will consist of Rodney W. Hopkins, M.S., Research Assistant Professor, Matt Davis, Ph.D. Associate Professor, Kristen West, MPA., Senior Research Analyst, and Jennifer Zenger, BA, Project Administrator.

Mr. Hopkins is an Assistant Research Professor and has 25 years' experience in conducting program evaluations for local, state, and federal agencies. He has an M.S. and will be the project lead, with responsibility for evaluation design and implementation, data collection, and reporting. He will be .15 FTE.

Dr. Davis is a Clinical Psychologist with expertise in implementation science and program evaluation. He will be .05 FTE on this project.

Kristen West, MPA (.15 FTE) is a Senior Research Analyst with experience conducting multi-year program evaluations for DCFS and JJS. She has expertise with a variety of statistical software programs to analyze data including multi-level regression models, linear regression, and descriptive statistics (SPSS and R). She also has experience developing and data visualization dashboards.

Jennifer Zenger (.05 FTE) is SRI's Project Administrator and has 25 years' experience in budgeting, accounts payable, and working with state and federal agencies. She will be responsible for contract setup, monitoring, and accounting services. The conflict of interest document is attached.

#### **A. Evaluation Budget**

Projected costs for the 1115 Demonstration evaluation are detailed below. Costs include all personnel (salary + benefits), study related costs (mileage), and university indirect (reduced from 49.9% to 14.8% state rate). Year 1 budget begins April 1, 2018 and ends June 30, 2018. Years 2-5 are based on the state fiscal year. An additional 90-day period has also been included, during which SRI will complete the Year 5 Annual Report, Waiver Final Report, and SUD Final Report.

Table 1. Proposed budget

Salaries	ABA	FTE	SALARY	BENEFITS	YEAR I	YEAR II	YEAR III	YEAR IV	YEAR V	90-DAY
<b>Faculty</b>										
Matt Davis	\$102,000	5%	\$ 5,100	\$ 2,059	\$ 1,785	\$ 7,283	\$ 7,428	\$ 7,577	\$ 7,729	\$ 1,971
Rod Hopkins	\$ 91,997	15%	\$ 13,800	\$ 5,877	\$ 4,919	\$ 20,170	\$ 20,471	\$ 20,880	\$ 21,298	\$ 5,431
			\$ 18,900	\$ 7,936	\$ 6,704	\$ 27,453	\$ 27,899	\$ 28,457	\$ 29,027	\$ 7,402
<b>Staff</b>										
Kristen West	\$ 57,222	15%	\$ 8,583	\$ 3,433	\$ 3,004	\$ 12,257	\$ 12,502	\$ 12,752	\$ 13,007	\$ 3,318
Jennifer Zenger	\$ 85,435	5%	\$ 4,272	\$ 1,709	\$ 1,495	\$ 6,100	\$ 6,222	\$ 6,347	\$ 6,473	\$ 1,650
			\$ 12,855	\$ 5,142	\$ 4,499	\$ 18,357	\$ 18,724	\$ 19,099	\$ 19,481	\$ 4,968
Total Staff					\$4,499	\$18,357	\$ 18,724	\$ 19,099	\$ 19,481	\$ 4,968
Total Faculty Salaries					\$6,704	\$27,453	\$ 27,899	\$ 28,457	\$ 29,027	\$ 7,402
Total Fringe Benefits					added in above	added in above	added in above	added in above	added in above	
Travel (1 trip per month to UDOH & DSAMH)					\$65	\$250	\$250	\$250	\$ 250	\$ 65
<b>Total Direct</b>					<b>\$11,268</b>	<b>\$46,060</b>	<b>\$ 46,874</b>	<b>\$ 47,806</b>	<b>\$ 48,757</b>	<b>\$ 12,435</b>
<b>Indirect (F&amp;A) Cost</b>				14.80%	<b>\$1,668</b>	<b>\$ 6,817</b>	<b>\$ 6,937</b>	<b>\$ 7,075</b>	<b>\$ 7,216</b>	<b>\$ 1,840</b>
<b>Grand Total</b>					<b>\$12,936</b>	<b>\$52,877</b>	<b>\$ 53,811</b>	<b>\$ 54,881</b>	<b>\$ 55,973</b>	<b>\$ 14,275</b>
										<b>\$244,754</b>

### Budget Narrative

Rodney Hopkins, M.S., Assistant Research Professor will be the lead on this project and will be responsible for day-to-day activities. He will work (.15 FTE) closely with UDOH and DSAMH staff to ensure appropriate data is available to answer the research questions and execute the data analysis and reporting. Dr. Davis (.05 FTE) will bring his considerable experience with quantitative analysis to this project. Kristen West, MPA, Senior Research Analyst (.15 FTE) will assist with data analysis and reporting, including data visualization. Jennifer Zenger (.05 FT) is SRI's Project Administrator. She oversees contract monitoring and the budget.

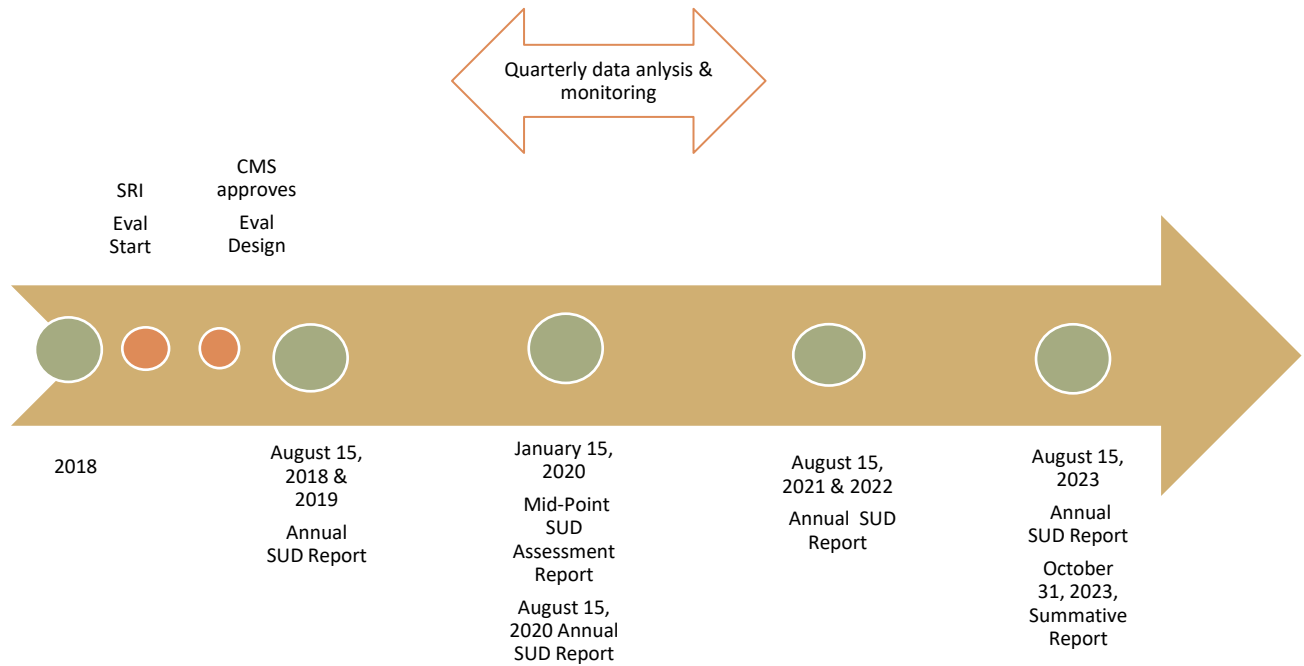
A strength this team brings to the project will be its ability to conduct a thorough and accurate data analysis and provide a professional report that will address each component of the waiver demonstration. Salaries calculated include a 2% increase as of July 1 of each year. University of Utah benefits are calculated at 40%. Year 1 is only a 6-month budget (April 1, 2018 – Sept. 30, 2018).

Local travel will be needed for SRI faculty and staff to attend meetings with UDOH and DSAMH staff. We anticipate one meeting per month.

UDOH state agency to state agency indirect costs calculated at 14.8%.

### B. Timeline and Major Milestones

Figure 2. Waiver Evaluation Timeline



## C. References

1. World Health Organization. (2013). Mental health action plan 2013–2020. Retrieved from [http://www.who.int/mental\\_health/publications/action\\_plan/en/](http://www.who.int/mental_health/publications/action_plan/en/)
2. Reeves, W. C., Strine, T. W., Pratt, L. A., Thompson, W., Ahluwalia, I., Dhingra, S. S., McKnight-Eily, L. R., Harrison, L., D'Angelo, D. V., Williams, L., Morrow, B., Gould, D., & Safran, M. A. (2011). Mental illness surveillance among adults in the United States. *Morbidity and Mortality Weekly Report CDC Surveillance Summaries*, 60(Suppl. 3), 1-29.
3. Murray, C. J. L., & Lopez, A. D. (2013). Measuring the global burden of disease. *New England Journal of Medicine*, 369, 448-457. doi:10.1056/NEJMra1201534
4. National Institute on Drug Abuse. (2012, November). Medical consequences of drug abuse. Retrieved from <http://www.drugabuse.gov/related-topics/medical-consequences-drug-abuse>
5. Substance Abuse and Mental Health Services Administration. (2014, October 3). Prevention of substance abuse and mental illness. Retrieved from <http://www.samhsa.gov/prevention>
6. Bouchery, E. E., Harwood, H. J., Sacks, J. J., Simon, C. J., & Brewer, R. D. (2011). Economic costs of excessive alcohol consumption in the U.S., 2006. *American Journal of Preventive Medicine*, 41, 516-524. doi:10.1016/j.amepre.2011.06.045
7. Office of National Drug Control Policy, Executive Office of the President. (2011). How illicit drug use affects business and the economy. Retrieved from [http://www.whitehouse.gov/sites/default/files/ondcp/Fact\\_Sheets/effects\\_of\\_drugs\\_on\\_economy\\_jw\\_5-24-11\\_0.pdf](http://www.whitehouse.gov/sites/default/files/ondcp/Fact_Sheets/effects_of_drugs_on_economy_jw_5-24-11_0.pdf)
8. National Drug Intelligence Center. (2011). National Drug Threat Assessment 2011 (Product No. 2011-Q0317-001). Retrieved from <http://www.justice.gov/archive/ndic/pubs44/44849/44849p.pdf>
9. 2016 National Survey of Drug Use and Health (NSDUH)
10. Chen LH, Hedegaard H, Warner M. Drug-poisoning deaths involving opioid analgesics: United States, 1999–2011. NCHS data brief, no 166. Hyattsville, MD: National Center for Health Statistics. 2014.
11. Paulozzi LJ, Jones CM, Mack KA, Rudd RA. Vital Signs: Overdoses of Prescription Opioid Pain Relievers --- United States, 1999—2008. *MMWR* 60(43); 1487-1492.
12. Sharp MJ, Melnik TA. Poisoning deaths involving opioid analgesics-New York State, 2003-2012. *Morb Mortal Wkly Rep* 2015; 64:377-380.
13. Coolen P, Lima A, Savel J, et al. Overdose deaths involving prescription opioids among Medicaid enrollees—Washington, 2004-2007. *Morb Mortal Wkly Rep*. 2009; 58:1171-1175.

14. Whitemire JT, Adams, GW. Unintentional overdose deaths in the North Carolina Medicaid population: prevalence, prescription drug use, and medical care services. *State Center for Health Studies*. August 2010(162):1-11.

15. Coolen P, Lima A, Savel J, et al. Overdose deaths involving prescription opioids among Medicaid enrollees—Washington, 2004-2007. *Morb Mortal Wkly Rep*. 2009; 58:1171-1175.

16. National Survey on Drug Use and Health. (2016). Substance Abuse and Mental Health Services Administration. Reports and Detailed Tables.

17. FY2017 Utah Substance Abuse Treatment Outcome Measures Scorecard for all clients. (2017). Utah Department of Human Services, Division of Substance Abuse and Mental Health.

18. FY2017 Utah Substance Abuse Treatment Outcome Measures Scorecard for all clients. (2017). Utah Department of Human Services, Division of Substance Abuse and Mental Health.

19. Utah's Opioid Crisis Consequence and Resource Assessment. (2017). Utah Department of Human Services, Division of Substance Abuse and Mental Health.

20. Utah 1115 Demonstration Waiver Renewal Application. (2016). Utah Department of Health. 96-99.

## Utah SUD Demonstration Cost Analysis

Utah Department of Health (UDOH) will conduct a cost analysis of the Substance Use Disorder (SUD) Demonstration that became effective in November 2017. The cost analysis will provide an objective measure of this important demonstration outcome. UDOH will include cost analysis reports as part of both interim and final evaluation reports.

### Costs

UDOH will conduct three levels of cost analyses

Level of analysis	Type of costs	Data components (source)
Total costs	Total costs	Claims and managed care capitation payments (Data Warehouse) <sup>1</sup>
	Total federal costs	Federal Financial Participation (FFP) for total costs <sup>2</sup>
SUD cost drivers	SUD-IMD	Claims and encounters <sup>3</sup> with IMD procedure code with SUD diagnosis (Data Warehouse) <sup>4</sup>
	SUD-other	Claims and encounters with SUD diagnosis and/or procedure code (Data Warehouse)
	Non-SUD	Claims and encounters without SUD diagnosis or procedure code (Data Warehouse)
Type of source of care cost drivers	Outpatient costs – non ED	Outpatient hospital claims and encounters as defined by T-MSIS OT specifications, excluding ED (Data Warehouse)
	Outpatient costs – ED	ED claims and encounters (Data Warehouse)
	Inpatient costs	Inpatient hospital claims and encounters as defined by T-MSIS IP specifications (Data Warehouse)
	Pharmacy costs	Pharmacy claims and encounters as defined by T-MSIS RX specifications (Data Warehouse)
	Long-term care costs	Long-term claims and encounters as defined by T-MSIS LT specifications (Data Warehouse)

<sup>1</sup> UDOH will not include administrative costs. There has not been a staff hiring nor has there been a vendor added for the exclusive purpose of servicing the SUD demonstration

<sup>2</sup> State and program-specific FFP will be used including those expenses eligible for enhanced federal share.

<sup>3</sup> UDOH will use the managed care payment amount to assign costs to encounters paid by managed care entities.

<sup>4</sup> SUD-IMD services were not paid by UDOH in the pre-demonstration period. SUD-IMD costs will not exist in the pre-demonstration period of this cost analysis.

## Population of interest

UDOH will identify beneficiaries based on claims and encounters with a SUD diagnosis and/or procedure code. The SUD diagnosis and procedure codes will be identified using the Adult Core Set Value Set Directory. Pharmacy claims and encounters with a dispensed drug for Medication Assisted Treatment (MAT) will also be used to identify the population of interest. Once a beneficiary has been identified, they will remain in the population of interest until 11 months pass without another qualifying SUD claim or encounter. Populations participating in the SUD demonstration include state plan populations, the Targeted Adult Medicaid demonstration population, and the Current Eligibles demonstration population.

## Scope

Utah will use two pre-demonstration years beginning November 2015 and ending October 2017. Utah's SUD demonstration was approved for November 9, 2017 until June 30, 2022. For the purpose of this analysis, Utah will consider the entire month of November 2017 to be post-demonstration.

## Challenges

Utah does not have a valid comparison population for this analysis. Utah's SUD demonstration was implemented state-wide on the same date to all state plan populations and two 1115 demonstration populations. Only the 1115 demonstration population Primary Care Network (PCN) is excluded from the SUD demonstration population benefits, however they are excluded from all behavioral health benefits. For this reason, PCN does not represent a valid comparison group. Utah will not be able to provide a comparison population in order to complete the preferred difference-in-difference analysis.

## Method

UDOH will conduct an interrupted time series analysis to estimate the linear effects of the SUD demonstration. Utah will use the model provided in the SUD Technical Assistance (February 22, 2018).

$$\text{Costs} = \beta_0 + \beta_1 * \text{TIME} + \beta_2 * \text{POST} + \beta_3 * (\text{TIME} * \text{POST}) + B_i * \text{CONTROLS} + \varepsilon$$

Where:

TIME is a count variable that starts with the first quarter pre-demonstration period data and ends with the last quarter of post-demonstration period data.

POST is the indicator variable that equals 1 if the month occurred on or after demonstration start date.

CONTROLS are covariates as follows:

Control	Possible Values
Age	Beneficiary's age (in years) on the first day of the month.
Gender	Male/Female
Race	White; Asian/Pacific Islander; American Indian/Alaskan Native; Black; or Other/missing.
Dual Medicare-Medicaid enrollment	Yes/No
Delivery system	Managed care plan or fee-for-service



Demonstration Population	Identification of special 1115 populations: Targeted Adult Medicaid <sup>5</sup> ; Current Eligibles; or State Plan Eligibility (Non-Waiver).
--------------------------	---

UDOH will conduct both a logit model for estimating zero-cost months and a generalized linear model [GLM] for estimating non-zero cost months. The GLM model will use log costs to account for costs that are not normally distributed.

### Deliverable

The interrupted time series results will be presented in the format suggested within the SUD technical assistance. Additionally, UDOH will provide the marginal effects and standard error terms.

Interrupted Time Series results	Total costs	Total federal costs	SUD-IMD	SUD-other	Non-SUD	Outpatient non-ED	Outpatient ED	Inpatient	Pharmacy	Long-term care
<b>Logit</b>										
Demonstration period										
Time (continuous)										
Demonstration period * time (continuous)										
Covariates										
Constant										
<b>GLM</b>										
Demonstration period										
Time (continuous)										
Demonstration period * time (continuous)										
Covariates										
Constant										

---

<sup>5</sup> The Targeted Adult Medicaid demonstration population was approved effective November 1, 2017. It consists of adults, without dependent children, age 19-64, who meet defined criteria including being chronically homeless, justice involved, and/or needing substance use disorder or mental health treatment. This population has no pre-SUD-demonstration experience. Because they are a unique population with complex behavioral health needs, it is important to separately identify them as a covariate.