DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
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State Demonstrations Group

September 1, 2022

Jennifer Strohecker
Director
Division of Medicaid and Health Financing
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Dear Ms. Strohecker:

The Centers for Medicare & Medicaid Services (CMS) completed its review of the Evaluation Design covering the Primary Care Network, Current Eligibles, Utah Premium Partnership, Targeted Adults, and Blind and Disabled Dental demonstration components of Utah's section 1115 demonstration, formerly known as the "Primary Care Network" (Project Nos: 11-W-00145/8 and 21-W-00054/8), for the approval period that ended on June 30, 2022. While the demonstration has since been exntended, and is currently called the "Medicaid Reform 1115 Demonstration," this Evaluation Design—as was required by the Primary Care Network Special Terms and Conditions (STCs), specifically, STC #134—pertains solely to the prior demonstration approval period. In the context of the considerations outlined below, CMS accepts the Evaluation Design, resubmitted to CMS on December 3, 2021.

We appreciate the state's inclusion of numerous and thoughtful research questions to assess these policy components. At the same time, as CMS communicated to the state, certain areas in this Evaluation Design could be further aligned with CMS's evaluation design guidance and recommended best practices. CMS separately provided to the state feedback on these issues. In consideration of the timeline of the demonsration's recent extention approval and the upcoming demonstration evaluation activities and deliverables, CMS and the state concluded that rather than revising this particular Evaluation Design, the state would devote its evaluation resources toward ensuring a comprehensive and rigorous approach to developing an Evaluation Design and conducting corresponding evaluation activities for the current period of performance as well as completing the Summative Evaluation Report for the prior approval period, due on December 31, 2023. As such, CMS accepts the current version of the state's Evaluation Design.

The accepted Evaluation Design may now be posted to the state's Medicaid website within thirty days. CMS will also post the accepted Evaluation Design as a standalone document, separate from the STCs, on Medicaid.gov.

CMS appreciates the state evaluating the policies included in this Evaluation Design in the Interim Evaluation Report submitted on July 6, 2021. In addition to the Interim Evaluation Report, a Summative Evaluation Report covering all demonstration components, including the aforementioned ones consistent with this approved Evaluation Design, is due to CMS within eighteen months of the end of the demonstration period, that is, no later than December 31, 2023. In accordance with 42 CFR § 431.428 and the STCs, we look forward to receiving updates on evaluation activities for both the prior and ongoing demonstration approval periods in the state's Medicaid Reform 1115 Demonstration Monitoring Reports.

We appreciate our continued partnership with Utah on the Medicaid Reform 1115 Demonstration. If you have any questions, please contact your CMS demonstration team.

Sincerely,

Danielle Daly -S

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Date: 2022.09.01 09:57:57 -04'00'

Danielle Daly
Director
Division of Demonstration
Monitoring and Evaluation

cc: Mandy Strom, State Monitoring Lead, CMS Medicaid and CHIP Operations Group

UTAH 1115 PRIMARY CARE NETWORK DEMONSTRATION WAIVER

REVISED EVALUATION DESIGN

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REVISED DESIGN INTRODUCTION

The original 1115 Primary Care Network (PCN) Evaluation Design was approved by CMS on October 16, 2019. The design included nine hypotheses addressing the primary goals of the waiver, which were to increase access, improve quality, and expand coverage to eligible Utahns. Key activities to accomplish this included enrollment of new populations, quality improvement, and benefit additions or changes.

While the Interim Evaluation report's preliminary findings supported improvements in select hypotheses, in general the findings were not robust enough to conduct multivariate analyses at the time of reporting. As a result, those findings did not yet demonstrate statistically significant improvements in access and utilization of appropriate health care and associated health outcomes. Additionally, there was no reduction in costs reflected among the demonstration populations that was attributable to the waiver's emphasis on increased preventive and primary care services compared to more expensive care such as those services provided in the emergency room.

Examples of positive improvement include Current Eligible enrollees with an increase in hypertension prescriptions per member diagnosed with hypertension through 2019. Increased access to preventive care may have contributed to greater prescribing of hypertensive medications for those diagnosed with hypertension. During that same period, there was a reduction in non-emergent use of the ED among this population, however, it is unclear what drove such apparent improvements. Other population groups experienced a substantial enrollment increase in 2019, suggesting that the programs are meeting a significant need. This is evident among the Targeted Adult population where enrollment nearly doubled. Within this group, smoking cessation utilization increased, as did antidepressant prescriptions and primary care visits. These results align with the intent of the demonstration, and better assessment of such access and utilization on health outcomes and cost will require longer term data analysis. Other findings demonstrated aggregate costs declined precipitously associated with a reduction in healthcare utilization in 2020, despite only a modest decrease in enrollees. The COVID-19 pandemic likely was responsible for some of these trends in 2020.

Among the Blind and Disabled population, there also appeared to be a substantial increase in utilization of preventive dental services in 2019 contrasted with a far more modest increase in emergency dental services. Whether emergency dental utilization subsides with longer exposure to enhanced access awaits further analysis.

Given the limited statistical analysis to date, which has focused on the use of T-test and Chi-square tests to compare the outcomes annually or monthly, the independent evaluators propose a modified approach to the existing evaluation. In order to strengthen the quantitative analysis and design the Department of Economics, Economic Evaluation Unit is recommending adding some new statistical approaches, which will make the evaluation more robust by using approaches that will account for changes over time. Specifically, this new approach will help control for the effects of covariates (including COVID) that may affect outcomes. To improve the capacity of the evaluation to measure the outcomes of the waivers of

interest over time, new statistical and design approaches will be used. All changes to the design and analysis are highlighted in red below in Table 2.

Considering the longitudinal data and the characteristics of the outcome variables, we propose two statistical approaches to evaluate changes in outcomes over time for several hypotheses. For annual outcome measures, the first approach will be generalized estimating equations (GEE). This method will be used to evaluate changes in outcomes with individual subject level data. This method also has the capacity to control for any impact of the pandemic on the outcomes.

Considering the characteristics (e.g. statistical distribution) and multiple measures of outcomes on the same subjects over time, GEE is appropriate for evaluating the effects of the waivers on such outcomes. GEEs are flexible for different types of outcomes (e.g. continuous, binary and counts) and are appropriate for evaluating the impact of waiver implementations. The outcomes that were aggregated annually will be subject to a new statistical approach using GEE. Time-varying (e.g. age and healthcare use) and time-invariant variables (e.g. sex, race/ethnicity) will be controlled for in multivariate regression. An unstructured covariance matrix will be assumed to avoid imposing specific assumptions concerning distribution of random effects. We will adjust for relevant factors (including the number of COVID cases) that could affect the outcomes. This can be expressed,

$$L(Y\_it)=X\_(it)\text{^}' \beta$$

where L is a link function, i represents the subject, t indicates time (i.e. quarter), β is a k by 1 vector of regression coefficients including β_0, and X_it^' indicates an n by k matrix with covariates. X_it^' includes baseline factors of subjects, time dummies, and number of COVID cases (per 100,000). The time dummy variables will reveal if the outcomes change over time (reference year vs. another year). Also, the Wald test will be used to compare any difference in the outcomes across two years following a regression.

The second approach is a Bayesian structural time-series (BSTS) which will be used for outcomes that were measured monthly. The BSTS with unobserved components that are state-space models for time-series data will be used. BSTS has been used for causal inference by researchers[1] and is likely better than the difference-in-difference approach often used to measure impact of an intervention over time. Using the observation equation and the state equation the BSTS model can be expressed as follows,

$$Y(t)=\pi(t)+X(t)\beta+S(t)+\varepsilon(t),\varepsilon(t)\sim N(0,\delta\_\varepsilon\text{^}2)$$

$$\pi(t+1)=\pi(t)+u(t),u(t)\sim N(0,\delta\_u\text{^}2)$$

[1] Brodersen, K.H., Gallusser, F., Koehler, J., Remy N., and Scott, S.L. Annals of Applied Statistics, vol. 9 (2015), pp. 247-274.

where X(t) represents a set of covariates, S(t) represents seasonality, π(t) represents the unobserved trend that defines how the latent state changes over time. The covariates will include average age, % of female, and number of COVID cases per 100,000.

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

Program History

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. The Demonstration initially allowed the state to implement the Primary Care Network program, which is a program that offers a limited package of preventive and primary care benefits. It also allowed the state to offer a slightly reduced benefit package to the Current Eligibles population, as well as require cost-sharing for this group.

In October 2006, the Demonstration was amended to allow the state to use demonstration savings to help with payment of premiums for employer-sponsored health insurance (ESI) through Utah's Premium Partnership for Health Insurance (UPP). The waiver was again amended in December 2009 to enable the state to provide premium assistance for coverage under the provisions of the Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA).

Between 2009 and 2017, several demonstration extensions were approved and minor changes were made to income limits for the demonstration groups. The next significant approval to the Demonstration occurred in 2017. In June 2017, the state received approval to provide state plan dental benefits to adults, age 18 and older, with blindness or disability, and removed the sub-caps for enrollment for Demonstration population I.

On November 1, 2017, CMS approved an extension that created a new demonstration population that allows adults without dependent children, age 19 through 64 years old, to receive state plan Medicaid

benefits. These individuals must have income at zero percent FPL, and meet at least one of three criteria: be chronically homeless; involved in the justice system and in need of substance use or mental health treatment; or just in need of substance use or mental health treatment. This amendment also provided expenditure authority for Medicaid services provided for Medicaid beneficiaries residing in an Institution of Mental Disease (IMD) to provide a full continuum of care for beneficiaries suffering from drug and/or alcohol abuse.

Current Operation

Utah's current 1115 demonstration waiver provides authority for the state to operate the medical programs and benefits listed in Table 1 below. The current Demonstration is authorized through June 30, 2022. The evaluation will cover the Demonstration approval period.

Table 1.

Waiver Population	Eligibility Requirements	Benefit Package	Waiver Approval and Implementation Dates
PCN Program (Demonstration Population I)	• Non-disabled adults age 19-64 • Income up to 95% of FPL	Provides a limited package of preventive and primary care benefits	• Approved February 8, 2002 • Implemented July 1, 2002
Current Eligibles	• Categorically or medically needy parents or other caretaker relatives, age 19-64 • Income up to 55% of FPL	Provides a slightly reduced benefit package based on state plan benefits	• Approved February 8, 2002 • Implemented July 1, 2002
Demonstration Population III (Utah's Premium Partnership for Health Insurance-UPP)	• Working adults age 19-64, their spouses and children • Income up to 200% FPL • Have access to employer sponsored insurance (ESI), but have not yet enrolled	Provides a premium reimbursement up to $150 per adult, and $120 per child, to pay for ESI. Provides an extra $20 per child enrolled in a state plan comparable ESI dental plan	• Approved October 26, 2006 • Implemented November 1, 2006
Demonstration V & VI (UPP- COBRA)	• Adults and their spouses, age 19-64 (Demo V) and children (Demo VI)	Provides a premium reimbursement up to $150 per adult, and $120 per child, to pay for ESI.	• Approved December 18, 2009 • Implemented December 21, 2009

	● Income up to 200% FPL ● Have access to COBRA	Provides an extra $20 per child enrolled in a state plan comparable ESI dental plan	
Dental Benefits for Individuals who are Blind or Disabled	● Adults age 18 or older who have blindness or a disability	Provides State Plan dental benefits	● Approved June 29, 2017 ● Implemented July 1,2017
Targeted Adults	● Adults age 19-64 who do not have dependent children ● Income at zero percent FPL ● Must meet one of three criteria: chronically homeless; involved in the justice system and in need of substance abuse or mental health treatment; or those who are just in need of substance abuse or mental health treatment	Provides full State Plan benefits, but does not provide dental (other than emergency) or EPSDT benefits	● Approved and implemented November 1, 2017
Former Foster Care Youth from Another State	● Individuals under age 26 who were in foster care in a state other than Utah, and were enrolled in Medicaid at the time they reached age 18 ● No income limit	Provides full State Plan benefits	● Approved and implemented November 1, 2017
Substance Use Disorder Residential Treatment	● Medicaid eligible individuals	Provides expenditure authority for Medicaid services provided for	● Approved November 1, 2017

		adult Medicaid beneficiaries residing in an Institution of Mental Disease (IMD)	• Implemented November 9, 2017

On February 1, 2019, the state received approval to provide state plan dental benefits to individuals in the Targeted Adult demonstration group, who are actively receiving treatment for substance use disorders. The state plans to implement this benefit on March 1, 2019. The evaluation will be amended at a later date to incorporate this group, and any future pending amendments that are approved.

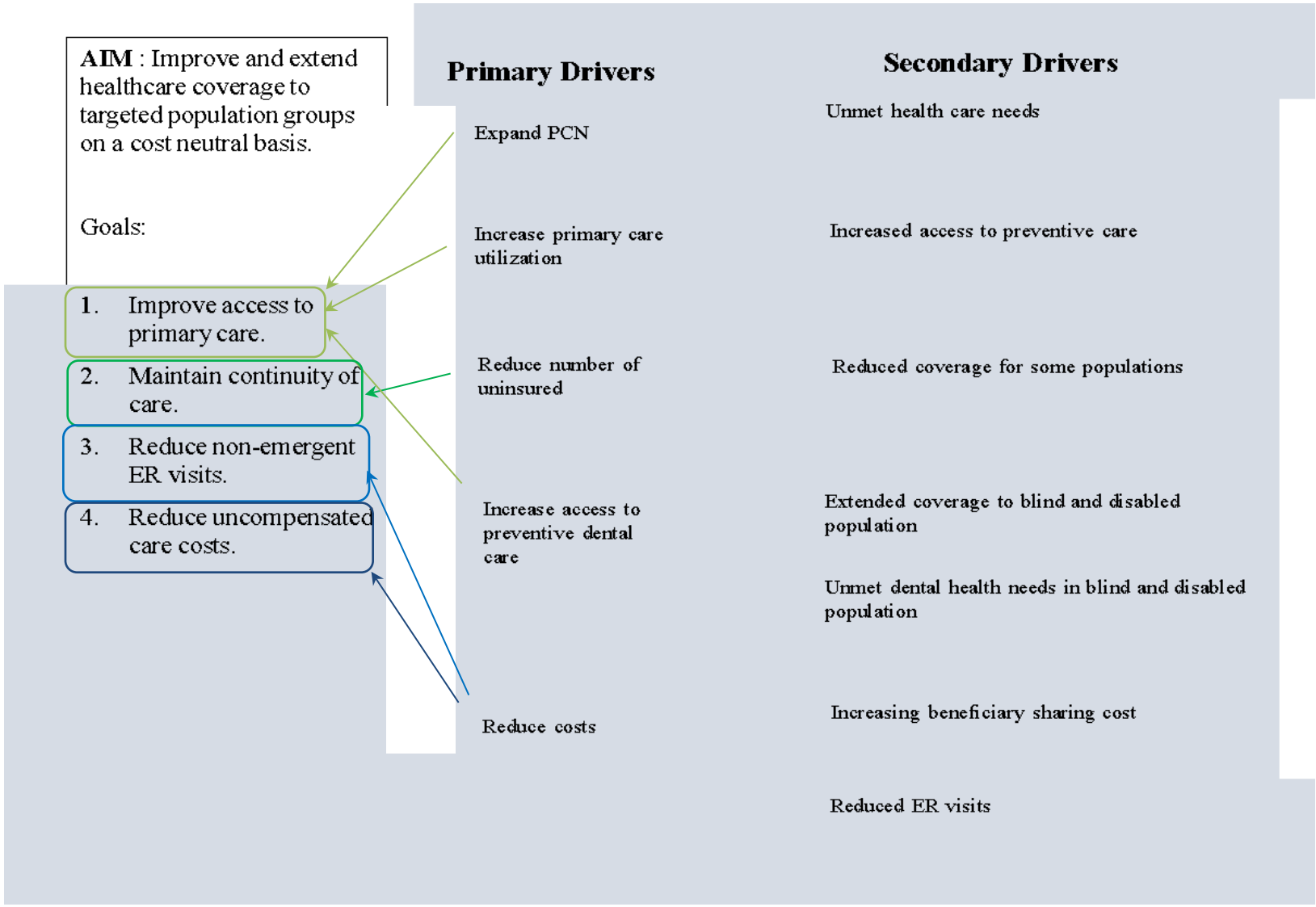
B. EVALUATION QUESTIONS & HYPOTHESES

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, whether the changes in components of the Demonstration achieved the outcomes desired.

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 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

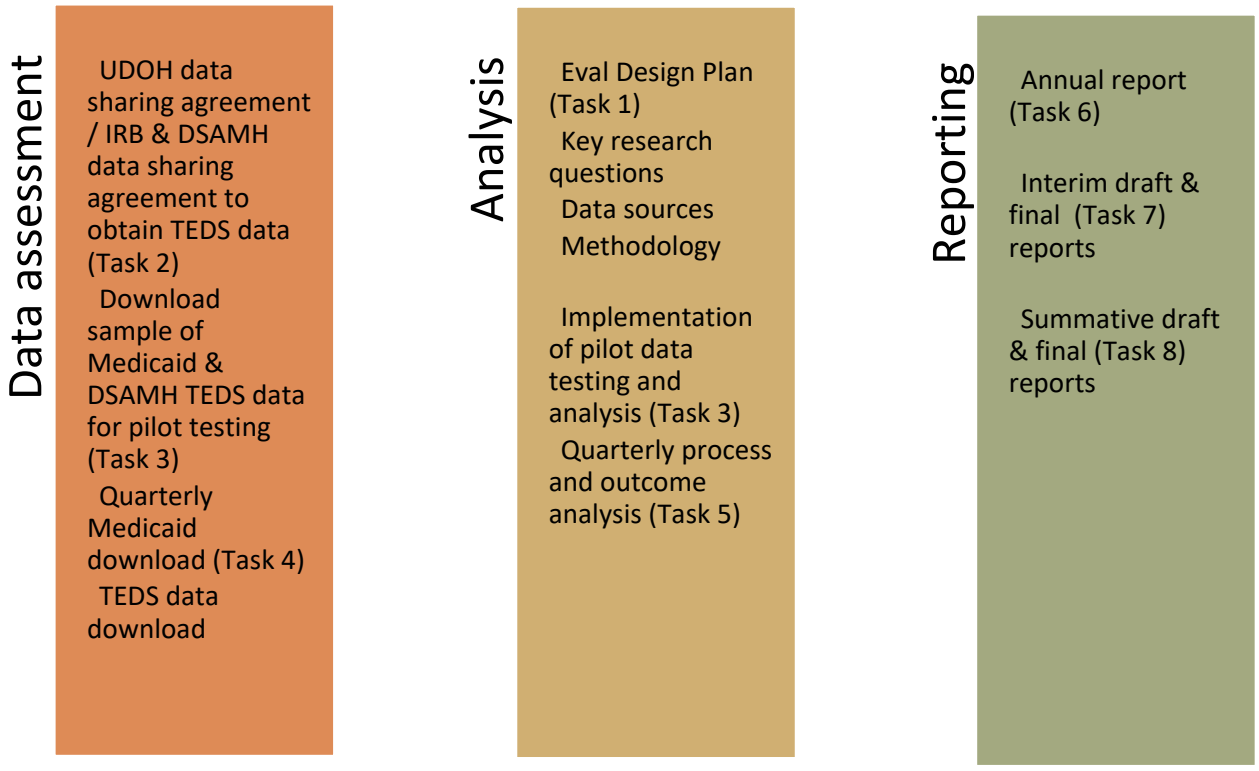


C. METHODOLOGY

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

The primary aim of the Demonstration evaluation is to assess the effects of the program on dimensions of health outcomes, including health care access, quality, and costs for each of the population (s) served. In order to make reliable assessments, methods will be tailored and applied such that the identified effects are attributable to the Demonstration and not to other characteristics of the population served or other dimensions of the health care system. Specifically, the applied methods must identify the counterfactuals that would have prevailed in the absence of the Demonstration so as to reliably isolate its impacts.

This will be challenging, due to the unique target population groups included and given all of the moving parts related to the Demonstration over time, including the variety of eligible populations served, the differences in the eligible populations for any specific provision, and the potential cycling in and out of the program (and control groups) over time due to changes in eligibility or other factors. As a result, a sophisticated multi-method approach will be employed that accounts for the various methodological constraints tied to each assessment. In order to adequately test the several hypotheses related to the effects on health and health care access, quality and cost the Demonstration evaluation will entail, a combination of approaches (e.g. propensity score matching, inverse probability weighting, and difference-in-difference comparisons).

2. Target and Comparison Populations

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

Control Groups

We plan to utilize three control groups and specific national averages for select HEDIS Core measures for benchmark comparison purposes. First, subjects in Medicaid Managed Care who were not in the 1115 Waiver. Second, subjects in Medicaid Fee-for-Service, and third, subjects who were covered by private insurance. The reason for selecting three control groups is to provide the unique capability to compare the effectiveness of the Demonstration on costs and, utilization and outcomes to non-Waiver, Medicaid FFS and to enrollees in commercial insurance, where appropriate. The comparison population groups in this design will vary. For some, the target population will serve as its own comparison group utilizing an interrupted time series (ITS) design where the research question will compare service utilization differences over time prior to the Demonstration and throughout. Other comparison groups will be formed using balanced matching based on age, gender, and other factors and utilizing inverse priority rating. Still other comparison groups will be from similar population groups from the Utah Population – All Payer Claims Database.

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.

4. Evaluation Measures

Fundamental to the analyses is the generation of descriptive statistics on baseline characteristics, which form the basis for matching cases to controls, including demographics (age, gender, race/ethnicity, family composition, area of residence, residential characteristics (e.g., homeless)); health status (the Charlson-Elixhauser comorbid index, number of co-morbid conditions); health care enrollment (program, continuous months); health care utilization (number of primary care visits, number of emergency room visits and inpatient admissions prior to the Demonstration (for the intervention group) and pseudo start date (for the control group).

Other measures will be based on standardized Utah Medicaid Claim codes, standardized Utah Behavior Risk Factor Surveillance System (BRFSS) data health insurance questions, and CAHPS questions from the Utah Health Plan Patient Experience Reports.

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. Additionally, for comparison purposes retrospective data analysis may be available for a 4-5 year period prior to waiver implementation through the Utah All Payer Claims Database (APCD). This database contains data from health insurance carriers, Medicaid, and third party administrators in Utah. These data consist of medical, pharmacy, and dental claims as well as insurance enrollment and health care provider data. During processing these files are cleaned, standardized, and enhanced with analytics software that produces data on risk and burden of illness. Utah's APCD is a rich source of health care data capable of answering a variety of questions relevant to the waiver such as:

What was the patient's diagnosis and treatment?
What medications were prescribed as part of treatment?
How much did the patient's care cost?
How much of the cost is the insurance company's responsibility and how much is the patient's responsibility?
Did the patient receive treatment expected by the standard of care?
What is a patient or cohort's risk profile?

6. Analytic Methods

While randomized controlled trials (RCTs) are considered the gold standard design for evaluating the effectiveness of an intervention, these types of studies are not always possible, in particular for health policy implementation like the waivers which are targeted at the population level. Since, there is frequently a need to retrospectively evaluate interventions which have already been implemented, either without randomization or to a whole population and without an option for a control group, interrupted time series (ITS) designs are being employed. These approaches are particularly well-suited to interventions introduced at a population level over a clearly defined time period with defined target population-level health outcomes. This ITS approach will fit the Medicaid evaluation since both sequential and retrospective measures of the outcomes are available both before and after the intervention.

Descriptive analysis will include initial summary statistics and scatter plot of the time series which can help to identify the underlying trend, seasonal patterns and outliers. More traditional descriptive analyses, such as summaries and bivariate comparisons between the outcome and potential time-varying confounders, as well as simple before-and-after comparisons, are also planned. Using multiple observations over time of the hypothesis variables, the (ITS) will allow the researchers to determine if there is an "effect" coinciding with the time of the waiver introduction. This is an easy approach with Medicaid data that is routinely collected over many time periods. This strength will rule out pre-existing trends and alternative explanations.

The linked data available through the APCD will provide comparison groups to provide a rigorous evaluation, including smaller groups such as (1) newly eligible for adults without children and (2) blind or disabled persons who receive additional dental benefits. For blind and disabled persons, pre-intervention data are available making comparisons possible. Additionally, via the APCD a propensity score matching approach will be used that compares non-Medicaid individuals who are similar in age / gender / health care utilization patterns and compare before and after waiver.

Specific analytical techniques such as propensity score (PS) matching and inverse probability weighting (IPW) will be utilized. To identify control subjects who had similar characteristics of the subjects at the time of the Demonstration, PS matching or IPW will be used to minimize bias from observable confounders that could potentially affect the outcomes. One-to-one matching without replacement will be implemented. If enough subjects (e.g. there are more subjects in control pool than subjects in Demonstration) in the control groups are not available, IPW will be used to identify controls. The IPW approach will consider the entire potential control sample to run the analyses. For example, the number of subjects covered by Medicaid fee-for-service will be significantly smaller than those number of subjects who are included in the Demonstration, so IPW will be useful for the fee for service group.

Two design approaches will be used: 1) an Interrupted Time Series (ITS) and a Difference-in-Difference (DID). These two approaches will compare differences in the outcomes before and after the Demonstration and differences in the outcomes between the Demonstration (intervention group) and the

controls. For those who continuously enrolled in the 1115 Wavier, Medicaid Managed Care, Medicaid FFS, and private insurance, the DID approach will be used since DID requires those who are available before and after intervention have a similar denominator across time. Based on the DID, differences in the outcomes between the Demonstration group and the control groups will be identified. DID approaches will estimate the average Demonstration effect by comparing the average health status and healthcare utilization between the intervention and control groups across pre-Demonstration (or pseudo pre period for the controls) and post-Demonstration (or pseudo post period for the controls) periods. For the DID, linear regression or generalized linear regression (with log link and Poisson/negative binomial distribution) will be used.

Since subjects will be in and out of the Demonstration and or/other insurance, this change affects denominators in analyses (e.g. different denominators across time). For this reason, the multi-group ITS will be used to compare the trends of the outcomes between the Demonstration and the control groups.

Since health care utilization outcomes will be the critical metrics for this evaluation, all ED visits, inpatient visits, and primary care visits will be converted to rates (visit per 1,000) so that they will be comparable across time and groups.

Table 2: Summary of Demonstration Populations, Hypotheses, Evaluation Questions, Data Sources, and Analytic Approaches.

Demonstration Population: Current Eligibles - Provides a slightly reduced benefit package to adults age 19-64 with income up to 55 percent of the FPL, who are responsible for the care of a dependent child.						
Hypothesis 1: 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.						
Research Questions	**Measure Description**	**Steward**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**
As members receive increased cost sharing responsibility, is the average length of enrollment affected?	Continuity of care pre to post waiver implementation given benefit reduction and increased cost sharing.	UDOH	Average monthly enrollment per year per 1, 000 beneficiaries.	Average yearly enrollment per 1,000 beneficiaries.	Utah Medicaid data	Descriptive statistics (frequencies and percentages)
What are the average cost share changes experienced by members?			Current Eligibles average monthly cost share yearly over the course of the Demonstration.	Current Eligibles average yearly cost share prior to beginning of Demonstration and over the course of the Demonstration.		
How many members are diagnosed with hypertension?			Annual rate of adults with a diagnosis of hypertension and whose blood pressure was adequately controlled per 1,000.	Compared to relative national rate of adults with a diagnosis of hypertension and whose blood pressure was adequately controlled per 1,000.		

Post waiver implementation: What were members average pharmacy benefit copays? Did the average pharmacy copay effect hypertensive medication prescriptions?			Pharmacy prescriptions per member per month after copay increase. Average monthly hypertensive prescriptions per month per 1,000 beneficiaries.	Pharmacy prescriptions per member per month before copay increase and over the course of the Demonstration. Average monthly hypertensive prescriptions per month before copay increase and over the course of the Demonstration.		Descriptive statistics, Bayesian Structural Time-Series (BSTS) T-test, GEE
Demonstration Population: **Primary Care Network-** Provides a limited package of preventive and primary care benefits to previously uninsured adults age 19-64, with income up to 95 percent FPL.						
Hypothesis 2a: 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 the National average?	Reduce the number of uninsured.	UDOH	Rate of uninsured adults in poverty in Utah, per 1,000.	National average of uninsured adults in poverty, per 1,000.	BRFSS	Descriptive statistics; time series analysis comparing target population over time.
Hypothesis 2b: 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 is the difference between the quality of primary care access between Utah's PCN compared to other Utah covered groups and the National average? How many members are diagnosed with hypertension?	Improve access to primary care. CAHPS quality indicators HEDIS Adult	UDOH	Utah percentage satisfaction with getting timely appointments, Care, and Information; How Well Providers Communicate with Patients; and Access to Specialists.	National percentage satisfaction with getting timely appointments, Care, and Information; How Well Providers Communicate with Patients; and Access to Specialists.	Utah Medicaid data	Descriptive statistics; chi square tests of significance. Time series analysis comparing target population. Descriptive statistics (frequencies and percentages)
			Annual rate of adults with a diagnosis of hypertension and whose blood pressure was adequately controlled per 1,000.	Compared to relative national rate of adults with a diagnosis of hypertension and whose blood pressure was adequately controlled per 1,000.		
Hypothesis 3: The demonstration will reduce the number of unnecessary visits to emergency departments by PCN members.						
Research Questions	**Measure Description**	**Steward**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**
How do emergency department utilization rates differ among PCN Adults with Children, PCN Childless Adults, and Current Eligible members? What differences in non-emergent ED utilization exist between PCN members and parents?	Reduce non-emergent ER visits	UDOH	Emergency department (ED) utilization per PCN member over the course of the members' enrollment.	Emergency department (ED) utilization per PCN member in first year of enrollment**.**	Utah Medicaid data	Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population differences to baseline.
			Non-Emergent ED utilization per PCN member at year 2,3,4,5 over the course of the member's enrollment. Percent of average monthly ED visits without a qualifying diagnosis (non-emergent).	Non-Emergent ED utilization per PCN member in first year of enrollment**.** Percent of annual ED visits without a qualifying diagnosis (non-emergent).		

Demonstration Population – UPP Enrollees. Previously uninsured parents and adults without dependent children, and CHIP children who use the premium subsidy to enroll in private, employer-sponsored health insurance or COBRA.						
Hypothesis 4: The demonstration will assist previously uninsured individuals in obtaining employer-sponsored health insurance.						
How many additional UPP members' insurance premiums were paid each year? What percent did member's insurance premium was paid each year (adjusting for inflation)? What is the per household member cost? What is the total number and percentage being denied subsidy assistance?	Increasing the number of uninsured who obtain employer-sponsored health insurance. Reduce the number of false claims for assistance.	UDOH	Number of members receiving assistance obtaining employer-sponsored health insurance at year 2,3,4,5 (yearly over the course of the Demonstration). Percent of assistance provided for members at year 2,3,4,5 (yearly over the course of the Demonstration). Per household member cost of assistance at year 2,3,4,5 (yearly over the course of the Demonstration). Average monthly number and percentage of those being denied subsidy assistance at year 2,3,4,5 (yearly over the course of the Demonstration).	Number of members receiving assistance obtaining employer-sponsored health insurance at year 1 (beginning of Demonstration). Percent of cost of assistance provided for members at year 1 (beginning of Demonstration). Per household member cost of assistance at year 1 (beginning of Demonstration). Average monthly number and percentage of those being denied subsidy assistance at year 1 (beginning of the Demonstration).	Utah Medicaid data	Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population differences to baseline.

Demonstration Population – Targeted Adults. Provides state plan Medicaid benefits to a targeted group of adults, age 19-64 without dependent children with income at zero percent FPL, who meet at least one of three criteria: chronically homeless, involved in the justice system and in need of substance use or mental health treatment, or just in need of substance use or mental health treatment.						
Hypothesis 5: The demonstration will reduce the number of uninsured Utahns.						
How many new members are covered under this demonstration who were previously ineligible?	Reduce the number of uninsured from among chronically homeless, criminal justice system-involved, in need of substance abuse or mental health services.		Average monthly number members receiving assistance at year 2,3,4,5 (yearly over the course of the Demonstration). Rate of uninsured adults in poverty in Utah, per 1,000.	Average monthly number of members receiving assistance at year 1 (beginning of the Demonstration). National average of uninsured adults in poverty, per 1,000.	Utah Medicaid data, BRFSS	Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population pre / post to regional or national averages
Hypothesis 6: The demonstration will improve access to primary care, while also improving the overall health status of the target population.						

What changes to primary care access occurred as a result of the Demonstration? What were the costs associated with smoking diagnosis, antidepressant medication management, and preventive care visits?	HEDIS Adult Core Set	UDOH	Annual Utah rate of adults with a smoking diagnosis per 1,000 at year 2,3,4,5 (yearly over the course of the Demonstration). Annual Utah rate of adults with a smoking diagnosis (Preventive Care Screening: Tobacco Use: Screening and Cessation) per 1,000 at year 2,3,4,5 (yearly over the course of the Demonstration).	Annual Utah rate of adults with a smoking diagnosis per 1,000 at year 1 (beginning of the Demonstration). Annual Utah rate of adults with a smoking diagnosis (Preventive Care Screening: Tobacco Use: Screening and Cessation) per 1,000 at year 1 (beginning of the Demonstration).	Utah Medicaid data	Descriptive statistics; T-test, chi square tests of significance. GEE .
			Annual Utah rate of adults with antidepressant medication management per 1,000 at year 2,3,4,5 (yearly over the course of the Demonstration). Annual Utah rate of adults with a preventive care visit per 1,000 Average cost per member at year 2,3,4,5 over the course of the member's enrollment	Annual Utah rate of adults with antidepressant medication management per 1,000 at year 1(beginning of Demonstration). Annual National rate of adults with a preventive care visit per 1,000 Average cost per member in first year of enrollment for smoking diagnosis, anti-		

			for smoking diagnosis, anti-depressant medication management, and preventive care visit.	depressant medication management, and preventive care visit.		
Hypothesis 7: The demonstration will reduce the number of non-emergent Emergency Room visits for the chronically homeless population.						
To what extent were non-emergent ED visits reduced? Did the costs associated with the ED visits decrease at year 1 (beginning of Demonstration)? What were the health care procedures provided by emergency departments?	Reduce non-emergent ER visits	UDOH	Percent of average monthly ED visits without a qualifying diagnosis (non-emergent) at year 2,3,4,5 (yearly over the course of the Demonstration).	Percent of annual ED visits without a qualifying diagnosis (non-emergent) at year 1 (beginning of Demonstration).	Utah Medicaid data	Descriptive statistics; T-test, chi square tests of significance. GEE
			Average monthly cost of ED visits at year 2,3,4,5 (yearly over the course of the Demonstration).	Average monthly cost of ED visits at year 1 (beginning of the Demonstration).		
			Most commonly experienced diagnoses in emergency departments by chronically homeless members, the associated costs, and changes over time.			
Hypothesis 8: The demonstration will reduce uncompensated care provided by Utah hospitals.						

To what extent were costs associated with uncompensated care in Utah hospitals reduced by the Demonstration?	Reduce uncompensated care costs	UDOH	Total cost of uncompensated care provided at year 1, 2,3,4,5 (yearly over the course of the Demonstration).	Total cost of uncompensated care prior to Demonstration.	Hospital Costs Reports	Descriptive statistics; T-test, chi square tests of significance. Time series analysis comparing target population pre / post to regional or national averages.
Demonstration Population – Blind and Disabled Dental- Adults age 18 and older who have blindness or a disability who receive a state plan dental benefit.						
Hypothesis 9: 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.						
To what extent did member ED dental procedures decrease as a result of the Demonstration?	Improve preventive dental services and reduce emergency dental procedure costs.	UDOH	Percent of ED dental services in year 2,3,4,5 (yearly over the course of the Demonstration).	Percent of ED dental services in year 1 (beginning of the Demonstration).	Utah Medicaid data	Descriptive statistics; T-test, chi square tests of significance. GEE
What were the costs associated with these emergency dental procedures?			Average monthly ED dental care cost per Blind/Disabled Adult member at year 2,3,4,5 over the course of the member's enrollment.	Average monthly ED dental care cost per Blind/Disabled Adult member in the member's first year of enrollment.		
To what extent did member preventive dental services increase as a result of the Demonstration?			Annual Utah rate of members with a preventive dental care visit per 1,000	Annual National rate of adults with a preventive care visit per 1,000		

What were the per capita costs associated with these preventive dental services?						
			Average monthly preventive dental care cost per Blind/Disabled Adult member at year 2,3,4,5 over the course of the member's enrollment.	Average monthly preventive dental care cost per Blind/Disabled Adult member in the member's first year of enrollment.		

C. 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.

D. 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.

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 (HIPPA 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 Part11 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. Conflict of interest document 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	
Faculty											
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	
Staff											
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 abov	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	
Total Direct					**$11,268**	**$46,060**	**$ 46,874**	**$ 47,806**	**$ 48,757**	**$ 12,435**	
Indirect (F&A) Cost				*14.80%*	**$1,668**	**$ 6,817**	**$ 6,937**	**$ 7,075**	**$ 7,216**	**$ 1,840**	
Grand Total					**$12,936**	**$52,877**	**$ 53,811**	**$ 54,881**	**$ 55,973**	**$ 14,275**	**$244,754**

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