DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop S2-25-26
Baltimore, Maryland 21244-1850

State Demonstrations Group

November 15, 2022

Jennifer Strohecker
Director
Division of Medicaid and Health Financing
Utah Department of Health
PO Box 143101
Salt Lake City, UT 84114-3101

Dear Ms. Strohecker:

The Centers for Medicare & Medicaid Services (CMS) completed its review of the Interim Evaluation Reports for 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 extended, and is currently called the "Medicaid Reform 1115 Demonstration," these reports—as were required by the Primary Care Network Special Terms and Conditions (STCs), specifically, STC #136—pertain solely to the prior demonstration approval period. These reports cover the demonstration period from 2017 through 2020. In the context of the considerations outlined below, CMS accepts the evaluation reports, dated June 28, 2022 and September 13, 2022. In accordance with STC "Public Access" STC #140, the evaluation reports must be posted to the state's Medicaid website within thirty days. CMS will also post the evaluation reports on Medicaid.gov.

In order to assess the effectiveness of the demonstration, the evaluation reports provide important quantitative data highlighting performance across a number of performance and outcome metrics. For example, there was evidence that the expanded dental benefits were associated with higher rates of dental visits for the blind and disabled and targeted adults groups. Also, enrollment in the Adult Expansion group totaled about 73,000, which aligned with prior predictions. Notwithstanding these informative, albeit largely descriptive findings, the evaluation report dated September 13, 2022 makes several notable departures from the approved Evaluation Design,[1] limiting the ability of the report to make causal inferences about the impact of the demonstration. CMS separately provided to the state feedback on the evaluation report.

[1] The report dated September 13, 2022 corresponds to three CMS-approved Evaluation Designs, which are available at https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/ut-pcn-tam-ce-bdd-upp-appvd-eval-des-09012022.pdf, https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/ut-pcn-rev-sud-eval-design.pdf, and https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/ut-primary-care-network-appvd-eval-des-11302020.pdf.

CMS and the state have determined that the state should devote its evaluation resources to activities for the current period of performance. In so doing, CMS expects, and the state agrees, that limitations in the Interim Evaluation Report will be addressed in the Summative Evaluation Report. CMS also notes that the Evaluation Design for the current demonstration period incorporates more rigorous evaluation techniques that will address many of these limitations. We appreciate the state's cooperation and commitment to robust evaluation of its current and future section 1115 demonstrations, and we look forward to continued collaboration.

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

Digitally signed by Danielle Daly -S
Date: 2022.11.15 17:59:20 -05'00'

Danielle Daly
Director
Division of Demonstration Monitoring and Evaluation

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

Utah Adult Expansion and Employer Sponsored Insurance (ESI) Demonstration Interim Evaluation Report

Report prepared by the Public Consulting Group: June 30th, 2021.
Revised: June 28, 2022.

PUBLIC CONSULTING GROUP

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A. Executive Summary

Description of the Demonstration

In November of 2018 a statewide ballot initiative was passed by Utah voters requiring the state to provide Medicaid coverage for any persons under the age of 65 with incomes at or below 133% the Federal Poverty line (FPL), and increase the state's sales tax from 4.7% to 4.85% to assist in financing the state's required portion of expenses for this expansion (which in 2019 was scheduled to be 7% of total costs).[1] During the ensuing legislative session, the Utah Legislature drafted and passed Senate Bill 96 the "Medicaid Expansion Adjustments" Act which was subsequently signed into law. The Act established a limited Medicaid expansion program which reduced the eligibility level of participants to 100% FPL and among other alterations, included a requirement that any newly eligible individual enroll in employer-sponsored insurance (ESI) should such qualified coverage be available. The adjustments also required potentially eligible enrollees to complete "community engagement" requirements, which were subsequently suspended due to the public health emergency (PHE) in April 2020. The removal of community engagement requirements became permanent on August 10, 2021, when CMS formally withdrew approval of this component of the demonstration.

The full expansion was ultimately authorized through an amendment to the state's existing 1115 waiver, which was approved by CMS on December 23, 2019. The amendment authorized a demonstration program scheduled to expand coverage to newly eligible individuals at or below 133% FPL. In practice, expansion occurred in two phases. Phase one was a limited expansion, extending coverage eligibility limits partially to individuals with annual income levels below 100% FPL. Phase one operated through the demonstration's first year (technically referred to as "DY17" as it was a continuation of a previous waiver-enabled program) from July 1st, 2018 - June 30th, 2019. Phase two (DY18 - 20) includes a full expansion of eligibility to individuals at or below 133% FPL. and runs through the end of the waiver period on July 1st, 2022.

The goals of this demonstration are to increase access to health coverage and primary care, to reduce the need for uncompensated care, to support the use of ESI by providing premium reimbursement for employer-sponsored health plans, and to improve the health and well-being of Utah residents.

This interim evaluation report is reviewing the impacts of the Demonstration from its start on April 1st, 2019, through December 31st, 2020. The waiver will continue through July 1st, 2022, following which, a summative evaluation report will be conducted.

Evaluation Approach

To evaluate the impact of the demonstration, logic models were developed to link each goal with measurable outcomes that could be monitored throughout the term of the demonstration. A quasi-experimental approach was adopted, in which participants can be compared to non-participants and to similar Medicaid beneficiaries in other states. This approach relies on data from Utah's All-Payer Claims Database (APCD), and national survey data from the Behavioral Risk Factor Surveillance System (BRFSS). These datasets were not available at the time of the publication of this Interim Report, as a result, the Independent Evaluator (IE) has used Medicaid claims data to explore patterns of utilization, and participation in ESI, during the first year of the demonstration. These Interim findings do not assess demonstration impact but provide a valuable snapshot of the population at baseline and provide insight into the available levers for change.

[1] Utah Proposition 3, Medicaid Expansion Initiative (2018).

FINDINGS

ENROLLMENT:

Overall, during the observed time-period, 72,812 Utahns have gained coverage through the expansion, tracking closely with initial estimates of 78,478. The vast majority of whom (99.7%) received coverage through the Medicaid program with less than one percent (0.33%) receiving coverage as a result of the ESI requirement. Most of the expansion population (71%) is comprised of individuals between the ages of 19-44 with slightly more than half (53.1%) being female. Of the few individuals receiving coverage through qualified ESI plans, 71% are under the age of 45 while only 12.2% are between the ages of 55-64.

ACUTE CARE UTILIZATION

Rates of emergency department (ED) use by adult expansion members were lower than the non-expansion Medicaid population. Expansion adults used the ED at a rate (361 visits per 1,000 members) similar to the state's overall emergency department utilization (EDU) rate. Approximately one in fourteen (6.9%) ED visits were attributed to a behavioral health (BH) primary diagnosis. Men were more likely than women to visit the ED for BH conditions. Overall, ED visit rates decreased steadily until quarter 3, and then experienced a sharper decline between March and April of 2020, which may be in part due to the Covid-19 PHE.

The IE identified 4.4% of the expansion population as experiencing "High Utilization of the Emergency Department" (HUED), defined as four or more ED visits during the measurement year. Visits by HUED members accounted for 46% of all ED visits among the expansion population during the measurement year. The rate of ED use amongst this population was around nineteen times the rate of ED use among the general Medicaid population (6,912 visits per 1,000 members compared to 361 visits per 1,000 members respectively). In the HUED group, the older members (7,089 visits per 1,000 members) return to the ED more often than younger (6,867 visits per 1,000) or middle-aged members (7,002 visits per 1,000). HUED men and women differed in their reasons for visiting the ED; however, among males, 32% of all ED visits had an associated BH/Alcohol and Other Drugs (AOD) diagnosis compared to 18% for HUED women.

The adult expansion (AE) population experienced 16 hospital admissions, totaling 95 total inpatient days, per 1,000 member months, during the year. The most common primary diagnoses were Sepsis, Covid-19, and Major Depressive Disorder. Covid-19 was the second most common primary diagnosis among hospitalizations, with 2,631 raw claims in the measurement period.

PRIMARY, AMBULATORY, AND PREVENTIVE CARE ENGAGEMENT

Close to half of the newly enrolled (45%) sought at least one preventive care visit or experienced an ambulatory visit during the observation period. Female (49%) enrollees outpaced male (40%) enrollees in seeking this care, as did older members compared with younger ones. Studies comparing similar populations in states with recently expanded programs over similar time periods indicate that Utah's expansion population is using fewer of these services than recommended, as is common for newly

insured individuals.[2] In addition, this measurement year included the period during 2020 when many facilities were closed for routine in-person services and some members may have delayed care or been unable to access care due to PHE restrictions.

Just 5.8% of the AE population had a diabetes diagnosis reflected in claims during the measurement period. Of those diabetic members, 68% received a Hemoglobin A1c test during the measurement period to monitor their blood sugar. For members who take ACE inhibitors or diuretics to control chronic conditions, 70% had a recommended monitoring event during the measurement period. Among female members in the age groups recommended for preventive screenings, 21% had at least one cervical cancer screening, and 20% had a mammogram to screen for breast cancer. These monitoring and screening rates also were below available benchmarks for similar populations.

Behavioral Health and Integrated Care

There were 7,148 members in the AE population with a new episode of AOD abuse during the measurement year. The majority (52%) initiated treatment within 14 days of the diagnosis. Almost half of members who initiated treatment stayed engaged in ongoing treatment. Thus, overall, 25% of AE members with a new episode of AOD abuse and dependence initiated and were engaged in ongoing treatment during the year. Less than 2,000 members in the AE population were hospitalized for treatment of selected mental health disorders or intentional self-harm diagnoses. Over a third of these individuals (38.65%) had a follow-up visit with a mental health provider within 7 days of discharge and the majority (58%) had a follow-up visit with a mental health provider within 30 days of discharge. When considering a broader range of BH conditions, 6,503 individuals had inpatient stays, and 26% of these discharges led to an unplanned readmission.

Employer Sponsored Insurance

Overall, the ESI requirements resulted in 322 individuals receiving care through their employer-sponsored plans as a result of the program's requirement to do so. This represented less than one half of one percent of the total number of individuals included in the expansion population. Over 70% of individuals receiving ESI were between the ages of 19-44. The average premium payment paid by the state for ESI members during the measurement year was $137.58, though this number varied month to month throughout the observation period. Similarly, the average claim amount paid by the state for ESI members during the measurement year was $69.09 bringing the total average expenditure per member per month for ESI members to just over $200.

Conclusions, Implications, and Recommendations

Throughout the observational period, Utah's Medicaid expansion program appears to be proceeding according to prior program predictions of enrollment. The AE population thus far is demographically similar to other states' expansion populations, with a predominance of younger adults. As is typical for individuals who have recently been uninsured or underinsured, AE members exhibited relatively low engagement in primary and preventive care, unmet BH needs, and concomitant higher use of acute care. Utah can expect that the expansion of coverage, if combined with effective approaches to member engagement, can ultimately accomplish the demonstration goals of increased access, improved health,

[2] DeLia, Derek. "Primary Care for new vs Established Medicaid Enrollees." *Am J Manag Care. 2021;27(2):72-78.* https://doi.org/10.37765/ajmc.2021.88585

and cost containment. Two notable advantages of Utah's AE population are that chronic disease prevalence is comparatively low, and engagement in BH treatment is comparatively high. Low rates of diabetes are typical of Utah residents generally. The encouraging rates of engagement in BH treatment may reflect the state's ongoing investment in the BH system through multiple waiver programs and other initiatives. Based on these preliminary observations, the IE offers these recommendations:

1) Expect gradual change

2) Persist in integrating BH care

3) Focus on members with high ED use

4) Seek opportunities to increase enrollment in ESI

The IE also notes that the snapshot of the AE population described in this report reflects altered health care patterns driven by the Covid-19 pandemic, including reduced utilization broadly. Comparisons to benchmarks or published rates must be viewed with this caveat. In the Summative report, the IE will employ in-state and out-of-state-comparison groups, sensitivity analysis, and other techniques to account for pandemic effects.

B. General Background Information

Demonstration Name and Timing

During the 2019 General Session of the Utah State Legislature, the Utah State Legislature passed Senate Bill 96 "Medicaid Expansion Adjustments," which Governor Herbert signed into law. This legislation directed the Utah Department of Health (UDOH) Division of Medicaid and Health Financing (DMHF), which administers the Utah Medicaid program, to seek 1115 waiver approval from the Centers for Medicare and Medicaid Services (CMS) to implement specific proposals in its implementation of the adult Medicaid expansion. Several proposals were approved by CMS on March 29th, 2019, as part of the State's "Bridge Plan" for Medicaid expansion.

Among the proposals, CMS approved an amendment to Utah's existing Primary Care Network Section 1115 demonstration waiver to expand Medicaid to a capped number of adults with income up to 100% FPL beginning on April 1st, 2019. CMS also approved the ESI Demonstration Amendment to Utah's AE Demonstration, to be implemented starting January 1st, 2020, under the authority of Social Security Act section 1115(a)(2). The evaluation will cover the three year and three-month period from April 1st, 2019, through June 30th, 2022.

On December 23rd, 2019, CMS approved Utah's Fallback Plan waiver which expanded Medicaid coverage for adults at or below 133% FPL. This expansion began alongside the ESI amendment in January of 2020.

Demonstration Goals

The aim of the AE and ESI demonstration is to improve wellbeing and health outcomes by expanding access to affordable health care coverage to eligible Utahns, in a fiscally sustainable manner.

The AE and ESI Demonstration have the following goals:

- Providing health care coverage for low-income Utahns that would not otherwise have access to, or be able to afford, health care coverage;
- Improving participant health outcomes and quality of life;
- Lowering the uninsured rate of low-income Utahns;
- Supporting the use of employer-sponsored insurance (ESI) and providing premium reimbursement for ESI plans; and
- Providing continuity of coverage for individuals.

The AE and ESI demonstration advance these highlighted goals by providing coverage to uninsured adults who otherwise would have limited options for affordable health coverage. These individuals fall in the coverage gap and are not eligible for subsidies to purchase coverage through the Marketplace. In addition, the ESI demonstration supports the use of ESI by providing premium reimbursement and wrap-around Medicaid coverage.

DESCRIPTION

The AE provides coverage to adults aged 19-64 who have income at or below 133% FPL, who have limited options for affordable health coverage, and who are not eligible for subsidies to purchase coverage in the marketplace. 133% FPL is defined as $17,136 for an individual or $35,256 for a family of four.

For individuals eligible for the AE demonstration, a community engagement requirement was approved for this population, as part of the expansion authorized in the March 29th, 2019, amendment to the State's 1115 Demonstration Waiver. Because of the Covid-19 Pandemic and PHE, the community engagement amendment was suspended in March 2020. Approval for the community engagement requirement was later withdrawn by CMS on August 10, 2021[3].

The ESI amendment, approved on March 29th, 2019 under the State's 1115 Demonstration waiver, requires AE-eligible individuals with access to ESI to enroll in their ESI coverage. Eligible individuals in the ESI demonstration will be reimbursed for the full amount of the individual's share of the monthly premium cost of the qualified plan. In addition, the individual will receive wrap-around benefits through the State's fee-for-service (FFS) Medicaid program. Failure to enroll in, and purchase, the ESI insurance plan will result in ineligibility for Medicaid. In order to be eligible for reimbursement, the health insurance plan must meet the criteria for a qualified health plan, as defined by the State. The employer must pay at least 50 percent of the premium for the primary insured individual.

POPULATION

The population studied will be the AE Medicaid population in Utah. This includes all adults aged 19-64 with household incomes at or below 133% FPL. who are not otherwise eligible for Medicaid. Adults without dependent children enrolled in this eligibility group will receive full state plan benefits and adults with dependent children/caretakers will receive the slightly modified benefit package that the mandatorily covered section 1931 parents/caretakers population receives, consistent with the currently approved Primary Care Network (PCN) demonstration.

[3] CMS Letter to State, August 10, 2021 https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/ut-primary-care-network-state-ltr-08102021.pdf

Members of federally recognized tribes will be exempt from the requirement to purchase ESI coverage under the ESI amendment. However, members of federally recognized tribes may seek reimbursement for the full amount of the individual's share of the monthly premium cost of the qualified plan if they choose to enroll in a qualified ESI health plan and participate in the ESI demonstration.

TABLE 1: ADULT EXPANSION ENROLLMENT PROJECTIONS

	DY17 (7/1/18-6/30/19) (Partial Expansion up to 100% FPL)	DY18 (7/1/19-6/30/20)	DY19 (7/1/20-6/30/21)	DY20 (7/1/21-6/30/22)
Projected Member Months				
Expansion Parents	91,291	374,293	383,650	393,241
Expansion Adults without Dependent Children	138,400	567,439	581,625	596,166
Total Member Months	229,691	941,732	965,275	989,407
Projected Enrollment				
Average number of beneficiaries	19,141	78,478	80,440	82,451

CONTEXT

The AE and ESI waiver amendments are part of a new series of amendments to Utah's 1115 PCN Demonstration Waiver, which was a statewide waiver that was originally approved and implemented in 2002. Since 2002, the PCN demonstration has been extended, renewed, and amended multiple times to add additional benefits and programs.

Utah's PCN demonstration originally expanded Medicaid coverage to certain adults not eligible for state plan services, such as categorically or medically needy parents or other caretaker relatives. This expansion population of parents, caretaker relatives, and childless adults were covered under a limited package of preventive and primary care services. High-risk pregnant women whose resources made them ineligible under the state plan were also covered under the demonstration for the full Medicaid benefits package. As of April 1st, 2019, these PCN-eligible individuals were transitioned to the AE demonstration population, and the PCN program was suspended.

In November 2018, Utah voters supported a ballot initiative to adopt the full Medicaid expansion as set out in the Affordable Care Act, which would include coverage for childless adults with incomes at or below 133% FPL. and parents/caretakers with incomes from 60% to 133% FPL. State legislation introduced in the 2018 and 2019 General Session of the Utah State Legislature, Senate Bill 96 "Medicaid Expansion Adjustments," was passed to amend the ballot measure and required UDOH to seek approval of a waiver request for partial expansion for eligible individuals up to 100% FPL.

On March 29th, 2019, CMS approved an amendment to Utah's existing 1115 demonstration waiver to expand Medicaid and included approval for the community engagement requirement and ESI amendments. Under the "Bridge Plan," the State was approved to expand coverage to adults earning up to 100% FPL, which opened Medicaid enrollment, funded by a 70% federal/ 30% state match rate, on April 1st, 2019. On December 23rd, 2019, CMS approved expansion of Medicaid coverage for adults at or below 133% FPL, which allowed the State to receive the increased 1115 Federal Medical Assistance Percentage (FMAP) for this population (90% federal funds, 10% state match). The waiver amendments are approved through June 1st, 2022.

The AE and ESI amendments are intended to increase coverage to low-income Utahns and support the goals of improving health and well-being. An estimated 120,000 Utahns became eligible for the Medicaid expansion program. Because of the income loss many Utahns are facing due to the Covid-19 pandemic and PHE, the number of Utahns with incomes at or below 133% FPL is likely to increase, which would increase Medicaid enrollment numbers for the duration of the PHE. Certain eligibility reviews and terminations have been postponed until after the PHE ends. Projected enrollment (Table 1) is approximately 80,000 unique individuals each year.

C. Evaluation Questions and Hypotheses

Figure 1: Adult Expansion Logic Model

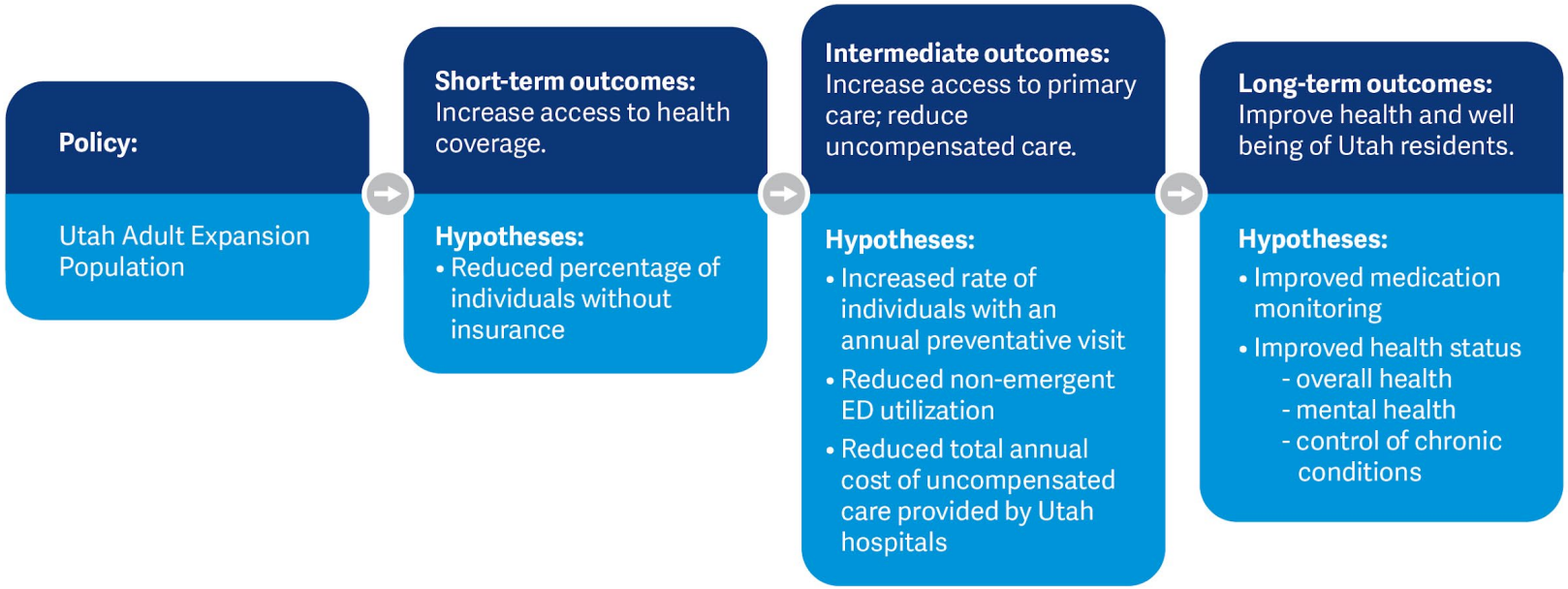
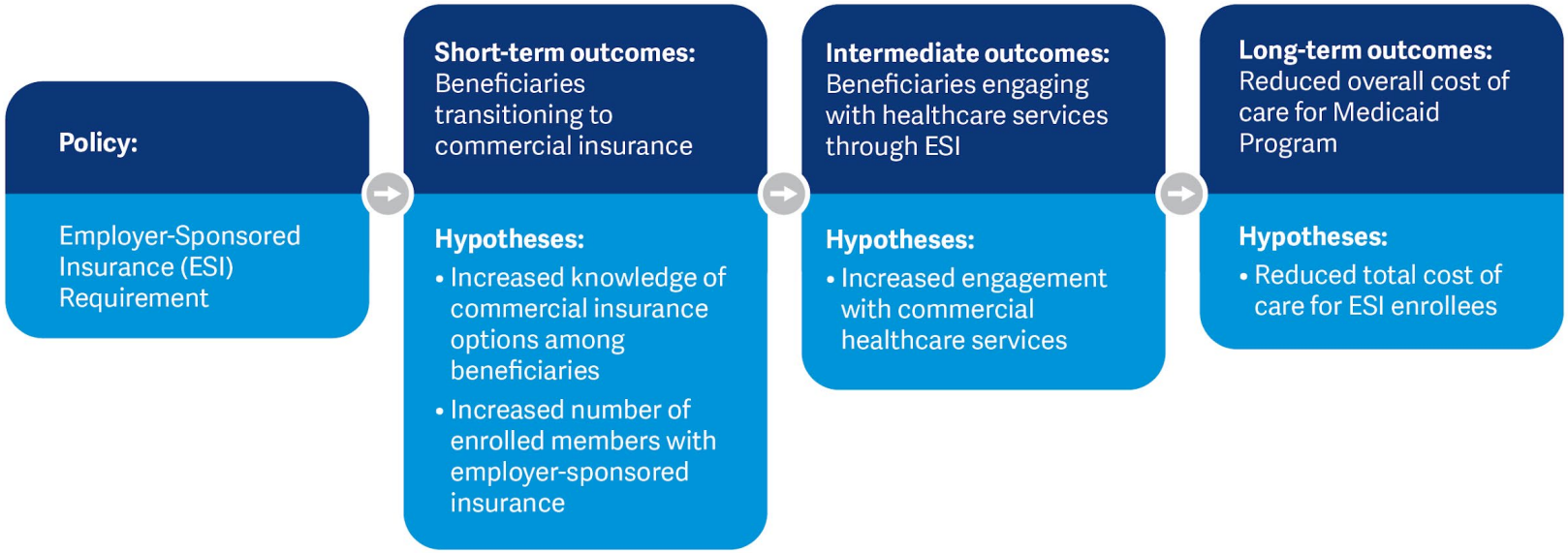


FIGURE 2: ESI LOGIC MODEL



Utah's AE provision both extends Medicaid eligibility to adults whose annual income is at or below 133% FPL and provides premium reimbursement and wrap-around Medicaid coverage to individuals who have access to ESI.

The goals of this expansion are to increase access to health coverage and primary care, to reduce the need for uncompensated care, to support the use of ESI by providing premium reimbursement for employer-sponsored health plans, and to improve the health and well-being of Utah residents. Accordingly, the overarching evaluation questions are:

1. *Did the demonstration increase the number of adult beneficiaries gaining access to health coverage?*
2. *Did the demonstration increase the number of adult beneficiaries gaining access to primary care and reduce uncompensated care?*
3. *Did the demonstration improve the health and well-being of Utah residents?*
4. *Did the demonstration increase the number of beneficiaries transitioning to commercial insurance and engaging with healthcare services through ESI?*
5. *Did the demonstration increase access to primary care for ESI enrollees?*
6. *Did the demonstration reduce the overall cost of care for the UT Medicaid Program?*

The logic models[4] above represent these aims as a natural progression from the proximate to distal outcomes the state expects to achieve through program elements. Each outcome corresponds to a testable hypothesis of the impact of the demonstration. Table 3: Measure Table specifies the measures that will be used to assess each hypothesis.

The immediate objective of the demonstration is to increase the number of adult beneficiaries gaining access to health coverage. To accomplish this objective, the demonstration expands Medicaid eligibility to all Utah residents ages 19-64 whose annual income is at or below 133% FPL. An estimated 120,000 Utah residents are newly eligible for expanded Medicaid benefits under the new criteria. The state hypothesizes that the demonstration will reduce the percentage of individuals without health insurance. This hypothesis will be evaluated by tracking the state's uninsured rate over time, with subgroup analyses and comparisons to neighboring states.

By increasing access to health coverage, the demonstration aims to increase the number of adult beneficiaries gaining access to primary care, and to reduce uncompensated care. The state expects that increased access to primary care will encourage participation in primary and preventive care and reduce utilization of ED services by AE members. The evaluation hypothesis is that claims for primary and ambulatory care, diabetes management, and preventive women's services will increase, while ED visits will decrease.

Uncompensated care is defined as hospital care for which no payment was received from the patient or insurer. The Utah Medicaid Expansion will allow a previously ineligible population to enroll in Medicaid, thus steering them away from utilizing uncompensated care. The evaluation hypothesis is that the total cost of uncompensated care provided by Utah hospitals, as tracked through the Hospital Cost Report, will decrease.

The long-term aim of the AE demonstration is to improve the health and well-being of the Utah population. The state anticipates that as beneficiaries receive care regularly, in appropriate settings, they will be more likely to manage their health conditions effectively, as reflected by an increase in effective

[4] The AE and ESI logic models are based on the driver diagrams in the CMS-approved Evaluation Design and have been updated and revised to include all outcomes of interest.

management of medications for chronic conditions, and in integrated care for BH conditions. The state further hypothesizes that beneficiaries will be less likely to experience adverse health outcomes, and this trend will be reflected in fewer hospitalizations.

The ESI component of the demonstration aims to increase the number of beneficiaries transitioning to commercial insurance. By facilitating enrollment in ESI, the state intends to encourage beneficiaries to engage with the health care system and private health plans. The state hypothesizes that beneficiaries enrolled in ESI will access primary care and care for chronic conditions though their private insurance at rates similar to other beneficiaries. The long-term goal of the ESI component is to promote the fiscal sustainability of the state Medicaid program. To test the fiscal sustainability hypothesis, the evaluation will examine the total cost of care for ESI enrollees, which is expected to be lower than the total cost of care for beneficiaries in the AE population. The state expects by subsidizing ESI, the demonstration will reduce the overall cost of care for the Medicaid program.

D. Methodology

Evaluation Design

Summary of approach

The Independent Evaluator (IE) conducted descriptive analyses of administrative data from UDOH to address the evaluation questions adapted from the original evaluation design, derived from the goals and hypotheses presented in the waiver application. The Interim evaluation report reflects a preliminary portion of a longitudinal cohort study, with outcomes tracked over the demonstration period.

The Interim Report contains descriptive analysis of trends in acute care utilization and health care engagement with comparisons among in-state groups that are derived from Medicaid Claims data. As summarized in Table 2, the interim report investigated the trends of the AE population during the first calendar year of the expansion in DY19, using encounter and administrative data available through UDOH. This enabled the IE to calculate claims-based measures of utilization for the demonstration population and compare age and gender subgroups.

For the Summative Report, the IE will use additional data sources and analytic approaches. The final evaluation report will employ a quasi-experimental difference-in-difference (DiD) approach in which the demonstration population is compared to similar groups of non-beneficiaries with Utah, and to Medicaid beneficiaries in other states. Additional measures, including the state uninsured rate, will be available through national survey data. For these outcomes, DiD analysis will include a comparison group of Medicaid beneficiaries, or residents in comparable income bands, from neighboring states. Using the BRFSS through 2022, the Final Report will include DiD analysis covering pre-demonstration years DY18-DY21. In-state DiD comparisons will rely on claims data from Utah's APCD to construct a group of similar residents who are not enrolled in Medicaid. The Final Evaluation Report will include findings for all hypotheses and research questions.

TABLE 2: RESULTS AVAILABLE IN INTERIM REPORT AND IN THE SUMMATIVE REPORT

	Interim Report	Summative Report
Time period	April 1st, 2019 - December 31st, 2020	April 1st, 2017 – March 31st, 2019 (Baseline Period) April 1st, 2019 –June 30st, 2022 (Intervention Period);
Data sources	✓ Medicaid Claims (MMIS)	✓ Medicaid Claims (MMIS) ✓ BRFSS ✓ APCD
Analyses	✓ Trend over time	✓ Interrupted Time Series ✓ Difference in difference comparison to non-beneficiaries in APCD ✓ Difference in difference comparison to neighboring states population in the same income range (BRFSS data)
Approach	Descriptive	Quasi-experimental
Findings	Trends within Medicaid population during demonstration	Impact of demonstration

TARGET AND COMPARISON POPULATIONS

The target population for the AE provision is the adult expansion Medicaid Population. This includes adults aged 19-64 with household incomes at or below 133% FPL. who are not otherwise eligible for Medicaid.

For the Interim Report, analysis of MMIS data included all individuals continuously enrolled in Medicaid for 12 consecutive months. Continuous enrollment is defined as having no more than 45 days total gap in enrollment during the measurement year.

For the ESI provision, the target population is AE members enrolled in commercial plans through their employers. Members with ESI enrollment dates that began and ended on the same day were excluded from the population.

The IE used standard NCQA measures where possible but modified the specifications of individual measures to fit the needs of the Interim Report evaluation, taking into account the single year of administrative data and the evidence required to answer evaluation questions. The modified specifications for each measure are available in Appendix 1.

Evaluation Period

The period being evaluated is the period between the implementation of Medicaid expansion in the state of Utah and the end of the current waiver (April 1st, 2019 – July 1st, 2022). The evaluation period for the Interim evaluation report begins on April 1st, 2019 and ends on December 31st, 2020. This aligns with 3 months of DY17, DY18 and the first half of DY19. The evaluation population is new to Medicaid, so pre-demonstration claims are not available for all members.

Since NCQA measures are defined around a 12-month measurement period, NCQA measures were calculated for the time period from July 1st, 2019, to June 30th, 2020.

Evaluation Measures

Table 3: Measure Table

Measure Name	Measure Description	Data source	Analytic Approach	
			Interim Report	Summative Report
Adult Expansion				
Hypothesis 1: The demonstration will increase access to health coverage.				
Primary research question 1.1: Did adult expansion reduce the number of uninsured low-income Utah residents?				
Number of uninsured	Rate of uninsured among people with incomes in the range eligible for Medicaid through adult expansion	BRFSS	Not in Interim report	DiD; Multiple linear regression; ANOVA
Hypothesis 2: The demonstration will increase access to primary care and improve appropriate utilization of emergency department (ED) services by adult expansion members.				
Primary research question 2.1: Did adult expansion increase access to primary care?				
Adults' Access to Preventive/Ambulatory Health Services (AAP)	Fraction of beneficiaries who had an ambulatory or preventive care visit during the measurement year.	Claims	Descriptive statistics	Logistic Regression; ANOVA
Comprehensive Diabetes Care (CDC)	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) Modification: Fraction of beneficiaries who had two A1C tests per year (CPT 83036) and one albumin lab test (CPT 80243) per year	Claims	Descriptive statistics	Logistic Regression; ANOVA

Cervical Cancer Screening (CCS)	Women 21-64 years of age with one or more Pap tests within the last 3 years or for women 30-64 years of age, a cervical cytology and human papillomavirus (HPV) co-testing with in the last 5 years	Claims	Descriptive statistics	Logistic Regression; ANOVA
Breast Cancer Screening (BCS)	Women 21-64 years of age with one or more Pap tests within the last 3 years or for women 30-64 years of age, a cervical cytology and human papillomavirus (HPV) co-testing with in the last 5 years	Claims	Descriptive statistics	Logistic Regression; ANOVA
Primary research question 2.2: Did adult expansion reduce non-emergent ED utilization?				
Emergency Department Utilization (EDU)	Assesses emergency department (ED) utilization through rate of visits.	Claims	Time Series; Descriptive statistics	Multiple linear regression; ANOVA
Non-emergent ED utilization.	Rate of average monthly ED visits without a qualifying diagnosis	Claims	Not in Interim report	Multiple linear regression; ANOVA
Hypothesis 3: The demonstration will reduce uncompensated care provided by Utah hospitals.				
Primary research question 3.1: Did adult expansion reduce uncompensated care?				
Total Cost of Uncompensated Care	Total cost of uncompensated care provided by UT	Administrative Data	Not in Interim report	Multiple linear regression; ANOVA
Hypothesis 4: The demonstration will improve the health and well-being of Utah residents.				
Primary research question 4.1: Did adult expansion improve the health of participants?				
Annual Monitoring for Patients on Persistent Medications (MPM) (modified)	Fraction of beneficiaries who received at least 180 treatment days of ambulatory medication therapy for a select therapeutic agent during the measurement year and at least one	Claims	Descriptive statistics	Logistic Regression; ANOVA

	therapeutic monitoring event for the therapeutic agent in the measurement year.			
Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	Fraction with a new episode of alcohol or other drug dependence who: 1) initiated treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization, telehealth or medication-assisted treatment (MAT) within 14 days of diagnosis. 2) had two or more additional AOD services or MAT within 34 days of the initiation visit.	Claims	Descriptive statistics	Logistic Regression; ANOVA
Integrated care- Follow-Up After Hospitalization for Mental Illness: Age 18 and Older (FUH-AD)	Follow-up after hospitalization for mental health or SUD within 7 days. Initiation and engagement of Alcohol and other Drug Abuse of Dependence Treatment with 14 day and 30 day follow up	Claims/Administrative data	Descriptive statistics	Logistic Regression; ANOVA
Hospitalization- Acute Hospital Utilization (AHU)	All Cause Hospital Readmission Overall inpatient hospitalization per thousand	Claims/Administrative data	Descriptive statistics	Logistic Regression; ANOVA
Health-related quality of life	Healthy Days Measures (covers physical and mental health)	BRFSS	Not in Interim report	DiD; Multiple linear regression; ANOVA
ESI				
Hypothesis 1: The demonstration, by subsidizing ESI enrollment, will encourage beneficiaries to transition to commercial insurance.				
Primary research question 1.1: Did beneficiary knowledge of commercial insurance options increase?				
Beneficiary knowledge of ESI	Outreach and education conducted to inform beneficiaries about ESI	Key Informant Interviews	Not in Interim Report	Multiple linear regression; ANOVA

Primary research question 1.2: Did the number of beneficiaries enrolled in ESI increase?				
Subsidized ESI enrollment	Number of beneficiaries enrolled in ESI	Administrative data	Descriptive statistics	Trend over time
Hypothesis 2: The demonstration, by subsidizing ESI enrollment, will encourage engagement with healthcare services through ESI.				
Primary research question 2.1: Did beneficiaries enrolled in ESI access primary care and care for chronic conditions at rates similar to other beneficiaries?				
Engagement in primary care	Fraction of beneficiaries who have had a PCP appointment in the last 12 months	All-Payer Claims Database	Not in Interim Report	DiD; Logistic Regression; ANOVA
Adults' Access to Preventive/Ambulatory Health Services (AAP)	Fraction of beneficiaries who had an ambulatory or preventive care visit during the measurement year.	All-Payer Claims Database	Not in Interim Report	DiD; Logistic Regression; ANOVA
Comprehensive Diabetes Care (CDC)	Assesses adults 18–75 years of age with diabetes (type 1 and type 2) Modification: Fraction of beneficiaries who had two A1C tests per year (CPT 83036) and one albumin lab test (CPT 80243) per year	All-Payer Claims Database	Not in Interim Report	Logistic Regression; ANOVA
Hypothesis 3: The demonstration, by subsidizing ESI enrollment, will reduce Medicaid program costs.				
Primary research question 3.1: Was the overall cost of care for an ESI enrollee lower than for a non-ESI enrollee?				
Total Cost of Care for ESI enrollees	Overall cost of care for ESI-enrolled individual compared to non-ESI enrollee	Claims	Descriptive	Multiple linear regression; ANOVA
Primary research question 3.2: What are the administrative costs associated with implementation of ESI?				
Implementation costs	Cost incurred for implementing ESI, including Department of Workforce Services (DWS) contract for staff time and information technology (IT) upgrades required to plan, administer and implement ESI.	Administrative data	Descriptive	Descriptive

DATA SOURCES

Description of the claims data set and steps taken for validation and cleaning

The evaluation for the Interim Report relies on Medicaid Administrative Data collected by UDOH and stored in the state's MMIS data warehouse. This data contains information on member eligibility, claims, discharge diagnoses, procedure codes, surgical codes, and prescription drugs. The state uses this data to report to CMS as part of the approved UT Primary Care Network waiver monitoring protocol.

Efforts to validate and clean the data began upon receipt of the secure data transfer from the state. Claims were loaded on the IE's AWS server and counts for all tables were validated with the state before any transformation occurred. Guided by the data dictionary supplied by UDOH, the IE followed a rigorous process to inspect all fields for nulls and inconsistent values. The IE then met with the state to verify how the demonstration population was categorized within the data and inspected these fields for outliers.

The next step in data validation was defining continuous enrollment for the expansion population. Individuals with gaps > 45 days were removed, as were individuals with incomplete or erroneous enrollment information. Once this was accomplished, the IE created a separate table of the eligible population for further analysis.

Additional data to be used in the Summative Report

The evaluation for the Summative Report will use all available data sources:

- National Survey Data: Behavioral Risk Factor Surveillance System (BRFSS)
- Utah All-Payer Claims Data
- Medicaid Administrative Data
- Key Informant Interviews (KIIs)

The measures used for evaluation are listed in Table 3.

National Survey Data

The IE will use publicly available files from the Behavioral Risk Factor Surveillance System (BRFFS) data to answer research questions about changes in insurance coverage and health status of low-income residents (Table 4). BRFSS collects data on over 400,000 adult U.S residents' health related risk behaviors and events, chronic health conditions, and use of preventive service across all 50 states, the District of Columbia and three U.S territories. The IE anticipates leveraging the BRFSS data for Health-Related Quality of Life estimates. Specifically, the IE will use BRFSS to understand eligible Medicaid beneficiaries' general health status, physical health status, mental health status, and impact of health status on quality of life. These estimates for Utah will then be compared against national trends and a nationally derived synthetic control.

Measures employing national survey data for an out-of-state comparison for DiD analysis will use a three-year pre-demonstration baseline. The measurement period for national surveys does not align with the demonstration years or benefit periods, so the annual survey datasets will not perfectly represent the demonstration timeline. For the years prior to demonstration launch, and for each demonstration year, the closest available datasets will be used.

TABLE 4: APPLICATION OF NATIONAL SURVEY DATA

Survey Name	Topic	Survey Questions
BRFSS	Health status	• Healthy days • Anxiety/depression symptoms • Having a PCP • Primary care engagement • Delayed or avoided care
	Coverage	• Uninsured • Type of coverage

UT All-Payer Claims Database

The IE will utilize data from Utah's APCD primarily to investigate trends in access to primary care and care for chronic conditions for AE beneficiaries enrolled in ESI. Utah's APCD has collected data from public and private payers for over a decade. It became the fifth operating APCD in the country in 2009. Utah's APCD includes data from 93% of the state's commercially insured market, providing a representative sample for tracking health outcomes among ESI beneficiaries. The IE has applied for IRB approval to access APCD data for AE members, including the non-Medicaid claims for ESI enrollees.

Medicaid Administrative Data

The IE is working with UDOH to obtain additional administrative data to complement the claims and survey data. These include:

- Data on administrative costs of ESI implementation
- Data from UDOH constituent affairs, and reported by health plans, on complaints/concerns communicated by beneficiaries

Where available, these will be incorporated into the Summative Report.

Key Informant Interviews

Qualitative data on program implementation will be gathered through key informant interviews (KIIs) with providers and state administrators. A total of 20-24 KIIs are planned; three at each of the four health plans, five state employees participating in implementation, and at least three community-based providers. For each health plan participating in the demonstration,[5] the IE will interview individuals from multiple different perspectives: a clinician that serves Medicaid patients, someone in a managerial role who is familiar with the ACO and UMIC program, and another employee involved in implementing the member-facing aspects of the demonstration. For example, from one of the managed care organizations, the IE will interview the following individuals: a physician, the Chief Medical Officer of the health plan, the Vice President of Government Contracts, the Assistant Vice President of Health Plan Operations, and the Manager of Government Contracts.

In addition to the administrative contacts from the health plans, the IE will interview at least three community-based providers, such as primary care providers and behavioral health clinicians, who directly

[5] The four health plans are Healthy U, Health Choice Utah, Molina Healthcare, and SelectHealth Community Care. All four provide both ACO and UMIC plans.

serve Medicaid patients at sites such as community health centers, in order to capture the perspective of front-line clinicians. These providers will be asked about topics including integration of behavioral health care, barriers to access, and their perceptions of patients' engagement in care.

Semi-structured key informant interviews lasting 30-45 minutes per contact will be conducted by phone or videoconference, with privacy protections in accordance with CMS guidelines. Interviews will be recorded and transcribed. Interview guides were developed by the IE in collaboration with UDOH for providers, health plans, and for state administrators involved in implementation of the waiver demonstration. Based on the interviewee's role, the interview guide and questions asked will be tailored accordingly. For example, state administrators will be invited to discuss the program rollout and feedback received from plans, health plan representatives will be asked about the plan's approach to integrating BH services, and questions regarding telehealth experiences will be directed towards clinicians.

As appropriate, interviews will explore successes and challenges with regard to program implementation, especially in light of the PHE, and other topics drawn from the logic model; examples are shown in Table 5. Interview guides will include questions that address disparities and health equity as appropriate for the interviewee's role. This may include population health analysis strategies, language services, and targeted outreach programs.

TABLE 5: TOPICS FOR KEY INFORMANT INTERVIEWS

Research Question	Example topics
Was the demonstration implemented effectively?	● Member outreach ○ How were residents notified about AE eligibility? ● How were those eligible for ESI notified? ● Perceived successes and challenges in implementation ○ Care integration with behavioral health ● Perceived steps towards integrating behavioral health with physical health services, e.g., screening and referrals ● Perceived impact of the PHE/pandemic on member engagement ● Perceptions about the role of telehealth in achieving demonstration goals ▪ How did members react to the transition to telehealth?
Did enrollment or outcomes differ by demographic factors?	● Perceptions of barriers to access and participation in care ● Participation in ESI ● Steps health plans/providers are taking to identify, understand, and address disparities in access and engagement

ANALYTIC METHODS

Technical and statistical methods used in this report

The IE employed primarily descriptive statistical methods for the Interim report to provide a snapshot of outcomes during the first year of the demonstration. The IE first utilized SQL to transform the data and the statistical software packages including STATA, SAS to analyze the data, generating descriptive statistics and assessing significant differences in comparisons of interest.

TABLE 6: EVALUATION STRATEGIES FOR INTERIM AND SUMMATIVE REPORT

Method	Comparison	Data sources
Subgroup comparison	Demonstration participants stratified by demographic and health factors	Encounter data, administrative data
Event study/ time series	Trend during demonstration for beneficiaries enrolled in the adult expansion Population	Encounter data Administrative data
Difference-in-difference	Pre to post demonstration change in beneficiaries compared to similar individuals in other states	APCD (in-state) BRFSS (other states)

The IE has used descriptive statistical methods to generate summary tables of population size and characteristics, and outcomes for demonstration participants. Data has been analyzed using standard tests as rates, proportions, frequencies, and measures of central tendency. Pearson chi-square tests and one-way ANOVA were used to generate p-values. These tables have been used to develop a quantitative picture of the population, and to describe patterns of utilization.

Analysis plan for Summative report

Trend over time and linear regression modeling

Outcomes of interest will be plotted over time for the duration of the demonstration and fitted with trendlines where appropriate in order to identify increasing or decreasing trends in outcomes. The evaluation will use the aforementioned data sources to understand how different subgroups of Adult expansion participants are impacted by the demonstration. Analyses will partition participants by age, race/ethnicity and gender. Where possible, race will include White, Black, Asian, Latinx, and Native American populations for stratification. Due to the low prevalence of some subgroups, it may be necessary to combine non-white racial groups into an “Other” category. Ethnicity will be characterized as Hispanic/Not Hispanic.

Out-of-state comparison using Synthetic Control Methods[6]

In order to examine the impact of the demonstration as a whole, the IE will use synthetic control methods (SCM) to estimate the association between implementation of Utah's Medicaid expansion and study outcomes. SCM have been employed to evaluate state-level policy impacts because they are particularly useful when estimating the impact of a policy change that affects a small number of treatment groups (i.e., a state).[7,8,9,10] These methods are a quasi-experimental approach similar to traditional difference-in-difference (DID) estimation but require fewer assumptions to obtain estimates of association. DID assumes that any differential changes in outcomes between treated and control groups are attributable to the policy change. Yet treated and control groups are often nonequivalent in terms of pre-treatment outcome levels, trends in outcomes, and other important covariates. To mitigate this limitation, researchers typically attempt to control for observed variables that may be associated with both treatment likelihood and the outcome of interest. However, treatment and control groups may still differ in terms of outcome pre-trends and levels due to unobserved factors. This introduces potential selection issues, which may bias any estimates of association.

In contrast, SCM constructs a synthetic control from a pool of groups not exposed to the treatment of interest – in this case other states. The synthetic control is constructed using a weighted average of the control groups, with weights chosen through a fully empirical process; weights for individual control units may range from 0 to 1 and are selected so the synthetic control is as similar as possible to the treated group in terms of outcome pre-trends. Unlike traditional regression, inclusion of covariates is not required to achieve equivalence between treated and control groups.

The full adult expansion Medicaid population (approximated based on age and income) will be the intervention group for this analysis. The IE will use data from the BRFSS for health outcomes. A three-year, pre-demonstration baseline will be used to determine the weights for the control states. The post-demonstration trend for Utah will be compared to the calculated values for synthetic Utah using linear regression.

For each outcome of interest, the IE will use BRFSS data for other states for each quarter of the three years prior to launch to construct a synthetic control[11] representing Utah's outcomes during the baseline period. The weights derived empirically during this stage will allow the IE to generate a predicted outcome value for "synthetic Utah" for each quarter during the demonstration period. This model will be used to find mean differences between actual Utah outcomes and predicted outcome of the synthetic control during the demonstration period.

The population served by the demonstration cannot be directly identified in BRFSS data. Therefore, the intervention (Utah) and comparison (other states) groups will be constructed by identifying individuals within the age and income bands served by Adult Expansion. The comparison will be of the estimated adult expansion population in Utah to the synthetic control, composed of equivalent individuals in control states. States that newly implemented Medicaid expansion during this time period will be excluded, but

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[6] The SCM approach is explained in more detail in the approved UMIC Evaluation Design, available at https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/ut-pcn-appvd-umic-eval-des-11292021.pdf

[7] Abadie, A., 2012. *Synthetic control methods for comparative case studies: estimating the effect of California's tobacco control program. J Am Stat Assoc* 105(490):493-505. https://www.tandfonline.com/doi/abs/10.1198/jasa.2009.ap08746

[8] Rudolph, K.E., *et al.*, 2015. *Association between Connecticut's Permit-ti-Purchase handgun law and homicides. Am J Public Health* 105(8):e49-e54. https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2015.302703

[9] Santella-Tenorio, J. *et al*., 2020. *Association of recreational cannabis laws in Colorado and Washington state with changes in traffic fatalities. JAMA* 180 (8):1061-1068. https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2767647

[10] Bhatt, A. *et al.* 2020. *Association of changes in Missouri firearm laws with adolescent and young adult suicides by firearms. JAMA Netw Open* 3(11). https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2772526

[11] CMS White Paper, October 2020, "Selection of Out-of-State Control Groups and the Synthetic Control Method.

all states that expanded before 2017 or did not expand Medicaid will be included.[12] Non-expansion states are included because they are likely to represent the closest match to pre-demonstration Utah.

Subgroup Analyses

The evaluation will use the aforementioned data sources to understand how different subgroups of AE participants are impacted by the demonstration. Analyses will partition participants by age, race and gender. Geographic patterns will also be investigated, using zip codes of residence to map beneficiaries to the three intervention types.

Pandemic effects

The IE will use multiple techniques to account for the impact of the Covid-19 pandemic on health care utilization. Trends for the demonstration population and comparison groups will be modeled with and without the most affected months of 2020. This sensitivity analysis will help identify differential impacts. If the pattern changes observed in the first quarter of the PHE are similar for all subgroups, then confounding of the results by pandemic impacts is less likely. Two useful dynamic variables that can be included in the modeling are county-level Covid-19 caseloads[21], and county-level community mobility.[22] Publicly available mobility data can be used as a proxy for the pandemic's impact on consumer behavior including attending medical appointments. The IE will explore using both caseloads and community mobility as covariates to minimize confounding by differential effects of the PHE.

Qualitative analysis

Qualitative analysis will be used for key informant interview transcripts. The research questions to be addressed, with corresponding example topics, are listed in Table 5. Interviews will address these questions by probing for perspectives from providers and from administrators involved in implementing the demonstration. Thematic analysis using a coding tree derived from the demonstration logic model will be used to excerpt transcripts. Additional themes that arise during coding will be added to the analysis. Results of provider interviews will be used to add context to the quantitative findings regarding experience of care, beneficiary engagement, and barriers to engagement. Results of provider and administrator interviews will address implementation and will inform the Evaluation Report chapter on Lessons Learned and Recommendations.

E. METHODOLOGICAL LIMITATIONS

1. **Short time period and limited dataset available for the Interim Report.** Only Medicaid claims data were available for the Interim report, which does not provide non-demonstration comparison groups. These quasi-experimental analyses will be conducted for the Summative Report, using BRFSS and APCD datasets. For the Interim Report, measures were calculated for a 12-month period, which provides a valuable baseline but does not allow the IE to evaluate change over time or test hypotheses regarding demonstration impact. All evaluation hypotheses will be addressed in the Summative Report.

2. **Lack of a true comparison group.** The UT adult expansion Population includes individuals aged 19-64 with household incomes at or below 133% FPL who are not otherwise eligible for Medicaid. As

[12] Based on dates of Medicaid expansion, Virginia, Maine, Idaho, Nebraska, Oklahoma, and Missouri will be excluded from the control pool. Other states may be excluded if they expand before 6/30/2022.

such, no true comparison group for this population exists. Other Medicaid beneficiaries are not comparable due to income and groups covered by traditional Medicaid which may have incomes at or below 133% FPL. To mitigate this limitation, in the Summative Report the IE plans to use both in-state comparison with non-beneficiaries, and out-of-state Medicaid beneficiaries for DiD analysis.

3. **Lack of historic data for newly eligible individuals.** As all Utah adult expansion enrollees are newly eligible, no pre-demonstration claims data is available for these individuals through Medicaid. The use of non-beneficiaries in state as a contemporaneous reference group provides a comparison without a pre-demonstration baseline.

4. **Sample size.** Sample size may be limited for some outcomes and subgroups.

5. **Historic effects.** The impacts of the pandemic/PHE expand beyond the expected increase in enrollment numbers. Participants' ability and willingness to make and keep appointments could impact demonstration goals to improve healthcare access. Analytic techniques described above will be used to minimize confounding.

6. **Lack of access to claims for ESI enrollees.** For beneficiaries enrolled in ESI, MMIS includes claims that were paid by Medicaid as wraparound coverage but does not include claims that were paid solely by the commercial payer. The IE anticipates being able to access private payer claims through the APCD for the Summative report, but due to the long-time lag, this data is not available for the Interim Report.

F. Results

Description of Population and Dataset

The AE population included in this dataset is comprised of individuals 19-64 who were continuously enrolled in the program throughout the measurement period, with continuous enrollment defined as having no more than 45 days total gap in enrollment during the measurement year. The AE population amounts to 72,812 unique members as of June 30th, 2020. Projected enrollment in DY18, which began on July 1st, 2019, and ended on June 30th, 2020, was 78,478 individuals. As a result, the dataset examined in this report likely captures the majority of the continuously enrolled AE population.

TABLE 9: ADULT EXPANSION AND ESI POPULATION AGE AND GENDER DISTRIBUTION

Age	Gender	Adult Expansion Population excluding ESI	Adult Expansion Distribution	ESI Population	ESI Distribution	% of Adult Expansion Population on ESI
19-44	Male	24,0245	33.0%	100	41.0%	0.42%
	Female	27,681	38.0%	114	46.7%	0.41%
	Total	51,705	**71.0%**	**214**	**87.7%**	**0.41%**
45-54	Male	5,851	8.0%	14	5.7%	0.24%
	Female	6,359	8.7%	13	5.3%	0.20%
	Total	12,210	**16.8%**	**27**	**11.1%**	**0.22%**
55-64	Male	4,256	5.8%	2	0.8%	0.05%
	Female	4,641	6.4%	1	0.4%	0.02%
	Total	8,897	**12.2%**	**3**	**1.2%**	**0.03%**
Total	Male	34,131	46.9%	116	47.5%	0.34%
	Female	38,681	53.1%	128	52.5%	0.33%
	Total	72,812	**100.0%**	**244**	**100.0%**	**0.33%**

The AE population at the interim is 71% younger adults (age 19-44). 17% of the total population is 45-54 and 12% is 55-64. The gender distribution of the AE population is 53% female and 47% male. Individuals enrolled in ESI represent a small proportion of the AE population, about 0.33%. The ESI population is younger than AE beneficiaries, with 88% under the age of 45, 11% between 45-54, and just 1% between the ages of 55 and 64. Similar numbers of men and women enrolled in ESI during the measurement period.

Acute Care Utilization

Emergency Department Utilization

Within the 12-month measurement period, there were 26,202 ED visits among the eligible population. This value includes 1,829 visits with a BH presentation. This excludes outlier visits where outlier visits are defined as 4 or more visits by the same patient in the measurement year. Continuously eligible AE members had an overall emergency department utilization (EDU)[13] rate of 361 visits per 1,000 members. ED utilization was highest among AE members between the ages of 45 and 54 years of age at 412 visits per 1,000 members. Group differences between the three age bands were significant ($p<0.005$). Rates were similar for males and females.

A caveat to this analysis is that the measurement period coincided with the PHE, affecting the frequency at which AE members visited the ED.

The following table shows ED utilization rates with and without BH/AOD visits for comparison. In the eligible population of AE members, 7% of all ED visits had a BH principal discharge diagnosis. Among males, 10% of ED visits were for BH-related diagnoses. In contrast, just 5% of ED visits among females had an associated BH principal discharge diagnosis. Males visited the ED for BH related diagnoses twice as often than females.(17.4 visits per 1,000 members as compared to 34 visits per 1,000 members for males).

The age distribution of ED visits for BH visits also differed from that of non-BH ED visits. While members 45-54 had the highest rate of non-BH ED visits, younger members between the ages of 19 and 44 had the highest rates of ED utilization for BH related diagnoses. Men aged 19-45, with a BH ED visit rate of 37.9, accounted for about half of the total BH ED visits.

[13] In order to address Primary Research Question 2.2, that expanding coverage to previously uninsured populations will reduce non-emergent ED utilization, the IE modified the EDU specification to include ED visits that had an associated BH/AOD principal discharge diagnosis.

TABLE 10: EMERGENCY DEPARTMENT UTILIZATION (EDU)

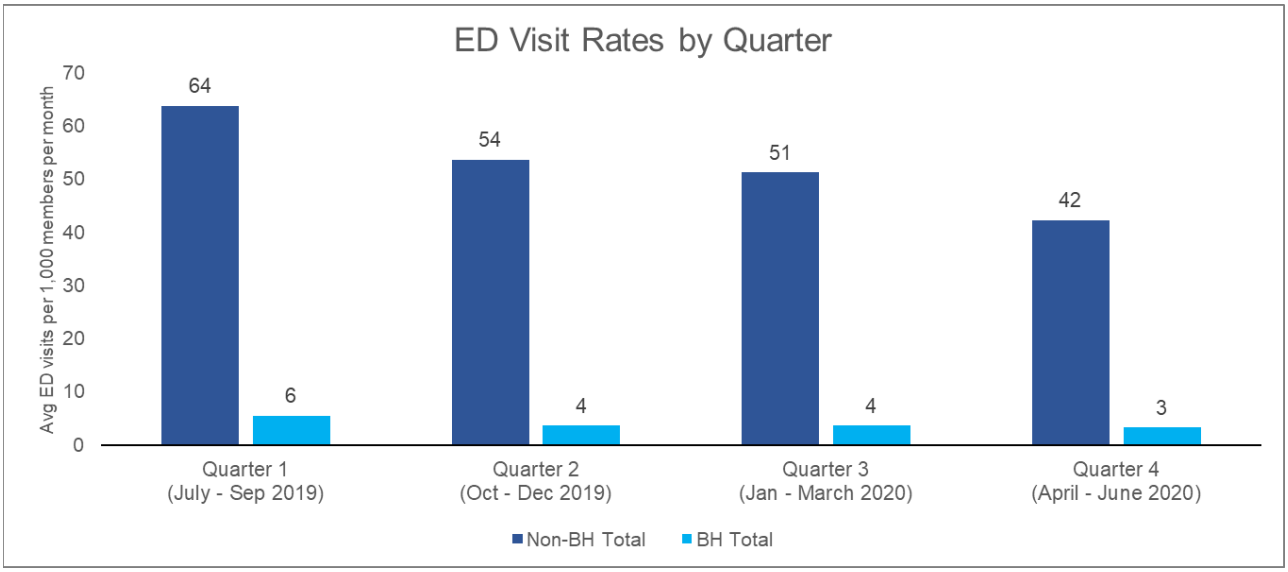
Age	Gender	Members in the Eligible Population [14]	Total Non-BH ED Visits	Rate of Non-BH Utilization (per 1,000 members)	Total BH ED Visits	Rate of BH Utilization (per 1,000 members)	Total ED Visits [15]	Overall Rate of Utilization (per 1,000 members)	% BH Visits
19-44	Male	23,924	7,201	300.99	907	37.91	8,108	338.91	11.19
	Female	27,566	9,430	342.09	575	20.86	10,005	362.95	5.75
	Total	**51,490**	**16,631**	**322.99**	**1,482**	**28.78**	**18,113**	**351.78**	**8.18**
45-54	Male	5,836	2,334	399.93	186	31.87	2,520	431.8	7.38
	Female	6,345	2,440	384.55	58	9.14	2,498	393.7	2.32
	Total	**12,181**	**4,774**	**391.92**	**244**	**20.03**	**5,018**	**411.95**	**4.86**
55-64	Male	4,254	1,423	334.51	64	15.04	1,487	349.55	4.3
	Female	4,640	1,545	332.97	39	8.41	1,584	341.38	2.46
	Total	**8,894**	**2,968**	**333.71**	**103**	**11.58**	**3,071**	**345.29**	**3.35**
Total	Male	34,014	10,958	322.16	1,157	34.02	12,115	356.18	9.55
	Female	38,551	13,415	347.98	672	17.43	14,087	365.41	4.77
	Total	**72,565**	**24,373**	**335.88**	**1,829**	**25.2**	**26,202**	**361.08**	**6.98**

[14] Excludes members with an enrollment gap of more than 45 days from July 2019 to June 2020 and members with a hospice related Procedure Code, Revenue Code or Bill Type.

[15] Total ED visits—excluding outlier visits, where outlier visits are defined as four or more visits by the same patient in the measurement year.

Trend over time

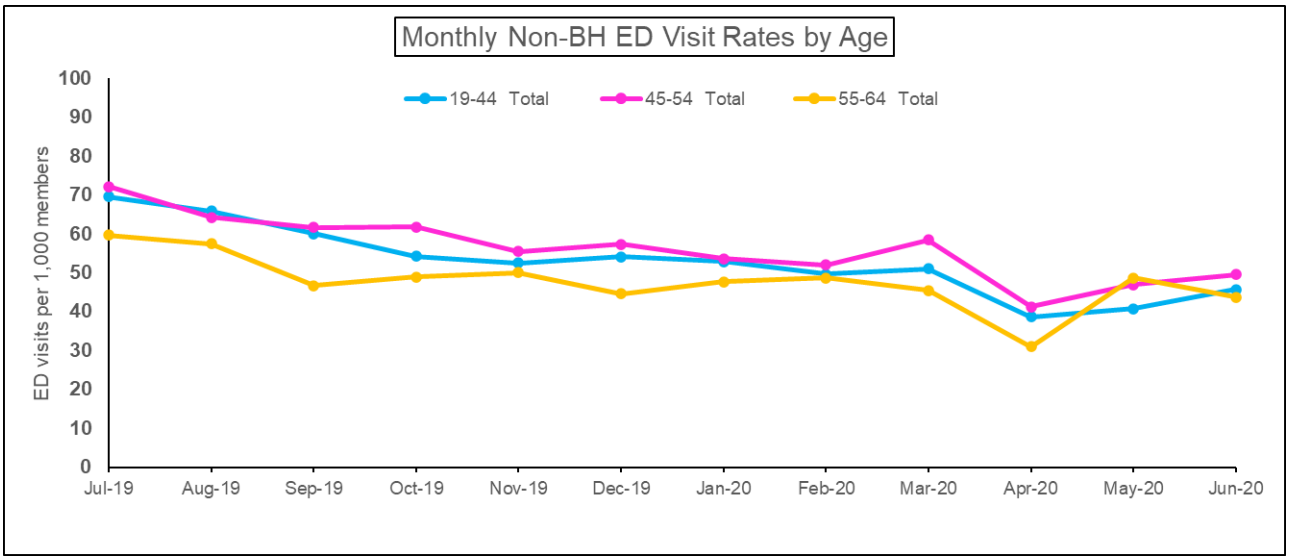
FIGURE 3: ED VISIT RATES BY QUARTER IN THE MEASUREMENT YEAR

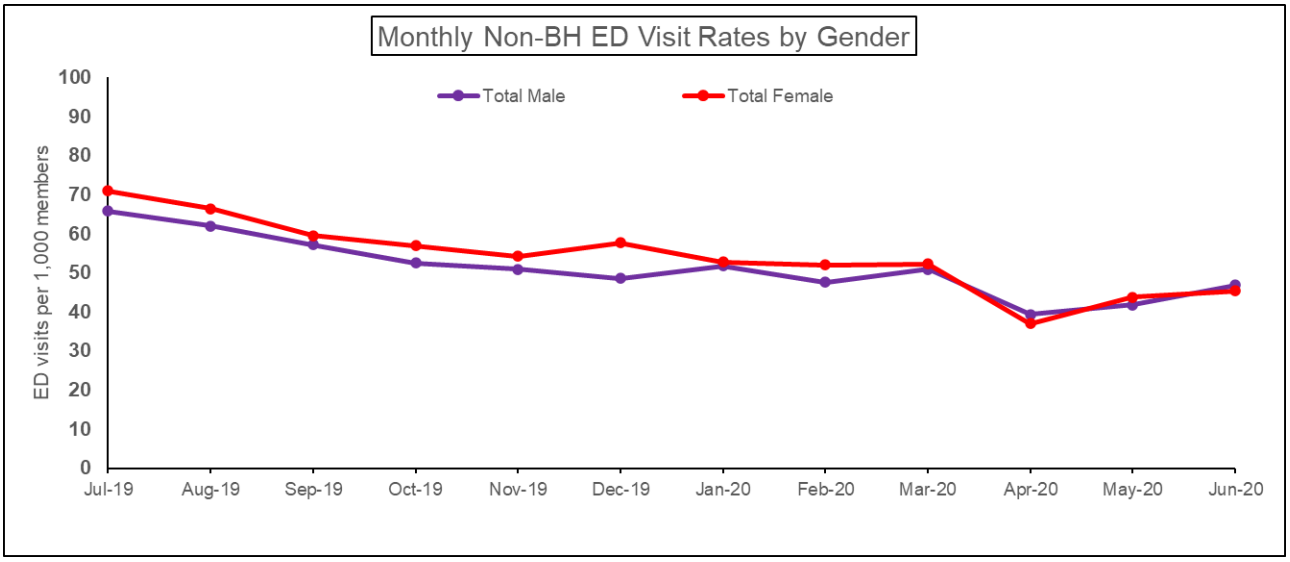


For the rate of ED visits (non-BH and BH), a decline occurred between the first and second quarter of the measurement period. The rate of Non-BH ED visits fell from 64 visits per 1,000 members to 54 visits per 1,000, a 16% decline. Likewise, the rate of BH ED visits fell from 6 visits per 1,000 members to 4 visits per 1,000, a 33% decline. A possible explanation of the shared decline relates to the monthly enrollment of the AE population increasing each month. The growth in member population could have caused the rates to decrease until enrollment plateaued.

The drop between the third and fourth quarter rate of non-BH ED coincides with the onset of the COVID-19 pandemic and PHE. The rate decreased by 17% in the fourth quarter compared to the third quarter, dropping to 42 visits per 1,000 members. The rate of BH ED visits did not demonstrate a comparable decline.

FIGURE 4: MONTHLY ED VISIT RATES BY AGE AND GENDER



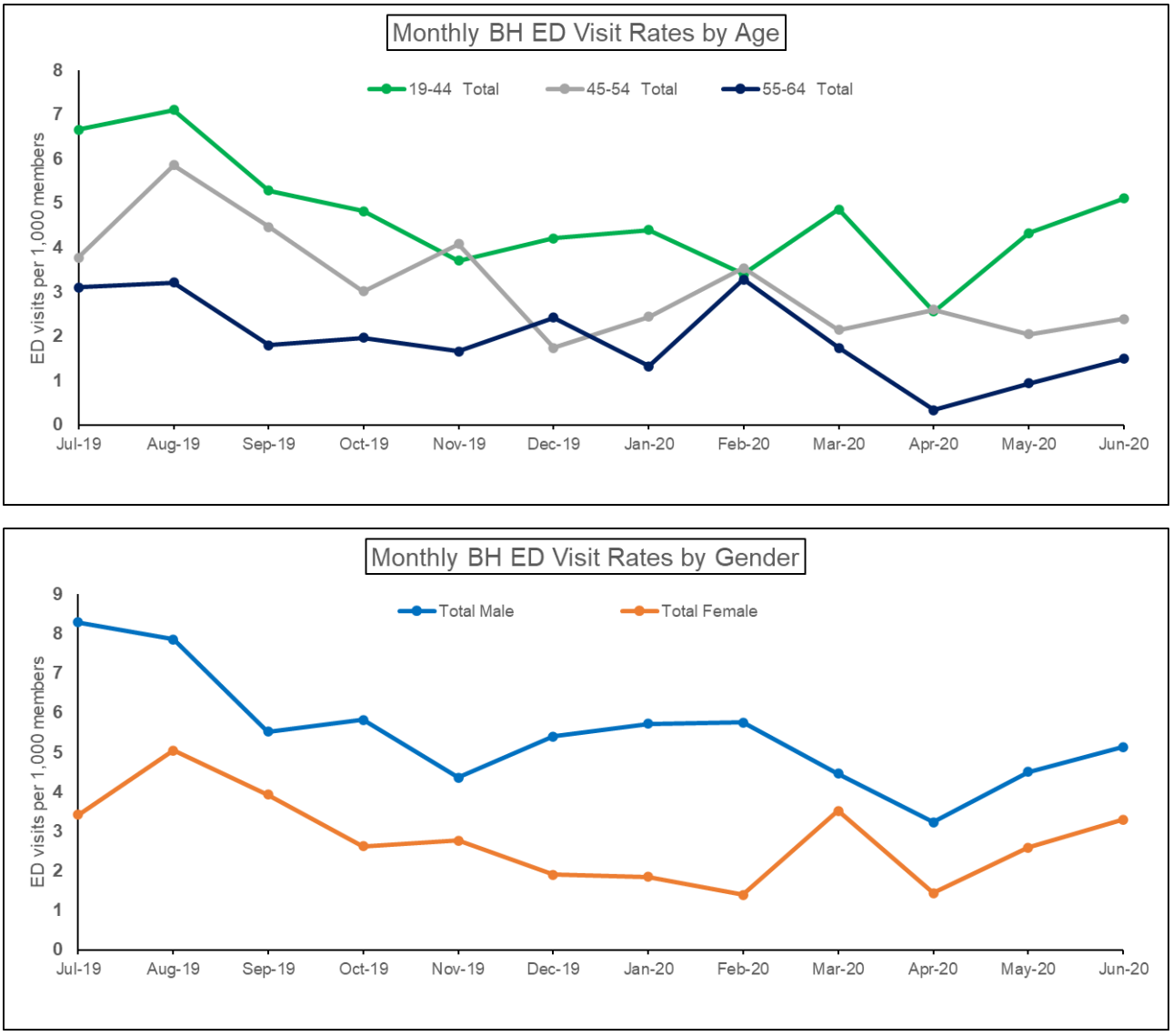


Preliminary analysis examined monthly breakouts of non-BH ED visit rates by age and gender. The younger age bands (19-44 and 45-54) steadily decreased their ED utilization rate by nearly 30% from July 2019 to February 2020. Meanwhile, the oldest age band (55-64) experienced an approximately 18% decline during this period and had lower rates for all but one month in the measurement year.

Amongst members aged 19-44 and 45-54, there was a 24% and 29% decrease in the rate between March and April of 2020, respectively. The rate for the member population aged 55-64 dropped by 37%. The ED visit rate for all three age bands bounced back in the following months. The rate for older members (55-64 years old) experienced a 56% surge in the rate of non-BH ED visits for the month of May 2020, making it the only month that this member population had the highest rate of non-BH ED visits during the measurement period.

No stark gender gap was apparent in the monthly non-BH ED visit rate. For instance, the rate dropped by approximately 15% for both male and female members from July 2019 to September 2019. However, the April decrease was more pronounced among female members. Between March and April 2020, the rate for women decreased by 29% compared to 23% for men. In May and June, the rates for both genders increased.

FIGURE 5: MONTHLY BH ED VISIT RATES BY AGE AND GENDER



Monthly breakouts of BH ED visit rates demonstrate a clear split by age band. Members aged 19-44 consistently have higher rates while those aged 55-64 have the lowest rates. The first two quarters saw a steady decline across all three age bands. There was a 37% decline among members 19-44, a 54% decline among members 45-54,and a 22% decline among members 55-64, with some spikes in the population of members 45-54. Among middle aged and older members, there was an increase in the rate of BH ED utilization between December 2019 and February 2020, followed by a sharp decline among older members and a modest decline by middle aged members in February. By contrast, rates of BH ED utilization increased for members 19-44 by 43% between February and March and then decreased by

90% at the onset of the pandemic in March 2020.After April 2020, rates of BH utilization began to rise again among members 19-44 and members 55-64. This determination agrees with the trends demonstrated by the quarter breakout.

Gender stratification of the monthly BH rates show a sizeable gap. Male members possess a higher rate of BH ED visits compared to female members. This corresponded to a more severe rate decrease of 33% in the first quarter for men, compared to 15% for women. However, the impact of the pandemic was felt more by women than by men, a similarity shared by the non-BH rate. The BH ED rate for women spiked between February and March 2020 and then fell by nearly the same amount between March and April 2020, a 59% decrease. Meanwhile, the rate for men declined throughout quarter 3. In April 2020, both men and women increased their ED utilization for BH conditions

High Utilization of the ED

About 15% of eligible AE members who had any ED visits exhibited High Utilization of the ED (HUED), defined as four or more ED visits in the fiscal year 2020. Visits by this group of HUED members (4.4% of the total AE population) accounted for 46% of all ED visits among the eligible AE population during the measurement year.

Across the three age bands, older members in the eligible population were the least likely to have four or more visits (11.55%) and members 19-44 were the most likely (15.97%). However, in the HUED group, the rate of ED visits was highest for members 55 to 64 years of age at 7,089 visits per 1,000 members. This suggests that older HUED members return to the ED more often than younger or middle-aged members. When comparing subgroups, HUED men 55-64 had the highest rate of ED utilization at 7,544 visits per 1,000 members and HUED women 55-64 had the lowest rate of ED utilization at 6,396 visits per 1,000 members, meaning women 55-64 do not visit the ED as often as any other subgroup in the HUED population.

The overall gender distribution of HUED members was similar to the male to female ratio in the general AE population. 14.84% of men in the eligible population had four or more visits, compared to 15.89% of women. Males 55-64 were slightly more likely to be HUED members than their female counterparts, while females 19-44 and 45-54 were slightly more likely to be HUED members than their male counterparts. Men and women differed in their reasons for visiting the ED, however. When excluding BH visits, HUED women had a higher rate of ED utilization than men with 5,501 visits per 1,000 members, compared to 4,879 visits per 1,000 members. After accounting for ED visits with a BH principal discharge diagnosis, HUED men have a higher rate of utilization. This is because 32% of all ED visits for HUED men had an associated BH/AOD diagnosis. Only 18% of all ED visits for HUED women had an associated BH/AOD diagnosis.

Nearly one quarter of HUED member visits overall were for BH/AOD diagnoses; this was more than threefold higher than the percentage of visits in the non-HUED population that had associated BH/AOD diagnoses, 7%. This suggests that HUED member visits are more likely to be for BH/AOD diagnoses than visits in the AE population as a whole.

BH EDU for HUED members is also highest for younger members. When looking only at visits with a principal discharge diagnosis of BH/AOD, the rate of utilization (4+ visits) is highest among HUED members ages 19-44 years old.26% of visits for HUED members 19-44 have an associated BH/AOD diagnosis compared to 21% for HUED members 45-54 and 18% for HUED members 55-64. This mirrors the trends in the general population.

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TABLE 11: EMERGENCY DEPARTMENT UTILIZATION (EDU) FOR HIGH UTILIZING ED (HUED) MEMBERS

Age	Gender	Members in the Eligible Population [16]	Total ED Visits[17]	Total Visits for HUED Members [18]	% of Total Visits made by HUED Members	HUED Members	% of Members with 4+ visits	Rate of Non-BH Utilization (per 1,000 members)	Rate of BH Utilization (per 1,000 members)	Overall Rate of ED Utilization (per 1,000 members)	% BH Visits
19-44	Male	23,924	15,056	6,948	46.15%	977	14.88%	4,467.76	2,643.81	7,111.57	37.18%
	Female	27,566	19,126	9,121	47.69%	1,363	16.85%	5,485.69	1,206.16	6,691.86	18.02%
	Total	51,490	34,182	16,069	47.01%	2,340	15.97%	5,060.68	1,806.41	6,867.09	26.31%
45-54	Male	5,836	4,698	2,178	46.36%	298	15.17%	5,516.78	1,791.95	7,308.72	24.52%
	Female	6,345	4,675	2,177	46.57%	324	16.18%	5,601.85	1,117.28	6,719.14	16.63%
	Total	12,181	9,373	4,355	46.46%	622	15.68%	5,561.09	1,440.51	7,001.61	20.57%
55-64	Male	4,254	2,762	1,275	46.16%	169	14.06%	6,130.18	1,414.20	7,544.38	18.75%
	Female	4,640	2,294	710	30.95%	111	9.08%	5,396.40	1,000.00	6,396.40	15.63%
	Total	8,894	5,056	1,985	39.26%	280	11.55%	5,839.29	1,250.00	7,089.29	17.63%
Total	Male	34,014	22,516	10,401	46.19%	1,444	14.84%	4,878.81	2,324.10	7,202.91	32.27%
	Female	38,551	26,095	12,008	46.02%	1,798	15.89%	5,501.11	1,177.42	6,678.53	17.63%
	Total	72,565	48,611	22,409	46.10%	3,242	15.41%	5,223.94	1,688.16	6,912.09	24.42%

[16] Excludes members with an enrollment gap of more than 45 days from July 2019 to June 2020 and members with a hospice related Procedure Code, Revenue Code or Bill Type.

[17] Total ED visits including HUED. This total is higher than in Table 10, which excludes visits exceeding 4 for the same member.

[18] Total HU ED visits - Medicaid members 19–64 years of age with four or more ED visits during the measurement year 7/1/19 – 6/30/20. All of their visits in the measurement year are counted here.

Inpatient Admissions

TABLE 13: INPATIENT UTILIZATION-GENERAL HOSPITAL/ACUTE CARE (IPU)

Age [19]	Gender	Member Months [20]	Discharges [21]	Discharges/ 1,000 Member Months	Days	Days/1,000 Member Months	Average Length of Stay (Days)
Total Inpatient (Sum of Surgery + Medicine + Maternity) [22]							
19-44	Male	156,138	1,834	12	11,029	71	6.02
	Female	182,314	2,848	16	13,438	73	4.70
45-54	Male	41,997	982	23	6,452	154	6.57
	Female	48,058	735	15	4,300	89	5.85
55-64	Male	30,769	980	32	6,959	226	7.10
	Female	34,968	701	20	4,584	131	6.54
Total	-	*494,244*	*8,079*	16	*46,707*	95	6.13
Surgery							
19-44	Male	156,138	620	4	5,186	33	8.36
	Female	182,314	510	3	3,903	21	7.65
45-54	Male	41,997	351	8	3,262	78	9.29
	Female	48,058	238	5	1,778	37	7.47
55-64	Male	30,769	384	12	3,693	120	9.62
	Female	34,968	280	8	2,269	65	8.10
Total	-	*494,244*	*2,384*	5	*20,091*	41	8.42
Medicine							
19-44	Male	156,138	1,213	8	5,843	37	4.82
	Female	182,314	1,020	6	4,730	26	4.65
45-54	Male	41,997	631	15	3,190	76	5.06

[19] Age is calculated based on last month of eligibility during the measurement period.
[20] To align with UT Medicaid guidelines - any one day of eligibility in the month is "retroactive" to the first of the month.
[21] Discharge = a unique combination of client ID, claim# and discharge date.
[22] Total Inpatient excludes hospice, non-acute inpatient stays, BH/AOD primary diagnoses.

Age [19]	Gender	Member Months [20]	Discharges [21]	Discharges/ 1,000 Member Months	Days	Days/1,000 Member Months	Average Length of Stay (Days)
	Female	48,058	487	10	2,491	52	5.11
55-64	Male	30,769	596	19	3,266	106	5.48
	Female	34,968	417	12	2,258	65	5.41
Total	-	*494,244*	*4,364*	9	*21,778*	44	5.09
Maternity							
19-44	Female	182,314	1,318	7	4,750	26	3.60
45-54	Female	48,058	10	0	31	1	3.10
55-64	Female	34,968	4	0	57	2	14.25
Total	-	*265,340*	*1,332*	5	*4,838*	18	6.98

In the measurement period, there were 8,079 discharges from the hospital for acute inpatient care in maternity, surgery, and medicine and 46,707 inpatient days among the eligible population. Members on hospice, nonacute inpatient stays, and discharges with a principal diagnosis of mental health or chemical dependency were excluded. The rate of discharges, which speaks to the volume of hospitalization in the population, was 16 discharges per 1,000 member months. The AE population had 95 total inpatient days per 1,000 member months, and the average length of stay for all categories of care combined was 6.13 days.

Overall, there was a positive direct relationship between the rate of hospital discharge and age in every inpatient care category, except maternity. When excluding maternity care, there are statistically significant differences among older groups with more discharges ($p < 0.001$) and inpatient days ($p < 0.001$) experienced.

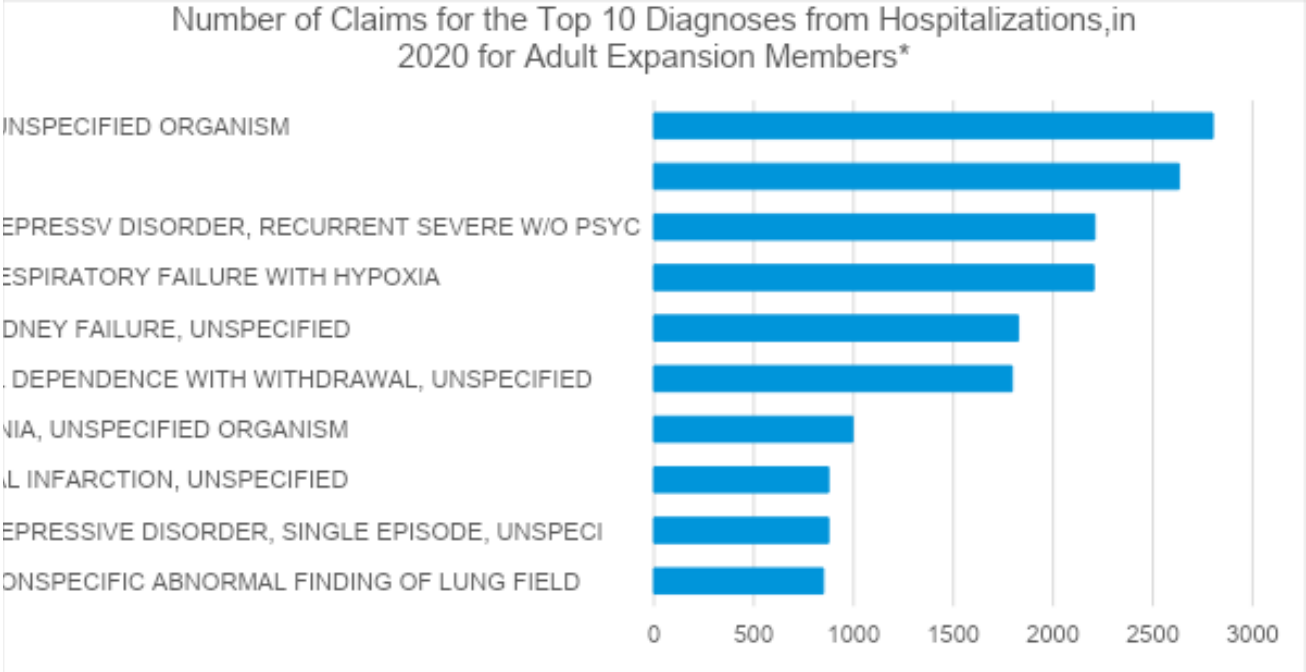
The distribution of inpatient stays differs by gender. Women 19-44 have slightly higher rates of total inpatient discharge than men 19-44. This can be attributed to maternity discharges for women in this age band, since younger women have lower rates of Surgical or Medical discharges than their male counterparts. When excluding maternity care, women have fewer discharges and shorter stays ($p < 0.001$). Older men, 45-54 and 55-64, had much higher rates of total inpatient discharges than women in these age bands. The rate of total inpatient discharge nearly doubled for men between the 19-44 age band and the 45-55 age band, from 12 discharges per 1,000 member months to 23 discharges per 1,000 member months. The pattern continues for men 55-64 who had the highest rate of total inpatient discharges of any other subgroup at 32 discharges per 1,000 member months. Although the increase in the rate of discharge for men 55-64 was similar for women 55-64, 39% and 33% respectively from the 45-54 age band, the rate of acute inpatient discharges is much higher among older men than older women (32 discharges per 1,000 member months versus 20 discharges per 1,000 member months).

Men were more likely to stay in the hospital longer than women at every age across all care categories. The gap in average length of stay for total inpatient was largest between men and women at ages 19-44.

The average length of stay for men was 1.32 days longer than the average length of stay for women at age 19-44, 0.72 days longer for men at age 45-54, and 0.56 days longer for men at age 55-64.

Women 19-44 receiving inpatient acute care for Maternity had a very low rate of inpatient days (26 per 1,000 member months) in comparison to all subgroups in all other categories of care. Only women 19-44 who were inpatient for Surgery had a lower rate of inpatient days at 21 inpatient days per 1,000 member months. The average length of stay for women giving birth was 3.1 days, lower than the length of stay for all subgroups in all other categories of care. The average length of stay dips slightly for women 45-54 and then jumps up to 14.25 days for women 55-64. This is not surprising since older women are more likely to have complications during pregnancy and delivery.

FIGURE 6: TOP 10 PRIMARY INPATIENT DIAGNOSES IN 2020 FOR ADULT EXPANSION POPULATION



The IE investigated the top 10 primary diagnoses on AE inpatient claims. Members of the AE population were hospitalized for BH disorders, infections, and untreated chronic health conditions as well as for Covid-19 in 2020. The histogram above shows the most common diagnoses for non-ESI AE members in 2020 were Sepsis, unspecified organism; Covid-19; and Major Depressive Disorder. Covid-19 was the second most common primary diagnosis among hospitalizations with 2,631 raw claims in the measurement period.[23]

[23] Due to the variation in which Covid-19 was coded on inpatient claims early on in 2020, it is also possible that this data shows an undercount of the claims associated with a Covid-19 diagnosis. Accompanying conditions such as pneumonia or sepsis may have been the primary diagnosis on the claim despite a positive Covid-19 Laboratory test. (The Quest for Clean COVID Claims - For The Record Magazine)

Primary, Ambulatory, and Preventive Care engagement

Adults' Access to Preventive Ambulatory Health Services

Within the 12-month measurement period, 32,503 members, or 45% of the eligible population had at least one preventive care visit or ambulatory visit. This is well below both the 2019 NCQA HEDIS benchmark as well as the fraction of members in the UT General Medicaid population who had at least one preventive or ambulatory care visit in 2019. UT Medicaid plans reported 83%-88% of their members had at least one preventive or ambulatory visit in 2019, and the NCQA HEDIS benchmark for Medicaid was 80%.

Men were less likely to have accessed preventive/ambulatory health services than women in the measurement period overall. 40% of men had at least one preventive care visit or ambulatory visit, while 49% of women had at least one preventive care or ambulatory visit. The gender gap was present across every age band with men being much less likely to access preventive/ambulatory health services during the measurement year. Less than half of men ages 19-44 had a preventive/ambulatory care visit in the measurement year.

The differences in the age distribution of preventive/ambulatory visits were not as stark as the differences in gender distribution, with older members more likely than younger to access care. 42% of members 19-44 attended a preventive/ambulatory care visit during the measurement year compared to 52% for members 45-54 and 51% for members 55-64.

Table 14: Adults' Access to Preventive/Ambulatory Health Services (AAP)

Age	Gender	Members in the Eligible Population	Members having at least one ambulatory/ preventive visit	Percentage of Members having at least one ambulatory/ preventive visit (%)
19-44	Male	23,924	9,046	37.81%
	Female	27,566	12,634	45.83%
	Total	51,490	21,680	42.11%
45-54	Male	5,836	2,715	46.52%
	Female	6,345	3,591	56.60%
	Total	12,181	6,306	51.77%
55-64	Male	4,254	2,008	47.20%
	Female	4,640	2,509	54.07%
	Total	8,894	4,517	50.79%
Total	Male	34,014	13,769	40.48%
	Female	38,551	18,734	48.60%
	Total	72,565	32,503	44.79%

Comprehensive Diabetes Care

The IE found that approximately 5.8% of the AE population (excluding ESI) is diabetic. Of those diabetic members, 68% received a Hemoglobin A1c test during the measurement period to monitor their blood sugar. This is well below the 2019 NCQA HEDIS benchmark and the UT General Medicaid population's 2019 results for the Comprehensive Diabetes Care measure (CDC). UT Medicaid Health Plans reported 88%-92% of their members received recommended monitoring in 2019; the 2019 NCQA HEDIS Medicaid benchmark for the measure was 88%. However, these benchmarks should only be considered as a reference point since the modified measure uses a shortened measurement period (1 year of lookback instead of 2), does not use EHR data (due to the timing of reporting requirements not aligning with the Interim Report), and takes into account the limited use of Category II CPT codes among Utah Medicaid Health Plans.

When stratified by gender and age, the IE found statistically significant differences. AE women are slightly more likely to receive a Hemoglobin A1c test, compared to men ($p < 0.05$) and older members 45-54 and 55-64 are more likely to receive a test as compared to members 19-44 ($p < 0.05$).

TABLE 15: COMPREHENSIVE DIABETES CARE (CDC)

Age	Gender	Diabetic Members in the Eligible Population [24]	Diabetic Members having recommended monitoring [25]	Percentage of Diabetic Members having recommended monitoring (%)
Hemoglobin A1c (HbA1c) testing				
19-44	Male	702	450	64.10%
	Female	852	576	67.61%
	Total	**1,554**	**1,026**	**66.02%**
45-54	Male	667	477	71.51%
	Female	648	441	68.06%
	Total	**1,315**	**918**	**69.81%**
55-64	Male	661	425	64.30%
	Female	694	520	74.93%
	Total	**1,355**	**945**	**69.74%**
Total	Male	2,030	1,352	66.60%
	Female	2,194	1,537	70.05%

[24] Members receiving palliative care during the measurement year are excluded (Hospice codes).
[25] Members who had an HbA1c test performed during the measurement year.

	Total	**4,224**	**2,889**	**68.39%**

Annual Monitoring for Patients on Persistent Medications

The Annual Monitoring for Patients on Persistent Medications measure reports on members of the eligible population who are on persistent medication, either an ACE inhibitor or a diuretic, and who have received recommended monitoring, defined as a serum potassium test or a serum creatinine test.[26] Among those individuals in the AE population who were on either of these persistent medications, 70% had a recommended monitoring event during the measurement period. This result is 18 percentage points below the 2019 NCQA benchmark, which was 89% [27] Utah Medicaid plans do not report this measure as part of their slate of annual monitoring metrics. There were no observed differences between the rate of recommended monitoring events for those on a diuretic versus an ACE inhibitor or between men and women for either medication. In addition, no statistically significant differences existed across the three age bands.

TABLE 16: ANNUAL MONITORING FOR PATIENTS ON PERSISTENT MEDICATIONS (MPM)

Age	Gender	Members on Persistent Medication[28]	Members who received recommended monitoring[29]	Percentage of Members who received recommended monitoring (%)
19-44	Male	357	237	66.39%
	Female	485	330	68.04%
	Total	**842**	**567**	**67.34%**
45-54	Male	398	268	67.34%
	Female	606	442	72.94%
	Total	**1,004**	**710**	**70.72%**
55-64	Male	482	345	71.58%
	Female	676	484	71.60%
	Total	**1,158**	**829**	**71.59%**
Total	Male	1,237	850	68.71%
	Female	1,767	1,256	71.08%

[26] Modifications to original NCQA specification were to change the eligible population to 19+ since 18-year-olds are not eligible for Adult Expansion in Utah, and to change the definition of a therapeutic monitoring event as a serum potassium test OR a serum creatinine test during the measurement period, rather than both tests being required to count the individual in the numerator.

[27] Potential caveat to this result is the LOINC was not used to define the serum potassium test or serum creatinine test.

[28] Members who received at least 180 treatment days of ACE inhibitors or diuretics during the measurement year.

[29] Members who received at least one serum potassium or one serum creatinine therapeutic monitoring test in the measurement year.

	Total	**3,004**	**2,106**	**70.11%**

Cervical Cancer Screening

There were 32,785 women in the eligible member population. The majority of these women (67%) were between the ages of 19 and 44. Overall, 21% had at least one cervical cancer screening during the measurement period. This result is 39 percentage points below the 2019 NCQA HEDIS benchmark for Medicaid at 60% and 23-37 percentage points lower than results reported by the UT Medicaid Health Plans in 2019. UT Medicaid Plans reported between 44%-58% of eligible women were screened during the measurement year in 2019. Group differences between the age bands were significant, as women 19-44 were most likely to be screened ($p < 0.001$); 24% had at least one cervical cancer screening in the measurement period. 16% of women 45-54 and 10% of women 55-64 were screened for cervical cancer during the measurement period. The fraction of the AE population receiving their annual cervical cancer screening was 23-37 percentage points lower than the general Medicaid population in Utah and 39 percentage points lower than the NCQA Medicaid Benchmark in 2019.

TABLE 17: CERVICAL CANCER SCREENING (CCS)

Age	Members in the Eligible Population[30]	Members having at least one cervical cancer screening	Percentage of Members having at least one cervical cancer screening (%)
19-44	22,438	5,398	24.06%
45-54	6,141	971	15.81%
55-64	4,206	411	9.77%
Total	32,785	6,780	20.68%

Breast Cancer Screening

The modified specifications for the Breast Cancer Screening measure identify women between 50 and 64 as the eligible population, rather than the HEDIS specification of women ages 50-74, since the AE demonstration population only includes individuals 19-64. Women 50-64 are at an increased risk of breast cancer due to their age. There were 7,717 women between the ages of 50 and 64 in the AE population and no significant difference exists between the 50-54 and 55-64 age categories. 20% had at least one mammogram to screen for breast cancer during the measurement period. In comparison, the 2019 NCQA HEDIS benchmark for Medicaid in 2019 was 58%. Utah Medicaid Health Plans reported 35%-50% of women in the General Medicaid population in Utah had at least one mammogram in 2019. This suggests the AE population is likely similar to the lower end of the general Medicaid population in their access to and utilization of preventive care services for breast cancer.

[30] Women 21-64 years of age as of June 30th of the measurement year.

TABLE 18: BREAST CANCER SCREENING

Age	Members in the Eligible Population [31]	Members having at least one mammogram	Percentage of Members having at least one mammogram to screen for breast cancer (%)
50-54	2,981	596	19.99%
55-64	4,736	921	19.45%
Total	7,717	1,517	19.66%

BEHAVIORAL HEALTH AND INTEGRATED CARE

Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment

There were 7,148 members in the AE population with a new episode of AOD abuse during the measurement year. The majority (52%) initiated treatment within 14 days of the diagnosis. The AE population outperformed the 2019 NCQA benchmark of 44% initiation by nearly 8 percentage points. There were statistically significant differences across age. AE members 19-44 were slightly more likely to initiate treatment during the year than members 45-54 and members 55-64 ($p < 0.005$). 53% of members 19-44 initiated treatment, 48% of members 45-54 initiated treatment, and 49% of members 55-64 initiated treatment. There were no significant differences in the gender distribution of members who initiated treatment and those who did not.

Consistent with national results for Medicaid populations, the initiation rate for members with a new episode of Opioid abuse or dependence was higher than the rate for Alcohol abuse or dependence or Other Drug abuse or dependence at 63%, 51%, and 50% respectively. However, the initiation rates within the UT AE population are higher than the 2019 NCQA HEDIS benchmarks across all diagnoses categories. The UT AE initiation rate for Alcohol abuse or dependence was 9 percentage points higher than the 2019 HEDIS NCQA benchmark, and the initiation rates for Opioid abuse and dependence and Other Drug abuse and dependence were both 7 percentage points higher than the 2019 NCQA HEDIS benchmarks.

[31] Women 50-64 years of age as of June 30th of the measurement year.

TABLE 19: INITIATION OF ALCOHOL AND OTHER DRUG ABUSE OR DEPENDENCE TREATMENT (IET)

Age	Gender	Members with episode of AOD abuse or dependence[32]	Members who initiate treatment[33]	Percentage of Members who initiate treatment (%)
19-44	Male	2,873	1,526	53.12%
	Female	2,230	1,184	53.09%
	Total	**5,103**	**2,710**	**53.11%**
45-54	Male	817	400	48.96%
	Female	580	272	46.90%
	Total	**1,397**	**672**	**48.10%**
55-64	Male	409	206	50.37%
	Female	239	113	47.28%
	Total	**648**	**319**	**49.23%**
Total	Male	4,099	2,132	52.01%
	Female	3,049	1,569	51.46%
	Total	**7,148**	**3,701**	**51.78%**

Predictably, a smaller fraction of members initiated and were engaged in ongoing treatment, as defined as one engagement medication event or at least two engagement visits, within the 34-day period following the initial episode. Almost half of members who initiated treatment stayed engaged in ongoing treatment. Thus, overall, 25% of AE members with a new episode of AOD abuse and dependence initiated and were engaged in ongoing treatment during the year. This fraction is 11 percentage points higher than the 2019 NCQA HEDIS benchmark of 14% engagement. Examination of the engagement data indicated significant differences across age ($p < 0.001$) and gender ($p < 0.05$). The fraction of members engaged in ongoing treatment was highest among members 19-44 at 28% and was lowest among members 55-64 at 18%. Members 45-54 fell in the middle with 20% of those with an episode of AOD abuse and dependence engaged in ongoing treatment during the measurement year. Meanwhile, the fraction of engagement was higher among women (26%) than men (24%).

Consistent with the rates of initiation for members with Opioid abuse or dependence, Alcohol abuse and dependence, and Other Drug abuse and dependence, the rate of engagement was highest among members with an index episode of Opioid abuse and dependence. 37% of members with Opioid abuse and dependence initiated and engaged in ongoing treatment compared to 18% of Alcohol abuse and dependence and 26% of Other Drug abuse and dependence. Notably, although a larger fraction of individuals initiated treatment for Alcohol abuse and dependence than for Other Drugs, those with Other

[32] Members 19 years or older with a new episode of AOD abuse or dependence during the Intake Period.
[33] Initiation of AOD treatment within 14 days of the initial episode.

Drug abuse and dependence were more likely to engage in ongoing treatment than those with Alcohol abuse and dependence.

In comparison to the 2019 NCQA HEDIS benchmarks for engagement of AOD treatment, the UT AE population has higher rates of engagement for every diagnosis category. The rate of engagement for Alcohol abuse and dependence is 7 percentage points above the NCQA benchmark; the rate for engagement for Opioid abuse and dependence is 9 percentage points above the NCQA benchmark, and then rate of engagement for Other Drug abuse and dependence is 13 percentage points above the NCQA benchmark.

TABLE 20: ENGAGEMENT OF ALCOHOL AND OTHER DRUG ABUSE OR DEPENDENCE TREATMENT (IET)

Age	Gender	Members with episode of AOD abuse or dependence[34]	Members who initiated and were engaged in ongoing treatment[35]	Percentage of Members who initiated and were engaged in ongoing treatment (%)
19-44	Male	2,873	763	26.56%
	Female	2,230	641	28.74%
	Total	**5,103**	**1,404**	**27.51%**
45-54	Male	817	155	18.97%
	Female	580	119	20.52%
	Total	**1,397**	**274**	**19.61%**
55-64	Male	409	71	17.36%
	Female	239	44	18.41%
	Total	**648**	**115**	**17.75%**
Total	Male	4,099	989	24.13%
	Female	3,049	804	26.37%
	Total	**7,148**	**1,793**	**25.08%**

[34] Members 19 years or older with a new episode of AOD abuse or dependence during the Intake Period.

[35] Members with one engagement medication event or at least two engagement visits, within the 34-day period following the initial episode.

Follow up after hospitalization for Mental Illness

Less than 2000 members in the AE population were hospitalized for treatment of selected mental health disorders or intentional self-harm diagnoses. Over a third of these individuals (38.65%) had a follow-up visit with a mental health provider within 7 days of discharge and the majority (58%) had a follow-up visit with a mental health provider within 30 days of discharge. These results are on par with the 2019 NCQA HEDIS benchmarks as well as with the lower end of 2019 results reported by the UT Medicaid Health Plans. The 2019 NCQA HEDIS Medicaid benchmark for FUH within 7 days of discharge is 36% and 57% within 30 days of discharge. The 2019 results reported by the UT Medicaid Health Plans were between 36%-70% within 7 days of discharge and 50%-97% within 30 days of discharge.

The age distribution of AE members who had a follow-up visit was not statistically significant for either the 7-day and 30-day follow-up windows. The gender distribution of members who had a follow-up visit was mostly equivalent within 7 days of discharge, but there were statistically significant differences in the number of men and women having a follow-up within 30 days of discharge ($p < 0.05$). Women were slightly more likely to have a follow-up visit with a mental health provider within 30 days of discharge, 61% versus 55% respectively.

TABLE 21: FOLLOW UP AFTER HOSPITALIZATION FOR MENTAL ILLNESS (FUH)

Age	Gender	Members hospitalized for treatment of mental illness or intentional self-harm[36]	Members who had follow-up visit with a mental health provider	Percentage of Members who had follow-up visit with a mental health provider (%)
Within 7 days				
19-44	Male	805	305	37.89%
	Female	601	222	36.94%
	Total	**1,406**	**527**	**37.48%**
45-54	Male	149	60	40.27%
	Female	123	59	47.97%
	Total	**272**	**119**	**43.75%**
55-64	Male	62	27	43.55%
	Female	40	15	37.50%
	Total	**102**	**42**	**41.18%**
Total	Male	1,016	392	38.58%
	Female	764	296	38.74%
	Total	**1,780**	**688**	**38.65%**
Within 30 days				
19-44	Male	805	430	53.42%
	Female	601	358	59.57%
	Total	**1,406**	**788**	**56.05%**
45-54	Male	149	87	58.39%
	Female	123	81	65.85%
	Total	**272**	**168**	**61.76%**
55-64	Male	62	39	62.90%
	Female	40	26	65.00%

[36] Patients 19 years of age and older who were hospitalized for treatment of selected mental health disorders or intentional self-harm diagnoses.

	Total	**102**	**65**	**63.73%**
Total	Male	1,016	556	54.72%
	Female	764	465	60.86%
	Total	**1,780**	**1,021**	**57.36%**

30 Day All-Cause Unplanned Readmission Following Psychiatric Inpatient Hospitalization

The 30 Day All-Cause Unplanned[37] Readmission Following Psychiatric Inpatient Hospitalization measure is intended to capture the unplanned readmission rate for members with a wide range of psychiatric disorders, rather than the selected mental health disorders included in the FUH measure. As a result, the number of eligible AE members, or those with psychiatric inpatient hospitalizations during the measurement period, was 6,503 individuals. Within this group, 1,405, or 22% had at least one readmission to the hospital within 30 days of discharge. This measure was also calculated by counting each hospitalization as a separate event and determining the percentage of inpatient discharges for psychiatric disorders that resulted in a readmission within 30 days. In the AE population, 26% of all inpatient discharges resulted in readmissions. Due to the fact that this measure was modified from a risk-standardized measure for beneficiaries aged 65 or older to a non-risk standardized measure for individuals in the AE population 19-64, there are no benchmarks available.

Age is not a significant factor in determining how likely a member is readmitted to the hospital following a psychiatric inpatient discharge. One fifth of members were readmitted in every age group. However, differences in gender are significant in that men are more likely than women to have a readmission within 30 days of a psychiatric inpatient discharge ($p < 0.001$). 24% of men with a psychiatric inpatient hospitalization during the measurement period were readmitted to the hospital within 30 days compared to 19% of women. Among the six subgroups examined, the gap in readmission rate between men and women is widest amongst members 45-54 years of age.

[37] Unplanned readmissions were identified using the CMS 30-day HWR Measure Planned Readmission Algorithm, version 4.0. See full specification in Appendix for more detail.

TABLE 22: 30 DAY ALL-CAUSE UNPLANNED READMISSION FOLLOWING PSYCHIATRIC INPATIENT HOSPITALIZATION

Age	Gender	Members with psychiatric inpatient hospitalization	Members having at least one readmission following psychiatric inpatient hospitalization	Percentage of Members having at least one readmission following psychiatric inpatient hospitalization (%)
19-44	Male	2,634	637	24.18%
	Female	2,290	444	19.39%
	Total	**4,924**	**1,081**	**21.95%**
45-54	Male	568	138	24.30%
	Female	502	80	15.94%
	Total	**1,070**	**218**	**20.37%**
55-64	Male	291	68	23.37%
	Female	218	38	17.43%
	Total	**509**	**106**	**20.83%**
Total	Male	3,493	843	24.13%
	Female	3,010	562	18.67%
	Total	**6,503**	**1,405**	**21.61%**

EMPLOYER-SPONSORED INSURANCE

Summary of Enrollment

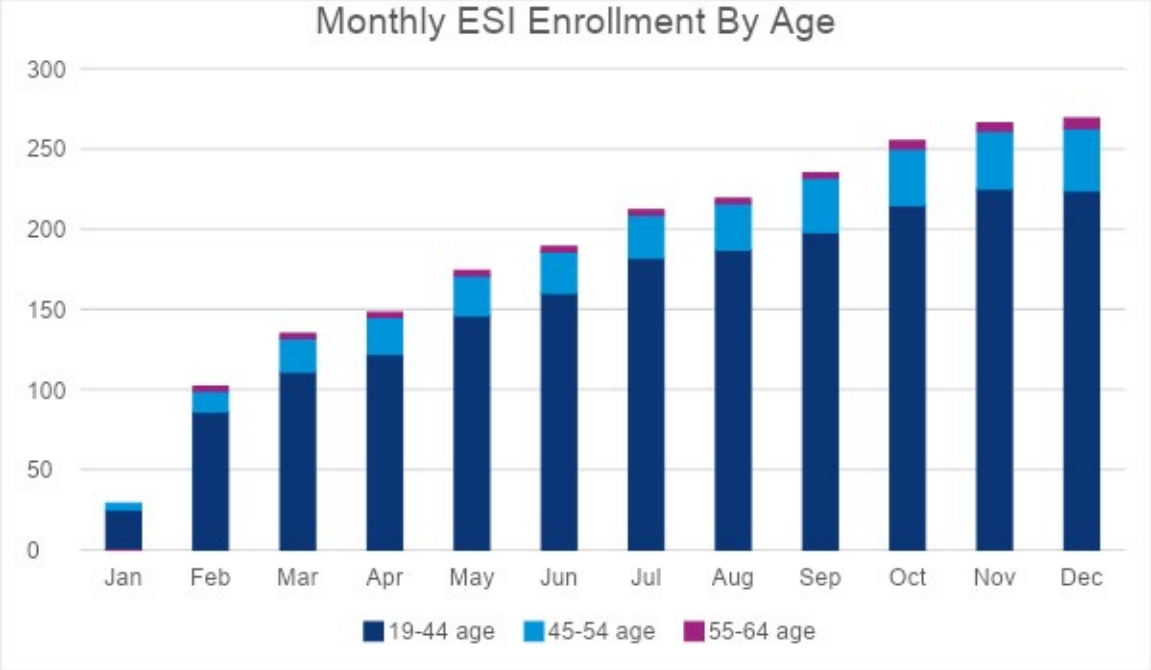
If AE members have access to coverage through their employers, Utah's current waiver requires that they enroll in ESI coverage. Eligible individuals are reimbursed for the full amount of the monthly premium cost of the qualified plan. In addition, the state provides wrap-around benefits through the State's fee for service (FFS) Medicaid program. During the measurement period, 322 unique individuals in the AE population enrolled in ESI coverage. The ESI amendment went into effect on January 1st, 2020, and the measurement period for this population runs from January 1st, 2020, to December 31st, 2020. There was a steady increase in enrollment throughout the year, with one month of ramp-up in January 2020.

ESI enrolled individuals represent less than half a percent of the total AE population (Table 9). As compared to the AE population, they are much younger, with 85% of ESI members falling in the 19-44 age band and 71% of AE members falling in the 19-44 age band. Only 2% of the ESI population is between the ages of 55 and 64, whereas 13% of the AE population are between the ages of 55 and 64. The gender distribution of the ESI population is almost equivalent to the gender distribution of the AE population, with more women enrolled than men overall.

Enrollment in the ESI program over time was steady throughout the measurement year, similar to the growth in the AE population. In June 2020, there were 52,591 unique individuals in the AE population and

189 in the ESI population. As demonstrated in the stacked bar graph below, the vast majority of individuals enrolling in ESI were members in the 19–44-year age band.

The gender distribution of ESI enrollment over time was also consistent with the gender distribution of the AE population. There were slightly more women in the ESI population than men.



ESI Expenditure

TABLE 23: AVERAGE PREMIUM AND CLAIM PAYMENT PER MEMBER PER MONTH FOR ESI MEMBERS

Month 2020	Total ESI Members Per Month	Average Premium Payment PMPM	Average Total Claim Amount Paid PMPM	Average Total Expenditure PMPM
Jan	29	$131.89	$54.87	$186.76
Feb	108	$145.84	$42.25	$188.09
Mar	137	$145.39	$88.05	$233.44
Apr	148	$151.65	$36.29	$187.94
May	174	$149.79	$69.95	$220.77
Jun	189	$148.31	$84.09	$233.13
Jul	212	$137.45	$58.18	$195.63
Aug	220	$135.17	$82.39	$217.56
Sep	235	$129.91	$73.56	$203.47
Oct	255	$129.68	$53.93	$183.61
Nov	266	$129.67	$52.83	$182.50
Dec	269	$131.80	$101.81	$233.61
Total Member Months	2242	$137.58	$69.09	$206.67

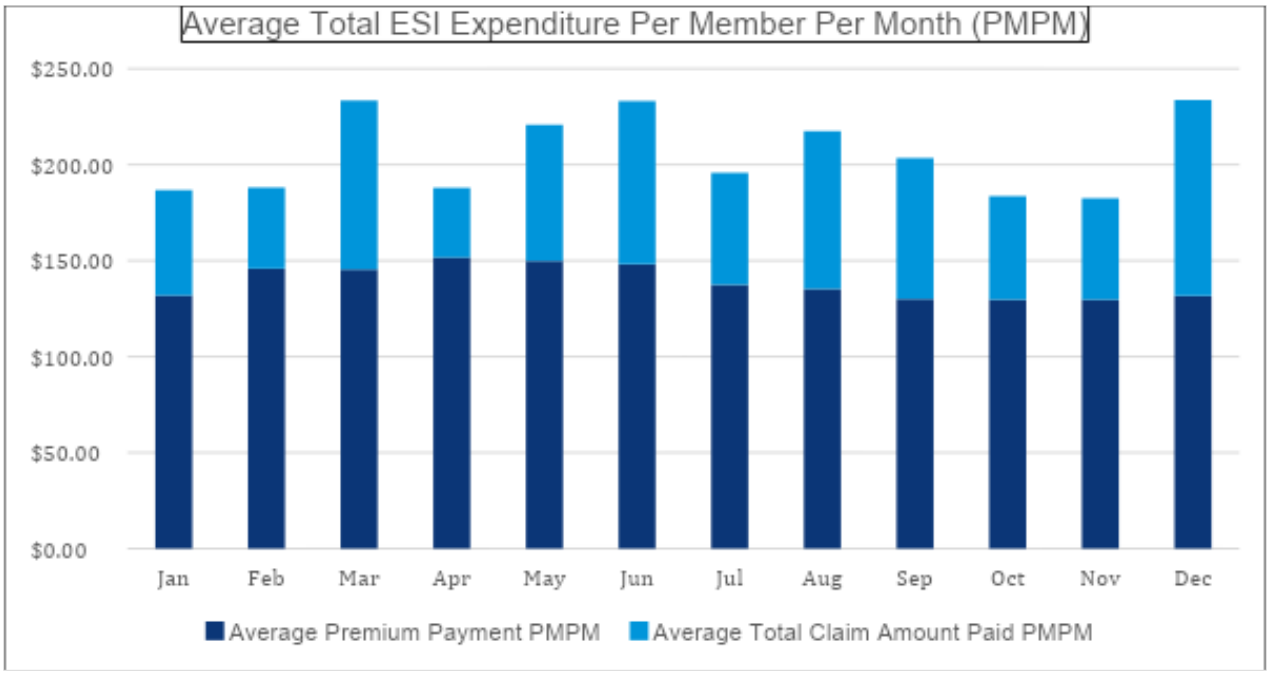
The average premium payment paid by the state for ESI members during the measurement year was $137.58. The average claim amount paid by the state for ESI members during the measurement year was $69.09, bringing the total average expenditure per member per month for ESI members to $206.67, just over $200.

Not all members in the ESI population received premium payments, as some individuals were dependents who were on the same ESI plan as their spouse. After the first two months (when enrollment was low during program rollout), the percentage of the ESI population with paid premiums was approximately 70%. Interestingly, the PHE, which took effect in March 2020 did not appear to affect the number of members on ESI but may have affected premium payments.

Implementation Costs

The primary administrative cost of implementing ESI specifically was IT programming costing $72,150, beginning in December 2019 and continuing through the measurement year. All other ESI implementation functions were performed by UDOH and DWS staff as part of their regular waiver and non-waiver related duties; costs for other staff time were not available.

FIGURE 8: AVERAGE ESI EXPENDITURE BY THE STATE PER MONTH IN 2020

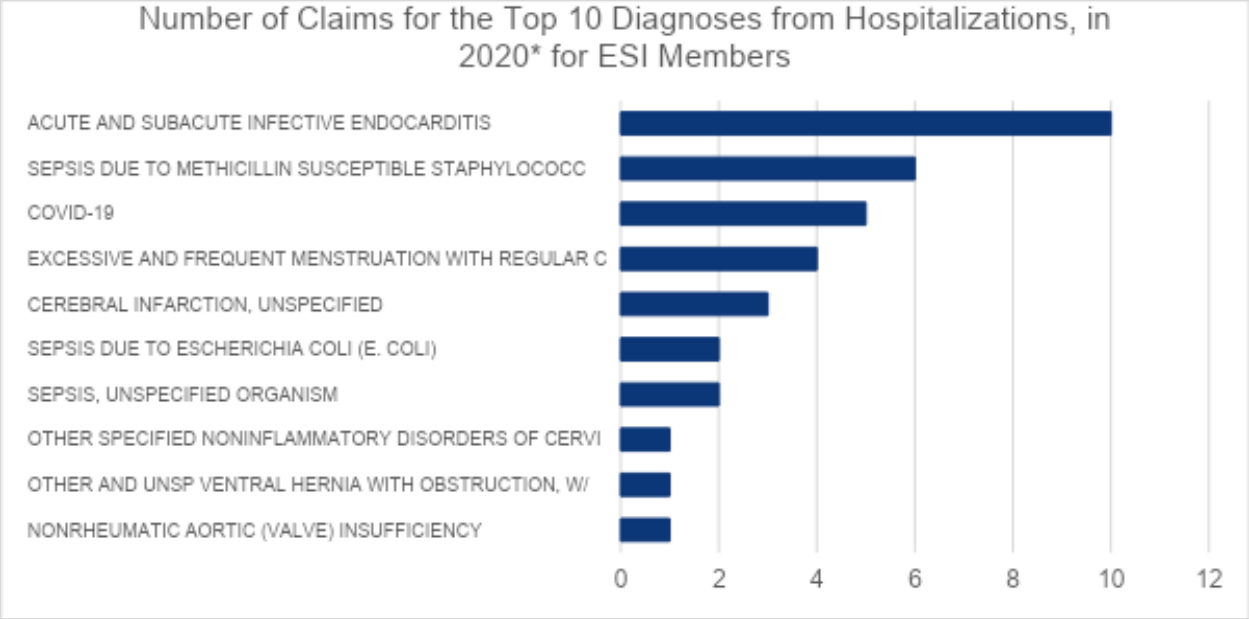


Total expenditure (premiums plus claims paid) averaged around $200 and were relatively consistent through the year. Average claim amounts varied throughout the year. Governor Gary R. Herbert directed Utah DOH to update its public health order and resume elective procedures in late April 2020. This may account for an increase in claim amounts through June 2020.

Hospitalizations for Covid-19 reached their peak in Utah in November 2020, which could have contributed to higher claim amounts in December 2020. This hypothesis is further buoyed by examination of the top diagnoses from hospitalizations in December 2020 for ESI members, as compared to the top 10 diagnoses from hospitalization for ESI members overall in 2020. In 2020 overall, among those hospitalized on ESI, Covid-19 ranked 3rd as the most common primary diagnoses on the claim. All inpatient claims for ESI members in December 2020 had a primary diagnosis of Covid-19.[38] Hospitalization often produces the most expensive claims, and these claims are least likely to be fully covered by a commercial plan. In other words, UT Medicaid as the secondary payer for AE members on ESI may have been covering a greater number of inpatient stays and/or more prolonged stays by AE members in December 2020 due to the Covid-19 hospitalization rate in the state at that time.

[38] Due to variation in the rules on how Covid-19 was coded early in the year, it is possible there was an undercount of inpatient hospitalization due to Covid-19. ICD-10 released coding and reporting guidelines in April of 2020 indicating that when Covid-19 meets the definition of the principal diagnosis, it should be sequenced first. COVID-19 Guidelines (cdc.gov) Then on September 1 2020, CMS released guidance indicating that in order to be eligible for a 20% increase in the DRG-MS weighting factor for Covid, providers had to provide a positive Covid-19 Laboratory Test. SE20015 (cms.gov)

FIGURE 9: TOP 10 PRIMARY INPATIENT DIAGNOSES IN 2020 FOR ESI MEMBERS



*Note: ESI claims analysis is for calendar year 2020 only.

G. CONCLUSIONS

In this report, the IE describes analysis of claims data from the first year of AE and ESI and provides descriptive findings on utilization patterns and characteristics of the demonstration population. While this time period is too short to draw conclusions about the impact of the demonstration, it provides a valuable baseline for evaluation, and identifies some key measures and subgroups to monitor for change over the course of the demonstration.

EVALUATION POPULATION

The Evaluation Population includes all adults aged 19-64 with household incomes at or below 133% FPL ($17,136 for an individual or $35,256 for a family of four) who are not otherwise eligible for Medicaid. The Independent Evaluator used Expansion Population markers in the administrative data provided by the UT Department of Health to capture enrollment in the various programs that fall under the Expansion population. After applying criteria for continuous enrollment, the Independent Evaluator determined there were 72,812 unique members continuously enrolled in the eligible population as of June 30th, 2020. There are more women than men and the majority, 71%, of AE members are younger than 44.

The state conducted a preliminary analysis of the AE population in January 2020 and found similar results. Over half of Expansion enrollees were between the ages of 26-44. Adults without Dependent children represented the largest group within the Expansion population followed by Expansion Parents[39] [40]

The Utah AE population is demographically comparable to other states' expansion populations. Maine implemented full Medicaid Expansion on January 10, 2019, and in its most recent update in May 2021, 85% of Maine's expansion members are adults without dependent children 76% are under 50.[41] Virginia implemented full Medicaid Expansion on January 1, 2019[42] and has a population that is much larger than Utah's—current enrollment is over 500,000 members—however, like Utah, Virginia's population is more female than male and relatively young; 83% of members are under 55 years of age in Virginia. Virginia's population is also more likely to be childless. Over three quarters of Virginia's population are adults without dependent children.

Utah's AE population also appears to reflect the health status of Utah residents generally. The diabetes rate in the state Utah was the 5th lowest rate in the country in 2019 at 8%[43]. The state had the lowest rate of cardiovascular disease of any state in the nation in 2019 with only 3.9% of adults reporting being told by the doctor that they had cardiovascular disease.[44] The AE population mirrored these positive indicators of physical health. Only 5.8% of the continuously enrolled population had encounter data or pharmacy data to suggest they had diabetes. In comparison, 8.7% of the expansion population in Maine and 9% of the expansion population in Virginia is being treated for Diabetes. Only 4.1% of the UT AE population is being treated with persistent medication, including an ACE inhibitor or diuretic. Although not a perfect

[39] Targeted Adult Medicaid (TAM program was the first expansion effort in Utah, implemented in November 2017. The program was designed to provide coverage to individuals who were chronically homeless, had SUD needs, or were involved in the justice system.
[40] Utah Health Status Update: Medicaid Expansion Update. Utah Dept. of Health, January 2020. Available at: https://ibis.health.utah.gov/ibisph-view/pdf/opha/publication/hsu/2020/2001_MedicaidWaiver_EHDI.pdf#HSU1
[41] MaineCare Expansion: MaineCare (Medicaid) Update. State of Maine Department of Health and Human Services, May 2021. Available at: https://www.maine.gov/dhhs/data-reports/mainecare-expansion
[42] Status of State Medicaid Expansion Decisions: Interactive Map. KFF, Kaiser Commission on Medicaid and the Uninsured, May 2021. Available at: https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/
[43] Diabetes in the United States. State of Childhood Obesity, Robert Woods Johnson Foundation, September 2020. Available at: https://stateofchildhoodobesity.org/diabetes/
[44] State Health Facts: Adults Who Report Being Told by a Doctor that They Have Cardiovascular Disease by Sex. KFF, 2019. KFF, 2019. Available at: https://www.kff.org/other/state-indicator/percent-of-adults-with-cardiovascular-disease-by-sex/?currentTimeframe=0&sortModel=%7B%22colId%22:%22All%20Adults%22,%22sort%22:%22desc%22%7D

comparison, 9% of the expansion population in Maine is being treated for hypertension and 18% of Virginia expansion members are being treated for high blood pressure.

Despite positive indicators of physical health, in 2019, Utah ranked number one in the percentage of adults reporting any mental illness in the past year. 26.9% of adults in Utah reported mental illness. 6.2% reported having serious thoughts of suicide in the past year. The latest results show the overall population in Utah ranks in the middle for substance use disorders when compared to other states. Utah ranks 31st overall in individuals reporting Alcohol dependence or abuse in the past year and 30th in individuals reporting Opioid Use Disorder in the past year.[45] Unsurprisingly, the AE population demonstrated similar patterns. 8.9% of continuously enrolled AE members had a psychiatric inpatient hospitalization during the measurement year and 9.8% had an episode of AOD abuse or dependence that required medical attention.[46]

ACUTE CARE UTILIZATION

Nationally, Medicaid beneficiaries have a higher rate of ED utilization than the general population (970 vs 390 per 1000 individuals in 2018, based on National Health Interview Survey data).[47] Utah has historically reported lower rates, which continued in 2019 with an overall unadjusted rate of 269, compared to 437 for the U.S. Among Utah residents aged 19-64, the crude rate of ED visits in 2019 was 257.8 per 1000 residents.[48] The IE analysis of Medicaid claims data found that the AE population exhibited a slightly higher rate of 361 per 1000 (Table 10). These rates are not fully comparable due to differences in datasets and methodology, as well as the 2020 PHE, but do suggest that this demonstration population experiences ED visits at rates more similar to the general public than to the non-expansion Medicaid population (662.54 per 1000 in 2019 and 666.38 per 1000 in 2020). This is consistent with literature on socioeconomic stress being a predictor of ED utilization as Expansion populations have higher incomes than those eligible for traditional Medicaid.[49]

The IE's analysis tracked ED visits for BH conditions separately and found that 7% of all ED visits were BH presentations. This fraction was higher among younger members than older, and higher for men than women. For males aged 19-44, over 10% of ED visits were for BH. This finding suggests that addressing BH needs of members is a significant lever for reducing ED visits in this part of the expansion population.

Members with high utilization of the ED (HUED), defined as 4 or more ED visits in the measurement year, represented less than 5% of the population, but accounted for nearly half of the total ED visits. Typically, frequent ED use indicates patients who are not connected to appropriate primary and ambulatory care, have poorly managed chronic conditions, and/or have unmet behavioral and health-related social needs. These individuals often benefit from intensive care coordination programs. Some provider organizations report good results from locating care coordination staff in or near the ED, in order to identify HUED patients in real time, establish relationships, and redirect to other care sites where appropriate.

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[45] State Health Facts: Individuals Reporting Past Year Opioid Use Disorder. KFF, 2019. Available at: https://www.kff.org/other/state-indicator/past-year-opioid-use-disorder/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Past%20Year%20Opioid%20Use%20Disorder%22,%22sort%22:%22desc%22%7D

[46] This refers to all visit types: inpatient outpatient, etc.

[47] Emergency Department Visit Rates by Selected Characteristics: United States, 2018. NCHS Data Brief No. 401, March 2021. https://www.cdc.gov/nchs/products/databriefs/db401.htm

[48] Public Health Indicator Based Information System (IBIS). Last updated 4/5/2021. https://ibis.health.utah.gov/ibisph-view/query/result/ed/EDCntyHospEDICD10/CrudeRate.html

[49] Sun, Benjamin C et al. "Predictors and outcomes of frequent emergency department users." Academic emergency medicine: official journal of the Society for Academic Emergency Medicine vol. 10,4 (2003): 320-8. doi:10.1111/j.1553-2712.2003.tb01344.x. Available at: https://pubmed.ncbi.nlm.nih.gov/12670845/.

ED visits were more frequent in the first quarter of the measurement year, which occurred in July-September of 2019. A steep drop in ED visits was observed in April 2020, most likely attributable to the onset of the Covid-19 pandemic.

Inpatient admissions, at 16 discharges per 1000 member months, followed patterns similar to the general Utah population, but were measurably lower than rates of inpatient discharges for the non-expansion Medicaid population (26.5 per 1000 member months for 2019, 23.1 per 1000 member months for 2020) [50] Medical, surgical, and maternity stays were measured separately. Given that maternity stays, unlike medical and surgical, are not an indicator of poor health, any positive impact of the demonstration would be reflected in a reduction specifically of medical and surgical admissions. Non-maternity admissions in the AE population were more frequent among men than women, and among older members compared to younger. Both medical and surgical stays accounted for substantial days in hospital (41 and 44 days per 1000 member months, respectively), suggesting that both admission types are valuable indicators of health outcomes for this population.

Primary, ambulatory, and Behavioral Health care Engagement

A key objective of the demonstration is to increase engagement in primary and preventive care. The IE analysis confirmed that AE participants, like expansion adults in other states, have suboptimal levels of participation in the routine care that could improve health and reduce the need for acute care. Close to half of AE participants had at least one primary or ambulatory visit during the 12-month period. Females were more likely than males, and older participants more likely than younger to have a visit. For context, according to NCQA HEDIS data, 80% of the Medicaid population reported having at least one ambulatory or preventive care visit in the last 12 months and 85% of the adult US population reported on the 2019 National Health Interview Survey (NHIS) as having at least one doctor's visit in the last 12 months.

To explore demonstration participants' engagement in ongoing care for chronic conditions, the IE assessed rates of recommended therapeutic monitoring for participants with diabetes, or who are on long-term medications. Within the AE population, 68% of members with diabetes received a Hemoglobin A1c test to monitor their blood sugar, and 70% of members on persistent medication had a monitoring event. Both rates are below NCQA benchmarks for Medicaid populations, indicating that while the prevalence of chronic conditions is low, demonstration participants would benefit from increased engagement in chronic disease management. Men demonstrated lower rates of participation in primary and ambulatory care, as well as chronic condition monitoring, which may contribute the higher rates of ED visits and non-maternity hospitalization among males. While women were more likely to receive primary care and chronic disease management, rates of women's' preventive screenings were lower for AE participants than NCQA benchmarks and those reported for the non-expansion Medicaid population. These patterns suggest that member outreach efforts targeted by gender may be useful in improving engagement among both men and women.

Low engagement in primary and preventive care, including management of chronic conditions, is typical for individuals who are uninsured or have recently been uninsured. Multiple studies of Medicaid expansion during 2014-9 have found that coverage increases access and participation in care among newly qualified beneficiaries.[51] However, increased engagement does typically take multiple years to develop.[52]

[50] Utah Hospital Utilization and Charges Profile, 2018. Utah Dept. of Health, Office of Healthcare Statistics, 2018. Available at: http://stats.health.utah.gov/publications/

[51] Madeline Guth, Rachel Garfield, and Robin Rudowitz, The Effects of Medicaid Expansion under the ACA: Studies from January 2014 to January 2020. KFF, March 2020. Available at: https://www.kff.org/report-section/the-effects-of-medicaid-expansion-under-the-aca-updated-findings-from-a-literature-review-appendix/.

[52] Guth, M. et al., The Effects of Medicaid Expansion under the ACA: Studies from January 2014 to January 2020.

Behavioral health is another area where individuals who are currently or recently uninsured often lack regular ongoing care. As indicators of BH care, The IE investigated rates of initiation and engagement in treatment for addiction, and rates of readmission and of follow-up after hospitalization for BH conditions. For initiation and engagement in SUD treatment, the AE population rates exceeded NCQA benchmarks for opioids, alcohol, and for other drugs. Follow-up after hospitalization for mental illness was also above benchmark rates. Readmission following psychiatric hospitalizations, for which no Medicaid benchmark is available, occurred at rates similar to the national average for Medicare patients.[53] These measures do not fully reflect the BH needs of the AE population, as they focus on members who have an episode of acute care for a BH diagnosis, the results suggest that members who do access acute BH care are typically receiving appropriate follow-up and are continuing with treatment. This encouraging result suggests that the high rates of ED-BH visits for AE participants could be reduced over time by connecting more individuals with ongoing treatment.

PANDEMIC IMPACT

The national emergency proclamation pertaining to the COVID-19 pandemic was issued on March 13, 2020. Therefore, April 2020 represents the first full month of the pandemic in the US. This is reflected in the IE's findings that ED visit rates dropped sharply in April. Similar patterns have been identified in the state overall, such as outpatient ED visits in the largest Utah hospital system declining by 30% in April 2020.[54] The reduction most likely reflects deterrence of ED visits due to concerns about infection, or covid-related restrictions and protocols, such as policies prohibiting a family member from accompanying a patient in the ED. In some lower-acuity cases, telehealth visits may have substituted for ED visits. Statewide, telehealth visits for both physical health and BH diagnoses increased dramatically in April.[55] Inpatient admissions also fell sharply nationwide at the onset of the pandemic, in part due to hospitals cancelling elective surgeries and procedures, and patients deferring care. Non-Covid hospitalizations were at the lowest in April, and then gradually increased in the following months. In Utah, Covid hospitalization peaked in December 2020.[56] Hospital utilization in the AE population was consistent with state trends.

EMPLOYER-SPONSORED INSURANCE

For AE members who enrolled in ESI, the average expenditure by the state was under $200 per member per month. This is substantially less than the average per capita for non-expansion adults in Utah Medicaid ($7608 per year for 2018), or the national median expenditure for expansion adults ($6184).[57] A contributing factor to the low cost was that many of the participants were on family plans, where a single premium payment covered multiple members. Lower rates of utilization during the pandemic may also have resulted in less claims expenditure than a typical year. Less than half of a percent of the AE population enrolled in ESI during the measurement period, which limits the budget impact of any cost savings. However, the pandemic also caused higher than normal unemployment rates, which may have limited access to ESI among AE participants.

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[53] Ivy Benjenk, Morgan Shields, and Jie Chen, Measures of care coordination at inpatient psychiatric facilities and the Medicare 30-day all-cause readmission rate. Psychiatric Services, Volume 71 Issue 10, August 2020. Available at https://ps.psychiatryonline.org/doi/10.1176/appi.ps.201900360?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub++0pubmed&

[54] Giannouchos, T.V. *et al.*, 2021.Trends in Outpatient Emergency Department Visits during the Covid-19 Pandemic at at a Large Urban Hospital System. Am J Emerg Med 40:20-26. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7725055/

[55] Preliminary Covid-19 Healthcare Trends. Utah Dept. of Health, Office of Health Care Statistics, August 2020. Available at: http://stats.health.utah.gov/wp-content/uploads/2020/08/COVID-19-Trends-Report-August-2020-Update-FINAL.pdf

[56] Overview of COVID-19 Surveillance. Utah Department of Health, June 2021. Available at: https://coronavirus.utah.gov/case-counts/

[57] CMS Medicaid Per Capita expenditure estimates for states with a moderate level of data usability, 2018. https://www.medicaid.gov/state-overviews/scorecard/how-much-states-spend-per-medicaid-enrollee/index.html

H. Interpretations, Policy Implications and Interactions with Other State Initiatives

Utah's Medicaid strategy

The AE and ESI demonstration is being implemented in the context of Utah's long-term strategy of using managed care to increase access and quality while containing cost. The transition to managed care plans for beneficiaries began in 1982 under Utah's 1915(b) waiver program. Utah's Primary Care Network Section 1115 demonstration waiver was first approved in 2002 and included a pre-ACA coverage expansion (called the Primary Care Network) to certain non-disabled adults. Since 2013, four full-risk ACOs have managed physical health care for all residents of designated counties and for other beneficiaries who opt in to ACO plans. Utah has also operated a 1915(b)-waiver program called the Prepaid Mental Health Plan (PMHP) since July 1, 1991. The PMHP was designed to maximize the contractors' flexibility to effectively and responsibly use Medicaid funds to ensure Medicaid beneficiaries have access to BH services and to improve BH outcomes for Medicaid beneficiaries. Under the PMHP, Medicaid beneficiaries have access to a spectrum of inpatient and outpatient mental health care and outpatient substance use disorder care.

In November of 2018, Utah voters supported a ballot initiative to expand the state's Medicaid program consistent with the Affordable Care Act. This expansion would include coverage for childless adults with income at or below 133% FPL and parents/caretakers with incomes from 60% to 133% of the FPL. The subsequently passed Senate Bill 96 "Medicaid Expansion Adjustments", signed into law on February 11, 2019, required the Department of Health to seek approval of a waiver request to the federal government for partial expansion for eligible individuals below 100% of the FPL.

Utah Medicaid incorporated the expansion into its managed care strategy through a series of waiver amendments. On March 29, 2019, CMS approved an amendment to Utah's existing Primary Care Network Section 1115 demonstration waiver to expand Medicaid to a capped number of adults with income up to 100% FPL beginning on April 1, 2019. The state requested authority through the UMIC amendment to cover additional services authorized under Utah's 1915(b) PMHP waiver. These services include Psychoeducational services[58], Personal services[59], Respite Care[60], and Supportive Living costs[61]. The Bridge Plan expansion was approved at the state's traditional Medicaid matching rate of 68%, not the enhanced ACA matching rate of 90%. In accordance with SB 96, Utah then submitted its Per Capita Cap waiver application with a request to receive 90/10 ACA enhanced matching rate for partial expansion and its Fallback Plan waiver seeking authority for a coverage expansion at or below 133% FPL. with a 90/10 ACA enhanced match.

In its December 23, 2019 approval letter, CMS approved expansion of Medicaid coverage for adults at or below 133% FPL.as well as a number of amendments. Approved amendments to the waiver have included targeted SUD and dental services,[62] clinically managed withdrawal services, community engagement

[58] Services recommended by a physician or licensed mental health practitioner that are furnished for the primary purpose of assisting in the rehabilitation of enrollees with serious mental illness (SMI) or serious emotional disturbance (SED)

[59] Assistance with instrumental activities of daily living (IADLs) that are necessary for SMI or SED individuals to live successfully and independently in the community and avoid hospitalization.

[60] Services furnished for the primary purpose of giving parents/guardians temporary relief from the stresses of care for a child with SED.

[61] Costs incurred in residential treatment/support programs when managed care plan enrollees are placed in these programs to reduce risk for inpatient hospitalization.

[62] CMS also approved expanded criteria for the Targeted Adults, state plan dental benefits for Medicaid eligible individuals over the age of 65, porcelain or porcelain-to-metal crowns for Adults receiving SUD treatment, and the UMIC Integrated Care Amendment.

requirements,[63] and an ESI reimbursement requirement for expansion members. Current waiver amendments are approved through June 1, 2022. As of August 10, 2021, CMS approval of community engagement requirements was withdrawn.

The Interim findings of the IE, while limited, suggest that this AE population resembles those of other states in that members exhibit relatively low engagement in primary and preventive care, unmet BH needs, and concomitant higher use of acute care. Utah can expect that the expansion of coverage, if combined with effective approaches to member engagement, can ultimately accomplish the demonstration goals of increased access, improved health, and cost containment. Two notable advantages of Utah's AE population are that chronic disease prevalence is comparatively low, and engagement in BH treatment is comparatively high. Low rate of diabetes is typical of Utah residents generally. The encouraging rates of engagement in BH treatment may reflect the state's ongoing investment in the BH system through multiple waiver programs and other initiatives. These include:

- A waiver amendment providing BH services for adults with serious mental illness.
- Authority to cover longer IMD stays and additional SUD services.
- Legislation including "Crisis Services Amendments" that established Behavioral Health Receiving Centers to increase access for beneficiaries needing crisis stabilization services.

The enhancements to the BH care system dovetail with Utah's ongoing managed care strategy in the creation of the Utah Medicaid Integrated Care plans, which combine the delivery of physical health and BH services in five Utah counties (Weber, Davis, Salt Lake, Utah, and Washington) for Medicaid expansion members. Fully integrated care delivery provides an opportunity to build on the state's investments in BH care, and to improve outcomes for the AE population.

Impact Of COVID-19 Pandemic

In 2020, utilization of health services was dramatically altered by the Covid-19 pandemic; non-pharmaceutical expenditures fell nationally by around 1% compared to 2019 when not including pharmaceutical costs, with the majority of the reduction in spending occurring during the second quarter of the year, when many provider sites were offering limited in-person services. This was offset somewhat by increases in telemedicine visits and overall, pharmaceutical spending was up around 5.0% compared to 2019.[64] The shifts in utilization indicate significant changes in consumer behavior and accessibility of care for non-covid-related care, with consumers likely foregoing preventive care as well as medically necessary and elective procedures. Physician and outpatient care volumes dropped over 6% while laboratory use was up 9% when compared to 2019. In 2021, early data suggests that individuals are accessing routine care more than they did in 2020, but not at pre-pandemic levels, and telehealth continues to be an important mode of care delivery. During the upcoming years, any return to normal, or adjustment to a new normal, will unfold in concert with the demonstration.

The snapshot of the AE population described in this report reflects the pandemic related dip in utilization, Comparisons to benchmarks must be viewed with this caveat. As discussed above in the Methodology section, the IE will use multiple approaches to account for Covid-related trends in the final evaluation analysis.

[63] In 2020, community engagement requirements were suspended due to the public health emergency (PHE) and CMS approval for community engagement requirements was withdrawn in August 2021

[64] Peterson: Kaiser Family Foundation. Analysis of Quarterly Services Survey. 2020.

I. Lessons Learned and Recommendations

Based on these preliminary analyses, the IE offers these observations and recommendations to the state, and to the health plans serving Medicaid members:

1) Expect gradual change

Previous studies have demonstrated that insurance coverage is necessary but not sufficient to increase engagement in care and improve health status. Members of the AE population are likely to have been recently uninsured or underinsured and have patterns that are likely to take more than two years to change.[65] [66] Active outreach, and population health programs, are likely to be critical elements of improvement in outcomes.

2) Persist in integrating BH care

This snapshot of the AE population demonstrated the presence of substantial unmet BH needs, in the form of ED-BH visits. However, the comparatively high rates of participation in follow-up and ongoing care for BH conditions highlights a success of Utah's BH providers, and a widespread motivation among members to engage in treatment. The state has expanded access to BH services through coverage of longer IMD stays, Behavioral Health Receiving Centers, crisis lines, and social detox programs. The creation of fully integrated UMIC plans is also intended to expand access to BH care by reducing fragmentation of care and silos of BH providers. These policies can represent an opportunity to improve outcomes for the AE population through the synergy of expanded coverage and enhanced services.

3) Focus on members with high ED use

Frequent ED visits can be a valuable marker of unmet health care needs, and an opportunity for outreach. Utah Medicaid's Restriction program, intended to reduce inappropriate and excessive utilization, flags frequent non-emergent ED visits as an indicator of misuse, and restricts these members to one PCP and one pharmacy, but does not restrict ED utilization, or address the underlying causes of frequent ED visits.[67] The state could consider requiring or encouraging Medicaid ACOs to develop or expand programs that reach out to members with frequent ED utilization. Some ACOs have demonstrated success with locating care coordination staff in or near EDs.[68] Broader adoption of electronic notification systems to enable providers to connect in real time with members visiting the ED can also be a valuable strategy. New CMS regulations that took effect in May 2021 require hospitals to participate in ENS/ADT. Utah has an established Health Information Exchange and is therefore well positioned to leverage the new CMS policy and encourage wider participation and standardization.

4) Seek opportunities to increase enrollment in ESI

The potential for ESI to impact state Medicaid costs depends on increasing enrollment. As more workers return to employment during the post-pandemic recovery, some may gain access to commercial coverage. The current findings indicate that younger members are most likely to enroll in ESI; 85% of current ESI enrollees are under 45. Prior to the suspension of community engagement requirements, some

[65] Sarah Miller and Laura Wherry. Health and Access to Care During the First 2 Years of the ACA Medicaid Expansions. The New England Journal of Medicine 376 no. 10, March 2017. Available at: http://www.nejm.org/doi/full/10.1056/NEJMsa1612890

[66] Charles Courtemanche, James Marton, Benjamin Ukert, Aaron Yelowitz, and Daniela Zapata. Early Effects of the Affordable Care Act on Health Care Access, Risky Health Behaviors, and Self-Assessed Health. National Bureau of Economic Research, Working Paper no. 23269, March 2017. Available at: http://www.nber.org/papers/w23269

[67] Restriction Program. Utah Department of Health – Medicaid. Available at: https://medicaid.utah.gov/restriction-program/

[68] Dianne Hasselman. Super-Utilizer Summit: Common Themes from Innovative Complex Care Management Programs. Center for Health Care Strategies, October 2013. Available at: https://www.chcs.org/media/FINAL_Super-Utilizer_Report.pdf

beneficiaries were directed to jobs.utah.gov and Department of Workforce Services resources to facilitate employment. While these activities are no longer required, UDOH could continue to provide information, links, and education about these resources, and continue partnering with the Department of Workforce Services to offer job training and placement supports for AE members. Facilitating job searching during the economic recovery period has the potential to connect more members with ESI, amplifying any benefits of the program to the state and beneficiaries.

J. ATTACHMENTS

1. CMS-approved Evaluation Design AE & ESI
2. Measure specs

Measure Specifications

for

UT Adult Expansion and ESI Interim Report

June 2021

Prepared by Public Consulting Group

Table of Contents

I. General Overview

A. Table: Claims-based data performance measures

UT Measure ID	Population	Measure Name	Data Source	Data Steward (s)	Steward Version	NQF
AE2	AE	Adults' Access to Preventive/Ambulatory Health Services (AAP)	MMIS	NCQA	HEDIS MY 2020 & MY 2021	N/A
AE3	AE	Comprehensive Diabetes Care (CDC) (modified) 1 indicator	MMIS	NCQA	HEDIS MY 2020 & MY 2021	0731
AE4	AE	Emergency Department Utilization (EDU)	MMIS	NCQA	HEDIS MY 2020 & MY 2021	Based on 9999
AE5	AE	30 Day All-Cause Unplanned Readmission Following Psychiatric Inpatient Hospitalization	MMIS	CMS	12-Jun-19	Based on 2860
AE7	AE	Annual Monitoring for Patients on Persistent Medications (MPM)	MMIS	NCQA	HEDIS 2019	2371
AE8	AE	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	MMIS	NCQA	HEDIS MY 2020 & MY 2021	0004
AE9	AE	Follow-Up After Hospitalization for Mental Illness: Age 18 and Older (FUH-AD)	MMIS	NCQA	HEDIS MY 2020 & MY 2021	0576

AE10	AE	Hospitalization - Inpatient Admissions (IPU)	MMIS/Administrative	NCQA	HEDIS MY 2020 & MY 2021	
AE12	AE	Cervical Cancer Screening (CCS)	MMIS	NCQA	HEDIS MY 2020 & MY 2021	0032
AE13	AE	Breast Cancer Screening (BCS)	MMIS	NCQA	HEDIS MY 2020 & MY 2021	2732

B. Performance Measures Specifications

Interim Report	
Time period	April 1st, 2017 – March 31st, 2019 (Baseline Period); April 1st, 2019 - December 31st, 2020 (Intervention Period) Unless otherwise specified, the performance measurement period is 7/1/2019 – 6/30/2020
Data sources / Definitions	• Medicaid Claims (MMIS) Member definition: • DEMONSTRATION_POPULATION = "Adult Expansion" • Both Genders • Age 19 – 64 years at the time of starting last eligibility enrollment segment
Analyses	• Interrupted Time Series
Approach	Descriptive
Measures	Not Included: • AE1; AE6; and AE11 • ESI measures • All UMIC measures
Findings	Trends within Medicaid population during the Demonstration Period.

MEASURE AE2: ADULTS' ACCESS TO PREVENTIVE/AMBULATORY HEALTH SERVICES (AAP)

Measure Description:

The percentage of members 19 years and older who had an ambulatory or preventive care visit.

- Medicaid members who had an (AT LEAST ONE) ambulatory or preventive care visit during the measurement year.

Data Source: **MMIS**	NQF #: **N/A**
Measure Steward: **NCQA**	Measure Steward Version: **HEDIS MY 2020 & MY 2021**

Numerator:

Medicaid: One or more ambulatory or preventive care visits during the measurement year. 7/1/19 – 6/30/20

Use the following value sets to identify ambulatory or preventive care visits:

Ambulatory:

1. Ambulatory Visits Value Set.
2. Other Ambulatory Visits Value Set
3. Other: PLACEOFSERVICE NOT IN ('04', '21', '23', '31', '33', '34',' 41', '42')
4. BILLTYPE <> '11X' (inpatient)

Non-Ambulatory

1. Telephone Visits Value Set.
2. Online Assessments Value Set.

Denominator:
The eligible population.

Exclusions:
Exclude members receiving Hospice Care (Hospice Encounter, Hospice Intervention Value Set) during the measurement year.

Result:
The result is expressed as a percentage.

Improvement Direction:
Lower

MEASURE AE3: COMPREHENSIVE DIABETES CARE (CDC)

Measure Description:

The percentage of members 19–64 years of age with diabetes (type 1 and type 2) who had Hemoglobin A1c (HbA1c) testing.

Data Source:	NQF #:
MMIS	**0731**
Measure Steward:	Measure Steward Version:
NCQA	**HEDIS MY 2020 & MY 2021**

Numerator:

HbA1c Testing An HbA1c test (HbA1c Lab Test Value Set; HbA1c Test Result or Finding Value Set) performed during the measurement year. 7/1/19 – 6/30/20

Denominator:

Members 19–64 years as of June 30 of the measurement year 2020, with a diabetes diagnosis.

Event/diagnosis A member only needs to be identified by claim/encounter data or by pharmacy data to be included in the measure. Members may be identified as having diabetes during the measurement year.

Claim/encounter data. Members who met any of the following criteria during the measurement year:

- At least one acute inpatient encounter (Acute Inpatient Value Set) with a diagnosis of diabetes (Diabetes Value Set) ***without*** telehealth (Telehealth Modifier Value Set; Telehealth POS Value Set).
- At least one acute inpatient discharge with a diagnosis of diabetes (Diabetes Value Set) on the discharge claim. To identify an acute inpatient discharge:
  1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
  2. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).
  3. Identify the discharge date for the stay.
- At least two outpatient visits (Outpatient Value Set), observation visits (Observation Value Set), telephone visits (Telephone Visits Value Set), e-visits or virtual check-ins (Online Assessments Value Set), ED visits (ED Value Set), nonacute inpatient encounters (Nonacute Inpatient Value Set) or nonacute inpatient discharges (instructions below; the diagnosis must be on the

discharge claim), on different dates of service, with a diagnosis of diabetes (Diabetes Value Set). Visit type need not be the same for the two encounters. To identify a nonacute inpatient discharge:

1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
2. Confirm the stay was for nonacute care based on the presence of a nonacute code (Nonacute Inpatient Stay Value Set) on the claim.
3. Identify the discharge date for the stay.

Only include nonacute inpatient encounters (Nonacute Inpatient Value Set) ***without*** telehealth (Telehealth Modifier Value Set; Telehealth POS Value Set).

Pharmacy data. Members who were dispensed insulin or hypoglycemics/ antihyperglycemics on an ambulatory basis during the measurement year (Diabetes Medications List).

Diabetes Medications

Description	Prescription		
Alpha-glucosidase inhibitors	• Acarbose	• Miglitol	
Amylin analogs	• Pramlintide		
Antidiabetic combinations	• Alogliptin-metformin • Alogliptin-pioglitazone • Canagliflozin-metformin • Dapagliflozin-metformin • Empagliflozin-linagliptin	• Empagliflozin-metformin • Glimepiride-pioglitazone • Glipizide-metformin • Glyburide-metformin • Linagliptin-metformin	• Metformin-pioglitazone • Metformin-repaglinide • Metformin-rosiglitazone • Metformin-saxagliptin • Metformin-sitagliptin
Insulin	• Insulin aspart • Insulin aspart-insulin aspart protamine • Insulin degludec • Insulin detemir • Insulin glargine • Insulin glulisine	• Insulin isophane human • Insulin isophane-insulin regular • Insulin lispro • Insulin lispro-insulin lispro protamine • Insulin regular human • Insulin human inhaled	
Meglitinides	• Nateglinide	• Repaglinide	
Glucagon-like peptide-1 (GLP1) agonists	• Dulaglutide • Exenatide	• Albiglutide • Liraglutide (excluding *Saxenda*®)	
Sodium glucose cotransporter 2 (SGLT2) inhibitor	• Canagliflozin	• Dapagliflozin	• Empagliflozin

Description	Prescription		
Sulfonylureas	• Chlorpropamide • Glimepiride	• Glipizide • Glyburide	• Tolazamide • Tolbutamide
Thiazolidinediones	• Pioglitazone	• Rosiglitazone	
Dipeptidyl peptidase-4 (DDP-4) inhibitors	• Alogliptin • Linagliptin	• Saxagliptin • Sitagliptin	

Note: *Glucophage/metformin as a solo agent is not included because it is used to treat conditions other than diabetes; members with diabetes on these medications are identified through diagnosis codes only.*

Exclusions:
Exclude members receiving palliative care (Palliative Care Assessment Value Set; Palliative Care Encounter Value Set; Palliative Care Intervention Value Set) during the measurement year.

Exclusion (Optional):

Members who do not have a diagnosis of diabetes (Diabetes Value Set), in any setting, during the measurement year or the year prior to the measurement year ***and*** who had a diagnosis of polycystic ovarian syndrome, gestational diabetes or steroid-induced diabetes (Diabetes Exclusions Value Set), in any setting, during the measurement year or the year prior to the measurement year.

Organizations that apply optional exclusions must exclude members from the denominator for all indicators. The denominator for all rates must be the same. If the member was included in the measure based on claim or encounter data, as described in the event/diagnosis criteria, the optional exclusions do not apply because the member had a diagnosis of diabetes.

Result:
The result is expressed as a percentage.

Improvement Direction:
Higher

MEASURE AE4: EMERGENCY DEPARTMENT UTILIZATION (EDU)

Measure Description:

The rate per 1,000 of members 19 years and older who had emergency department (ED) visits during the measurement year.

Data Source:	NQF #:
MMIS	**9999**
Measure Steward:	Measure Steward Version:
NCQA	**HEDIS MY 2020 & MY 2021**

Numerator:

The number of observed ED visits within each:

- Age and gender group, and
- The overall total

Visit definition:

*A unique combination of the variables CLIENTID – TCN – SERVICEBEGINDATE
This accounts for members that may have more than one claim for the same or different diagnosis and procedure per day.

Step 1:

- Count each visit to an ED once, regardless of the intensity or duration of the visit.
- Count multiple ED visits on the same date of service as one visit.
- Identify all ED visits during the measurement year using either of the following:

*Note: measurement year has been altered from CY to fiscal year.

- An ED Visit (ED Value Set). (CPT Code OR UBRev Code)
- A procedure code (ED Procedure Code Value Set) with (AND) an ED place of service code (ED POS Value Set).

INPATIENT:

- An inpatient stay (Inpatient Stay Value Set) OR
- An acute inpatient stay (Acute Inpatient Value Set) OR
- Non-acute inpatient stay (NonAcute Inpatient Value Set)
- BILLTYPE IN ('11X', '12X', '21X', '22X')

OR

OBSERVATION:

- An observation (Observation Value Set) OR
- An observation stays (Observation Stay Value Set)

OR

OUTPATIENT:

- Outpatient (Outpatient Value Set) OR
- Telephone Visits (Telephone Visits Value Set). OR
- BILLTYPE IN('13X','14X','23X','83X','85X')

Step 2:

- Exclude encounters with any of the following:

- A **principal diagnosis** of (see **UT BH dx Master Listing for EDU**)[69]

Step 3:

- For the remaining ED visits, calculate the:
- number of visits per member and
- remove visits for outlier members.

OUTLIER DEFINITION: Medicaid members 19–64 years of age with **four or more ED visits** during the measurement year (7/1/19 – 6/30/20).

Step 4:

- Calculate the total using all ED visits identified after completing steps 1–3.

Assign each remaining ED visit to an age and stratification category.

Denominator:
The number of members in the eligible population for each age and gender combination.

[69] Mental and Behavioral Disorders Value Set, Psychiatry Value Set, and Electroconvulsive Therapy value sets have been modified and combined into the UT BH dx Master Listing for EDU to fit needs of UT Interim Evaluation.

MEASURE AE5: 30 DAY ALL-CAUSE UNPLANNED READMISSION FOLLOWING PSYCHIATRIC INPATIENT HOSPITALIZATION

Measure Description:

This measure calculates an unplanned, 30-day readmission percentage for adult patients 19 years and older with a principal discharge diagnosis of a psychiatric disorder within the measurement year.

Data Source:	NQF #:
MMIS	**Based on 2860**
Measure Steward:	Measure Steward Version:
Centers for Medicare & Medicaid Services (CMS)	**June 12, 2019**

Numerator:
A readmission is defined as any unplanned admission to an inpatient facility (IPF) or an acute care hospital (ACH). It must occur within 3 to 30 days after the index discharge date from the eligible index admission date that had the principal discharge diagnosis of a psychiatric disorder (Table BH01_00). Subsequent admissions on Days 0, 1, and 2 are not counted as readmissions due to transfers/interrupted stay policy.

Denominator:
Of the hospital's attributed behavioral health population, individuals discharged from an inpatient admission with a principal diagnosis of a psychiatric disorder.

Note: The Clinical Classifications Software (CCS) has been developed by the Agency for Healthcare Research and Quality (AHRQ) to identify populations for procedure-specific studies. A crosswalk to ICD-10-CM codes is available in the accompanying VSD Appendix.

This process defines planned readmissions from the CMS 30-day HWR Measure Planned Readmission Algorithm, version 4.0[70].
The implemented algorithm distinguishes two approaches that are used to identify planned readmissions.

For purposes of streamlining this measure, however, only "unplanned" readmissions (as observed counts) are factored into calculating the readmission rate. "Planned" (Tables BH01_01, BH01_02) and "potentially planned" (Table BH01_03) readmissions are considered "exclusions". Therefore, to determine an unplanned readmission, the diagnosis or procedure must not specifically be listed within procedures or diagnoses listed within the tables.

Exclusions:
The denominator excludes admissions for patients:

- "Planned" and "potentially planned" readmission diagnoses and procedures as well as readmission for acute or complication of care associated with the discharge diagnosis (Table BH01_04) *

[70] 2020 HWR Readmission Measure Updates and Specifications Report

- Discharged against medical advice (AMA)
- With unreliable data (e.g., has a death date but also admissions afterwards)
- Missing age or gender
- With a subsequent admission on day of discharge and following 2 days (transfers/interrupted stay period)

*Excludes procedures or diagnoses that are always “planned” (Tables BH01_01, BH01_02), such as:

- Transplant surgery,
- Maintenance chemotherapy/radiotherapy/immunotherapy,
- Rehabilitation, and
- Forceps delivery.

A readmission includes procedures that are potentially planned, e.g., colorectal resection or aortic resection (Table BH01_03). The procedures are considered planned if they do not coincide with a principal discharge diagnosis of a psychiatric illness or complication that might necessitate the procedure (Table BH01_04).

Result:
The result is expressed as a percentage.

Improvement Direction:
Lower

MEASURE AE7: ANNUAL MONITORING FOR PATIENTS ON PERSISTENT MEDICATIONS (MPM)

Measure Description:

The percentage of members 19 years of age and older who received at least 180 treatment days of ambulatory medication therapy for a select therapeutic agent during the measurement year and at least one therapeutic monitoring event for the therapeutic agent in the measurement year. For each product line, report each of the two rates separately and as a total rate.

- Annual monitoring for members on angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB).
- Annual monitoring for members on diuretics.
- Total rate (the sum of the two numerators divided by the sum of the two denominators).

Data Source: **MMIS**	NQF #: **2371**
Measure Steward: **NCQA**	Measure Steward Version: **HEDIS 2019 (retired)**

Numerator:

At least one serum potassium and a serum creatinine therapeutic monitoring test in the measurement year. Any of the following during the measurement year meet criteria:

- A lab panel test (Lab Panel Value Set).
- A serum potassium test (Serum Potassium Value Set) ***or*** a serum creatinine test (Serum Creatinine Value Set) on the same date of service or on different dates of service.
    - LOINC codes were unavailable as our analysis did not have access to nonclaims based data.

Additional eligible population criteria

Members who received at least 180 treatment days of a diuretic (Diuretic Medications List) during the measurement year.

Note: *Members may switch therapy with any medication on the Diuretic Medications List during the measurement year and have the days supply for those medications count toward the total 180 treatment days.*

Diuretic Medications

Description	Prescription	
Antihypertensive combinations	• Aliskiren-hydrochlorothiazide • Aliskiren-hydrochlorothiazide-amlodipine • Amiloride-hydrochlorothiazide	• Fosinopril-hydrochlorothiazide • Hydrochlorothiazide-irbesartan • Hydrochlorothiazide-lisinopril • Hydrochlorothiazide-losartan

	• Amlodipine-hydrochlorothiazide-olmesartan • Amlodipine-hydrochlorothiazide-valsartan • Atenolol-chlorthalidone • Azilsartan-chlorthalidone • Benazepril-hydrochlorothiazide • Bendroflumethiazide-nadolol • Bisoprolol-hydrochlorothiazide • Candesartan-hydrochlorothiazide • Captopril-hydrochlorothiazide • Chlorthalidone-clonidine • Enalapril-hydrochlorothiazide • Eprosartan-hydrochlorothiazide	• Hydrochlorothiazide-methyldopa • Hydrochlorothiazide-metoprolol • Hydrochlorothiazide-moexipril • Hydrochlorothiazide-olmesartan • Hydrochlorothiazide-propranolol • Hydrochlorothiazide-quinapril • Hydrochlorothiazide-spironolactone • Hydrochlorothiazide-telmisartan • Hydrochlorothiazide-triamterene • Hydrochlorothiazide-valsartan
Loop diuretics	• Bumetanide • Ethacrynic acid	• Furosemide • Torsemide
Potassium-sparing diuretics	• Amiloride • Eplerenone	• Spironolactone • Triamterene
Thiazide diuretics	• Chlorothiazide • Chlorthalidone	• Hydrochlorothiazide • Indapamide • Methyclothiazide • Metolazone

Denominator:
19 years and older as of June 30 of the measurement year.

Event/ diagnosis

Members on persistent medications (i.e., members who received at least 180 treatment days of ambulatory medication in the measurement year). Refer to *Additional Eligible Population Criteria* for each rate.

Treatment days are the actual number of calendar days covered with prescriptions within the measurement year (i.e., a prescription of 90 days supply dispensed on June 1 of the measurement year counts as 30 treatment days). Sum the days supply for all medications and subtract any days supply that extends beyond June 30 of the measurement year.

Administrative Specification

For each product line, report each of the two rates separately and as a combined rate. The total rate is the sum of the two numerators divided by the sum of the two denominators.

Rate 1: Annual Monitoring for Members on ACE Inhibitors or ARBs

Additional eligible population criteria

Members who received at least 180 treatment days of ACE inhibitors or ARBs during the measurement year (ACE Inhibitor/ARB Medications List).

ACE Inhibitor/ARB Medications

Description	Prescription
Angiotensin converting enzyme inhibitors	• Benazepril • Captopril • Enalapril • Fosinopril • Lisinopril • Moexipril • Perindopril • Quinapril • Ramipril • Trandolapril
Angiotensin II inhibitors	• Azilsartan • Candesartan • Eprosartan • Irbesartan • Losartan • Olmesartan • Telmisartan • Valsartan
Antihypertensive combinations	• Aliskiren-valsartan • Amlodipine-benazepril • Amlodipine-hydrochlorothiazide-valsartan • Amlodipine-hydrochlorothiazide-olmesartan • Amlodipine-olmesartan • Amlodipine-perindopril • Amlodipine-telmisartan • Amlodipine-valsartan • Azilsartan-chlorthalidone • Benazepril-hydrochlorothiazide • Candesartan-hydrochlorothiazide • Captopril-hydrochlorothiazide • Enalapril-hydrochlorothiazide • Eprosartan-hydrochlorothiazide • Fosinopril-hydrochlorothiazide • Hydrochlorothiazide-irbesartan • Hydrochlorothiazide-lisinopril • Hydrochlorothiazide-losartan • Hydrochlorothiazide-moexipril • Hydrochlorothiazide-olmesartan • Hydrochlorothiazide-quinapril • Hydrochlorothiazide-telmisartan • Hydrochlorothiazide-valsartan • Sacubitril-valsartan • Trandolapril-verapamil

Note: *Members may switch therapy with any medication on the ACE Inhibitor/ARB Medications List during the measurement year and have the days supply for those medications count toward the total 180 treatment days (i.e., a member who received*

90 days of ACE inhibitors and 90 days of ARBs meets the denominator definition for rate 1).

Exclusions:

Members in hospice are excluded from this measure.

Optional: Exclude members from each eligible population who had an acute inpatient encounter (Acute Inpatient Value Set) or nonacute inpatient encounter (Nonacute Inpatient Value Set) during the measurement year.

Result:
The result is expressed as a percentage.

Improvement Direction:
Higher

MEASURE AE8: INITIATION AND ENGAGEMENT OF ALCOHOL AND OTHER DRUG ABUSE OR DEPENDENCE TREATMENT (IET)

Measure Description:

The percentage of adolescent and adult members with a new episode of alcohol or other drug (AOD) abuse or dependence who received the following.

- *Initiation of AOD Treatment.* The percentage of members who initiate treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization, telehealth, or medication treatment within 14 days of the diagnosis.
- *Engagement of AOD Treatment.* The percentage of members who initiated treatment and who were engaged in ongoing AOD treatment within 34 days of the initiation visit.

Data Source: **MMIS**	NQF #: **0004**
Measure Steward: **NCQA**	Measure Steward Version: **HEDIS MY 2020 & MY 2021**

Numerator:

Initiation of AOD Treatment

Initiation of AOD treatment within 14 days of the IESD.

If the Index Episode was an inpatient discharge (or an ED/observation visit that resulted in an inpatient stay), the inpatient stay is considered initiation of treatment and the member is compliant.

If the Index Episode was an opioid treatment service that bills monthly (OUD Monthly Office Based Treatment Value Set), the opioid treatment service is considered initiation of treatment and the member is compliant.

If the Index Episode was not an inpatient discharge, the member must initiate treatment on the IESD or in the 13 days after the IESD (14 total days). Any of the following code combinations meet criteria for initiation:

- An acute or nonacute inpatient admission ***with*** a diagnosis (on the discharge claim) matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set. To identify acute and nonacute inpatient admissions:
  1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
  2. Identify the admission date for the stay.
- IET Stand Alone Visits Value Set ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- Observation Value Set ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- IET Visits Group 1 Value Set ***with*** IET POS Group 1 Value Set ***and*** a diagnosis matching the IESD diagnosis cohort using one of the following:

Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.

- IET Visits Group 2 Value Set ***with*** IET POS Group 2 Value Set ***and*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- A telephone visit (Telephone Visit Value Set) ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An e-visit or virtual check-in (Online Assessments Value Set) ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- If the Index Episode was for a diagnosis of opioid abuse or dependence (Opioid Abuse and Dependence Value Set) an opioid treatment service (OUD Weekly Non Drug Service Value Set).
- If the Index Episode was for a diagnosis of opioid abuse or dependence (Opioid Abuse and Dependence Value Set) an opioid treatment service (OUD Monthly Office Based Treatment Value Set).
- If the Index Episode was for a diagnosis of alcohol abuse or dependence (Alcohol Abuse and Dependence Value Set) a medication treatment dispensing event (Alcohol Use Disorder Treatment Medications List) or medication treatment during a visit (AOD Medication Treatment Value Set).
- If the Index Episode was for a diagnosis of opioid abuse or dependence (Opioid Abuse and Dependence Value Set) a medication treatment dispensing event (Opioid Use Disorder Treatment Medications List) or medication treatment during a visit (AOD Medication Treatment Value Set; OUD Weekly Drug Treatment Service Value Set).

For all initiation events except medication treatment (AOD Medication Treatment Value Set; Alcohol Use Disorder Treatment Medications List; Opioid Use Disorder Treatment Medications List), initiation on the same day as the IESD must be with different providers in order to count.

If a member is compliant for the Initiation numerator for any diagnosis cohort (alcohol, opioid, other drug) or for multiple cohorts, count the member only once in the Total Initiation numerator. The "Total" column is not the sum of the diagnosis columns.

Exclude the member from the denominator for both indicators *(Initiation of AOD Treatment* and *Engagement of AOD Treatment)* if the initiation of treatment event is an inpatient stay with a discharge date after November 27 of the measurement year.

Engagement of AOD Treatment

Step 1 Identify all members compliant for the Initiation of AOD Treatment numerator.

For members who initiated treatment via an inpatient admission, the 34-day period for engagement begins the day after discharge.

Step 2 Identify members who had an opioid treatment service that bills monthly (OUD Monthly Office Based Treatment Value Set) or who had a visit that included

medication administration (OUD Weekly Drug Treatment Service Value Set) beginning on the day after the initiation encounter through 34 days after the initiation event.

For these members, if the IESD Diagnosis cohort was a diagnosis of opioid abuse or dependence (Opioid Abuse and Dependence Value Set), the member is numerator compliant for Engagement of AOD Treatment.

Step 3 Identify members whose initiation of AOD treatment was a medication treatment event (Alcohol Use Disorder Treatment Medications List; Opioid Use Disorder Treatment Medications List; AOD Medication Treatment Value Set).

These members are numerator compliant if they have two or more engagement events, where only one can be an engagement medication treatment event, beginning on the day after the initiation encounter through 34 days after the initiation event (total of 34 days).

Step 4 Identify the remaining members whose initiation of AOD treatment was *not* a medication treatment event (members not identified in step 3).

These members are numerator compliant if they meet *either* of the following:

- At least one engagement medication treatment event.
- At least two engagement visits.

Two engagement visits can be on the same date of service, but they must be with different providers in order to count as two events. An engagement visit on the same date of service as an engagement medication treatment event meets criteria (there is no requirement that they be with different providers).

Refer to the descriptions below to identify engagement visits and engagement medication treatment events.

Engagement visits Any of the following beginning on the day after the initiation encounter through 34 days after the initiation event (total of 34 days) meet criteria for an engagement visit:

- An acute or nonacute inpatient admission with a diagnosis (on the discharge claim) matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set. To identify acute or nonacute inpatient admissions:
  1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
  2. Identify the admission date for the stay.
- IET Stand Alone Visits Value Set ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- Observation Value Set ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- IET Visits Group 1 Value Set ***with*** IET POS Group 1 Value Set ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.

- IET Visits Group 2 Value Set ***with*** IET POS Group 2 Value Set ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- A telephone visit (Telephone Visits Value Set) ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An e-visit or virtual check-in (Online Assessments Value Set) ***with*** a diagnosis matching the IESD diagnosis cohort using one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- If the IESD Diagnosis cohort was a diagnosis of opioid abuse or dependence (Opioid Abuse and Dependence Value Set) an opioid treatment service (OUD Weekly Non Drug Service Value Set).

Engagement medication treatment events

Either of the following meets criteria for an engagement medication treatment event:

- If the IESD diagnosis was *a diagnosis of alcohol abuse or dependence* (Alcohol Abuse and Dependence Value Set), one or more medication treatment dispensing events (Alcohol Use Disorder Treatment Medications List) or medication treatment during a visit (AOD Medication Treatment Value Set), beginning on the day after the initiation encounter through 34 days after the initiation event (total of 34 days), meets criteria for Alcohol Abuse and Dependence Treatment.
- If the IESD diagnosis was *a diagnosis of opioid abuse or dependence* (Opioid Abuse and Dependence Value Set), one or more medication dispensing events (Opioid Use Disorder Treatment Medications List) or medication treatment during a visit (AOD Medication Treatment Value Set), beginning on the day after the initiation encounter through 34 days after the initiation event (total of 34 days), meets criteria for Opioid Abuse and Dependence Treatment.

If the member is compliant for multiple cohorts, only count the member once for the Total Engagement numerator. The Total column is not the sum of the Diagnosis columns.

Alcohol Use Disorder Treatment Medications

Description	Prescription
Aldehyde dehydrogenase inhibitor	• Disulfiram (oral)
Antagonist	• Naltrexone (oral and injectable)
Other	• Acamprosate (oral; delayed-release tablet)

Opioid Use Disorder Treatment Medications

Description	Prescription
Antagonist	• Naltrexone (oral and injectable)
Partial agonist	• Buprenorphine (sublingual tablet, injection, implant)

	• Buprenorphine/naloxone (sublingual tablet, buccal film, sublingual film)

Note

- *Organizations may have different methods for billing intensive outpatient encounters and partial hospitalizations. Some organizations may bill comparable to outpatient billing, with separate claims for each date of service; others may bill comparable to inpatient billing, with an admission date, a discharge date, and units of service. Organizations whose billing is comparable to inpatient billing may count each unit of service as an individual visit. The unit of service must have occurred during the required time frame for the rate.*
- *For members in the "other drug abuse or dependence" cohort, medication treatment does not meet numerator criteria for Initiation of AOD Treatment or Engagement of AOD Treatment.*
- *Methadone is not included in the medication lists for this measure. Methadone for opioid use disorder is only administered or dispensed by federally certified opioid treatment programs and does not show up in pharmacy claims data. A pharmacy claim for methadone would be more indicative of treatment for pain than treatment for an opioid use disorder; therefore, they are not included in the medication lists. The AOD Medication Treatment Value Set includes some codes that identify methadone treatment because these codes are used on medical claims, not pharmacy claims.*

Denominator: Members that are 19 years or older with a new episode of AOD abuse or dependence during the Intake Period.

AOD diagnosis cohorts

Report the following diagnosis cohorts for each age stratification and the total rate:

- Alcohol abuse or dependence.
- Opioid abuse or dependence.
- Other drug abuse or dependence.
- Total.

Event/diagnosis

New episode of AOD abuse or dependence during the Intake Period.

Follow the steps below to identify the eligible population, which is the denominator for both rates.

Step 1

Identify the Index Episode. Identify all members in the specified age range who during the Intake Period had one of the following:

- An outpatient visit, telehealth, intensive outpatient visit or partial hospitalization with a diagnosis of AOD abuse or dependence. Any of the following code combinations meet criteria:
  - IET Stand Alone Visits Value Set ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
  - IET Visits Group 1 Value Set ***with*** IET POS Group 1 Value Set and with one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
  - IET Visits Group 2 Value Set ***with*** IET POS Group 2 Value Set and ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.

- OUD Weekly Non Drug Service Value Set ***with*** Opioid Abuse and Dependence Value Set.
- OUD Monthly Office Based Treatment Value Set ***with*** Opioid Abuse and Dependence Value Set.
- OUD Weekly Drug Treatment Service Value Set ***with*** Opioid Abuse and Dependence Value Set.

- A detoxification visit (Detoxification Value Set) ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An ED visit (ED Value Set) ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An observation visit (Observation Value Set) ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An acute or nonacute inpatient discharge ***with*** one of the following on the discharge claim: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set. To identify acute and nonacute inpatient discharges:
  1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
  2. Identify the discharge date for the stay.
- A telephone visit (Telephone Visits Value Set) ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An e-visit or virtual check-in (Online Assessments Value Set) ***with*** one of the following: Alcohol Abuse and Dependence Value Set, Opioid Abuse and Dependence Value Set, Other Drug Abuse and Dependence Value Set.
- An opioid treatment service (OUD Weekly Non Drug Service Value Set; OUD Monthly Office Based Treatment Value Set; OUD Weekly Drug Treatment Service Value Set) with a diagnosis of opioid abuse of dependence (Opioid Abuse and Dependence Value Set).

For members with more than one episode of AOD abuse or dependence, use the first episode.

For members, whose first episode was an ED or observation visit that resulted in an inpatient stay, use the diagnosis from the ED or observation visit to determine the diagnosis cohort and use the inpatient discharge date as the IESD.

Step 2 Select the Index Episode and stratify based on age and AOD diagnosis cohort.

- If the member has a diagnosis of alcohol abuse or dependence (Alcohol Abuse and Dependence Value Set), place the member in the alcohol cohort.
- If the member has a diagnosis of opioid abuse of dependence (Opioid Abuse and Dependence Value Set), place the member in the opioid cohort.
- If the member has a drug abuse or dependence that is neither for opioid or alcohol (Other Drug Abuse and Dependence Value Set), place the member in the other drug cohort.

If the member has multiple substance use diagnosis for the visit, report the member in all AOD diagnosis stratifications for which they meet criteria.

The total is not a sum of the diagnosis cohorts. Count members in the total denominator rate if they had at least one alcohol, opioid or other drug abuse or dependence diagnosis during the measurement period. Report member with multiple diagnoses during the Index Episode only once for the total rate for the denominator.

Step 3 Test for Negative Diagnosis History. Exclude members who had a claim/ encounter with a diagnosis of AOD abuse or dependence (AOD Abuse and Dependence Value Set), AOD medication treatment (AOD Medication Treatment Value Set) or an alcohol or opioid dependency treatment medication dispensing event (Alcohol Use Disorder Treatment Medications List; Opioid Use Disorder Treatment Medications List) during the 60 days (2 months) before the IESD.

For an inpatient IESD, use the admission date to determine the 60-day Negative Diagnosis History period.

For ED or observation visits that result in an inpatient stay, use the earliest date of service (either the ED/observation date of service or the inpatient admission date) to determine the Negative Diagnosis History.

Step 4 Calculate continuous enrollment. Members must be continuously enrolled for 60 days (2 months) before the IESD through 47 days after the IESD (108 total days), with no gaps.

Exclusions:

- Exclude members who had a claim/encounter with a diagnosis of AOD abuse or dependence (AOD Abuse and Dependence Value Set), AOD medication treatment (AOD Medication Treatment Value Set) or an alcohol or opioid dependency treatment medication dispensing event (Alcohol Use Disorder Treatment Medications List; Opioid Use Disorder Treatment Medications List) during the 60 days (2 months) before the IESD.
- Exclude if used hospice during the measurement period (Hospice Encounter, Hospice Intervention Value Set).

Result:
The result is expressed as a percentage.

Improvement Direction:
Higher

MEASURE AE9: FOLLOW UP AFTER HOSPITALIZATION FOR MENTAL ILLNESS (FUH)

Measure Description:

The percentage of discharges for patients 19 years of age and older who were hospitalized for treatment of selected mental health disorders or intentional self-harm diagnoses and who had a follow-up visit with a mental health provider. Two rates are reported:

1. The percentage of discharges for which the member received follow-up within 30 days after discharge.
2. The percentage of discharges for which the member received follow-up within 7 days after discharge.

Data Source: **MMIS**	NQF #: **0576**
Measure Steward: **NCQA**	Measure Steward Version: **HEDIS MY 2020 & MY 2021**

Numerator:

30-Day Follow-Up A follow-up visit with a mental health provider within 30 days after discharge. Do not include visits that occur on the date of discharge.

7-Day Follow-Up A follow-up visit with a mental health provider within 7 days after discharge. Do not include visits that occur on the date of discharge.

For both indicators, any of the following meet criteria for a follow-up visit.

- An outpatient visit (Visit Setting Unspecified Value Set) ***with*** (Outpatient POS Value Set) ***with*** a mental health provider.
- An outpatient visit (BH Outpatient Value Set) ***with*** a mental health provider.
- An intensive outpatient encounter or partial hospitalization (Visit Setting Unspecified Value Set) ***with*** (Partial Hospitalization POS Value Set).
- An intensive outpatient encounter or partial hospitalization (Partial Hospitalization or Intensive Outpatient Value Set).
- A community mental health center visit (Visit Setting Unspecified Value Set; BH Outpatient Value Set; Observation Value Set; Transitional Care Management Services Value Set) ***with*** (Community Mental Health Center POS Value Set).
- Electroconvulsive therapy (Electroconvulsive Therapy Value Set) ***with*** (Ambulatory Surgical Center POS Value Set; Community Mental Health Center POS Value Set; Outpatient POS Value Set; Partial Hospitalization POS Value Set).
- A telehealth visit: (Visit Setting Unspecified Value Set) ***with*** (Telehealth POS Value Set) ***with*** a mental health provider.
- An observation visit (Observation Value Set) ***with*** a mental health provider.
- Transitional care management services (Transitional Care Management Services Value Set), ***with*** a mental health provider.
- A visit in a behavioral healthcare setting (Behavioral Healthcare Setting Value Set).

- A telephone visit (Telephone Visits Value Set) ***with*** a mental health provider.

Denominator:

Members 18+ years who were discharged alive from an acute inpatient with a principal mental illness diagnosis or intentional self-harm.

Event/diagnosis

An acute inpatient discharge with a principal diagnosis of mental illness or intentional self-harm (Mental Illness Value Set; Intentional Self-Harm Value Set) on the discharge claim on or between July 1, 2019 and June 30, 2020 of the measurement year. To identify acute inpatient discharges:

1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
2. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).
3. Identify the discharge date for the stay.

The denominator for this measure is based on discharges, not on members. If members have more than one discharge, include all discharges on or between July 1, 2019 and June 30, 2020 of the measurement year.

Acute readmission or direct transfer

Identify readmissions and direct transfers to an acute inpatient care setting during the 30-day follow-up period:

1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
2. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).
3. Identify the admission date for the stay.

Exclude both the initial discharge and the readmission/direct transfer discharge if the last discharge occurs after June 1 of the measurement year.

If the readmission/direct transfer to the acute inpatient care setting was for a principal diagnosis (use only the principal diagnosis on the discharge claim) of mental health disorder or intentional self-harm (Mental Health Diagnosis Value Set; Intentional Self-Harm Value Set), count only the last discharge.

If the readmission/direct transfer to the acute inpatient care setting was for any other principal diagnosis (use only the principal diagnosis on the discharge claim) exclude both the original and the readmission/direct transfer discharge.

Nonacute readmission or direct transfer

Exclude discharges followed by readmission or direct transfer to a nonacute inpatient care setting within the 30-day follow-up period, regardless of principal diagnosis for the readmission. To identify readmissions and direct transfers to a nonacute inpatient care setting:

1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
2. Confirm the stay was for nonacute care based on the presence of a nonacute code (Nonacute Inpatient Stay Value Set) on the claim.
3. Identify the admission date for the stay.

These discharges are excluded from the measure because rehospitalization or direct transfer may prevent an outpatient follow-up visit from taking place.

Exclusions:

- Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).
- Exclude both the initial discharge and the readmission/direct transfer discharge if the last discharge occurs after June 1 of the measurement year.

- Exclude both the original and the readmission/direct transfer discharge if the readmission/direct transfer to the acute inpatient care setting was for any other principal diagnosis (use only the principal diagnosis on the discharge claim).
- Exclude discharges followed by readmission or direct transfer to a nonacute inpatient care setting within the 30-day follow-up period, regardless of principal diagnosis for the readmission.
- Exclude if used hospice during the measurement period (Hospice Encounter, Hospice Intervention Value Set).

Result:
The result is expressed as a percentage.

Improvement Direction:
Higher

MEASURE AE10: INPATIENT UTILIZATION—GENERAL HOSPITAL/ACUTE CARE (IPU)

Measure Description:

The rate of members 19–64 years of age who utilized acute inpatient care and services in the following categories:

- Maternity
- Surgery
- Medicine
- Total Inpatient (the sum of Maternity, Surgery, and Medicine)

Note: Final Outputs are Discharges per 1,000 Member Months, Days per 1,000 Member Months, and Average Length of Stay.

Data Source: **MMIS/Administrative**	NQF #: **N/A**
Measure Steward: **NCQA**	Measure Steward Version: **HEDIS MY 2020 & MY 2021**

Numerator:
The following steps identify and categorize inpatient discharges.

Step 1 Identify all acute inpatient discharges between 7/1/19 – 6/30/20 of the measurement year. To identify acute inpatient discharges: Include surgery in this step and remove in later step.

1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
2. Pt 1b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).
3. Identify the discharge date for the stay.

Step 2 Exclude discharges with a principal diagnosis of mental health or chemical dependency (Mental and Behavioral Disorders Value Set) on the discharge claim.

Step 3 Report total inpatient, using all discharges identified after completing steps 1 and 2.

Step 4 Report maternity. A delivery is not required for inclusion in the Maternity category; any maternity-related stay is included. Include birthing center deliveries and count them as one day of stay.

Starting with all discharges identified in step 3, identify maternity using either of the following:

- A maternity-related principal diagnosis (Maternity Diagnosis Value Set).
- A maternity-related stay (Maternity Value Set).

Step 5 Report surgery (Surgery Value Set).

Step 6 Report medicine. Categorize as medicine the discharges remaining after removing maternity (identified in step 4) and surgery (identified in step 5) from total inpatient (identified in step 3).

Denominator:

Member months	For each table, report all member months for the measurement year. Refer to *Specific Instructions for Utilization Tables* for more information.

Additional calculations:

Days	Count all days associated with the identified discharges. Report days for total inpatient, maternity, surgery, and medicine.
ALOS	Refer to *Specific Instructions for Utilization Tables* for the formula. Calculate average length of stay for total inpatient, maternity, surgery, and medicine.

Exclusions:

Members in hospice are excluded from this measure.

Result:
The result is expressed as a percentage.

Improvement Direction:
Higher

MEASURE AE12: CERVICAL CANCER SCREENING (CCS)

Measure Description:

The percentage of women 21–64 years of age who were screened for cervical cancer using either of the following criteria:

- Women 21–64 years of age who had cervical cytology performed within the last 3 years.
- Women 30–64 years of age who had cervical high-risk human papillomavirus (hrHPV) testing performed within the last 5 years.
- Women 30–64 years of age who had cervical cytology/high-risk human papillomavirus (hrHPV) cotesting within the last 5 years.

Data Source: **MMIS**	NQF #: **0032**
Measure Steward: **NCQA**	Measure Steward Version: **HEDIS MY 2020 & MY 2021**

Numerator:

The number of women who were screened for cervical cancer. Either of the following meets criteria:

- Women 24–64 years of age as of June 30 of the measurement year who had cervical cytology (Cervical Cytology Lab Test Value Set; Cervical Cytology Result or Finding Value Set) during the measurement year or the two years prior to the measurement year.
- Women 30–64 years of age as of June 30 of the measurement year who had cervical high-risk human papillomavirus (hrHPV) testing (High Risk HPV Lab Test Value Set, High Risk HPV Test Result or Finding Value Set) during the measurement year or the four years prior to the measurement year ***and*** who were 30 years or older on the date of the test.

Note: Evidence of hrHPV testing within the last 5 years also captures patients who had cotesting; therefore, additional methods to identify cotesting are not necessary.

Denominator:

Women 21-64 years as of June 30 of the measurement year.

Exclusions:

Required exclusion

Members receiving palliative care (Palliative Care Assessment Value Set; Palliative Care Encounter Value Set; Palliative Care Intervention Value Set) during the measurement year.

- At least two outpatient visits (Outpatient Value Set), observation visits (Observation Value Set), ED visits (ED Value Set), telephone visits (Telephone Visits Value Set), e-visits or virtual check-ins (Online Assessments Value Set), nonacute inpatient encounters (Nonacute Inpatient Value Set) or nonacute inpatient discharges (instructions below; the diagnosis must be on the discharge claim) on different dates of service, with an advanced illness diagnosis (Advanced Illness Value Set). Visit type need not be the same for the two visits. To identify a nonacute inpatient discharge:

- Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
- Confirm the stay was for nonacute care based on the presence of a nonacute code (Nonacute Inpatient Stay Value Set) on the claim.
- Identify the discharge date for the stay.

- At least one acute inpatient encounter (Acute Inpatient Value Set) with an advanced illness diagnosis (Advanced Illness Value Set).
- At least one acute inpatient discharge with an advanced illness diagnosis (Advanced Illness Value Set) on the discharge claim. To identify an acute inpatient discharge:
  - Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set).
  - Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).

  Identify the discharge date for the stay

-
- **Exclusion (optional):**
-
- Hysterectomy with no residual cervix, cervical agenesis or acquired absence of cervix (Absence of Cervix Diagnosis Value Set; Hysterectomy With No Residual Cervix Value Set) any time during the member's history through December 31 of the measurement year. Members in hospice are excluded from the eligible population.

MEASURE AE13: BREAST CANCER SCREENING (BCS)

Measure Description:

The percentage of women 50–64 years of age who had a mammogram to screen for breast cancer.

Data Source:	NQF #:
MMIS	**2732**
Measure Steward:	Measure Steward Version:
NCQA	**HEDIS MY 2020 & MY 2021**

Numerator:

One or more mammograms (Mammography Value Set) any time during the performance measurement period.

Denominator:

The number of women 50-64 years of age at the end of the measurement year.

Exclusions:

Required exclusion	Members receiving palliative care (Palliative Care Assessment Value Set; Palliative Care Encounter Value Set; Palliative Care Intervention Value Set) during the measurement year.

Exclusion (optional):

Bilateral mastectomy any time during the member's history through June 30 of the measurement year. Any of the following meet criteria for bilateral mastectomy:

- Bilateral mastectomy (Bilateral Mastectomy Value Set).
- Unilateral mastectomy (Unilateral Mastectomy Value Set) with a bilateral modifier (Bilateral Modifier Value Set).
- Unilateral mastectomy found in clinical data (Clinical Unilateral Mastectomy Value Set) with a bilateral modifier (Clinical Bilateral Modifier Value Set).
  Note: *The "clinical" mastectomy value sets identify mastectomy; the word "clinical" refers to the data source, not to the type of mastectomy.*
- History of bilateral mastectomy (History of Bilateral Mastectomy Value Set).
- Any combination of codes from the table below that indicate a mastectomy on ***both*** the left ***and*** right side on the same or different dates of service.

Left Mastectomy (any of the following)	Right Mastectomy (any of the following)
• Unilateral mastectomy (Unilateral Mastectomy Value Set) ***with*** a left-side modifier (Left Modifier Value Set) (same procedure)	• Unilateral mastectomy (Unilateral Mastectomy Value Set) ***with*** a right-side modifier (Right Modifier Value Set) (same procedure)
• Unilateral mastectomy found in clinical data (Clinical Unilateral Mastectomy	• Unilateral mastectomy found in clinical data (Clinical Unilateral Mastectomy

Value Set) ***with*** a left-side modifier (Clinical Left Modifier Value Set) (same procedure)	Value Set) ***with*** a right-side modifier (Clinical Right Modifier Value Set) (same procedure)
• Absence of the left breast (Absence of Left Breast Value Set)	• Absence of the right breast (Absence of Right Breast Value Set)
• Left unilateral mastectomy (Unilateral Mastectomy Left Value Set)	• Right unilateral mastectomy (Unilateral Mastectomy Right Value Set)

Note

- *This measure assesses the use of imaging to detect early breast cancer in women. Because the measure denominator does not remove women at higher risk of breast cancer, all types, and methods of mammograms (screening, diagnostic, film, digital or digital breast tomosynthesis) qualify for numerator compliance. Do not count MRIs, ultrasounds, or biopsies towards the numerator: although these procedures may be indicated for evaluating women at higher risk for breast cancer or for diagnostic purposes, they are performed as an adjunct to mammography and do not alone count toward the numerator.*

II. APPENDIX A: VALUE CODE SETS BY MEASURE

Measure AE2: Adults' Access to Preventive/Ambulatory Health Services (AAP)

Value Set Name	Value Set OID
Ambulatory Visits	2.16.840.1.113883.3.464.1004.1022
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Online Assessments	2.16.840.1.113883.3.464.1004.1446
Other Ambulatory Visits	2.16.840.1.113883.3.464.1004.1198
Telephone Visits	2.16.840.1.113883.3.464.1004.1246

Measure AE3: Comprehensive Diabetes Care (CDC)

Value Set Name	Value Set OID
Acute Inpatient	2.16.840.1.113883.3.464.1004.1810
Advanced Illness	2.16.840.1.113883.3.464.1004.1465
Bilateral Modifier	2.16.840.1.113883.3.464.1004.1043
CKD Stage 4	2.16.840.1.113883.3.464.1004.1052
Diabetes	2.16.840.1.113883.3.464.1004.1077
Diabetes Exclusions	2.16.840.1.113883.3.464.1004.1105
Diabetes Mellitus Without Complications	2.16.840.1.113883.3.464.1004.1407
Diabetic Retinal Screening	2.16.840.1.113883.3.464.1004.1078
Diabetic Retinal Screening Negative In Prior Year	2.16.840.1.113883.3.464.1004.1079
Dialysis Procedure	2.16.840.1.113883.3.464.1004.1952
Diastolic 80-89	2.16.840.1.113883.3.464.1004.1082
Diastolic Blood Pressure	2.16.840.1.113883.3.464.1004.1965

Diastolic Greater Than or Equal To 90	2.16.840.1.113883.3.464.1004.1083
Diastolic Less Than 80	2.16.840.1.113883.3.464.1004.1084
ED	2.16.840.1.113883.3.464.1004.1086
ESRD Diagnosis	2.16.840.1.113883.3.464.1004.1747
Eye Exam With Evidence of Retinopathy	2.16.840.1.113883.3.464.1004.2229
Eye Exam Without Evidence of Retinopathy	2.16.840.1.113883.3.464.1004.2230
Frailty Device	2.16.840.1.113883.3.464.1004.1530
Frailty Diagnosis	2.16.840.1.113883.3.464.1004.1531
Frailty Encounter	2.16.840.1.113883.3.464.1004.1532
Frailty Symptom	2.16.840.1.113883.3.464.1004.1533
HbA1c Lab Test	2.16.840.1.113883.3.464.1004.1755
HbA1c Level Greater Than 9.0	2.16.840.1.113883.3.464.1004.1114
HbA1c Level Greater Than or Equal To 7.0 and Less Than 8.0	2.16.840.1.113883.3.464.1004.1976
HbA1c Level Greater Than or Equal To 8.0 and Less Than or Equal To 9.0	2.16.840.1.113883.3.464.1004.1977
HbA1c Level Less Than 7.0	2.16.840.1.113883.3.464.1004.1115
HbA1c Test Result or Finding	2.16.840.1.113883.3.464.1004.1756
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Kidney Transplant	2.16.840.1.113883.3.464.1004.1141
Nephrectomy	2.16.840.1.113883.3.464.1004.1909
Nephropathy Treatment	2.16.840.1.113883.3.464.1004.1184
Nonacute Inpatient	2.16.840.1.113883.3.464.1004.1189
Nonacute Inpatient Stay	2.16.840.1.113883.3.464.1004.1398

Observation	2.16.840.1.113883.3.464.1004.1191
Online Assessments	2.16.840.1.113883.3.464.1004.1446
Outpatient	2.16.840.1.113883.3.464.1004.1202
Palliative Care Assessment	2.16.840.1.113883.3.464.1004.2225
Palliative Care Encounter	2.16.840.1.113883.3.464.1004.1450
Palliative Care Intervention	2.16.840.1.113883.3.464.1004.2224
Remote Blood Pressure Monitoring	2.16.840.1.113883.3.464.1004.1469
Systolic Blood Pressure	2.16.840.1.113883.3.464.1004.1964
Systolic Greater Than or Equal To 140	2.16.840.1.113883.3.464.1004.1242
Systolic Less Than 140	2.16.840.1.113883.3.464.1004.1243
Telehealth Modifier	2.16.840.1.113883.3.464.1004.1445
Telehealth POS	2.16.840.1.113883.3.464.1004.1460
Telephone Visits	2.16.840.1.113883.3.464.1004.1246
Unilateral Eye Enucleation	2.16.840.1.113883.3.464.1004.1454
Unilateral Eye Enucleation Left	2.16.840.1.113883.3.464.1004.1455
Unilateral Eye Enucleation Right	2.16.840.1.113883.3.464.1004.1456
Urine Protein Tests	2.16.840.1.113883.3.464.1004.1400

MEASURE AE4: EMERGENCY DEPARTMENT UTILIZATION (EDU)

Value Set Name	Value Set OID
Acute Inpatient	2.16.840.1.113883.3.464.1004.1810
ED	2.16.840.1.113883.3.464.1004.1086
ED POS	2.16.840.1.113883.3.464.1004.1087
ED Procedure Code	2.16.840.1.113883.3.464.1004.1088
Electroconvulsive Therapy	2.16.840.1.113883.3.464.1004.1294
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Mental and Behavioral Disorders	2.16.840.1.113883.3.464.1004.1300
Nonacute Inpatient	2.16.840.1.113883.3.464.1004.1189
Observation	2.16.840.1.113883.3.464.1004.1191
Observation Stay	2.16.840.1.113883.3.464.1004.1461
Outpatient	2.16.840.1.113883.3.464.1004.1202
Psychiatry	2.16.840.1.113883.3.464.1004.1272
Telephone Visits	2.16.840.1.113883.3.464.1004.1246

Value Set Name	Value Set OID
Acute Inpatient	2.16.840.1.113883.3.464.1004.1810
ED	2.16.840.1.113883.3.464.1004.1086
ED POS	2.16.840.1.113883.3.464.1004.1087
ED Procedure Code	2.16.840.1.113883.3.464.1004.1088
Electroconvulsive Therapy	2.16.840.1.113883.3.464.1004.1294

Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Mental and Behavioral Disorders	2.16.840.1.113883.3.464.1004.1300
Nonacute Inpatient	2.16.840.1.113883.3.464.1004.1189
Observation	2.16.840.1.113883.3.464.1004.1191
Observation Stay	2.16.840.1.113883.3.464.1004.1461
Outpatient	2.16.840.1.113883.3.464.1004.1202
Psychiatry	2.16.840.1.113883.3.464.1004.1272
Telephone Visits	2.16.840.1.113883.3.464.1004.1246

MEASURE AE5: 30 DAY ALL-CAUSE UNPLANNED READMISSION FOLLOWING PSYCHIATRIC INPATIENT HOSPITALIZATION

Table Name	Table Description
Table BH01_00	AHRQ Modified CCS Psychiatric Principal Discharge Diagnosis categories
Table BH01_01	AHRQ Modified CCS Procedure categories that are always planned
Table BH01_02	AHRQ Modified CCS Diagnosis categories that are always planned
Table BH01_03	AHRQ Modified CCS Diagnosis categories that are potentially planned
Table BH01_04	AHRQ Modified CCS Diagnosis categories that are considered planned if not coinciding with principal discharge diagnosis or complication

MEASURE AE7: ANNUAL MONITORING FOR PATIENTS ON PERSISTENT MEDICATIONS (MPM)

Value Set Name	Value Set OID
Acute Inpatient	2.16.840.1.113883.3.464.1004.1017
Lab Panel	2.16.840.1.113883.3.464.1004.1145
Nonacute Inpatient	2.16.840.1.113883.3.464.1004.1189
Serum Creatinine	2.16.840.1.113883.3.464.1004.1236
Serum Potassium	2.16.840.1.113883.3.464.1004.1237

MEASURE AE8: INITIATION AND ENGAGEMENT OF ALCOHOL AND OTHER DRUG ABUSE OR DEPENDENCE TREATMENT (IET)

Value Set Name	Value Set OID
Alcohol Abuse and Dependence	2.16.840.1.113883.3.464.1004.1424
AOD Abuse and Dependence	2.16.840.1.113883.3.464.1004.1013
AOD Medication Treatment	2.16.840.1.113883.3.464.1004.2017
Detoxification	2.16.840.1.113883.3.464.1004.1076
ED	2.16.840.1.113883.3.464.1004.1086
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
IET POS Group 1	2.16.840.1.113883.3.464.1004.1129
IET POS Group 2	2.16.840.1.113883.3.464.1004.1130
IET Stand Alone Visits	2.16.840.1.113883.3.464.1004.1131
IET Visits Group 1	2.16.840.1.113883.3.464.1004.1132
IET Visits Group 2	2.16.840.1.113883.3.464.1004.1133
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Observation	2.16.840.1.113883.3.464.1004.1191
Online Assessments	2.16.840.1.113883.3.464.1004.1446
Opioid Abuse and Dependence	2.16.840.1.113883.3.464.1004.1425
Other Drug Abuse and Dependence	2.16.840.1.113883.3.464.1004.1426
OUD Monthly Office Based Treatment	2.16.840.1.113883.3.464.1004.2220
OUD Weekly Drug Treatment Service	2.16.840.1.113883.3.464.1004.2221
OUD Weekly Non Drug Service	2.16.840.1.113883.3.464.1004.2222
Telephone Visits	2.16.840.1.113883.3.464.1004.1246

MEASURE AE9: FOLLOW UP AFTER HOSPITALIZATION FOR MENTAL ILLNESS (FUH)

Value Set Name	Value Set OID
Ambulatory Surgical Center POS	2.16.840.1.113883.3.464.1004.1480
Behavioral Healthcare Setting	2.16.840.1.113883.3.464.1004.2214
BH Outpatient	2.16.840.1.113883.3.464.1004.1481
Community Mental Health Center POS	2.16.840.1.113883.3.464.1004.1484
Electroconvulsive Therapy	2.16.840.1.113883.3.464.1004.1294
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Intentional Self-Harm	2.16.840.1.113883.3.464.1004.1468
Mental Health Diagnosis	2.16.840.1.113883.3.464.1004.1178
Mental Illness	2.16.840.1.113883.3.464.1004.1179
Nonacute Inpatient Stay	2.16.840.1.113883.3.464.1004.1398
Observation	2.16.840.1.113883.3.464.1004.1191
Outpatient POS	2.16.840.1.113883.3.464.1004.1443
Partial Hospitalization or Intensive Outpatient	2.16.840.1.113883.3.464.1004.1492
Partial Hospitalization POS	2.16.840.1.113883.3.464.1004.1491
Telehealth POS	2.16.840.1.113883.3.464.1004.1460
Telephone Visits	2.16.840.1.113883.3.464.1004.1246
Transitional Care Management Services	2.16.840.1.113883.3.464.1004.1462
Visit Setting Unspecified	2.16.840.1.113883.3.464.1004.1493

MEASURE AE12: INPATIENT UTILIZATION—GENERAL HOSPITAL/ACUTE CARE (IPU)

Value Set Name	Value Set OID
Deliveries Infant Record	2.16.840.1.113883.3.464.1004.1073
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Maternity	2.16.840.1.113883.3.464.1004.1169
Maternity Diagnosis	2.16.840.1.113883.3.464.1004.1170
Mental and Behavioral Disorders	2.16.840.1.113883.3.464.1004.1300
Nonacute Inpatient Stay	2.16.840.1.113883.3.464.1004.1398
Surgery	2.16.840.1.113883.3.464.1004.1241

MEASURE AE12: CERVICAL CANCER SCREENING (CCS)

Value Set Name	Value Set OID
Absence of Cervix Diagnosis	2.16.840.1.113883.3.464.1004.1522
Cervical Cytology Lab Test	2.16.840.1.113883.3.464.1004.1525
Cervical Cytology Result or Finding	2.16.840.1.113883.3.464.1004.1524
High Risk HPV Lab Test	2.16.840.1.113883.3.464.1004.1527
High Risk HPV Test Result or Finding	2.16.840.1.113883.3.464.1004.1526
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Hysterectomy With No Residual Cervix	2.16.840.1.113883.3.464.1004.1523
Palliative Care Assessment	2.16.840.1.113883.3.464.1004.2225
Palliative Care Encounter	2.16.840.1.113883.3.464.1004.1450

MEASURE AE13: BREAST CANCER SCREENING (BCS)

Value Set Name	Value Set OID
Absence of Left Breast	2.16.840.1.113883.3.464.1004.1329
Absence of Right Breast	2.16.840.1.113883.3.464.1004.1330
Acute Inpatient	2.16.840.1.113883.3.464.1004.1810
Advanced Illness	2.16.840.1.113883.3.464.1004.1465
Bilateral Mastectomy	2.16.840.1.113883.3.464.1004.1042
Bilateral Modifier	2.16.840.1.113883.3.464.1004.1043
Clinical Bilateral Modifier	2.16.840.1.113883.3.464.1004.1951
Clinical Left Modifier	2.16.840.1.113883.3.464.1004.1949
Clinical Right Modifier	2.16.840.1.113883.3.464.1004.1950
Clinical Unilateral Mastectomy	2.16.840.1.113883.3.464.1004.1948
ED	2.16.840.1.113883.3.464.1004.1086
Frailty Device	2.16.840.1.113883.3.464.1004.1530
Frailty Diagnosis	2.16.840.1.113883.3.464.1004.1531
Frailty Encounter	2.16.840.1.113883.3.464.1004.1532
Frailty Symptom	2.16.840.1.113883.3.464.1004.1533
History of Bilateral Mastectomy	2.16.840.1.113883.3.464.1004.1331
Hospice Encounter	2.16.840.1.113883.3.464.1004.1761
Hospice Intervention	2.16.840.1.113883.3.464.1004.1762
Inpatient Stay	2.16.840.1.113883.3.464.1004.1395
Left Modifier	2.16.840.1.113883.3.464.1004.1148
Mammography	2.16.840.1.113883.3.464.1004.1168
Nonacute Inpatient	2.16.840.1.113883.3.464.1004.1189

Nonacute Inpatient Stay	2.16.840.1.113883.3.464.1004.1398
Observation	2.16.840.1.113883.3.464.1004.1191
Online Assessments	2.16.840.1.113883.3.464.1004.1446
Outpatient	2.16.840.1.113883.3.464.1004.1202
Palliative Care Assessment	2.16.840.1.113883.3.464.1004.2225
Palliative Care Encounter	2.16.840.1.113883.3.464.1004.1450
Palliative Care Intervention	2.16.840.1.113883.3.464.1004.2224
Right Modifier	2.16.840.1.113883.3.464.1004.1230
Telephone Visits	2.16.840.1.113883.3.464.1004.1246
Unilateral Mastectomy	2.16.840.1.113883.3.464.1004.1256
Unilateral Mastectomy Left	2.16.840.1.113883.3.464.1004.1334

Utah Section 1115 Demonstration Waiver

2021 Interim Evaluation Report

Initial Draft: April 28, 2021
This Version: September 13, 2022

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Executive Summary

This report constitutes an interim evaluation of six Section 1115 Waiver components. These include Current Eligibles (CE), Targeted Adults (TA), Utah Premium Partnership (UPP), Blind and Disabled Dental (BDD), and Substance Use Disorder (SUD). A sixth demonstration, the Primary Care Network (PCN) was suspended at the end of March 2019, so there are no new data to provide in this evaluation. The evaluation hypotheses address a variety of demonstration goals established by the Utah Department of Health (UDOH) that are focused on health care utilization and outcomes associated with 1) increased cost sharing (CE); 2) increased dental coverage (BDD) and targeted adults (TA); 3) until its suspension, establishment of the primary care network (PCN); 4) enhanced coverage of the population experiencing homelessness (TA); 5) incentives to enroll in employer-provided insurance (UPP); and 6) an array of substance use disorder services provided in Institutions of Mental Disorders (IMDs) to eligible populations. Included here are a variety of analyses related to specific State goals associated with implementation through November 2020. In some cases, data were neither available nor robust enough to conduct multivariate analyses at the time of reporting. This interim evaluation is issued in accordance with special terms and conditions (STCs) reporting requirements. The data analysis was performed by the independent contractor from Utah Medicaid claims and a beneficiary survey conducted by subcontract. Regarding the CE, TA, BDD, and UPP demonstrations, findings indicate:

1. These preliminary findings do not yet demonstrate statistically significant improvements in access and utilization of appropriate health care and associated health outcomes. Additionally, there is not a reduction in costs reflected among the demonstration populations that is attributable to the incentivized preventive and primary care in lieu of more expensive care such as that provided in the emergency room. The COVID-19 pandemic likely was responsible for some of these trends in 2020.
2. Preliminary results noted in the mid-point assessment among CE enrollees continue to trend in a positive direction with increased hypertension prescriptions per member diagnosed with hypertension over the period analyzed (Table 11) through 2019. During that same period, there was reduced non-emergent use of the ED over the period assessed for CE enrollees (Table 16) that aligned with the reduction in overall ED among that population. It is unclear what drove such improvements. Given the longer duration of the CE demonstration, this may suggest that it will take some time for reduction in non-emergent use to arise among more recent programs. It is plausible that enhanced access to care may initially not reduce or stabilize both emergent and non-emergent ED utilization. However, over time, as preventive and ambulatory care is improved and incentivized, enrollees may exhibit reductions in ED use.
3. The state achieved substantial growth in enrollment in several of the demonstrations between 2017 and 2019 suggesting that the programs are meeting significant needs. This is evident among the TA demonstration, where enrollment nearly doubled. Similarly

smoking cessation program utilization increased as did antidepressant prescriptions and primary care visitations. These results all align with the intent of the demonstration, and better assessment of such access and utilization on health outcomes and cost await longer term data analysis. The BDD program experienced a substantial increase in utilization of preventive dental services between 2018 and 2020, compared to a more modest increase in emergency dental services during the same period. Whether emergency dental utilization subsides with longer exposure to such enhanced access awaits further analysis. The Utah Premium Partnership (UPP) is one program where enrollment has decreased. Access to employer-provided health insurance for this low-income population is likely not substantial, and it is also possible that the incentives in the program for employers to offer such insurance, such as attracting a more skilled and stable workforce in the presence of benefits such as employer-provided insurance is not significant enough to achieve broader success. The impact of COVID-19 on employment may have also contributed to enrollment decline in the program in 2020.

With respect to implementation of the SUD waiver demonstration to date, despite a lack of statistically significant outcomes for each of the five established research hypotheses, there are notable findings:

1. Although lacking statistical significance thus far for the five primary research hypotheses, most of the outcome measures are trending positively in the hypothesized direction, suggesting that additional time for policy and program implementation may be required to detect the impact of the demonstration on the outcomes.
2. For the second year, the beneficiary survey continues to indicate patient experiences with SUD services have been quite favorable and consistent. For example, majority of beneficiaries (68% in 2020 and 67% in 2021) responding to the survey recognize there are specific mental health and substance use disorder services available in their communities, if needed. Of those respondents indicating they or a household member needed these services, 54% in 2020 and 61% in 2021 reported they were able to obtain care “as soon as needed”. When asked to rate counseling or treatment received, the average rating was 6.3/10 in 2020 and 6.4/10 in 2021. For those receiving services, 56% in 2020 and 62% in 2021 found the counseling or treatment to be helpful.
3. The supplemental monitoring metrics based on data compiled by UDOH (contained in the mid-point report in 2021) largely trend positively, indicating State is likely on track to achieve nearly all identified goals. For example, of the individual monitoring metrics, 70% were rated as “low risk” of not being achieved by the end of waiver demonstration.

Overall Impacts of COVID-19

Several factors related to the COVID-19 pandemic have influenced the 1115 waiver implementation. Specifically, these have included delays in healthcare utilization due to limited or no access to services during the initial adjustments to the Public Health Epidemic (PHE). Specifically, there were temporary closures of medical, dental, and behavioral healthcare places of service. Examples of when closures took place include, Intermountain Healthcare (the largest healthcare system in Utah) cancelling non-essential surgeries from March 1, 2020 – March 16, 2020. Among dental services, at the recommendation of the American Dental Association, orthodontic procedures and non-emergency dental care were suspended from March 1, 2020, to March 23, 2020. Behavioral healthcare service access varied by geographical location across the state beginning on March 1, 2020. Fortunately, in Utah most behavioral healthcare service providers were able to transition from in-person to remote treatment services within two weeks. Similarly, there were operational changes due to safety procedures being implemented in medical and dental clinics as well as in hospital emergency departments, urgent care, and other healthcare facilities that delayed or prevented services from being provided. Additionally, in response to the need to shift healthcare resources to address COVID-19 treatment in hospitals, policies were implemented to delay elective surgeries. Finally, one impact of the pandemic on in-person preventive care visits among the targeted adult Medicaid (TAM) population. While the number of preventive care visits per enrollee remained stable, the number of those visits delivered through telehealth increased exponentially from 33 in Q4 of 2019 to 2879 by Q2 2020, and from under 1% of total preventive care visits to over 42% of such visits (see Table 32.1).

In an effort to address the ongoing effects of the COVID-19 PHE impact on the demonstration the independent evaluator submitted (Aug. 31, 2021) a revised evaluation design [e.g. *1115 PCN Waiver – Substance Abuse Disorder Revised Evaluation Design" (under CMS review*)] which focuses on revising the methodology from a Difference-in-differences (DiD) to an Interrupted Time Series (ITS) design to take advantage of monthly rather than annual data, which will support a more comprehensive analysis of data over a longer period of time. This updated approach will increase the likelihood that the evaluation will isolate the effects of the demonstration on the observed outcomes by mitigating COVID-19 impacts. Similarly, other evaluation designs have added sensitivity analyses and falsification tests to help inform the effect of study designs on impact estimates. A more complete discussion of these and other statistical analysis are included in Methodological Limitations is below. Finally, the independent evaluator will conduct a re-analysis of waiver components, using the appropriate methods such as generalized estimating equations (GEE) to address the potential confounding effects related to COVID-19 impacts.

General Background Information

Section 1115 of the Social Security Act permits the Secretary of Health and Human Services to approve demonstration projects that are found by the Secretary to likely assist in promoting the objectives of the Medicaid program. Thus, the Secretary authorizes federal financial support for waiver demonstration costs that would not otherwise qualify for federally matchable expenditures

The two primary purposes of Medicaid funding are to enable each State to furnish (1) medical assistance on behalf of families with dependent children and of aged, blind, or disabled individuals, whose income and resources are insufficient to meet the costs of necessary medical services, and (2) rehabilitation and other services to help such families and individuals attain or retain capability for independence or self-care. The Utah 1115 waiver demonstration project, with its various amendments, seeks to expand the scope of coverage and benefits for certain at-risk beneficiaries. Additionally, these services seek to advance the health and wellness of the individual receiving them, thus contributing to the individual attaining independence. In addition to paying for services, the program also advances the health and wellness needs of its beneficiaries based on actions designed at the state level. Section 1115 demonstration projects offer flexibility to a state to propose new reforms and adjust service delivery with the potential of improving medical care and focus on interventions that drive better health outcomes and quality of life improvements, potentially leading to increased financial independence.

Given the flexibility offered by an 1115 waiver to design and improve health care service and delivery, the Utah Department of Health (UDOH) sought state-specific policy approaches to better serve needy populations. Specific goals [2] to be addressed by the initial 1115 waiver were to:

1. Improve the health of Utahns by increasing the number of low-income individuals without access to primary care coverage, which will improve the overall well-being of the health status of Demonstration Population I enrollees (PCN enrollees). Increase access to, stabilize, and strengthen providers and provider networks available to serve Medicaid and low-income populations.

2. Not negatively impact the overall health of Current Eligibles who experience reduced benefits and increased cost sharing.

3. Assist previously uninsured individuals in obtaining employer-sponsored health insurance without causing a decrease in employer's contributions to premiums that is greater than any decrease in contributions to the overall health insurance market.

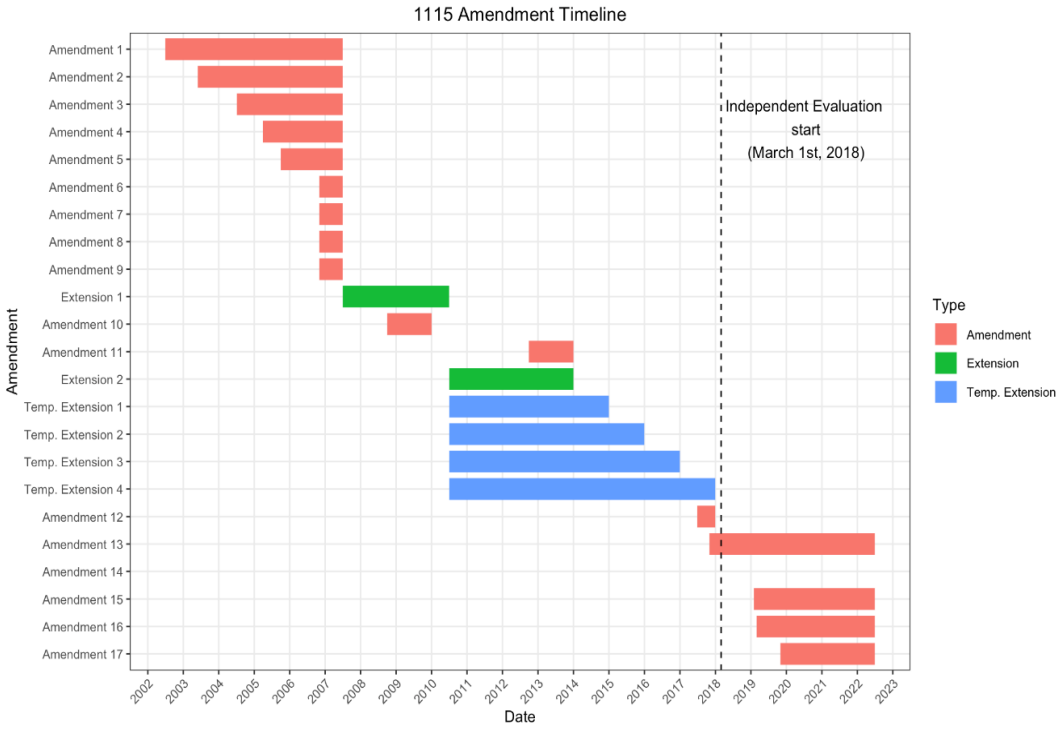
4. Reduce the number of uninsured Utahns by enrolling eligible adults in the Targeted Adult Medicaid program. Reduce the number of non-emergent Emergency Room visits for the Targeted Adult population.

5. Improve access to primary care, while also improving the health status of the Targeted Adult Population.

6. Provide care that is more extensive to individuals suffering from a substance use disorder, in turn making this population healthier and more likely to remain in recovery.

The Utah 1115 demonstration waiver was first submitted on December 11, 2001, approved on February 8, 2002, implemented on July 1, 2002. It was originally scheduled to expire on June 30, 2007, but since then, there have been six extensions and approximately 17 new waiver amendments [3] (see Figure 1 below).

Figure 1: 1115 Waiver Timeline.



Description of Demonstration Components Evaluated in the Interim Evaluation Report

Primary Care Network (PCN) includes individuals aged 19 through 64 with incomes at or below 95 percent of the FPL (effectively 100 percent of the FPL considering a disregard of 5 percent of income), who are U.S. citizens/qualified non-citizen, are residents of Utah, are not otherwise eligible for Medicaid, do not qualify for Medicare or Veterans benefits, and do not have other health insurance. PCN was suspended as of March 31, 2019, due to the implementation of Adult Expansion.

Current Eligibles includes the following individuals, whose eligibility is derived from the state plan, but whose coverage is affected by the demonstration: 1) adults aged 19 and above who are eligible through section 1925 and 1931 of the Act, including those eligible through any liberalized section 1931 criteria already in the state plan; 2) adults aged 19 through 64 who are medically needy and not aged, blind, or disabled. Individuals who are pregnant are excluded, through the 60th day postpartum.

Dental Benefits for Aged Individuals - includes individuals who are age 65 and older, and are eligible for Medicaid, who are eligible to enroll in the state plan. They receive dental benefits that are defined in the Utah Medicaid Provider Manual, Dental Services, and if needed, porcelain or porcelain-to-metal crowns.

Dental Benefits for Individuals with Blindness or Disabilities - includes individuals who are blind or disabled, 18 and older, who are enrolled in the state plan. They receive dental benefits that are defined in the Utah Medicaid Provider Manual, Dental Services, and if needed, porcelain or porcelain-to-metal crowns.

Targeted Adults - includes adults, ages 19 through 64, with incomes at zero percent of the FPL (effectively five percent of the FPL with the five percent disregard) and no dependent children, who meet one of the following additional criteria:

- Be chronically homeless, defined as:

1. An individual who has been continuously homeless for at least 12 months or on at least four separate occasions in the last three years (totaling at least 12 months); and has a diagnosable substance use disorder, serious mental illness, developmental disability, post-traumatic stress disorder, cognitive impairments resulting from a brain injury, or chronic physical illness or disability.

2. An individual living or residing in a place not meant for human habitation, a haven, or in an emergency shelter for a total of six months within a 12-month period; and has a diagnosable substance use disorder or serious mental health disorder. At the option of the state, these criteria may be expanded to include individuals with a diagnosable developmental disability, post-

traumatic stress disorder, cognitive impairments resulting from a brain injury, or chronic physical illness or disability.

3. An individual who is a victim of domestic violence who is living or residing in a place not meant for human habitation, a haven or in an emergency shelter; or (4) An individual currently living in supportive housing who has previously met the definition of chronically homeless as specified in 1 or 2 above.

○ Involved in the criminal justice system and in need of substance use or mental health treatment, defined as:

1. An individual who has complied with and substantially completed a substance use disorder treatment program while they were incarcerated in jail or prison, including Tribal jails.

2. An individual who is court ordered to receive substance abuse or mental health treatment by a district court or Tribal court.

3. An individual on probation or parole with serious mental illness and/or serious substance use disorder.

4. An individual discharged from the Utah State Hospital who was admitted to the civil unit of the hospital in connection with a criminal charge, or admitted to the forensic unit due to a criminal offense with which the individual was charged or of which the individual was convicted; or

5. Individuals involved with a Drug Court or Mental Health Court, including Tribal courts, related to a criminal charge or conviction.

○ Needing substance use or mental health treatment, defined as:

1. An individual receiving General Assistance from the Department of Workforce Services (DWS), who has been diagnosed with a substance use or mental health disorder; or

2. An individual recently discharged from the Utah State Hospital who was civilly committed.

Utah Premium Partnership - provides premium assistance to help pay the individual's or family's share of monthly premium costs of employer sponsored insurance or COBRA.

Substance Abuse Disorder in an Institution for Mental Disease (IMD) - provides authority for Medicaid recipients to receive opioid use disorder (OUD)/ SUD treatment services provided in a residential or inpatient treatment setting that qualifies as an IMD.

• Amendment #12 – On June 29, 2017, CMS approved an amendment which allows the state to provide state plan dental benefits to adults with disabilities or blindness, age 18 and

older, removed the sub-caps for enrollment of Demonstration Population I, and removed Demonstration Population II (high risk pregnant women) since changes to federal law rendered this group obsolete and it has not had individuals covered under this population since 2014.

- Amendment #13 – On October 31, 2017 (effective on November 1, 2017), CMS approved an extension that creates a new demonstration population, Targeted Adults, under which eligible beneficiaries receive state plan services. This new population is made of adults without dependent children, age 19 through 64 years of age, whose income is at zero percent of FPL. In addition, they must meet at least one of three criteria; chronically homeless, involved in the justice system and in need of substance use and mental health treatment, or those who are just in need of substance use or mental health treatment. The original evaluation design identified the chronically homeless as the priority for the evaluation. All three criterion groups will be examined for inclusion in the Summative Evaluation Report. There is an identifying marker in the Medicaid data for each of these criteria. In addition, under this approval, the state has expenditure authority to restore full mental health benefits for Current Eligibles and remove the exclusion of Norplant as a covered benefit.

- Amendment #15 – In February 2019, the state received the authority to provide comprehensive dental benefits to Targeted Adults who are receiving SUD treatment.

- Amendment #16 – In March 2019, the state received authority to provide full state plan benefits to adults without children who have incomes up to 95 percent of the FPL and the Current Eligible benefit package to adults with children who have incomes up to 95 percent of the FPL (together, these categories are known as the Adult Expansion Population) effective April 1, 2019. If the state determines that the state needs to close enrollment in this Medicaid eligibility group (MEG) due to budgetary restrictions, coverage will be closed, and no applicants will be able to enroll in this MEG until enrollment re-opens. Beneficiaries in this category who have access to ESI coverage are required to enroll in that coverage to maintain Medicaid eligibility and receive wraparound coverage. In addition, non-exempt Adult Expansion Population beneficiaries are required to complete community engagement requirements (or demonstrate good cause for failing to do so) each benefit year to be eligible for continued coverage. The evaluation of the adult expansion waiver is not being evaluated by the University of Utah. Lastly, this approval allowed the state to provide clinically managed residential withdrawal services to adult beneficiaries who reside in Salt Lake County.

- Amendment #17 – In November 2019, the state received the authority to provide intensive stabilization services (ISS) to Medicaid eligible children and youth under age 21 in state custody or those at risk of being placed in state custody who are experiencing significant emotional and/or behavioral challenges. The ISS includes state plan and home community-based services and are provided during the first eight -weeks of the intensive program on an FFS basis using a daily bundled rate. The state uses this authority to demonstrate that providing these services will reduce Emergency Room (ER) utilization, psychiatric hospitalizations, and

residential treatment services and length of stay as well as positively impact the child/youth's physical health in terms of comprehensive care.

- Amendment #18 – On December 16, 2020, the state received approval of the Serious Mental Illness (SMI) waiver plan allowing federal financial participating for beneficiaries to receive mental health treatment in Institutions of Mental Disease (IMD). The specific goal of this approval, which was effective January 1, 2021, is to maintain and enhance access to mental health services and continue delivery system improvements for these services to provide more coordinated and comprehensive treatment to Medicaid beneficiaries with serious mental illness (SMI).

CMS approved Utah's SUD evaluation design allowing the State to provide residential treatment in an IMD for all Medicaid eligible individuals. This approval was effective October 16, 2019 and is effective through June 30, 2022.

The Utah 1115 demonstration waiver has included numerous changes driven primarily by the desire to improve health care access, increase service availability to meet the needs of the various populations, and do so in a fiscally responsible way (e.g., frequently reducing beneficiary co-pays). Consistent with these primary goals, other efforts have been implemented to foster improvements in the healthcare delivery system. As a result of these frequent and numerous (and on-going) changes in the amendments in Utah, significant challenges to the evaluation have occurred. For example, the initial evaluation design for the 1115 SUD waiver included a DiD approach where substance abuse treatment in implementation counties would be compared to non-implementing comparison counties. However, due to the rapid and unexpected growth of SUD treatment services in newly established IMDs within the comparison counties, the anticipated window of data collection had to be decreased. As a result, the ability to establish an appropriate comparison group was greatly disrupted. This will require a revised analytical design for the SUD waiver moving forward, which has been included as a request in the 1115 Waiver reapplication. There are multiple population groups impacted by the demonstration.

Hypotheses and Research Questions

Table 1 maps the associated hypotheses, research questions, outcome measures, analytic approaches, and results for the various Section 1115 demonstration components.

Table 1: Summary of Demonstration Populations, Hypotheses, Evaluation Questions, Data Sources, and Analytic Approaches. **(Original 1115 Evaluation Design dated August 18, 2018)**

Demonstration Population: Current Eligibles **(CE)** - Provides a slightly reduced benefit package to adults aged 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**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
CE 1. As members receive increased cost sharing responsibility, is the average length of enrollment affected? **CE 2.** What are the average cost share changes experienced by members? **CE 3.** How many members are diagnosed with hypertension?	Continuity of care pre to post waiver implementation given benefit reduction and increased cost sharing.	Average monthly enrollment per year per 1, 000 beneficiaries.	Average yearly enrollment per 1,000 beneficiaries.	Utah Medicaid data	Annual data: Descriptive statistics, T-test (testing for differences between the baseline period and the last post-implementation period), GEE.	CE pop. and average monthly enrollment decreased, unable to determine if average length of enrollment attributable to cost sharing*
		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.		Annual data: Descriptive statistics, T-test (testing for differences between the baseline period and the last post-implementation period), GEE.	PMPM co-pay decreased from $5.40 (2017) to $2.36 (2020), unable to determine if attributable to cost sharing**
		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.		Annual data: Descriptive statistics, T-test (testing for differences between the baseline period	The percentage of enrollees diagnosed with hypertension with antihypertensive prescriptions decreased steadily from 61% in 2017 to 48% in 2020. (47.8% vs. 48.3%; 2019 vs. 2020: p=0.86)

Post waiver implementation: **CE 4.** What were members average pharmacy benefit copays? **CE 5.** Did the average pharmacy copay effect hypertensive medication prescriptions?					and the last post-implementation period), GEE.	
		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		Monthly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	Average monthly prescription co-pays were relatively stable but decreased over 10% from $5.61 to $5.04 from 2017 to 2020. With a significant decrease from $5.04 to $2.38 from 2019 to 2020. Sig. ($p<0.01$) Mean hypertensive pharmacy prescriptions steadily declined about 15% during the period from 2017 to 2019 and then remained at a similar level in 2020. (2019 vs. 2020: $p<0.01$) Unable to determine if average co pay affected hypertensive Rx***

			before copay increase and over the course of the Demonstration.			
Demonstration Population: **Primary Care Network (PCN) -** Provides a limited package of preventive and primary care benefits to previously uninsured adults aged 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.						
Research Questions	**Measure Description**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
PCN 6. What is the difference between the percentages of Utah's uninsured adults in poverty compared to the National average?	Reduce the number of uninsured.	Rate of uninsured adults in poverty in Utah, per 1,000.	National average of uninsured adults in poverty, per 1,000.	BRFSS	Annual data: Descriptive statistics, Proportional test.	Ave. Utah % uninsured adults in poverty (FPL 0-100%) fluctuated during 2016-2019; 35.9% in 2018 vs. 36.8% in 2019, NS (p=0.84). National BRFSS data was not available at the time of evaluation.
Hypothesis 2b: The demonstration will improve well-being in Utah by improving PCN members' access to primary care.						
Research Questions	**Measure Description**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
PCN 7. What is the difference between the quality of primary care access between Utah's PCN compared to other Utah	Improve access to primary care. CAHPS quality indicators	Utah percentage satisfaction with getting timely appointments, Care, and Information; How Well	National percentage satisfaction with getting timely appointments, Care, and Information; How Well	Utah Medicaid data	Annual data: Descriptive statistics, Chi-square test (testing for differences between the baseline period and the last post-implementation period).	CAHPS data is not available for evaluation for this specific population

covered groups and the National average? **PCN 8.** How many members are diagnosed with hypertension?	HEDIS Adult	Providers Communicate with Patients; and Access to Specialists.	Providers Communicate with Patients; and Access to Specialists.		CAHPS data is not available for evaluation for this specific population. Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).		
			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.			Improved access to hypertension diagnosis and treatment (14.9% to 16.8%) during 2017-2018 (p-value<0.01). Percent of patients with antihypertensive prescriptions did not change statistically (56.56% in 2017 vs. 57.04% in 2018: p-value=0.67). In 2019, all subjects had 9 months enrollment as maximum, so the numbers were not calculated.
Hypothesis 3: The demonstration will reduce the number of unnecessary visits to emergency departments by PCN members.							

Research Questions	Measure Description	Numerator	Denominator	Data Source	Analytic Approach	Results
PCN 9. How do emergency department utilization rates differ among PCN Adults with Children, PCN Childless Adults, and Current Eligible members? **PCN 10.** What differences in non-emergent ED utilization exist between PCN members and parents?	Reduce non-emergent ER visits	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	Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	ED utilization was lower among PCN enrollees with children compared to those without (20.66 in 2019 vs. 46.01 in 2019). ED utilization is higher among CE than PCN (86.70 in 2019 vs. 37.23 in 2019). Sig. ($p<0.01$)
		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).		Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS). Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	Non-emergent ED utilization increased for PCN (11.79 in 2017 to 15.96 in 2019), due to significant increase among those without children. Non-emergent ED utilization among CE was 3 times higher than PCN (60.20 in 2019 vs. 15.96 in 2019).
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.						

Research Questions	Measure Description	Numerator	Denominator	Data Source	Analytic Approach	Results
UPP 11. How many additional UPP members' insurance premiums were paid each year?	Increasing the number of uninsured who obtain employer-sponsored health insurance.	Number of members receiving assistance obtaining employer-sponsored health insurance 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)	Utah Medicaid data	Annual data: Descriptive statistics.	Decrease in total enrollment and enrollment month (2017-2019): unique members in 2017 vs. 2019: 780 subjects vs. 615 subjects average enrollment months in 2017 vs. 2019: 7.97 vs. 7.88
UPP 12. What percent did member's insurance premium was paid each year (adjusting for inflation)?	Reduce the number of false claims for assistance.	Percent of assistance provided for members at year 2,3,4,5 (yearly over the course of the Demonstration)	Percent of cost of assistance provided for members at year 1 (beginning of Demonstration) .		The member's insurance premium information is not available from the Medicaid data.	Insurance premium information not available at time of reporting.
UPP 13. What is the per household member cost?		Per household member cost of assistance at year 2,3,4,5 (yearly over the	Per household member cost of assistance at year 1 (beginning of Demonstration)		The household information of each member is not available from the Medicaid data.	Household information is not available.

UPP 14. What is the total number and percentage being denied subsidy assistance?		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)	Average monthly number and percentage of those being denied subsidy assistance at year 1 (beginning of the Demonstration)		The denied subsidy assistance is not available from the Medicaid data.	Denied subsidy assistance information is not available at time of reporting. Note: Insurance information and subsidy assistance information *may* be available for the summative report, depending on the status of the ongoing PHE.
Demonstration Population – Targeted Adults **(TA)**. 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.						
Research Questions	**Measure Description**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
TA 15. 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	Average monthly number members receiving assistance at year 2,3,4,5 (yearly over the course of the Demonstration) .	Average monthly number of members receiving assistance at year 1 (beginning of the Demonstration)	Utah Medicaid data	Annual data: Descriptive statistics, T-test (testing for differences between the baseline period and the last post-implementation period), GEE.	TA enrollment more than tripled 2018-2020 (2835 subjects in 2018 vs. 8517 subjects in 2020).

	mental health services.	Rate of uninsured adults in poverty in Utah, per 1,000.	National average of uninsured adults in poverty, per 1,000.	BRFSS	Annual data: Descriptive statistics, Proportional test.	Ave. Utah % uninsured adults in poverty (FPL 0-100%) fluctuated during 2016-2019; 35.9% in 2018 vs. 36.8% in 2019, NS (p=0.84). National BRFSS data not available for this specific population at the time of evaluation.
Hypothesis 6: The demonstration will improve access to primary care, while also improving the overall health status of the target population.						
Research Questions	**Measure Description**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
TA 16. What changes to primary care access occurred as a result of the Demonstration?	HEDIS Adult Core Set	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 per 1,000 at year 1 (beginning of the Demonstration)	Utah Medicaid data	Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	TA with a smoking diagnosis and cessation treatment (primary care visit) increased from 34% to 42% from 2018 to 2019 ($p<0.01$), then slightly declined to 39% in 2020 ($p<0.01$).
TA 17. What were the costs associated with smoking diagnosis, antidepressant medication		Annual Utah rate of adults with a smoking diagnosis (Preventive Care Screening: Tobacco Use:	Annual Utah rate of adults with a smoking diagnosis (Preventive Care Screening: Tobacco Use:		Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	

management, and preventive care visits?		Screening and Cessation) per 1,000 at year 2,3,4,5 (yearly over the course of the Demonstration)	Screening and Cessation) per 1,000 at year 1 (beginning of the Demonstration)			
		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	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-depressant medication		Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS). Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	The number of TA enrollees with antidepressant medication quadrupled from 222 to 829 from 2018 to 2020. Management improved for this population despite the increase in numbers. Those with acute phase treatment increased from 56% to 74% ($p<0.01$) over the same period, while those with effective continuous treatment increased from about 23% to 47% (<0.01). Preventive care visits increased from 49% to 57%, 2018-2020 ($p<0.01$). TA costs associated with smoking diagnosis, antidepressant med. and preventive care visits increased significantly. Average cost of smoking diagnosis per member increased from $23.38 in 2018-2020 ($p<0.01$). Average cost of antidep. med. management per member increased from $8.67 in 2018 to $20.21 in 2020 ($p<0.01$). Average preventive care cost per visit increased from $344 in 2018 to $440 in 2020 ($p<0.01$).

		enrollment for smoking diagnosis, anti-depressant medication management, and preventive care visit.	management, and preventive care visit.			
Hypothesis 7: The demonstration will reduce the number of non-emergent Emergency Room visits for the chronically homeless population.						
Research Questions	**Measure Description**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
TA 18. To what extent were non-emergent ED visits reduced?	Reduce non-emergent ER visits	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	Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	Non-emergent ED visits slightly increased from 20% in 2018 to 21% in 2020.
TA 19. Did the costs associated with the ED visits decrease at year 1 (beginning of Demonstration)?		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) .		Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	Average monthly ED cost per visit remained stable 2018-2020 ($81.32 in 2018 vs. $81.95 in 2020).

TA 20. What were the health care procedures provided by emergency departments?		Most frequently experienced diagnoses in emergency departments by chronically homeless members, the associated costs, and changes over time.		Annual data: Descriptive statistics.	Top 5 diagnoses (based on primary diagnosis only) for ED visits in 2020: 1. Suicidal ideation 2. Alcohol abuse/intox. 3. Chest pain 4. Unspecified chest pain 5. Unspecified abdominal pain The top 5 diagnoses are similar by rank across the three years, but not identical. Costs associated with alcohol abuse with intoxication were highest in 2018 ($10,942), and suicidal ideations were the costliest primary diagnosis in 2019 ($25,431) and 2020 ($12,366).
Hypothesis 8: The demonstration will reduce uncompensated care (**UC**) provided by Utah hospitals.						
Research Questions	**Measure Description**	**Numerator**	**Denominator**	**Data Source**	**Analytic Approach**	**Results**
UC 21. To what extent were costs associated with uncompensated care in Utah hospitals reduced by the Demonstration?	Reduce uncompensated care costs	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	Annual data: Descriptive statistics.	Clear reduction 2018-2019 ($200,173,232 vs. $181,861,938), slight increase 2019-2020 ($181,861,938 vs. $182,368,112) (coincided with Med. expansion)
Demonstration Population – Blind and Disabled Dental **(BDD)** - Adults aged 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.						

Research Questions	Measure Description	Numerator	Denominator	Data Source	Analytic Approach	Results
BDD 22. To what extent did member ED dental procedures decrease as a result of the Demonstration? **BDD 23.** What were the costs associated with these emergency dental procedures? **BDD 24**. To what extent did member preventive dental services increase because of the Demonstration?	Improve preventive dental services and reduce emergency dental procedure costs.	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	Quarterly data: Descriptive statistics, ITS, Bayesian structural time-series (BSTS).	Increased number of dental and emergency dental visits (18.79% in 2018 vs. 1915% in 2020), despite reduction in enrollment, 2018-2020.
		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.			Average monthly emergency dental care costs increased from $1.38 to $1.76 over the period.
		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			Average monthly emergency dental care costs increased from $11.18 to $15.56 from 2017 to 2020.

BDD 25 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.			Average monthly preventive dental care costs increased from $11.81 to $14.12 (2018-2020).

Table 2 below maps the new associated hypotheses, research questions, outcome measures, analytic approaches based on the revised SUD Evaluation Design (submitted to CMS 8/31/2021).

Table 2. Summary of Demonstration Populations, Hypotheses, Evaluation Questions, Data Sources, and Analytic Approaches for the SUD component of the 1115 Waiver.

Evaluation Question: Does the demonstration increase access to and utilization of SUD treatment services?					
Demonstration Goal: Increased rates of identification, initiation, and engagement in treatment for SUDs. **Evaluation Hypothesis: The demonstration will increase the percentage of members who are referred and engage in treatment for SUDs.**					
Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**
Primary Driver *(Increase the rates of initiation and engagement in treatment for SUDs)*	**IET 1.** Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	Initiation: number of patients who began initiation of treatment through an inpatient admission, outpatient visits, intensive outpatient encounter or partial hospitalization	Patients who were diagnosed with a new episode of alcohol or drug dependency during the first 10 and ½ months of the measurement year	Calendar years 2016(Pre) 2017(Interim) 2018-2022(Post) Retrospectively changing the metric to	Descriptive statistics (frequencies and percentages); Linear regression. **I**nterrupted time series (ITS) design will be used.

		within 14 days of the index episode start date 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		monthly (from annually)	

Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**
Secondary Drivers *(Enhance provider and plan capabilities to screen/identify patients for engagement and intervention; Improve community knowledge of available treatment and services)*	**TR-AVAIL 1.** Community knowledge of available treatment and services	Beneficiary survey Adult SUD consumer satisfaction questions	NA	State fiscal year 2020-2022	Descriptive statistics (Frequencies and percentages); t-test. Target population: SUD members. Comparison population. Annual survey of Medicaid members receiving SUD services. Survey findings are compared between respondents in 2020, 2021, and 2022 survey.
Demonstration Goal: Increased adherence to and retention in treatment for SUDs. **Evaluation Hypothesis: The demonstration will increase the percentage of members who adhere to treatment of SUDs.**					
Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**
Primary Drivers *(Increase the rates of initiation and engagement in treatment*	**SUD-MAT 1.** Continuity of Pharmacotherapy for OUD	Number of members who have at least 180 days of continuous pharmacotherapy with	Members who had a diagnosis of OUD and at least one claim for an OUD medication	Calendar years 2016(Pre) 2017(Interim) 2018-2022(Post)	Descriptive statistics (Frequencies and percentages)

for OUD and SUDs; Improve adherence to treatment for SUDs)	Percentage of members with a SUD diagnosis including those with OUD who used services per month	a medication prescribed for OUD without a gap of more than seven days Number of members who receive a service during the measurement period by service type	Number of members	First year of waiver is baseline compared to years 2 through 5 of the waivers.	Pre-post waiver analysis with logistic regression Target population: SUD members receiving MAT

Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**
Secondary Drivers *(Increase access to outpatient, intensive outpatient, and residential treatment for SUD; Improve care coordination and transitions between levels of care)*	**SUD-TL 1.** Length of engagement in treatment	Number of members completing 4th treatment session within 30 days	Number of members receiving treatment	First year of waiver is baseline compared to years 2 through 5 of the waivers. Retrospectively changing the metric to monthly (from annually)	Interrupted time series (ITS) design will be used.
Secondary Driver *(Ensure patients are satisfied with services*	**SUD-UX 1.** Patient experience of care	Beneficiary survey Adult SUD consumer satisfaction questions	N/A	State fiscal year 2020-2022	Descriptive statistics (Frequencies and percentages); t-test. Target population: SUD members.

					Comparison population. Annual survey of Medicaid members receiving SUD services. Survey findings are compared between respondents in 2020, 2021, and 2022 survey.
Increase the rates of successfully completing treatment for SUDs	Treatment completion	Number of patients completing treatment	Total number of patients treated	Yearly	Descriptive statistics Pre-post waiver analysis with logistic regression Comparison population Propensity score matching (PSM) to create comparison group (matched) population of others receiving treatment through publicly funded SUD systems.
Increase the rates of successfully completing treatment for SUDs	Returning to treatment	Number of patients re-admitting to treatment after completing or dropping out	Total number of patients treated	Yearly	Descriptive statistics Pre-post waiver analysis with logistic regression Comparison population Propensity score matching (PSM) to create comparison group (matched) population of others receiving treatment through publicly funded SUD systems.
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. **Evaluation Hypothesis: The demonstration will decrease the rate of emergency department and inpatient visits within the beneficiary population for SUD.**					
Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**

Primary Drivers *(Reduced utilization of emergency department and inpatient hospital settings for SUD treatment)*	**SUD-ED 1.** Follow-up after emergency department visit for alcohol and other drug abuse or dependence **SUD-IP 1.** Inpatient admissions for SUD and specifically OUD	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 Number of members with and inpatient admission for SUD and specifically OUD	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 Total number of members/1000-member months	Calendar years 2016(Pre) 2017(Interim) 2018-2022(Post)	Descriptive statistics (frequencies and percentages); Linear regression. Target population: SUD members with OUD diagnosis. Interrupted time series (ITS) design will be used.

Evaluation Question: Do members receiving SUD services experience improved health outcomes?					
Demonstration Goal: Improved access to care for co-morbid physical health conditions commonly associated with SUD among members. **Evaluation Hypothesis: The demonstration will increase the percentage of members with SUD who experience care for comorbid conditions.**					
Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**
Improve access to care for co-morbid physical health conditions among beneficiaries with SUD	**SUD-HC 1.** Number of routine office visits by people with SUD	Number of members with a SUD diagnosis, and specifically those with OUD, who access physical health care.	Total number of members	First year of waiver is baseline compared to years 2 through 5 of the waivers	Descriptive statistics (frequencies and percentages); Linear regression. Target population: SUD members with OUD diagnosis. Interrupted time series (ITS) design will be used.
Increased initiation and engagement for treatment	Alcohol use by patients	Patients with alcohol use Abstinence (Percent Increase): (Percent abstinent at discharge	Total number of patients	Admission to discharge	Descriptive statistics Pre-post waiver analysis with logistic regression

		minus percent abstinent at admission) divided by percent abstinent at admission			Comparison population Propensity score matching (PSM) to create comparison group (matched) population of others receiving treatment through publicly funded SUD systems.
Increased initiation and engagement for treatment	Drug use by patients	Abstinence (Percent increase): (Percent abstinent at discharge minus percent abstinent at admission) divided by percent abstinent at admission	N/A	Admission to discharge	Descriptive statistics Pre-post waiver analysis with logistic regression Comparison population Propensity score matching (PSM) to create comparison group (matched) population of others receiving treatment through publicly funded SUD systems.
Increased initiation and engagement for treatment	Opioid use by patients	Abstinence (Percent increase): (Percent abstinent at discharge minus percent abstinent at admission) divided by percent abstinent at admission	N/A	Admission to discharge	Descriptive statistics Pre-post waiver analysis with logistic regression Comparison population Propensity score matching (PSM) to create comparison group (matched) population of others receiving treatment through publicly funded SUD systems.
Improved screening and integration of physical health care	Tobacco use by patients	Abstinence (Percent increase): (Percent abstinent at discharge minus percent abstinent at admission) divided by percent abstinent at admission	N/A	Admission to discharge	Descriptive statistics Pre-post waiver analysis with logistic regression Comparison population Propensity score matching (PSM) to create comparison group (matched) population of

					others receiving treatment through publicly funded SUD systems.

Evaluation Question: Are rates of opioid-related overdose deaths impacted by the demonstration?					
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.**					
Driver	**Measure Description**	**Numerator**	**Denominator**	**Evaluation Period**	**Analytic Approach /Target or Comparison Population**
Reduce opioid-related opioid overdose deaths	**OD 1.** Rate of overdose deaths, specifically overdose deaths due to any opioid	Number of overdose deaths per month and per year	Number of members/1000	First year of waiver is baseline compared to years 2 through 5.	Descriptive statistics (Frequencies and percentages); t-test.

***Additional multivariate analysis required. **Adjustment required for severity of hypertension. ***Further analysis required.**

The numbering system included in Table 1 above links the associated demonstration hypothesis, research questions, together with design, analysis, and results.

There were several hypotheses to be addressed by each major Waiver component.

Current Eligibles (CE)

For the current eligible population, cost-sharing was increased, and benefits were slightly reduced. The associated hypothesis related to that change to be tested was that:

Hypothesis CE1: The decline in benefits and increase in cost-sharing would not adversely affect the health of enrollees.

This hypothesis is tested by focusing on hypertension. Changes in rates of hypertension diagnosis among the enrollee population and in use of hypertensive medication and number of such prescriptions per month were examined. Overall use of prescriptions was also examined as were the aggregate and per capita amounts of co-pays made.

Primary Care Network (PCN)

The PCN was conceived to extend a limited amount of preventive and primary care benefits to uninsured adults aged 19-64 years of age up to 95% of the poverty line. The two hypotheses, the first broken into two sub-hypotheses, to be examined associated with the PCN:

> Hypothesis PCN2a: The PCN will reduce the number of Utahns without coverage for primary care.
> Hypothesis PCN2b: The PCN will increase primary care utilization among the covered population.
> Hypothesis PCN3: The PCN will reduce the number of non-emergent emergency department (ED) visits by PCN members.
> Hypothesis PCN2a: The PCN will reduce the percentage of the Utah adult population in poverty without insurance.
> Hypothesis PCN2b: The PCN will improve care by increasing timely appointments and improve how well providers communicate with patients. Rates of patients with blood pressure controlled will also increase.
> Hypothesis PCN3: The PCN will decrease non-emergent ED utilization.

Given that the PCN was suspended at the end of March 2019, the data provided here cover only through that period, which was provided as well in the mid-point evaluation.

Utah Premium Partnership (UPP)

UPP was created to incentivize otherwise Medicaid-eligible adults and their children to enroll either in employer-sponsored insurance (ESI) or COBRA when available through premium assistance. The single hypothesis to be examined was:

> Hypothesis UPP4: There would be new take-up of ESI and the cost to the state would be moderate.

This hypothesis would be examined based on the number of new enrollees in UPP, the number denied assistance under UPP, and the percentage and amount of assistance paid by the state.

Targeted Adults (TA)

TA demonstration was designed to assist poor adults who were homeless, involved in the criminal justice system or contending with substance abuse and/or mental illness disorders in obtaining Health care access. There were four hypotheses attendant to the demonstration to be examined:

> Hypothesis TA5: The demonstration will reduce the number of uninsured in Utah.
>
> Hypothesis TA6: The demonstration will increase access to primary health care and improve enrollees' health.

Hypothesis TA7: The demonstration would reduce the use of non-emergent ED use.
Hypothesis TA8: The demonstration would reduce the amount of uncompensated care at Utah hospitals.

Hypothesis TA5 is tested by examining the number of new enrollees in the program and the rate of not being insured among the population in poverty. Hypothesis TA6 is tested by examining satisfaction among enrollees in obtaining appointments for timely care, and in the communication received from providers. Also examined, would be the number of enrollees receiving a smoking or depression diagnosis and cessation treatment or antidepressant medication for those diagnoses, respectively. Also examined would be the amount of preventive care visits received by enrollees.

Hypothesis TA7 is tested by examining facets of ED visits: the number of ED visits per enrollees, the number of non-emergent ED visits, and the diagnoses attached to the most frequently experienced ED visits. The cost attendant to ED care is also examined. Hypothesis TA8 is tested by examining the total amount of uncompensated care provided by hospitals before and after the demonstration.

Blind and Disabled Dental (BDD)

The BDD demonstration was generated to provide access to dental care for the blind or disabled adult population. There is one hypothesis attendant to the demonstration:

Hypothesis BDD9: The demonstration will reduce emergency dental care and increase the amount of preventive dental care.

Hypothesis BDD9 is tested by examining the percent of dental visits that are classified as emergency visits, and by the number of enrollees that had a preventive dental care visit and the number of such visits per enrollee. Costs of emergency and preventive dental care are also examined.

Substance Use Disorder (SUD)

Hypothesis SUD10: The percentage of members who are referred and engage in treatment for SUDs will increase.
Hypothesis SUD11: The percentage of members who adhere to treatment of SUDs will increase.
Hypothesis SUD12: The rate of emergency department and inpatient visits will decrease.
Hypothesis SUD13: The percentage of members with SUD who experience care for comorbid conditions will increase.
Hypothesis SUD14: The demonstration will decrease the rate of overdose deaths due to opioids.

Targeted Adult Medicaid (TAM) Dental

Hypothesis TA15: Individuals receiving comprehensive dental treatment will have a higher rate of SUD treatment completion.

Clinically Managed Residential Withdrawal Services

Hypothesis CM16: The number of individuals receiving emergency department services for substance use disorder will decrease in waiver implementing counties.
Hypothesis CM17: ED expenditures will decrease for substance use disorder services in implementing counties.
Hypothesis CM18: Inpatient hospitalization days for SUD services will decrease in waiver implementing counties.
Hypothesis CM19: Outpatient (OP), intensive outpatient (IOP), or partial hospitalization visits for SUD services will increase in Salt Lake County.
Research Question CM20: Will the number of beneficiaries who utilize withdrawal management services increase in implementing counties?

Methodology

CMS approved the section 1115 demonstration evaluation design (see Attachment C) on October 16, 2019. The research conducted to evaluate the demonstration in this report complied with the approved evaluation design. The design methodology was based on the hypotheses to be tested, the type of outcome to be evaluated, and on the availability of data to appropriately address the hypotheses. These decisions were made in response to the theoretical relationships identified in the driver diagram included in the evaluation design and which helped identify the short-term, intermediate, and long-term outcomes to be measured. Additionally, the driver diagram considered potential mediating factors that may influence the ability of the waiver strategies to impact outcomes and confounding variables that may bias evaluation results if not controlled for.

The methodology for testing the hypotheses was mainly single-year pre- and post- assessment (two- year) of the demonstrations, 2017-2019. Due to limited observations and period, this single two-year assessment was restricted to summary statistics and p-value tests for significance from the base (pre-demonstration) year to the two subsequent years. A preponderance of p-value tests indicated significant differences on a two-tailed test, but the very large sample sizes assured that this would be the case. The slight differences in summary outcomes from pre- and post-intervention were, for the most part, clinically insignificant. The methods sections seek to provide a detailed description of the beneficiary survey and providing supporting description of the BRFSS, as well as potential limitations to using this data.

Most data related to diagnoses and reimbursements were taken from Medicaid claims. Other data sources include the Healthcare Effectiveness Data and Information Set (HEDIS), the Utah

Behavioral Risk Factor Surveillance System (BRFSS), enrollee lists provided by UDOH, and CMS published lists of definitions and codes. A specific listing of type of measure and codes associated with each demonstration population, outcomes and measures is included in the Attachment D.

The selected SUD design was developed based on established guidance,[4] specifically noting "a preferred approach would be to conduct difference-in-differences analysis (DiD) to compare trends for those affected by the SUD demonstration with beneficiaries not affected by the demonstration during the observation period due to the demonstration's geographic focus." Other sources identified in the literature supported both the strength and rigor of the DiD design, indicating the design has been shown to be a good evaluation design for intervention studies including Medicaid Demonstrations.[5]

In addition to utilizing Medicaid claims data to address the hypotheses in the waiver, the evaluator subcontracted with Qualtrics to purchase a Utah Medicaid panel of beneficiaries. The online survey focused on answering specific questions related to beneficiary access, utilization, and experience with SUD services. Specific survey responses were used to answer research questions related to the primary waiver hypotheses. Survey response data were analyzed with descriptive statistics.

TAM Dental

Due to the changing and unique target population groups included in the demonstration, a quasi-experimental design approach will be implemented in the independent evaluation. A single interrupted time series (SITS) design will be used to evaluate the new dental benefit change for Targeted Adults (TAM) receiving Substance Use Disorder (SUD) services.

Clinically Managed Residential Withdrawal Services

The approved evaluation design specified that the evaluation would use an interrupted time series or a DiD approach to the analysis. As the metrics for this component are measured monthly, there were sufficient time points before and after the implementation to use a comparative interrupted time series (CITS) approach to compare outcomes in the target group (Salt Lake County) with the comparison group (all other Utah Counties). DiD designs are a simplification of CITS that tests for the pre-post differences in means between the treatment and comparison groups. CITS is a more rigorous design6 in that the use of multiple time points before and after the intervention allows for analysis of differences from baseline trends in addition to baselines means. Therefore, if there are sufficient time points, a CITS design is preferable to the simpler difference in difference design. CITS is also preferable to a single group interrupted time series design (ITS) in that the addition of a comparison group helps to address common threats to internal validity in ITS designs such as history and selection if the threats operate similarly across the two groups. Within study comparisons, CITS designs have been demonstrated to show comparable results to randomized control trials.[6]

Evaluation Design

The SUD design focused on DiD approach, a quasi-experimental before and after intervention design, to compare the SUD residential treatment service expansion in the target group (Salt Lake and Utah Counties) with the comparison group (Davis, Weber, and Washington counties). Logistic regression was used to compare the differences between the groups before and after service expansion.

The independent evaluator contracted with an experienced national survey vendor to conduct a cross sectional survey of Medicaid beneficiaries in the spring of 2020. This approach will allow group-level outcome comparisons at various times to understand how a demonstration's effects change over time. The survey included standardized questions and composite question scales from the BRFSS, CAHPS® and CAHPS® Experience of Care and Health Outcomes (ECHO) Survey[7], which asks health plan enrollees about their experiences with health care services, including behavioral health care services.

The questions have been validated for patients and family members with a wide range of service needs, including those with SUD. Specific ECHO Survey quality measures of patient experience include getting treatment quickly and overall rating of counseling and treatment. The getting treatment quickly measure is also included in the core CAHPS Health Plan Survey, while the rating of counseling and treatment is a unique question from the CAHPS ECHO Survey.

SUD Evaluation Period

The timeline for the evaluation includes the year 2016 and the time-period after the expansion includes the year 2018. The year 2017 was excluded from analysis as it was a partial implementation year (the waiver demonstration expansion began in November 2017). Data from 2019 was not used because comparison sites began service expansion beginning that year and no longer qualify as a comparison group. Consequently, for the purpose of this design, there is only one available year of comparison data for the difference-in-differences design. Table 3 shows the number of IMD providers implemented by year in each of the counties included in the study. There were five that started in 2017, three that started in 2018, and five in 2019.

Table 3. Number of New IMD Providers by Year.

	2017	2018	2019
Salt Lake	4	2	0
Utah	1	1	3
Davis	0	0	1
Washington	0	0	1
Weber	0	0	0

The beneficiary survey was designed to be conducted in 2020, 2021, and 2023.

For clinically managed residential withdrawal services, the baseline period before the amendment spans from November 2015 to March 2019 and the time after the amendment includes the time-period after implementation until June 2020 for the current report. TAM dental was implemented on March 1, 2019, and clinically managed residential withdrawal services was implemented on May 1, 2019.

Target and Comparison Populations

The SUD target population included any Medicaid beneficiary residing in a county that began provision of IMD residential facilities in 2018 (Salt Lake and Utah). The comparison population included any Medicaid beneficiary residing in a county that did not have IMD residential facilities during 2018 (Davis, Weber, and Washington). Table 4 below summarizes the target and comparison populations and those that have been diagnosed with SUD. The comparison sites began provision of IMD residential facilities in 2019 so the analysis can only look at 2018 for comparison.

TAM dental service expansion was implemented uniformly across the state so there are no specific comparison populations available. However, the TAM population receiving SUD treatment with comprehensive dental care will be compared to those receiving SUD treatment without comprehensive dental care. Clinically managed residential withdrawal services were implemented in Salt Lake County, so all other counties serve as a comparison population for the analysis (see Table 4 below of the counties included). Medicaid beneficiaries that moved or received services outside of their specified target or comparison counties were removed from the analysis. In addition, Medicaid beneficiaries in the Primary Care Network (PCN) program, or a part of the emergency only population were removed from the analysis due to limitations in their service coverage. Targeted Adult Medicaid beneficiaries were removed because that demonstration did not exist prior to the SUD demonstration. Graphs with and without these groups showed the same distributions which determined that the removal of these groups did not significantly change the characteristics of the population.

Table 4. Summary of Medicaid beneficiaries with a SUD diagnosis.

Counties w/ IMD Expansion	County Population	# Of clients w/ SUD	Percentage
Salt Lake	228,222	18,729	8.21%
Utah	111,997	5,239	4.68%
Counties w/ No Expansion			
Davis	51,361	3,005	5.85%
Washington	37,850	1,759	4.65%
Weber	59,886	5,154	8.61%

Evaluation Measures

The measures used in the SUD evaluation included nationally standardized data collection protocols such as Initiation and Engagement of Alcohol and Other Drug Dependence Treatment (NFQ #0004) and Continuity of Pharmacotherapy for OUD (NQF #3175). The specific measures and their modifications are listed in Table 5 below.

Table 5. Description of Measures of their Modifications.

Measure Description	**Steward**	**Numerator**	**Denominator**	**Modification**
Initiation of alcohol and other drug dependence treatment	NQF #0004	Members 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	Total members diagnosed with a new episode of alcohol or drug dependency during the first 10.5 months of the measurement year	
Engagement in alcohol and other drug dependence treatment	NQF #0004	Members with 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	Total members diagnosed with a new episode of alcohol or drug dependency during the first 10.5 months of the measurement year	
Continuity of pharmacotherapy for OUD	NQF #3175	Members who have at least 180 days of continuous	Total members who had a diagnosis of OUD and at least	Evaluation period of one year instead of two

		pharmacotherapy with a medication prescribed for OUD without a gap of more than seven days	one claim for an OUD medication	
Any SUD Treatment	CMS Metric #6	Members w/ at least one SUD treatment service or pharmacy claim	Total Medicaid members	
Emergency Department Follow-up	NQF #2605	Members w/ a follow-up visit within 7 days and 30 days of emergency department visit	Total members w/ SUD diagnosis and an emergency department visit	
Access to preventive / ambulatory health services (AAP)	NCQA Metric #32	Members w/ at least one ambulatory or preventive care visit	Total members with SUD diagnosis and continual enrollment	
Inpatient stays for SUD per 1,000 Medicaid beneficiaries	CMS Metric #24	Members with inpatient visit for SUD	Total Medicaid members	Evaluation period of one year instead of monthly
Days in treatment	None	Total number TAM members in SUD treatment receiving comprehensive dental services	Total number of TAM members in SUD treatment and TAM members receiving any dental services	

Metric #23: Emergency Department Utilization for SUD per 1,000 Medicaid Beneficiaries	CMS	Total number of ED visits for SUD per 1,000 beneficiaries in the measurement period	Beneficiaries enrolled in Medicaid for at least one month during the measurement period	
Mean Emergency Department cost per SUD client	None	Total Cost of SUD related ED visits in the measurement period	Total number of Clients who received SUD emergency services in the measurement period	
Metric #24: Inpatient Stays for SUD per 1,000 Medicaid Beneficiaries	CMS	The number of inpatient discharges related to a SUD stay during the measurement period	Beneficiaries enrolled in Medicaid for at least one month during the measurement period	
Metric #8: Outpatient Services	CMS	Number of beneficiaries who used outpatient services for SUD during the measurement period	All Medicaid beneficiaries with SUD diagnosis enrolled for any amount of time during the measurement period	

Metric #11 Withdrawal Services	CMS	The total number of unique beneficiaries with a service or pharmacy claim for withdrawal management services during the measurement period	All Medicaid beneficiaries with SUD diagnosis enrolled for any amount of time during the measurement period	

CMS = Centers for Medicare and Medicaid Services. NQF = National Quality Forum, NCQA = National Committee for Quality Assurance

Due to the nature of the analysis looking at change over time, the same versions of these metrics must be used for every year for the results to be comparable over time. The versions of the metrics were taken from those listed in the Section 1115 Substance Use Disorder Demonstrations: Technical Specifications for Monitoring Metrics Version 2. Two of the outcome metrics used did not have standardized national metrics specified. These were emergency department costs per SUD client and TAM (SUD) definition for successful treatment. (TAM and ED cost). Table 6 outlines which metric measures are related to each research question.

Table 6. Outcome Measures for each SUD Hypothesis.

Hypothesis 1: Percent of members who are referred and engage in treatment for SUDs will increase.	• Initiation and Engagement of Treatment
Hypothesis 2: Percent of members who adhere to treatment of SUDs will increase.	• Continuity of Pharmacotherapy • Any SUD treatment (treatment utilization)

Hypothesis 3: Rate of emergency department and inpatient visits will decrease.	• Follow up after Emergency Department visit of AOD • Inpatient Stays for SUD
Hypothesis 4: Percent of members with SUD who experience care for comorbid conditions will increase.	• Preventative health care/ambulatory visits
Hypothesis 5: Rate of overdose deaths due to opioids will decrease.	• Deaths due to opioids
Additional research questions.	
The Demonstration will improve SUD treatment completion among the targeted adult Medicaid (TAM) population.	• Number of days in treatment and percent retained in treatment 90 or more days.
Will the number of individuals receiving emergency department services for substance use disorder decrease in waiver implementing counties?	• Metric #23: Emergency Department Utilization for SUD per 1,000 Medicaid Beneficiaries
Will ED expenditures decrease for substance use disorder services in implementing counties?	• Mean Emergency Department cost per SUD client

Will the number of inpatient hospitalization days for SUD services decrease in waiver implementing counties?	• Metric #24: Inpatient Stays for SUD per 1,000 Medicaid Beneficiaries
Will the number of outpatient (OP), intensive outpatient (IOP), or partial hospitalization visits for SUD services increase in Salt Lake County?	• Metric #8: Outpatient Services
Will the number of beneficiaries who utilize withdrawal management services increase in implementing counties?	• Metric #11 Withdrawal Services

Specific ECHO Survey quality measures of patient experience included in the beneficiary survey included: recognition of plan coverage for mental health and SUD services, availability of services, getting treatment quickly, overall rating of counseling and treatment, and patient rating of the helpfulness of the care received. Specific measures from the beneficiary survey are listed in Table 7 below.

Table 7. Description of Beneficiary Survey Measures.

Evaluation Design Hypothesis	Beneficiary Survey Question
Hypothesis 1: Percent of members who are referred and engage in treatment for SUDs will increase.	• Patient experience with care. Q30 – Does your plan cover MH, SUD, counseling, treatment? • Community knowledge of available treatment and services Q31 – Are there places in your community you can get help?

	Q32 – Did you or a member of your household need help?
Hypothesis 2: Percent of members who adhere to treatment of SUDs will increase.	• Patient experience with care Q33 – Able to get services as quickly as possible Q34 – Rate the care received Q35 – How helpful was the care received

Data Sources

Quantitative Analysis

Administrative data was provided by UDOH and include Utah Medicaid claims, procedure, drug, and diagnosis and eligibility information for beneficiaries. Data includes pre-demonstration data beginning January 2016 and extends through the current reporting period. The Behavioral Risk Factor Surveillance System (BRFSS) data will be used to compare the percent of residents who are uninsured. BRFFS is operated by the CDC and collects national-level data on over 400,000 U.S residents. The BRFSS includes a wide variety of health-related risk behaviors, events, chronic health conditions, and use of preventive services. The survey uses randomly selected adults using both landline and cellular telephones.

Beneficiary Survey

The beneficiary survey is an online survey consisting of 46 questions administered to a statewide cross-sectional sample of Medicaid beneficiaries. The survey was administered to a purchased panel by Qualtrics Inc., one of the foremost research panel aggregators in the world. Qualtrics has a national panel of Medicaid beneficiaries who participate in a variety of surveys. The survey has been administered twice, in 2020 and 2021. A third administration is planned for 2022. The survey is conducted online and a stratified approach to data collection is used to achieve statewide representation (geographically) as well as a male / female stratification that approximates Utah

Medicaid enrollees. The total sample for each of the first two data collection periods was similar (2020 N=415, 2021 N = 410). Several systematic data checking processes are utilized. First, the data is reviewed for duplicates. Second, surveys that are completed too quickly are reviewed and through proprietary algorithm responses are assigned a "fraud score" and are checked manually. The two annual surveys were not weighted. This design will compare group-level outcomes at various times to understand how a demonstration's effects change over time. The survey questions are standardized questions and composite question scales from the BRFSS, CAHPS® and CAHPS® Experience of Care and Health Outcomes (ECHO) Survey, which asks health plan enrollees about their experiences with health care services, including behavioral health care services.

All Payers Claims Data

All-payer claims databases (APCDs) are large State databases that include medical claims, pharmacy claims, dental claims, and eligibility and provider files collected from private and public payers. The merge of Medicaid claims to All Payers Claims Data (APCD) data in Utah makes for a particular strength in Utah for cross-checking and substantiating the integrity of Medicaid data within the APCD relative to Medicaid data alone. Furthermore, the APCD permits a more seamless assessment of beneficiaries that transition between Medicaid and commercial insurance than permitted by Medicaid claims and encounter data alone. This also permits excellent value in constructing matched controls and in integration of potentially important time-dependent covariates in multivariate analyses. It should be noted that the APCD data contains a substantial portion of commercial claims but does not contain claims for insured individuals of Employee Retirement Income Security Act (ERISA) plans nor those who are uninsured.

Analytic Methods

The approved SUD utilized a DiD analysis, which studies the differential effect of a treatment on a target and comparison group[8]. It allows observational data to have the similar statistical power to an experimental study design. A DiD design compared SUD residential expansion counties with SUD residential services in non-expansion counties. The four assumptions of a DiD analysis are equivalency of population characteristics, parallel trends, spillover effect, and common shock. The first three assumptions were tested using summary statistics and logistic regression models. However, the common shock assumption involves exogenous forces and is difficult to test. In discussion with the UDOH team, no concerns about external factors were raised so it is assumed that no major events unrelated to the Medicaid waiver impacted one group differently than the other.

The covariates included in the DiD model were age, race, gender, Hispanic, and diagnosis of alcohol SUD, opioid SUD, other SUD, and mental health. Means, standard deviations, and standardized mean differences were calculated for each covariate to test for equivalency of population characteristics. The equivalency of population characteristics compared the target and

comparison groups for 2016, the target group for 2016 and 2018, and the comparison group for 2016 and 2018. Covariates with a standardized mean difference above 0.1 indicated inclusion in the DiD models.

Parallel trends assume that any trend in the outcome between target and comparison groups are the same prior to intervention. The interaction term between group and time was determined using a logistic regression model. A significant interaction term indicates a trend and the DiD analysis will be biased. The spillover assumption states that the comparison group has no measurable change in outcome at the time of implementation. This was tested using a logistic regression model for the comparison group. Causal effect is established when all DiD design assumptions are met. All metrics met these assumptions and were analyzed using DiD.

Annual analysis of beneficiary survey responses are used to assess patient experience of care, satisfaction with access and timeliness of care, and will be analyzed with descriptive measures.

We also used an CITS design to compare the impact of clinically managed residential withdrawal service provision through Medicaid in Salt Lake County to the other non-implementing Utah counties. Logistic regression was used to test for these differences. Population equivalency at baseline and from pre to post intervention was tested for the following characteristics: age, race, gender, Hispanic, and diagnosis of alcohol SUD, opioid SUD, other SUD, mental health, and type of Medicaid eligibility. Means, standard deviations, and standardized mean differences were calculated for each covariate to test for equivalency of population characteristics. Covariates with a standardized mean difference above 0.1 indicated inclusion in the models. This testing helped control for selection bias which is a common threat to internal validity in ITS designs.

One month prior to the implementation of clinically managed withdrawal, UDOH implemented its Medicaid adult expansion across the state. As this was implemented statewide it is assumed that it would impact both the target and comparison groups. There are no other known historical factors that impacted one group more than the other.

Revised Design and Analysis

The original 1115 Primary Care Network (PCN) Evaluation Design was approved by CMS on October 16, 2019. The design included a variety of hypotheses and research questions 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 2021 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.

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, the independent evaluators proposed a modified approach to the existing evaluation (originally submitted to CMS 12/3/2021). To strengthen the quantitative analysis and design the recommendation incudes adding some new statistical approaches, which will make the evaluation more robust by using approaches that will account for changes over time. Specifically, this novel 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.

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 (i.e., indicator variable: before the pandemic-0 vs. after the pandemic-1).

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 diverse 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,

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

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 an Interrupted Time-Series (ITS) and a Bayesian structural time-series (BSTS) which will be used for outcomes that were measured quarterly. Because we had annual measures of all the outcomes in the evaluation, we were not able to apply ITS. As we will

calculate the outcomes quarterly for both pre-intervention and post-intervention periods, ITS and BSTS will be able to evaluate the impact of the intervention. For the quarterly outcomes, ITS with the intervention group only will be applied because some subjects were on and off from Medicaid enrollment. The denominator changes will be taken care of by ITS. To reflect the impact of the COVID-19 PHE, a dummy variable (0 before March 2020, and 1 after March 2020) will be included in ITS. Also, the number of COVID cases will be controlled in the regression to measure severity of COVID.

The BSTS has an ability to infer causal impact of the implementations and will calculate how much increase or decrease in the outcomes will be due to the intervention. 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[9] 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,

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

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

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

Methodological Limitations

There are several limitations to the current study. The primary limitation of the methodology for the CE, TA, BDD, and UPP demonstrations is the absence of adjustment for demographic, comorbidities, and other dimensions of the enrollee population in the descriptive statistics generated. As a result, some parameters that may have been significantly affected by the demonstration may not have been isolated due to the heterogeneous composition of the sample or to changes over time in that composition.

A second limitation is associated with the absence or paucity of time-dependent data, necessitated by the brief period encompassed in this report. For example, results for treatment for smoking or hypertension may have lags that are beyond the window of the analyses. Such longer-term effects will be more evident as there is reassessment from periods after the first or second year. Furthermore, the restricted one-year periods in the analysis window prior to implementation of the demonstrations did not permit assessment of variation in length of time for which conditions like smoking, hypertension, depression, and substance abuse were present and potentially untreated prior to the demonstration. Such duration of chronic conditions could be significantly associated with the response to any intervention. Finally, health care utilization and costs may increase up initially for conditions that have been neglected and accumulated due to

absence of insurance coverage and medical care. Longer follow up may demonstrate more substantial cost savings as such care is provided and deleterious conditions and habits are addressed.

A third limitation concerns the relatively limited set of measures in certain instances that were assessed to gauge effect. Hypertension, for example, is well established as a condition that responds to good primary care management and hypertensive medication. But there are other conditions that are responsive to good primary care that may be as consequential to health outcomes, if not more so among certain sub-populations. These would include obesity and timely and appropriate prenatal care for pregnant women. For the Blind and Disabled Dental (BDD) program, outcomes to date focus strictly on dental utilization and cost, but dental care is also a gateway to better general health. It may be worthwhile to include outcomes on other medical health care utilization, outcomes and costs that may be attributable to dental coverage. For this and several other of the demonstrations, it may be worthwhile to include a broader set of outcomes in future analyses as described above.

A fourth limitation is that some outcome measures, such as patient satisfaction, are subjective by nature. While such outcomes are of importance in and of themselves, supplementation with objective data, for example on appropriate care according to recommended guidelines, may extend the value generated from subjective data.

A fifth limitation relates to "churning" of enrollment in the demonstrations. Some beneficiaries are enrolled for a brief time, while others for more prolonged periods. The analyses were oftentimes restricted to eleven or twelve months of continuous enrollment to assess effects. As a result, however, potentially distinct effects for those enrolled for short periods of time were not assessed.

A sixth limitation is the disruptive nature of the pandemic in 2020, which likely altered eligibility in a manner that changed the comparative nature of the sample over time. While some became newly eligible based on weak labor market conditions, others perhaps experienced extended eligibility associated with the same factors. The pandemic also may have delayed care in some instances and altered the venue of visits from face-to-face to telehealth in certain instances. The impact of such changes in care delivery on quality merit study, are beyond the scope of this evaluation.

A seventh limitation in using the BRFSS data to monitor changes among the uninsured are two-fold. First, the survey is self-reported which introduces bias. Second, state level BRFSS data represent the general population, preventing deeper and more meaningful analysis within various waiver and population-specific groups. Further, employing national survey data for an out-of-state comparison can also be problematic because the data collection period of the survey (e.g., BRFSS) may not align with the demonstration timeline.

Recommendation 3: Plans to Address Methodological Challenges Presented by the COVID-19 PHE. Several changes have been made to evaluation designs which strengthen the overall evaluation capacity, leading to a more robust analysis. Specific examples of these changes include:

1) Using the generalized estimating equations (GEE). This method will measure changes in outcomes with individual subject level data. This method also has the capacity to control for factors such as the PHE on the outcomes over time and adjust for relevant factors (including the number of COVID cases) that could affect the outcomes. Also, the Wald test will be used to compare any difference in the outcomes across two years following a regression.

2) Given the available data for some demonstration populations during the pre-waiver period, regional COVID-19 positivity rates will be examined by quarter as another variable that may need to be controlled. Some of these began before or during the initial impacts of the pandemic.

3) Sensitivity analyses will be conducted to inform the effect of study design on impact estimates. For example, in the case of the ISS design, the evaluator must re-estimate key impacts of the revised cohort design to determine whether this approach—using the target cohort and earlier cohort (as a reference group) and GEEs with dummy variable—substantively influences the impact estimates. Second, given that regression models are being employed, the evaluator will test the sensitivity of key impact estimates to different modeling choices such as functional form. If a high degree of sensitivity is found, an explanation will be required that informs the credibility of the estimates.

4) The evaluators will include a falsification test that can increase confidence in the design, by providing evidence that the design isolates the impact of the waiver activities from other factors that might affect key outcomes. This is done by selecting an outcome measure that would not be expected to change due to the demonstration and then estimate that impact of the demonstration using the design on that outcome. For example, preventive dental service utilization could be used as a placebo outcome since it is not likely to be affected by any non-dental related demonstrations.

Finally, the integrity of empirical evaluation is contingent on quality of data. While the claims data used in much of the evaluation is of high quality, there are potential limitations that are associated with administrative claims data in general. Diagnoses must be filled in comprehensively and accurately by providers, for example. That may vary systematically across providers and result in distortions in assessment. Certain quality controls can be engaged, such as investigating the extent to which a diagnosis is listed in more than one claim, or whether a procedure is consistent with a diagnosis.

For the SUD evaluation, many of the metric specifications have changed throughout the years and not all the metrics were designed for the purpose of measuring change over time. For this

analysis, outcomes for each year were measured using the same version of the metric, even if the measure specifications changed. Two of the metrics needed modifications to work with the evaluation design. Since we were limited to one year of before and after intervention data, we had to modify the continuity of pharmacotherapy metric to look at a one-year time-period rather than a two-year time-period. This resulted in lower numbers of clients meeting the criteria for this metric and may not have allowed enough time to pass to detect a change in the metric. Additionally, we had to modify the metric for inpatient stays for SUD to an annual metric rather than a monthly metric to fit with the evaluation design.

Even though there were two available years of data, we were only able to look at one year due to losing the comparison population in 2019. This report moved forward with the original design, however, for future reports the design will need to change to a single group longitudinal study to look at change in subsequent years of the demonstration. Systematic change can often take time to see results particularly considering that IMDs were not all implemented at once and the number of beds has continued to increase throughout the duration of the demonstration. As such, one year of data may not have been enough time to detect significant changes in the analyses.

One explanation for the lack of significance in the results is possible unknown external factors that were not controlled for in the model. One potentially relevant factor may be implementation factors. When making system wide service changes, implementation factors can also have an influence on outcomes that can make it difficult to pinpoint if the results (or lack of results) may be due to implementation factors versus program factors. For instance, an intervention may indeed be effective, but if it is not implemented correctly, or if it takes a long time to implement, the results may not show an impact on outcomes, or the impact may be delayed. It may be valuable to explore and examine potential process metrics or other potential confounding factors for future analyses if feasible.

Another limitation to being able to measure long term changes in Medicaid beneficiary satisfaction with SUD treatment services is the inability to link annual satisfaction surveys administered to those receiving treatment in publicly funded SUD programs. Utah, like most other states, sets benchmarks in publicly funded SUD treatment programs for consumer satisfaction with treatment services. However, there is great variance in the way local programs implement the Mental Health Statistics Improvement Program (MHSIP) which prevents accurate tracking of responses by the Medicaid eligible population.

For the clinically managed residential withdrawal services there were only limited control variables, which did not ensure the populations were comparable between the target population and the rest of the state. We were not able to match comparison counties, although we did control for variables that were dissimilar between the groups and time points.

Other Additions

Previous feedback (January 27, 2022) suggested several considerations to strengthen the Summative Report. This feedback was listed under four subsections (i.e., data considerations, research question considerations, methodological considerations, and presentation considerations). Each of these considerations is listed below with a corresponding response or reference to the location within the report where the response has been addressed. Also, CMS has already received two formal requests (i.e., SUD Revised Evaluation Design [submitted to CMS 8/31/2021] and 1115 Revised Evaluation Design and Statistical Analysis [submitted to CMS 12/3/2021]) to modify existing designs. Where these novel approaches address comments related to supporting a more thorough evaluation of the PCN demonstration, including implementing approaches to control for COVID-19 PHE effects on outcome measures, it will be noted "under CMS review".

1. Data Considerations

a) Currently the pre-implementation data includes 2016 data. Expanding the pre-implementation period may be feasible for a few of the waiver components, however, the frequent changes to services and eligibility groups in Utah presents a unique challenge. Since we have proposed modifications to several designs (under CMS review) which incorporate the more rigorous interrupted time series (ITS) designs, where appropriate pre-implementation timeframe will be adopted.

b) A few of the waiver components could have post-implementation periods that align with the start of the pandemic. However, for some components, implementation was delayed for multiple reasons (including the COVID-19 PHE) which creates challenges when weighing their relative impact on outcomes. For the purposes of this consideration, the independent evaluator and UDOH will develop a consensus regarding the definition of when the PHE has ended. This approach will inform the data analysis for the summative report.

c) Description of beneficiary survey methods, sample design, response rates, sample size, weighting, and data quality are included in the Data Sources above.

2. Research Question Considerations

a) A more robust design and analysis will be more likely to detect the impact of dental services on SUD treatment outcomes.

3. Methodological Considerations

a) The Summative Evaluation Report will employ more rigorous design and analysis methodologies as described in the revised SUD Evaluation Design and the Revised 1115

Design and Statistical Analysis (under CMS review) that will increase the likelihood of supporting causal inferences of demonstration impacts. Additional methodological description and clarification were provided in the documents previously listed (under CMS review) and are also contained in Table 1 above. In addition, the narrative in the Revised 1115 Design and Statistical Analysis will strengthen the Summative Evaluation Report. Specific revisions to the Current Eligibles, Targeted Adults, and Blind and Disabled Adults were included in the revised 1115 Design and Statistical Analysis document cited previously in this section.

b) The Revised SUD Evaluation Design (under CMS review) proposes the use of propensity score matching between Medicaid beneficiaries to create a comparison group (matched) of others receiving treatment through publicly funded SUD systems, when appropriate.

c) Statistical significance tests in the descriptive analyses are included in Summary Tables of this revised report.

d) The previously cited (Revised SUD Evaluation Design) proposal eliminated the DiD analyses based on the unanticipated and rapid expansion of SUD services in geographical areas originally intended as comparison communities. Further, the state identified and listed propensity score matching as an approach in the Revised SUD Evaluation Design (under CMS review), Hypothesis 2 "percentage of members who adhere to treatment of SUDs for both treatment completion and return to treatment". With CMSs approval, this revised design and analysis will be included in the Summative Evaluation Report.

4. Presentation Considerations

a) The results section of this Revised Interim Report includes a description of each waiver policy being evaluated, the study populations, how metrics should be interpreted, and the analytic approach.

b) The Summative Report will include the consistent use of precision measures such as standard errors or confidence intervals for all quantitative outcomes.

Results are reported by hypothesis and reference the tabular results provided by hypothesis.

Current Eligibles (CE)

With respect to Hypothesis CE1, results, drawn from Medicaid claims and encounters, are provided in Tables 8-10. The current eligible population declined slightly from 2017 to 2020 (Table 8), but there is no indication, without further multivariate analysis, whether this decline was attributable to increased cost-sharing. Aggregate co-pays decreased in that same time-period, not simply due to the decline in enrollees, and average co-pays decreased over 10% from $5.61 to $5.04 from 2017 to 2020 and a significant decrease to $2.38 in 2020 (Table 9). Such

decline merits additional analysis. Hypertensive diagnoses, a proxy for health, and hypertensive medication, a proxy for good health management, held steady throughout the period, with the former a less than 1% and the latter at 21% decline by 2020 (Table 10). Mean prescriptions per member per month remained steady both before and after the copay increase except for an increase during the third and fourth quarters of 2019 (Figure 2).

The percentage of enrollees diagnosed with hypertension with antihypertensive prescriptions dipped continuously from 61% in 2017 to 48% in 2020 (Table 10). None of the figures adjusted for severity of hypertension, which would merit future attention. Mean hypertensive pharmacy prescriptions steadily declined about 17% during the period from 2017 to 2019 and then remained at a similar level in 2020, perhaps reflecting changes in the number of pills per prescription (Table 10).

Sample selection criteria for table entries are indicated in notes below tables. Some require enrollment for at least one month (Tables 9 and 10). Hypertension diagnosis and management indicators were limited to those with 11 or 12 months of continuous enrollment (Tables 9 and 10), reflecting HEDIS criteria. While p values suggest significant changes in several instances, that is attributable to large sample sizes, and the small magnitude of the changes indicate no clinical significance.

Table 8 Total Current Eligible Members by Year.

FY	Unique members	Average monthly enrollment
2017	51343	30716
2018	51238	30852
2019	48990	28905
2020	40633	24010

Note: Includes number of clients enrolled for at least one month within the year and average beneficiaries enrolled per month.

Table 9. Average Copayment Amount per Person per Month.

FY	Total copayment	PMPM copayment
2017	$1,988,676	$5.40
2018	$2,075,782	$5.61
2019	$1,749,405	$5.04
2020	$684,639	$2.38

Table 10. Adults with Hypertension Diagnosis, Antihypertensive Prescriptions, and Average Monthly Hypertensive Prescriptions.

FY	Mean Prescriptions	Mean drug quantity per prescription	Mean days supplied per prescription	% With hypertension diagnosis	% Of subjects with antihypertensive prescriptions among subjects with hypertension diagnosis
2017	0.47	36.18	30.07	12.72	60.99
2018	0.39	37.52	30.39	12.75	52.62
2019	0.32	41.72	33.09	12.60	47.78
2020	0.31	44.98	36.10	12.69	48.26

Note: Selects those with 11- or 12-months continuous enrollments (e.g., HEDIS criterion). Note 2: Considers members who had hypertension diagnosis.

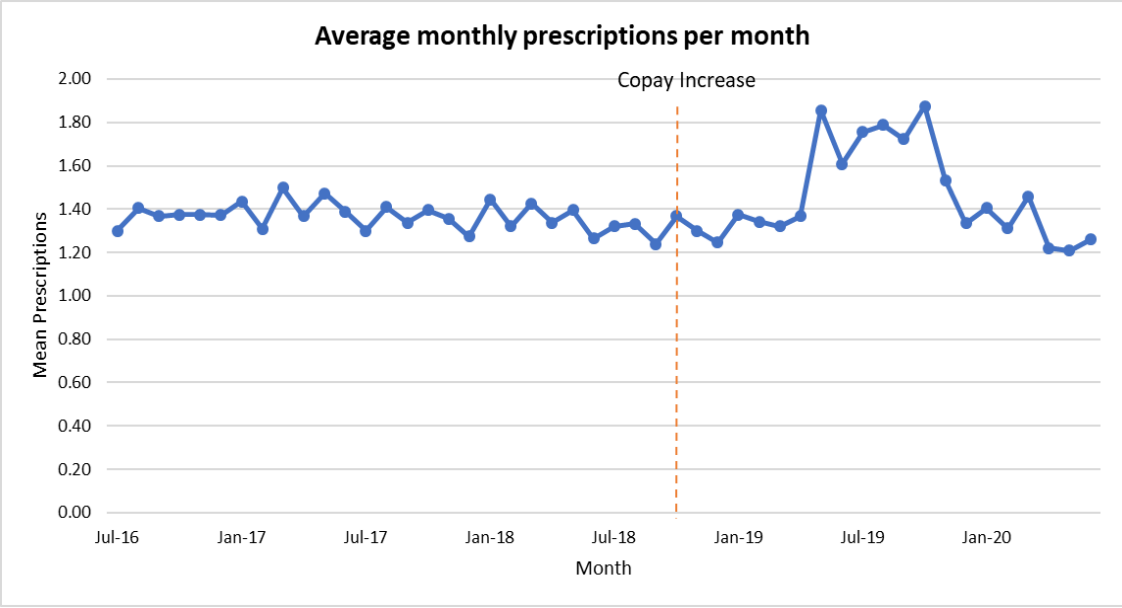
% With hypertension diagnosis

2017 vs. 2018: p-value=0.93
2018 vs. 2019: p-value=0.73
2019 vs. 2020: p-value=0.86

% Of subjects with antihypertensive prescriptions (among those who had hypertension diagnosis)

2017 vs. 2018: p-value=0.00
2018 vs. 2019: p-value=0.00
2018 vs. 2019: p-value=0.77

Figure 2. Mean Pharmacy Prescriptions Per Member Per Month before and after Copay Increase.



Average Monthly Hypertensive Prescriptions

2017 vs. 2018: p-value<0.01
2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Mean drug quantity per prescription

2017 vs. 2018: p-value<0.01
2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Mean days supplied per prescription

2017 vs. 2018: p-value<0.01
2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Additional results on CE enrollees are included below in the discussion of enrollees in the PCN use of ED relative to enrollees in the PCN.

Primary Care Network (PCN)

With respect to Hypothesis PCN 2a, the % of uninsured adults, based on data from the Behavioral Risk Factor Surveillance System (BRFSS) in poverty are provided in Table 11. While means fluctuated slightly over the period from 2016 to 2019, there was no significant change at around 35% for the entire duration. Because the PCN demonstration was suspended in March 2019, no summary statistics were generated for the program in 2020.

Table 11. Percentage of Uninsured Adults in Poverty in Utah by Year.

Year	Percent Uninsured	Lower 95% Confidence	Upper 95% Confidence
2016	35.2	30.4	40.4
2017	39.7	34.9	44.7
2018	35.9	31.5	40.6
2019	36.8	32.2	41.7

Note. Includes Adults in Utah with 0 to 100% Poverty. Numbers retrieved from the Utah Behavioral Risk Factor Surveillance System.

2016 vs. 2017: p-value=0.33
2017 vs. 2018: p-value=0.40
2018 vs. 2019: p-value=0.84

For Hypothesis PCN 2b, there is some preliminary indication that there was slight improvement in PCN access to care from 2017 to 2018 as measured by hypertension diagnosis and treatment (Table 12). In that period, there was close to a 2-percentage point increase (from 14.9% to 16.8%) in those diagnosed with hypertension. Despite the small increase in the percent of those diagnosed with hypertension, the percentage of those receiving medication during the period held steady at around 57%.

Table 12. Adults with Hypertension Diagnosis and Antihypertensive Prescriptions.

FY	Unique members	% With hypertension diagnosis	% Of subjects with antihypertensive prescriptions^{+}
2017	24421	14.93	56.56

2018	23844	16.75	57.04
2019	24336	*	*

Note: Selects those with 11- or 12-months continuous enrollments (i.e., HEDIS criterion). No HEDIS data were available for 2019 as of the time of this report.

*In 2019, all subjects had 9 months enrollment as maximum, so the numbers were not calculated.

[+] Among those who had hypertension diagnosis

The percent of patients with a hypertension diagnosis increased 14.93% in 2017 to 16.75% in 2018. This increase is statistically significant (p-value >.000). Percent of patients with antihypertensive prescriptions did not change statistically (2017 vs. 2018: p-value=0.67).

In terms of testing ED utilization among the PCN population, there was an increase over 2017-2019; when statistics were broken into PCN1 and PCN2 (Table 13), this increase was primarily due to a change in the PCN composition between PCN1 and PCN2 enrollment rather than changes in ED utilization within those groups. ED utilization was lower among enrollees with children (PCN1) (about 20 visits per 1000 enrollees per month each year, Table 14) than enrollees without children (PCN2), who experienced a slight increase from about 42 to 46 visits per 1000 enrollees per month (Table 10). The overall increase exhibited in Table 14 was therefore attributable to a substantial decline in PCN1, where utilization was lower, and a substantial increase in PCN2, where ED use was significantly higher.

Table 13. Emergency Department Utilization per PCN member and Average Non-Emergent ED utilization by PCN Members Per Year (PC1+PC2).

FY	Total ED visits	ED visits per member per month per 1000	Total non-emergent ED visits	ED visits per member per month per 1000
2017	5051	29.25	2037	11.79

2018	5664	34.77	2338	14.35
2019	5245	37.23	2249	15.96

Note: Includes members who had at least 1-month enrollment.

Table 14. Emergency Department Utilization per PCN Member and Average Non-Emergent ED utilization by PCN Members Per Year (PC1 only).

FY	Total ED visits	ED visits per member per month per 1000	Total non-emergent ED visits	ED visits per member per month per 1000
2017	2186	20.88	864	8.25
2018	1381	18.69	582	7.88
2019	1008	20.66	439	9.00

Table 15. Emergency Department Utilization per PCN member (PC2 only).

FY	Total ED visits	ED visits per member per month per 1000
2017	2865	42.11
2018	4283	48.12
2019	4237	46.01

Information on ED claims between the PCN and CE enrollee population are provided in Tables 16 and 17. ED utilization was significantly higher among the CE enrollee population than among the PCN population, but while claims per 1,000 members per month declined for CE enrollees, they increased, as noted above, for PCN enrollees. Thus, the ratio of PCN to CE ED claims increased from .31 to .43 over the period (Table 19, final column).

Table 16. Emergency Department Utilization per Current Eligibles.

FY	Total ED visits	ED visits per member per month per 1000
2017	34909	94.71
2018	32925	88.93
2019	30074	86.70

Note: Includes members who had at least 1-month enrollment.

Table 17. ED utilization per PCN member / Current Eligible (CE) Member Per 1000.

Emergency department claims per person per month per 1000

FY	PCN	CE	PCN/CE
2017	29.25	94.71	0.31
2018	34.77	88.93	0.39

2019	37.23	86.70	0.43

With respect to evidence on non-emergent ED utilization for the PCN and CE enrollee population, those data are provided in Tables 18-21.

Non-emergent ED visits per 1,000 enrollees per month increased for the overall PCN population from about 11.8 to 16.0 (Table 20). This increase was generated mainly by an increase among the PC2 population (having an increase from 17.2 to 19.2 in visits per 1,000 enrollees per month, Table 18). Non-emergent ED utilization was substantially higher among CE enrollees, at more than 3 times that of the PCN2 enrollee population. However, whereas PCN non-emergent ED utilization increased over 2017-2019 among PCN enrollees, it declined among CE enrollees, from about 65.1 to 60.2 per 1,000 enrollees per month from 2017 to 2019 (Table 19). The ratio of non-emergent ED utilization among PCN enrollees to that among CE enrollees therefore increased from about one-fifth (.18) in 2017 to over a quarter (.27) by 2019 (Table 20). Furthermore, average total monthly ED visits that were emergent among PCN enrollees declined from close to 60% to about 57%, reflecting the increase in non-emergent ED visits among that population (Table 21).

Table 18. Average Non-Emergent ED utilization by PCN Members Per Year (PC2 only).

FY	Total ED visits	Total non-emergent ED visits	ED visits per member per month per 1000
2017	2865	1173	17.24
2018	4283	1756	19.73
2019	4237	1810	19.66

Table 19. Average Non-Emergent ED utilization by Current Eligibles only Per Year.

FY	Total ED visits	Total non-emergent ED visits	ED visits per member per month per 1000
2017	34909	23981	65.06
2018	32925	23074	62.32
2019	30074	20881	60.20
2020*	*	*	*

* There were no subjects in the PCN in 2020.

Table 20. Non-Emergent ED Claims per person per month (PCN member / Current Eligible (CE) Member Per 1000).

FY	PCN	CE	PCN/CE
2017	11.79	65.06	0.18
2018	14.35	62.32	0.23
2019	15.96	60.20	0.27

Table 21. Percent of Average Monthly ED Visits without Non-Emergent ED Visits (PC1+PC2).

FY	Average Monthly ED visits without non-emergent ED	% Of average monthly ED visits without non-emergent ED
2017	421	59.86
2018	472	58.68
2019	583	57.16

% Of average monthly ED visits without non-emergent ED visits

2017 vs. 2018: p-value=0.01
2018 vs. 2019: p-value<0.01

Utah Premium Partnership (UPP)

The preliminary assessment of the success in UPP1 to UPP4 for enrollment of individuals in employer-sponsored insurance was assessed based on the number of enrollees and enrollee-months, given in Table 22. Total enrollment in UPP decreased from 2017 to 2019 from 780 to 615 and was reflected in a corresponding decrease in enrollment months from 6214 to 4848. The average number of enrollment months per enrollee decreased slightly from about 7.97 to 7.88. There was a precipitous decline in enrollment and average number of enrollment months in 2020 as indicated in the table, likely reflecting the impact of the COVID pandemic on employment and employer-provided insurance.

Table 22. Total UPP Members by Year and Month.

FY	Unique Members	Total enrollment months	Average number of enrollment months
2017	780	6214	7.97
2018	726	5716	7.87
2019	615	4848	7.88
2020*	486	3868	7.96

*The 2020 entries are based on data from July 2019 - June 30, 2020.

Targeted Adults (TA)

Next, several TA hypothesis and related research questions showed positive changes, beginning with the number of enrollees. Table 23 presents information on the increase in enrollment, 2,835 in 2018, more than doubling to 6,786 in 2019, and tripling to 8,517 in 2020. Similarly, the corresponding increase in average monthly members more than doubled from 1,529 in 2018 to 4,064 in 2019, and to 5,042 in 2020.

Table 23. Enrollees in TA.

FY	Unique Enrollees	Average monthly enrollment
2018	2835	1529

2019	6786	4064
2020*	8517	5042

*FY 2018 included 8 months (November 2017 through June 2018), while FY 2019 and FY 2020 considered 12 months.

TA16 to TA19 are related to primary care access and improved health status were tested assessing smoking diagnosis and cessation treatment (Table 24), antidepressant medication management (Table 25) and extent of preventive visits (Table 26). Associated costs of these treatments and visits were also assessed (Tables 27-29). The rate of smoking diagnosis and cessation treatment increased from 34% to 42% from 2018 to 2019, then slightly declined to 39% in 2020 (Table 24).

Major depression diagnosis increased markedly, as did the level of anti-depressant management and continuity of such management between 2018 and 2019. Diagnosis of major depression more than tripled from 374 to 1,211 (Table 25). The number of TA enrollees with antidepressant medication quadrupled from 222 to 829 over the same period. And management improved for this population despite the increase in numbers. Those with acute phase treatment increased from 56% to 69%, while those with effective continuous treatment increased from about 23% to 39% (Table 25). In 2020, the number of those diagnosed with major depression increased about 25% to 1,512. The percentage that received effective continuation phase treatment in 2020 increased further to 74%, so did the rate of effective continuous treatment to 47%. Even with the more than doubling in enrollees, the annual rate of those receiving at least one preventive care visit increased from 49% to about 56% (Table 26). That percentage remained relatively stable in 2020 at 57%.

With the increase in numbers receiving smoking diagnostic services noted above, there was a concomitant increase in aggregate costs (Table 27). Total costs for smoking cessation treatment increased from over $66,000 to nearly $373,000. Average cost per TA enrollee of smoking diagnoses and cessation treatment increased from $23.38 to $54.95 per enrollee (Table 27). Despite the decrease in numbers receiving smoking diagnosis services in 2020, aggregate costs doubled from 2019 to 2020. The per member cost consequently increased significantly to $89.08.

Similarly, total anti-depression management cost more than quadrupled over the period from 2018 to 2019, from about $25,600 to nearly $114,700 (Table 28), reflecting a quadrupling of enrollees being treated, but also perhaps some increase in continuity of care. The increase in per enrollee cost of such treatment was far more modest, from $8.67 to $16.89 (Table 28). Aggregate anti-depression

management costs continued to increase to about $172,100 in 2020 along with enrollment. The average cost per member increased to $20.21.

The aggregate costs for preventive care visits also increased significantly with the increase in enrollment between 2018 and 2019, from about $975,300 to nearly $3,099,000 (Table 29). For this service, however, the per enrollee cost increased slightly, from $344 to $457. The per visit cost decreased slightly from $204 to $176 (Table 30). Aggregate costs moderately increased to nearly $3,751,000 with a slightly decreased average cost per member, at $440 in 2020 (Table 29). Such slowdown in increasing costs in preventive care was likely due in significant part to the COVID 19 pandemic. The decline in average cost per preventive care visit to $163 perhaps also reflected an increase in the composition of lower cost telehealth visits in the overall delivery of preventive visits (Table 32.1). There was a clear impact of the COVID pandemic on the delivery of preventive care visits for this population as indicated in the amount of telehealth versus in person visits provided in Table 32.1. While the number of preventive care visits per enrollee remained stable, the number of those visits delivered through telehealth increased upward by nearly two orders of magnitude from 33 in Q4 of 2019 to 2879 by Q2 2020, and from under 1% of total preventive care visits to over 42% of such visits (Table 31).

*Table 24. Percent of Adults with a Smoking Diagnosis.**

FY	Unique Enrollees	Percent
2018	2835	34.64
2019	6786	41.69
2020	8517	38.64

* Smoking includes diagnosis, screening, and cessation drugs.

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Table 25. Annual Rate of Adults with Antidepressant Medication Management.

FY	Number of members with major depression diagnosis	Number of members with antidepressant prescriptions	Effective acute phase treatment* (%)	Effective continuation phase treatment** (%)
2018	374	222	55.86	22.97
2019	1211	829	69.12	39.45
2020	1512	1035	73.53	47.15

*Adults who remained on an antidepressant medication for at least 84 days (12 weeks).

**Adults who remained on an antidepressant medication for at least 180 days (6 months).

Effective acute phase treatment

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value=0.01

Effective continuation phase treatment

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Table 26. Percent of Adults with a Preventive Care Visit.

FY	Unique Members	Percent
2018	2835	49.21
2019	6786	56.22
2020	8517	56.55

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value=0.68

Table 27. Average Smoking Diagnosis Cost Per Targeted Adult Member by Year.***

FY	Unique Members	Total	Average cost per member***
2018	2835	$66,278	$23.38
2019	6786	$372,905	$54.95
2020	8517	$758,665	$89.08

*Includes costs associated with smoking diagnosis, screening, and cessation drugs.

**Includes costs associated with outpatient visit and prescriptions.

*** $ in 2019

Table 28. Average Antidepressant Medication Management Cost Per Targeted Adult Member by Year.

FY	Unique Members	Total	Average cost per member*
2018	2835	$24,573	$8.67
2019	6786	$114,638	$16.89
2020	8517	$172,106	$20.21

* $ in 2019.

Table 29. Average Preventive Care Visit Cost Per Targeted Adult Member by Year.

FY	Unique Members	Total	Average cost per member*
2018	2835	$975,314	$344
2019	6786	$3,098,718	$457
2020	8517	$3,750,793	$440

* $ in 2019.

Table 30. Average Preventive Care Cost Per Visit by Year.

FY	Unique Members	Number of preventive care visits	Average cost per visit*
2018	2835	4792	$204
2019	6786	17574	$176
2020	8517	23022	$163

* $ in 2019.

Average cost per visit:

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Table 31. Quarterly Total Number of Preventive Care Visits.

Quarter	Unique Members	# Of preventive care visits	Average # of preventive care visits per member	Preventive care visits via telehealth	% Preventive care visit via telehealth	# Of preventive care visits excluding telehealth	Average # of preventive care visits excluding telehealth
2018 Q1	*1356*	*1754*	*1.29*	*0*	*0.00*	*1754*	*1.29*

2018 Q2	*2372*	*2643*	*1.11*	*3*	*0.11*	*2640*	*1.11*
2018 Q3	*3275*	*3282*	*1.00*	*3*	*0.09*	*3279*	*1.00*
2018 Q4	*4064*	*4098*	*1.01*	*1*	*0.02*	*4097*	*1.01*
2019 Q1	*4341*	*5038*	*1.16*	*32*	*0.64*	*5006*	*1.15*
2019 Q2	*4577*	*5156*	*1.13*	*30*	*0.58*	*5126*	*1.12*
2019 Q3	*4818*	*5168*	*1.07*	*52*	*1.01*	*5116*	*1.06*
2019 Q4	*4769*	*5300*	*1.11*	*33*	*0.62*	*5267*	*1.10*
2020 Q1	*4832*	*5772*	*1.19*	*315*	*5.46*	*5457*	*1.13*
2020 Q2	*5750*	*6782*	*1.18*	*2879*	*42.45*	*3903*	*0.68*

TA 20 focused on Emergency Department (ED) utilization among chronically homeless enrollees (Tables 32-34). With the increase in enrollees, the number of monthly ED visits increased considerably, from 345 to 631 (Table 32). In both years, the proportion of non-emergent visits comprised about three-quarters of those visits. Clearly, improvement can still be made in terms of reducing the number and proportion of non-emergent ED visits. In 2020, ED use fell to close to 488. Non-emergent use as a percentage of the total remained about the same, however, at close to 80% (Table 33).

Concomitant with the increase in enrollees and use of the ED, the aggregate monthly ED cost increased from about $25,900 to about $51,300 in 2018 and 2019, respectively (Table 33). Average monthly costs of ED visits declined to $40,000 in 2020 with a very slight rise in unique members. The average actual cost of ED visits, however, remained stable, at close to $82 (Table 33).

Table 34 provides the top 5 diagnoses (based on primary diagnosis only) for ED visits in 2018 and 2019 and the associated monthly costs. The top 5 diagnoses are similar by rank between the two years, but not identical. For example, alcohol abuse with intoxication headed the list in 2018, but chest pain led the list in 2019. Costs associated with alcohol abuse with intoxication were highest in 2018 (at close to $11,000), and suicidal ideations were the costliest primary diagnosis in 2019 (about $25,431).

Table 32. Percent of Average Monthly ED Visits without Non-Emergent ED Visits.

FY	Average monthly ED visits	Average monthly non-emergent ED visits	Average monthly emergent ED visits	Percent of average monthly ED visits with emergent ED visits
2018	345	275	70	20.21
2019	631	502	129	20.50
2020	488	384	104	21.25

Percent of average monthly ED visits with emergent ED visits:

2018 vs. 2019: p-value=0.82
2019 vs. 2020: p-value=0.48

Table 33. Average Monthly Cost of ED Visits and Average Cost per ED Visit.

FY	Unique Members	Average monthly cost (total)*	Average cost per visit*
2018	1496	$25,892	$81.32
2019	2940	$51,299	$81.33
2020	2964	$40,005	$81.95

*Reimbursed amount only adjusted to $ in 2019.

Average monthly cost:

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Average cost per visit

2018 vs. 2019: p-value=0.89
2019 vs. 2020: p-value=0.56

Table 34. Top 5 Emergency Department Diagnoses for Homeless Members in 2018 and Associated Costs.

2018			2019			2020		
Top 5 diagnosis	n	Cost*	Top 5 diagnosis	n	Cost*	Top 5 diagnosis	n	Cost*
Alcohol abuse with intoxication, unspecified	132	$10,942	Suicidal ideations	221	$25,431	Suicidal ideations	116	$12,366
Unspecified abdominal pain	121	$9,083	Chest pain, unspecified	179	$8,802	Alcohol abuse with intoxication, unspecified	74	$6,305
Chest pain, unspecified	119	$5,043	Alcohol abuse with intoxication, unspecified	167	$15,037	Other chest pain	71	$6,082
Major depressive disorder, single episode, unspecified	98	$10,219	Unspecified abdominal pain	140	$11,825	Chest pain, unspecified	69	$4,677
Other chest pain	71	$6,181	Other chest pain	133	$11,081	Unspecified abdominal pain	67	$5,816

*Reimbursed amount only adjusted to $ in 2019.

Alcohol abuse with intoxication, unspecified:

2018 vs. 2019: p-value=0.50
2019 vs. 2020: p-value=0.01

Chest pain, unspecified:

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value<0.01

Unspecified abdominal pain:

2018 vs. 2019: p-value=0.77
2019 vs. 2020: p-value<0.01
P-value is calculated based on the proportional test

Hypothesis UC1 related to the cost of inpatient uncompensated care. As Table 36 demonstrates, there was a clear reduction in such uncompensated care, by nearly $2 million, in 2019 and 2020. This coincided however, with Medicaid expansion eligibility in the state which also was slated to substantially reduce uncompensated care. What proportion of the reduction was due to the demonstration would require more detailed analysis of inpatient utilization among those targeted in the demonstration.

Table 36. Uncompensated care in Utah.

Year	Total uncompensated care cost
2018	$200,173,232
2019	$181,861,938

2020	$182,368,112

Blind and Disabled Dental (BDD)

To gauge the effects of the BDD hypothesis and research questions, analyses were undertaken on the number of emergency and preventive visits and their associated costs.

Table 37 provides a summary of total dental visits among the approximately 48,000 unique enrollees in the program in 2018, 2019, and 2020. There was a large increase in total visits between the two years, from about 27,350 to close to 34,000. Emergency dental visits increased as well, but not nearly as much as total visits, leaving the percent of emergency dental visits for both years at nearly identical, and just less than 19%. The number of dental visits remained steady in 2020 from the previous year.

Given the substantial increase in total visits, total dental costs also increased, by about $1.1 million in 2019 or $1.2 million in 2020, respectively from $6.5 million in 2018 (Table 38). Emergency dental visits comprised a little over 10% of total costs in each year. Per member per month emergency dental costs increased from $1.38 to $1.76 over the period. Average monthly per member per month dental costs remained stable for preventive care, increasing from about $11.80 to $14.12 (Table 38).

Table 37. Percent of emergency Dental Services.

FY	Unique Members*	Total dental visits	Total emergency dental visits	% Of emergency dental visits
2018	48178	27365	5143	18.79
2019	47929	33954	6372	18.77
2020	46808	33238	6485	19.51

*Includes number of clients enrolled for at least one month within the year.

% Of emergency dental visits

2018 vs. 2019: p-value=0.93
2019 vs. 2020: p-value<0.01

Table 38. Average Monthly Dental Care Cost per Member Per Month.

FY	Total dental care costs	Total emergency dental care costs	Average monthly emergency dental care costs
2018	$6,528,087	$683,259	$1.38
2019	$7,654,055	$790,743	$1.62
2020	$7,736,613	$859,036	$1.76

Note: $ in 2019.

Average monthly emergency dental care costs

2018 vs. 2019: p-value=0.14
2019 vs. 2020: p-value=0.40

Table 39. Average Monthly Preventive Dental Care Cost per Member.

FY	Total dental care costs	Total preventive dental care costs	Average monthly preventive dental care costs
2018	$6,528,087	$5,844,827	$11.81
2019	$7,654,055	$6,863,312	$14.05
2020	$7,736,613	$6,877,577	$14.12

Note: $ in 2019.

Average monthly preventive dental care costs

2018 vs. 2019: p-value<0.01
2019 vs. 2020: p-value=0.92

Substance Use Disorder (SUD)

SUD measures that met the required testing assumptions were analyzed with DiD. The results are shown in the tables (as percentages) and figures (displayed as rates) below. However, no measures were found to be significant at the 0.05 level.

IET1: Percent of members who are referred and engage in treatment for SUDs will increase.

Table 41. Distribution of Initiation of Alcohol and Other Drug Dependence Treatment.

Year	Initiation of Treatment	Total Eligible Members	Percentage
2016	1,560	4,125	37.9%

2017	1,535	3,963	38.7%
2018	1,661	4,151	40.0%
2019	2,304	5,620	41.0%

Table 42. Distribution of Initiation of Alcohol and Other Drug Dependence Treatment by Group.

Year	Group	Initiation of Treatment	Total Eligible Members	Percentage
2016				
	Target	1,080	2,847	37.9%
	Comparison	480	1,278	37.6%
2017				
	Target	1,097	2,761	39.7%
	Comparison	438	1,202	36.4%
2018				
	Target	1,192	2,971	40.1%
	Comparison	469	1,180	39.8%

2019				
	Target	1,557	3,904	39.9%
	Comparison	747	1,716	43.5%

Tables 41 and 42 above show the percent of initiation of alcohol and other drug dependence treatment increasing each year. However, the target group had an increase in initiation from 2016 to 2018 and a decrease in 2019 while the comparison group had a decrease in initiation in 2017 and an increase for 2018 and 2019. As shown below in Table 43, both target and comparison groups have an increase of 2.19% in initiation of treatment. In 2016 and 2018, the initiation of treatment was higher in the target group compared to the comparison group. Overall, there is a 0% increase in the difference of the differences for initiation in alcohol and drug treatment. This difference was found to not be significant at the 0.05 level. Figure 3 shows the initiation change between groups from the pre-exposure period to the post-exposure period.

Table 43. Difference in Differences of Initiation of Alcohol and Drug Dependence Treatment.

Variable	Target	Comparison	Difference
One-year initiation rate (2016)	37.93%	37.56%	0.38%
One-year initiation rate (2018)	40.12%	39.75%	0.38%
Change in one-year initiation rate	2.19%	2.19%	0%

Figure 3. Difference in Differences of Initiation of Alcohol and Other Drug Dependence Treatment.

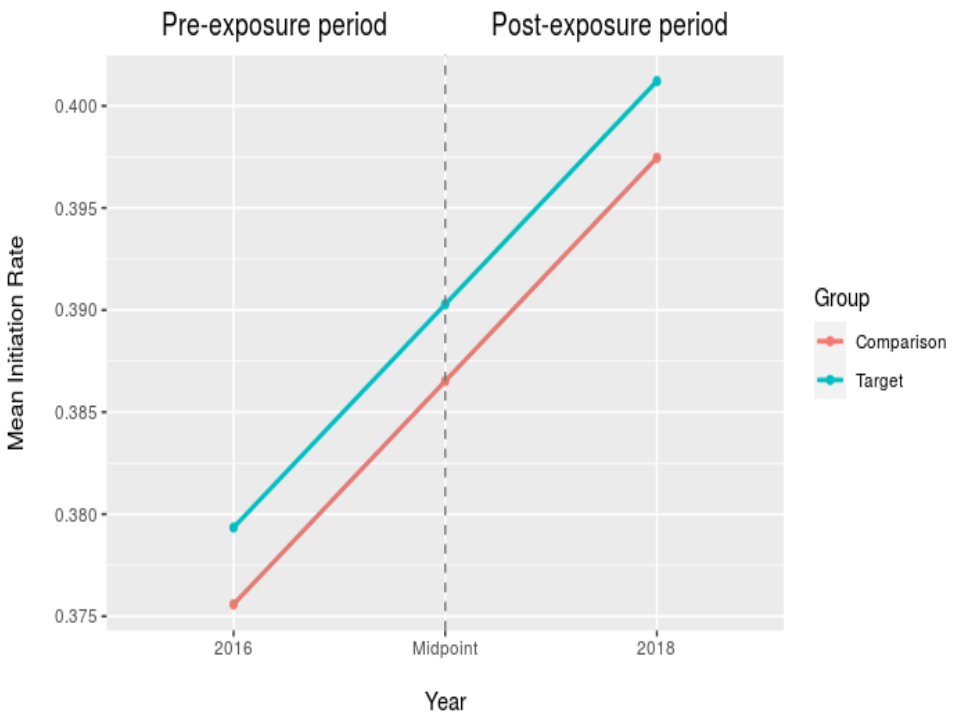


Table 44. Distribution of Engagement of Alcohol and Other Drug Dependence Treatment.

Year	Engagement of Treatment	Total Eligible Members	Percentage
2016	323	4,125	7.83%
2017	292	3,963	7.37%

2018	403	4,151	9.71%
2019	677	5,620	12.05%

Table 45. Distribution of Engagement of Alcohol and Other Drug Dependence Treatment by Group.

Year	Group	Engagement of Treatment	Total Eligible Members	Percentage
2016				
	Target	201	2,847	7.06%
	Comparison	122	1,278	9.55%
2017				
	Target	207	2,761	7.50%
	Comparison	85	1,202	7.07%
2018				
	Target	280	2,971	9.42%
	Comparison	231	1,761	10.42%
2019				

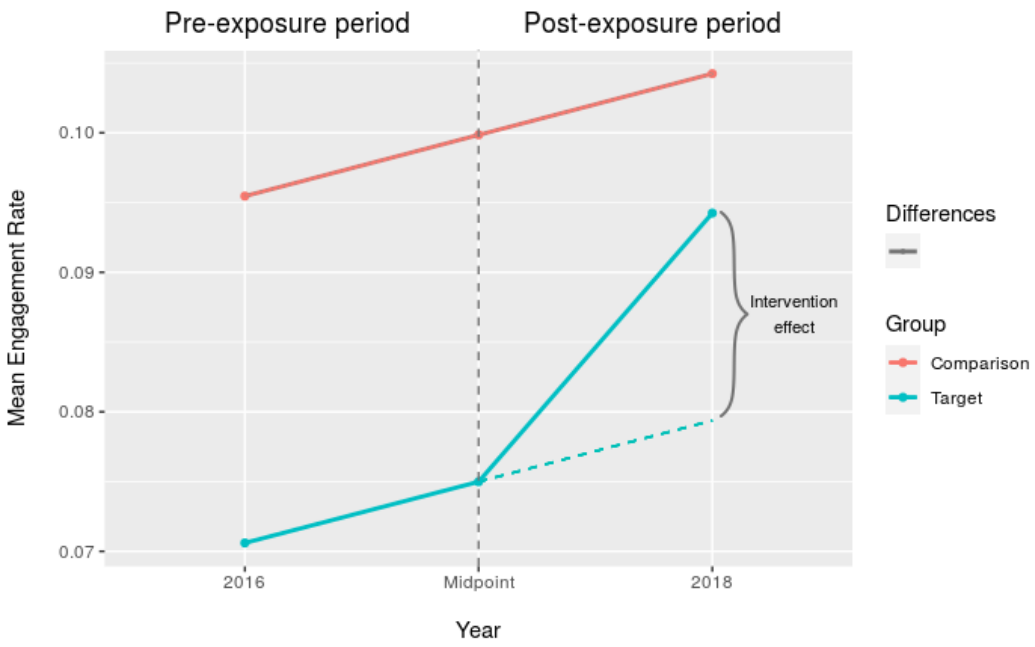
	Target	446	3,904	11.42%
	Comparison	231	1,716	13.46%

Tables 44 and 45 above show the percent of engagement of alcohol and other drug dependence treatment increasing each year. However, the comparison group had a decrease in engagement in 2017 and an increase for 2018 and 2019. As shown below in Table 46, both target and comparison have an increase in engagement of alcohol and other drug dependence treatment (2.36% and 0.88%, respectively). In 2016 and 2018, the engagement was higher in the comparison group compared to the target group. Overall, there is a 1.49% increase in the difference of the differences for engagement of alcohol and other drug dependence treatment in the target group compared to the comparison group. This difference was found to not be significant at the 0.05 level. Figure 4 shows the engagement change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 46. 5ifference in Differences of Engagement of Alcohol and Other Drug Dependence Treatment.

Variable	Target	Comparison	Difference
One-year engagement rate (2016)	7.06%	9.55%	-2.49%
One-year engagement rate (2018)	9.42%	10.42%	-1%
Change in one-year engagement rate	2.36%	0.88%	1.49%

Figure 4. Difference in Differences of Engagement of Alcohol and Other Drug Dependence Treatment



Percent of members who adhere to treatment of SUDs will increase.

Table 47. Distribution Continuity of Pharmacotherapy for OUD.

Year	Continuous Pharmacotherapy	Eligible members with OUD Diagnosis and at least one OUD medication claim	Percentage
2016	441	724	60.7%
2017	455	757	60.1%

2018	458	885	51.7%
2019	602	1,237	48.7%

Table 48. Distribution Continuity of Pharmacotherapy for OUD by Group.

Year	Group	Continuous Pharmacotherapy	Eligible members with OUD Diagnosis and at least one OUD medication claim	Percentage
2016				
	Target	359	593	60.5%
	Comparison	82	131	62.6%
2017				
	Target	369	601	61.4%
	Comparison	86	156	45.9%
2018				
	Target	369	691	53.4%

	Comparison	89	194	45.9%
2019				
	Target	487	960	50.7%
	Comparison	115	277	41.5%

Tables 47 and 48 above show the percent of continuity of pharmacotherapy decreasing each year. However, the target group had an increase in the continuity of pharmacotherapy in 2017 and a decrease for 2018 and 2019. As shown below in Table 49 below, both target and comparison groups show a decrease in continuity of pharmacotherapy. (-7.24% and –16.72%, respectively). In 2016, the continuity of pharmacotherapy was higher in the comparison group compared to the target group. However, in 2018, the continuity of pharmacotherapy was higher in the target group compared to the comparison group. Overall, there is a 9.48% increase in the difference of the differences for continuity of pharmacotherapy in the target group compared to the comparison group. This difference was found to not be significant at the 0.05 level. Figure 5 below shows the continuity of pharmacotherapy change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 49. Difference in Differences of Continuity of Pharmacotherapy for OUD.

Variable	Target	Comparison	Difference
One-year pharmacotherapy rate (2016)	60.24%	62.6%	-1.95%

One-year pharmacotherapy rate (2018)	53.4%	45.88%	7.52%
Change in one-year pharmacotherapy rate	-7.24%	-16.72%	9.48%

Figure 5. Difference in Differences of Continuity of Pharmacotherapy for OUD

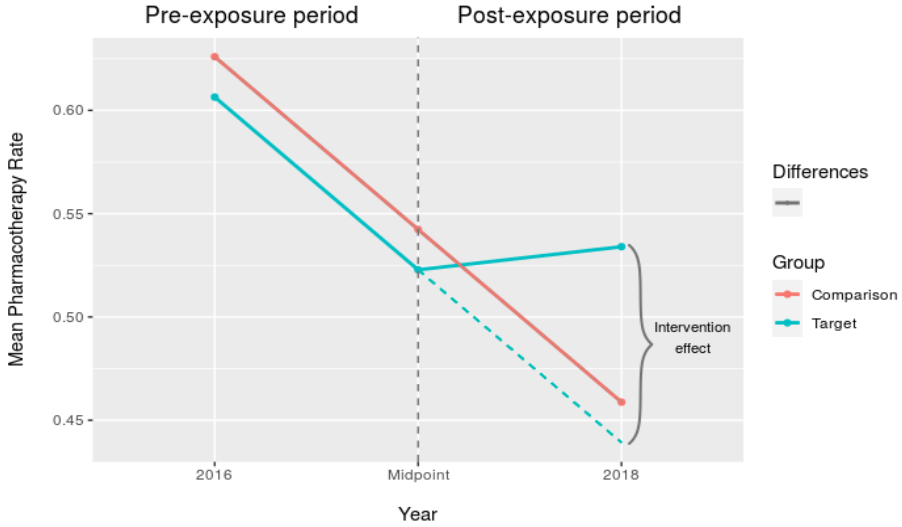


Table 50. Distribution of any SUD treatment Service, Facility Claim, or Pharmacy Claim.

Year	Any SUD Treatment	Total Eligible Members	Percentage
2016	6,549	260,943	2.51%

2017	6,235	249,423	2.50%
2018	6,061	242,433	2.50%
2019	6,294	242,077	2.60%

Table 51. Distribution of any SUD Treatment Service, Facility Claim, or Pharmacy Claim by Group.

Year	Group	Any SUD Treatment	Total Eligible Members	Percentage
2016				
	Target	4,635	183,208	2.53%
	Comparison	1,905	77,735	2.45%
2017				
	Target	4,286	175,636	2.44%
	Comparison	1,970	73,796	2.67%
2018				
	Target	4,168	170,106	2.45%

	Comparison	1,895	72,327	2.62%
2019				
	Target	4,214	169,901	2.48%
	Comparison	2,071	72,176	2.87%

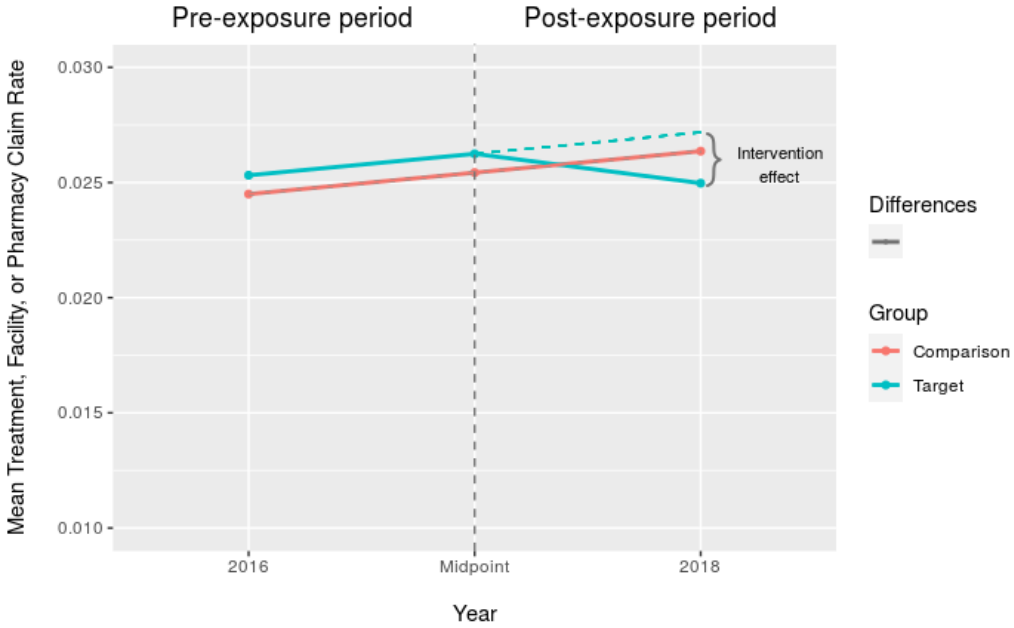
Tables 50 and 51 above show the percentage of any SUD treatment service, facility claim, or pharmacy claim decreasing in 2017 and increasing in 2019. However, the target group also had an increase in 2018 while the comparison group had an increase in every year except 2018. As shown in Table 52 below, the target group shows a decrease in any SUD treatment service, facility claim, or pharmacy claim (0.08%) and the comparison group shows an increase in any SUD treatment service, facility claim, or pharmacy claim (0.17%). In 2016, the SUD treatment service, facility claim, or pharmacy claims were higher in the target group compared to the comparison group. However, in 2018, the SUD treatment service, facility claim, or pharmacy claims were higher in the comparison group compared to the target group. Overall, there is a 0.25% decrease in the difference of the differences for SUD treatment service, facility claim, or pharmacy claims in the target group compared to the comparison group. This difference was found to not be statistically significant at the 0.05 level. Figure 6 shows the SUD treatment service, facility claim, or pharmacy claim change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 52. Difference in Differences of Receiving any SUD treatment service, facility claim, or pharmacy claim.

Variable	Target	Comparison	Difference
One-year admission rate (2016)	2.53%	2.45%	0.08%

One-year admission rate (2018)	2.45%	2.64%	-0.17%
Change in one-year admission rate	-0.08%	0.17%	-0.25%

Figure 6. Difference in Differences of Receiving any SUD Treatment Service, Facility Claim, or Pharmacy Claim.



Rate of emergency department and inpatient visits will decrease.

Table 53. Distribution of Emergency Department Follow-up within 7 Days.

Year	Follow-up Within 7 Days	Total Eligible Members with an Emergency Department Visit	Percentage
2016	68	514	13.23%
2017	58	469	12.37%
2018	68	552	12.32%
2019	141	980	14.39%

Table 54. Distribution of Emergency Department Follow-up within 7 Days by Group.

Year	Group	Follow-up Within 7 Days	Total Eligible Members with an Emergency Department Visit	Percentage
2016				
	Target	51	367	13.90%
	Comparison	17	147	11.56%
2017				
	Target	45	353	12.75%

	Comparison	13	116	11.21%
2018				
	Target	57	434	13.13%
	Comparison	11	118	9.32%
2019				
	Target	94	729	12.89%
	Comparison	47	251	18.73%

Tables 53 and 54 above show the percent of emergency department follow-up within 7 days decreasing each year except 2019. However, the target group had an increase in the emergency department follow-up in 2018 and a decrease for 2019. As shown below in Table 55 below, both target and comparison groups show a decrease in emergency department follow-up within 7 days (-0.76% and –2.24%, respectively). In 2016 and 2018, the emergency department follow-up within 7 days was higher in the target group compared to the comparison group. Overall, there is a 1.48% increase in the difference of the differences for emergency department follow-up within 7 days in the target group compared to the comparison group. This difference was found to not be statistically significant at the 0.05 level. Figure 7 shows the emergency department follow up within 7 days change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 55. Difference in Differences of Emergency Department Follow-up within 7 Days.

Variable	Target	Comparison	Difference
One-year follow-up rate (2016)	13.9%	11.56%	2.33%
One-year follow-up rate (2018)	13.13%	9.32%	3.81%
Change in one-year follow-up rate	-0.76%	-2.24%	1.48%

Figure 7. Difference in Differences of Emergency Department Follow-up within 7 Days.

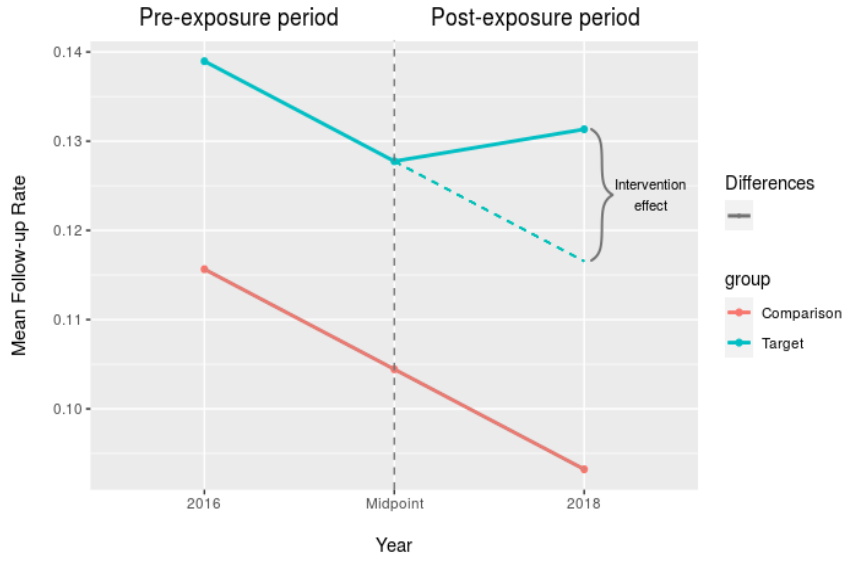


Table 56. Distribution of Emergency Department Follow-up within 30 Days.

Year	Follow-up Within 30 Days	Total Eligible Members with an Emergency Department Visit	Percentage
2016	101	514	19.65%
2017	80	469	17.06%
2018	106	552	19.20%
2019	196	980	20.00%

Table 57. Distribution of Emergency Department Follow-up within 30 Days by Group.

Year	Group	Follow-up Within 30 Days	Total Eligible Members with an Emergency Department Visit	Percentage
2016				
	Target	76	367	20.71%
	Comparison	25	147	17.01%
2017				
	Target	61	353	17.28%
	Comparison	19	116	16.38%

2018				
	Target	86	434	19.82%
	Comparison	20	118	16.95%
2019				
	Target	131	729	17.97%
	Comparison	65	251	25.90%

Tables 56 and 57 above show the percentage of emergency department follow-up for 30 days increasing each year except 2017. However, the target group also had a decrease in the emergency department follow-up in 2019. As shown below in Table 57 below, both target and comparison groups show a decrease in emergency department follow-up within 30 days (-0.89% and –0.06%, respectively). In 2016 and 2018, the emergency department follow-up within 30 days was higher in the target group compared to the comparison group. Overall, there is a 0.84% decrease in the difference of the differences for emergency department follow-up within 30 days in the target group compared to the comparison group. This difference was found to not be statistically significant at the 0.05 level. Figure 8 shows the emergency department follow up within 30 days change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 58. Difference in Differences of Emergency Department Follow-up within 30 Days.

Variable	Target	Comparison	Difference

One-year follow-up rate (2016)	20.71%	17.01%	3.7%
One-year follow-up rate (2018)	19.82%	16.95%	2.87%
Change in one-year follow-up rate	-0.89%	-0.06%	-0.84%

Figure 8. Difference in Differences of Emergency Department Follow-up within 30 Days.

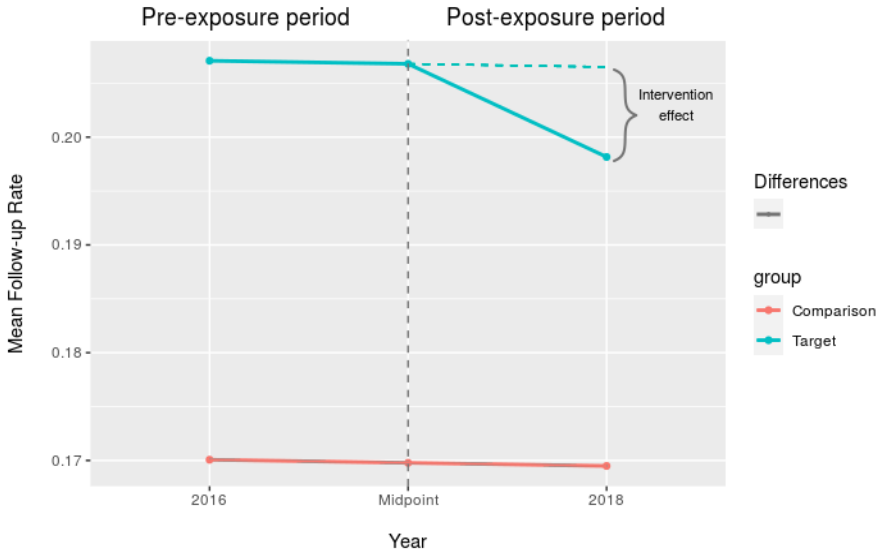


Table 59. Distribution of OUD Inpatient Stays.

Year	SUD Inpatient Admission	Total Eligible Members	Percentage

2016	3,707	260,943	1,42%
2017	3,552	249,423	1.42%
2018	2,383	242,433	1.35%
2019	5,153	242,077	2.13%

Table 60. Distribution of OUD Inpatient Stays by Group.

Year		Group	SUD Inpatient Admission	Total Eligible Members	Percentage
2016					
		Target	2,623	183,208	1.43%
		Comparison	1,084	77,735	1.39%
2017					
		Target	2,451	175,636	1.40%
		Comparison	1,101	73,796	1.49%
2018					

		Target	2,286	170,106	1.34%
		Comparison	997	72,327	1.38%
2019					
		Target	3,562	169,901	2.10%
		Comparison	1,591	72,176	2.20%

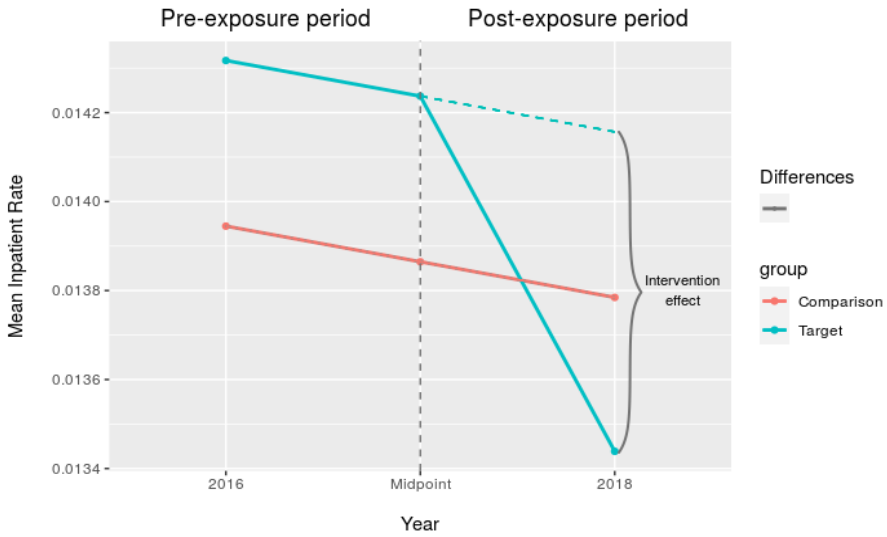
Tables 59 and 60 above show the percentage of inpatient admission for OUD decreasing from 2016 to 2018 and increasing for 2019. However, the target group had a decrease in the inpatient admission for OUD for each year except 2019 while the comparison group also shows an increase in 2017. As shown below in Table 60 below, both target and comparison groups show a decrease in inpatient admissions for OUD (0.09% and 0.02%, respectively). In 2016, inpatient admission for OUD was higher in the target group compared to the comparison group. However, in 2018, the inpatient admission of OUD was higher in the comparison group compared to the target group. Overall, there is a 0.07% decrease in the difference of the differences for inpatient admission of OUD in the target group compared to the comparison group. This difference was found to not be statistically significant at the 0.05 level. Figure 9 below, shows inpatient admission for OUD change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 61. Difference in Differences of Inpatient Admission of OUD.

Variable	Target	Comparison	Difference
One-year admission rate (2016)	1.43%	1.39%	0.04%

One-year admission rate (2018)	1.34%	1.38%	-0.03%
Change in one-year admission rate	-0.09%	-0.02%	-0.07%

Figure 9. Difference in Differences of Inpatient Admission of OUD.



Percent of members with SUD who experience care for comorbid conditions will increase.

Table 62. Distribution of Access to Preventive/Ambulatory Health Services (AAP).

Year	AAP	Total Eligible Members with SUD and Continual Enrollment	Percentage

2016	6,943	8,146	85.23%
2017	7,027	8,324	85.61%
2018	6,949	7,935	87.57%
2019	10,568	12,972	81.47%

Table 63. Distribution of Access to Preventive/Ambulatory Health Services (AAP) by Group.

Year	Group	AAP	Total Eligible Members with SUD and Continual Enrollment	Percentage
2016				
	Target	4,852	5,719	84.84%
	Comparison	2,091	2,427	86.16%
2017				
	Target	4,818	5,656	85.18%
	Comparison	2,076	2,397	86.61%
2018				

	Target	4,885	5,597	87.28%
	Comparison	2,064	2,338	88.28%
2019				
	Target	7,322	9,074	80.69%
	Comparison	3,246	3,898	83.27%

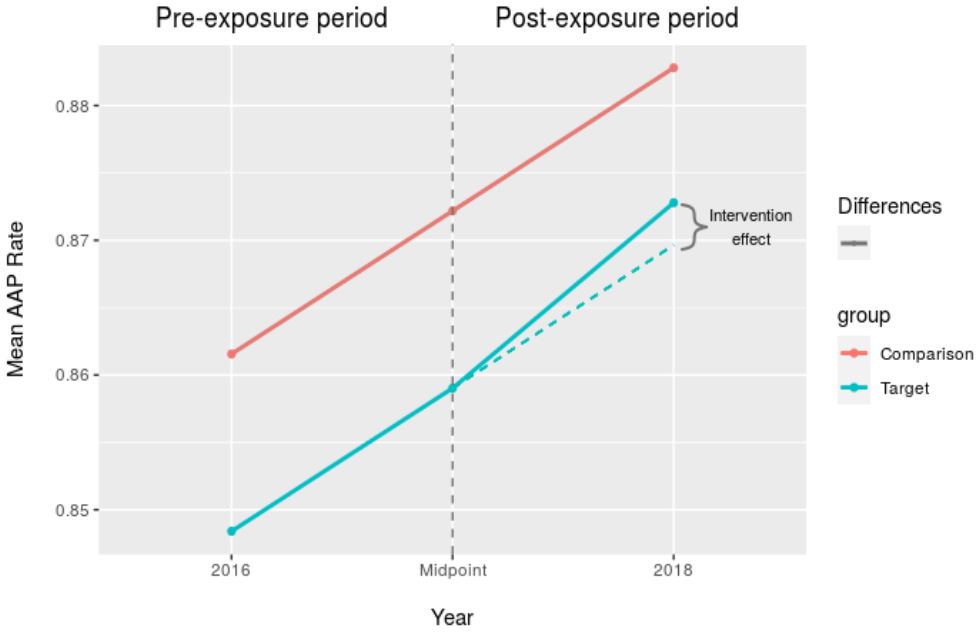
Tables 62 and 63 above show the percentage access to preventive / ambulatory health services (AAP) for OUD increasing for every year except 2019. As shown below in Table 63 below, both target and comparison groups show an increase in AAP (2.44% and 2.12%, respectively). In 2016 and 2018, the AAP was higher in the comparison group compared to the target group. Overall, there is a 0.31% increase in the difference of the differences for AAP in the target group compared to the comparison group. This difference was found to not be significant at the 0.05 level. Figure 10 below, shows the AAP change between groups from the pre-exposure period to the post-exposure period. In the post-exposure period, the dotted line for the target group represents the expected trend if there was no exposure and the solid lines represent the observed trends for each group.

Table 64. Difference in Differences of Access to Preventive/Ambulatory Health Services.

Variable	Target	Comparison	Difference
One-year access rate (2016)	84.84%	86.16%	-1.32%

One-year access rate (2018)	87.28%	88.28%	-1%
Change in one-year access rate	2.44%	2.12%	0.31%

Figure 10. Difference in Differences of Access to Preventive/Ambulatory Health Services.



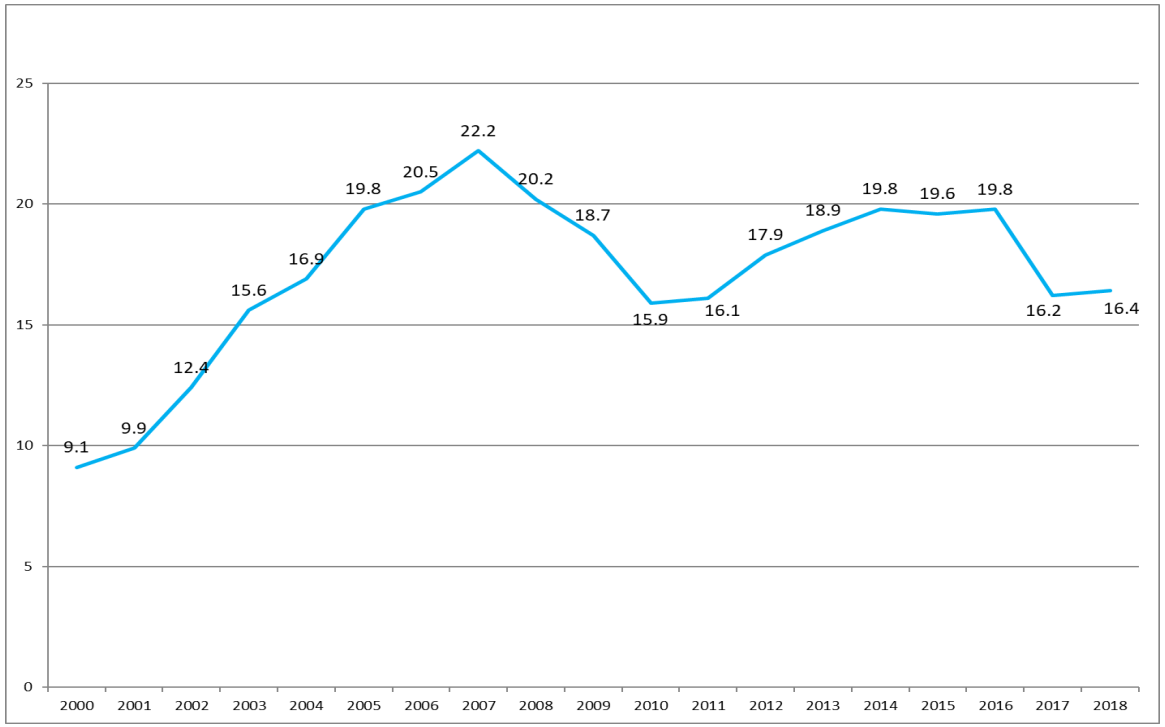
Rate of overdose deaths due to opioids will decrease.

Utah has experienced a sharp increase in opioid related deaths since 2000 [9]. The 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. While some SUD services have been available to Medicaid members statewide, this waiver expands the continuum of care

to include SUD residential treatment in Institution for Mental Disease (IMD) for eligible individuals. This adds a critical service to address the needs of Medicaid members.[10]

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 2017 (see Figure 11 below).

Figure 11. Rate of Opioid Deaths in Utah, Adults 18+ Years, per 100,000 Population, 2000-2018.



Additionally, in response to the challenges related to opioid-related deaths, UDOH established an Opioid Fatality Review Committee (OFRC) in January 2018 to conduct in-depth reviews on select opioid deaths in the state. The purpose of a fatality review is to gather accurate data about events leading up to and surrounding an opioid-related death and make recommendations to prevent future fatalities. The work of the OFCR and others, including partner agencies such as DSAMH has been instrumental in the establishment of local Mobile Crisis Outreach Teams. While these teams have existed in the major urban counties in the state, additional rural areas

have begun to operate MCOT services. One of the priority areas of these MCOT's is to follow up with patients who may be considered high risk of suicide when released from psychiatric facilities or hospital emergency departments. The purpose of the follow-up is to ensure a "warm handoff" takes place, so the patient is connected to community-based mental health services during a period of potential need.

Table 65. SUD-related Overdose Deaths Among Medicaid Beneficiaries.

Year	Overdose deaths	Rate of overdose deaths per 1,000
2018	159	0.42
2019	161	0.42
2020	210	0.52

It appears the overall opioid overdose deaths in the general population may have reached its high point followed by a potential downward trend that is encouraging. The timing of Medicaid expansion in Utah and the limited specific data points among Medicaid beneficiaries (see Table 65 above) cannot yield a meaningful interpretation of the status of SUD-related overdose deaths at this time.

Will the number of individuals receiving emergency department services for substance use disorder decrease in waiver implementing counties?

All measures met the assumptions, were analyzed with CITS, and the results are shown in the tables (as rates or percentages) and figures (displayed as rates) below. SUD emergency department visits and SUD inpatient services were not found to be significant at the 0.05 level. However, SUD outpatient services and SUD withdrawal management services were found to be significant at the 0.05 level.

Table 66. Distribution of SUD Emergency Department Visit per 1,000 Medicaid Beneficiaries.

Year	SUD Emergency Department Visit	Total Eligible Members	SUD ED Visits per 1,000 Medicaid Beneficiaries
2015	3,055	98,760	39.0
2016	9,436	139,816	67.5
2017	9,543	139,204	68.6
2018	11,239	138,424	81.2
2019	18,487	174,144	106.2
2020	15,267	162,945	93.7

Table 67. Distribution of SUD Emergency Department Visit per 1,000 Medicaid Beneficiaries by Group.

Year	Group	SUD Emergency Department Visit	Total Eligible Members	SUD ED Visits per 1,000 Medicaid Beneficiaries
2015				
	Target	1,488	37,630	39.5
	Comparison	1,567	37,630	25.6
2016				
	Target	4,234	52,497	80.7
	Comparison	5,202	87,319	59.6
2017				
	Target	4,223	52,091	81.1
	Comparison	5,320	87,113	61.1
2018				
	Target	5,266	52,267	100.8
	Comparison	5,973	86,157	69.3
2019				

	Target	8,384	66,454	126.2
	Comparison	10,103	107,690	93.8
2020				
	Target	6,938	62,290	111.4
	Comparison	8,329	100,655	82.7

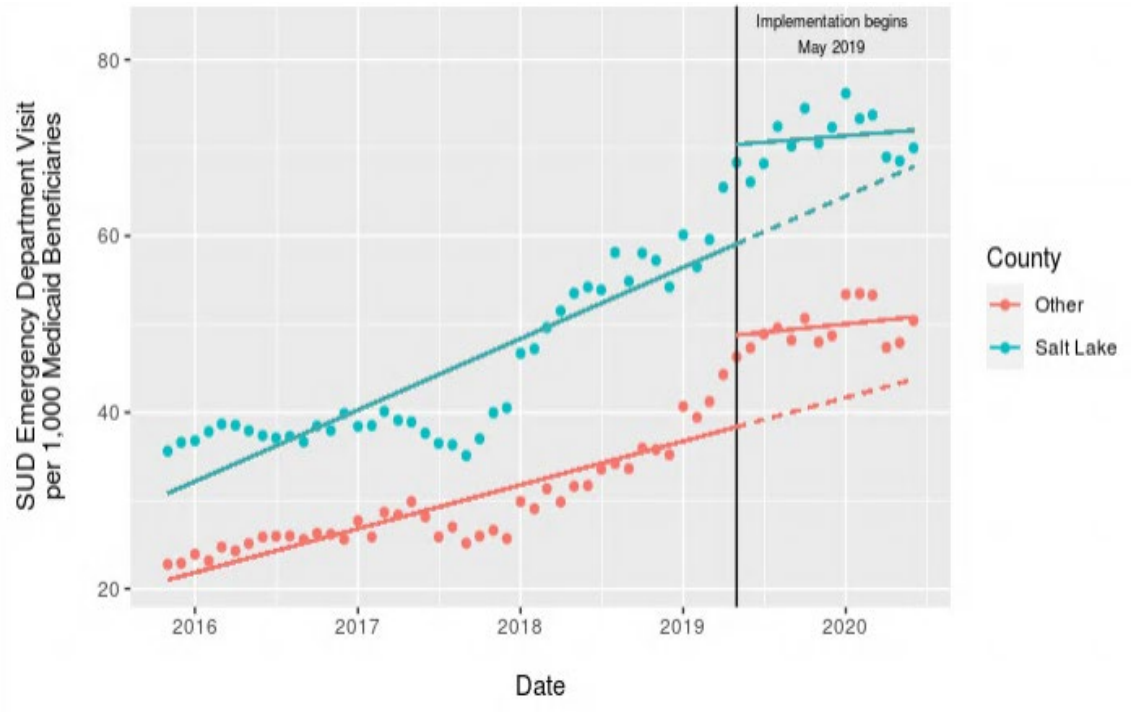
*Data only available for first 6 months of 2020.

Tables 66 and 67 above shows the rate of SUD emergency department visits per 1,000 Medicaid beneficiaries increasing each year except for 2020. However, this decrease could be due to the data only including the first six months of 2020. As shown below in Table 68, both target and comparison groups show an increase in SUD emergency department visits (31.34 per 1,000 Medicaid beneficiaries and 27.38 per 1,000 Medicaid beneficiaries, respectively). Before and after implementation, the SUD emergency department visit rate was higher in the target group compared to the comparison group. Overall, there is a 3.96 per 1,000 Medicaid beneficiaries increase in the difference of the difference for SUD emergency department visit rates in the target group compared to the comparison group. This difference was not found to be significant at the 0.05 level. Figure 12 below shows the SUD emergency department visit rate between groups from the pre-implementation period to the post-implementation period. The dotted lines represent the expected trend if there were no implementation, and the solid lines represent the observed trends for each group.

Table 68. Difference in Differences of SUD Emergency Department Visit Rates by Group and Time.

Variable	Target	Comparison	Difference
SUD ED services per 1,000 Medicaid beneficiaries before implementation	52.09	45.54	6.54
SUD ED service per 1,000 Medicaid beneficiaries after implementation	83.43	72.92	10.51
Change in SUD ED service rate	31.34	27.38	3.96

Figure 12. SUD Emergency Department Visits per 1,000 Medicaid Beneficiaries by Month and County



Will ED expenditures decrease for substance use disorder services in implementing counties?

Table 69. Distribution of SUD Emergency Department Cost per Person.

Year	SUD Emergency Department Visit	Eligible Medicaid Beneficiaries	Mean SUD ED cost per person
2015	3,619	305,140	$2,507.72
2016	11,308	397,499	$3,039.47

2017	11,365	388,166	$2,402.91
2018	13,306	374,374	$3,626.44
2019	21,436	398,535	$3,817.09
2020	17,351	356,255	$4,431.20

Table 70. Distribution of SUD Emergency Department Cost per Person.

Year	Group	SUD Emergency Department Visit	Eligible Medicaid Beneficiaries	Mean SUD ED cost per person
2015				
	Target	1,753	115,528	$2,837.62
	Comparison	1,873	190,237	$2,227.27
2016				
	Target	5,163	152,759	$3,052.29
	Comparison	6,294	252,746	$3,027.81
2017				

	Target	5,118	148,280	$3,492.57
	Comparison	6,387	247,676	$3,292.92
2018				
	Target	6,380	142,556	$3,623.54
	Comparison	7,160	239,067	$3,604.15
2019				
	Target	10,046	152,323	$3,824.02
	Comparison	11,828	254,097	$3,776.57
2020				
	Target	8,088	134,741	$4,875.97
	Comparison	9,492	225,278	$4,035.70

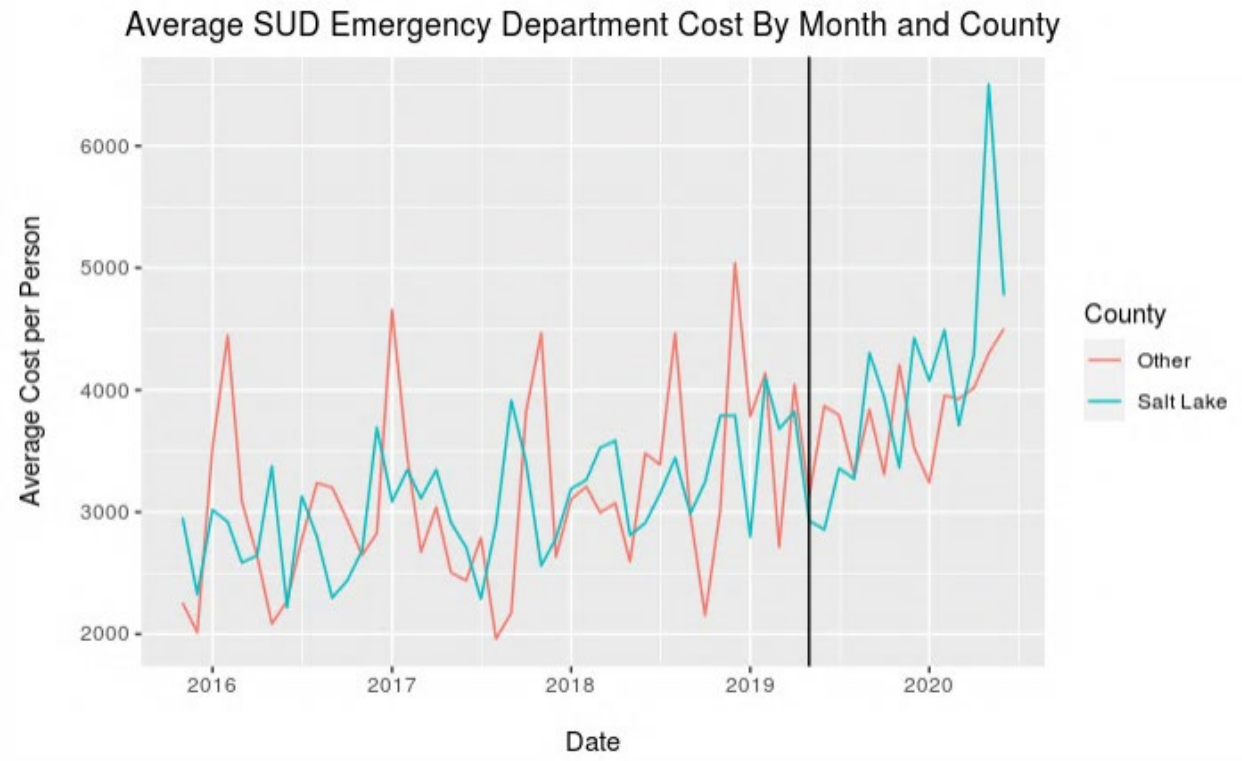
Tables 69 and 70 above shows the cost of SUD emergency department visits per person increasing each year and in each group. As shown below in Table 71, both target and comparison groups show an increase in SUD emergency department cost per person ($564.61 and $573.06, respectively). Before and after implementation, the SUD emergency department visit cost per person was higher in the target group compared to the comparison group. Overall, there is a $8.45 increase in the difference of the difference for SUD emergency department visit costs per person in the target group compared to the comparison group. This difference was not

found to be significant at the 0.05 level. Figure 13 shows the SUD emergency department visit rate between groups from the pre-implementation period to the post-implementation period.

Table 71. Difference in Differences of SUD Emergency Department Visit Cost per Person.

Variable	Target	Comparison	Difference
ED cost before implementation	$2,480.04	$2,434.13	$45.91
ED cost after implementation	$3,044.65	$3,007.19	$37.46
Change in ED cost rate	$564.61	$573.06	-$8.45

Figure 13. SUD Emergency Department Visit Costs per person by Month and County.



Will the number of inpatient hospitalization days for SUD services decrease in waiver implementing counties?

Table 72. Distribution of SUD Inpatient Stays per 1,000 Medicaid Beneficiaries.

Year	SUD Inpatient Stays	Total Eligible Members	Inpatient Stays per 1,000 Medicaid Beneficiaries
2015	570	187,737	3.0
2016	4,028	1,136,668	3.5
2017	4,023	1,125,573	3.6
2018	4,411	1,139,212	3.9
2019	7,581	1,363,102	5.6
2020*	5,020	823,170	6.1

*Data for 2020 only includes the first 6 months.

Table 73. Distribution of SUD Inpatient Stays per 1,000 Medicaid Beneficiaries by Group.

Year	Group	SUD Inpatient Stays	Total Eligible Members	Inpatient Stays per 1,000 Medicaid Beneficiaries
2015				
	Target	285	71,614	4.0

	Comparison	285	116,123	2.5
2016				
	Target	2,024	432,485	4.6
	Comparison	2,024	704,183	2.9
2017				
	Target	1,896	427,743	4.4
	Comparison	2,004	697,830	3.0
2018				
	Target	2,248	437,207	5.1
	Comparison	2,163	702,005	3.1
2019				
	Target	3,648	521,893	7.0
	Comparison	3,933	841,209	4.7
2020*				

	Target	2,381	314,677	7.6
	Comparison	2,639	508,493	5.2

*Data for 2020 only includes the first 6 months.

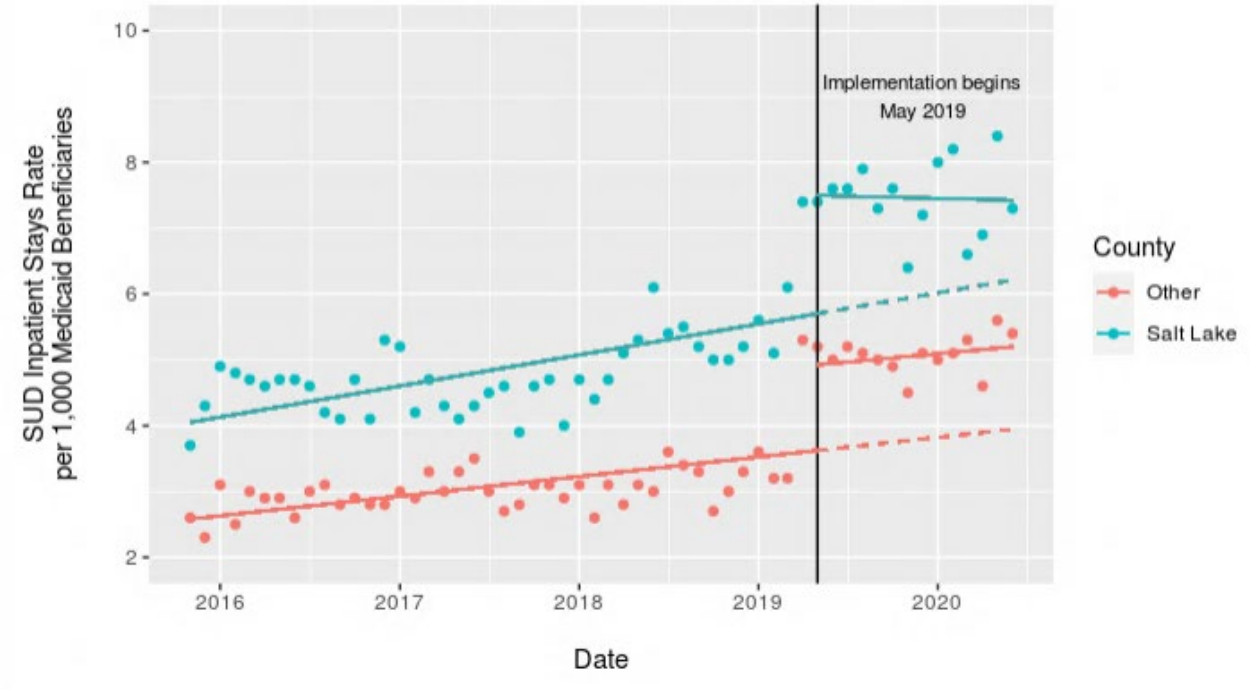
Tables 72 and 73 above shows the rate of SUD inpatient stays per 1,000 Medicaid beneficiaries increasing each year through 2019. Data for 2020 only included the first six months. As shown below in Table 74 both target and comparison groups show an increase in SUD inpatient stays (2.58 per 1,000 Medicaid beneficiaries and 1.96 per 1,000 Medicaid beneficiaries, respectively). Before and after implementation, the SUD inpatient stay rate was higher in the target group compared to the comparison group. Overall, there is a 0.63 per 1,000 Medicaid beneficiaries increase in the difference of the difference for SUD inpatient stay rates in the target group compared to the comparison group. This difference was not found to be significant at the 0.05 level. Figure 14 shows the SUD inpatient services per 1,000 Medicaid beneficiaries between groups from the pre-implementation period to the post-implementation period. The dotted lines represent the expected trend if there was no implementation, and the solid lines represent the observed trends for each group.

Table 74. Difference in Differences of SUD Inpatient Stay Rates.

Variable	Target	Comparison	Difference
SUD inpatient services per 1,000 Medicaid beneficiaries before implementation	4.88	3.10	1.77
SUD inpatient services per 1,000 Medicaid	7.46	5.06	2.40

beneficiaries after implementation			
Change in SUD inpatient services per 1,000 Medicaid beneficiaries	2.58	1.96	0.63

Figure 14. SUD Inpatient Stays per 1,000 Medicaid Beneficiaries by Month and County.



Will the number of outpatient (OP), intensive outpatient (IOP), or partial hospitalization visits for SUD services increase in Salt Lake County?

Table 75. Distribution of Outpatient Services for Eligible Members with SUD Diagnosis.

Year	SUD Outpatient Service	Eligible Members with SUD Diagnosis	Percentage
2015	1,620	3,815	42.46%
2016	5,194	11,295	45.98%
2017	5,620	11,514	48.81%
2018	7,157	13,598	52.63%
2019	12,140	22,300	54.44%
2020*	9,738	18,475	52.71%

*Data for 2020 only includes the first 6 months.

Table 76. Distribution of Outpatient Services for Eligible Members with SUD Diagnosis by Group.

Year	Group	SUD Outpatient Service	Eligible Members with SUD Diagnosis	Percentage
2015				
	Target	779	1,853	42.04%
	Comparison	841	1,962	42.86%
2016				
	Target	2,311	5,031	45.94%
	Comparison	2,883	6,264	46.02%
2017				
	Target	2,256	5,074	44.46%
	Comparison	3,364	6,440	52.24%
2018				
	Target	3,102	6,286	49.35%
	Comparison	4,055	7,312	55.46%

2019				
	Target	5,294	10,025	52.81%
	Comparison	6,846	12,275	55.77%
2020*				
	Target	4,313	8,346	51.68%
	Comparison	5,425	10,129	53.56%

*Data for 2020 only includes the first 6 months.

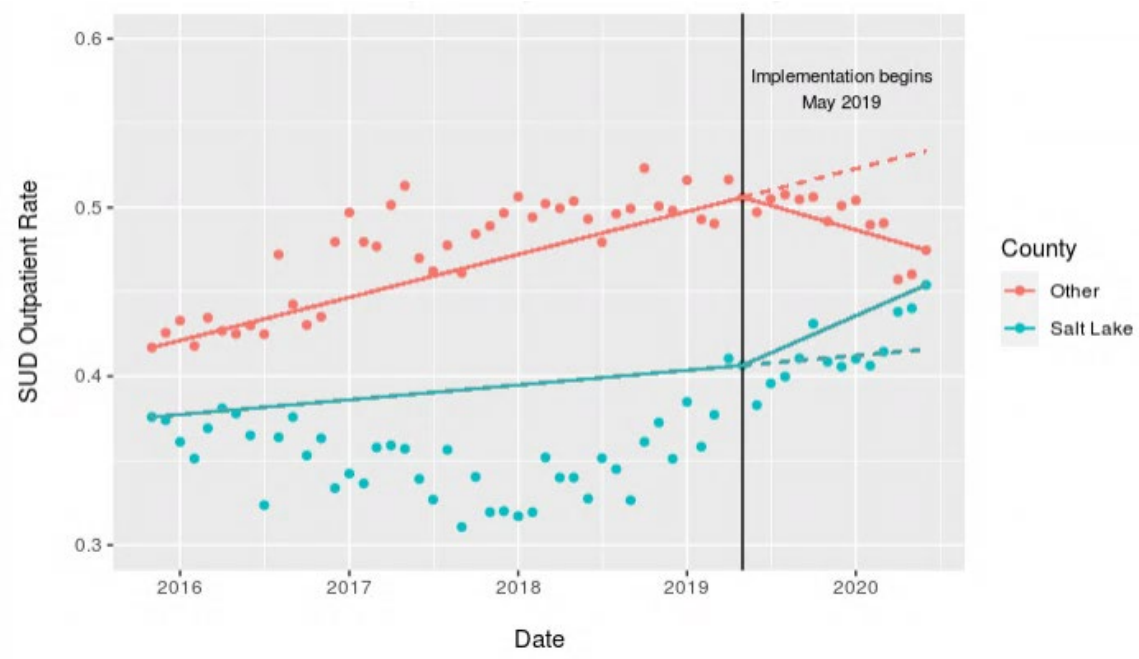
Tables 75 and 76 above shows the rate of SUD outpatient service increasing each year through 2019. Data for 2020 only included the first six months. As shown below in Table 77, both target and comparison groups show an increase in SUD outpatient services (6.27% and 1.46%, respectively). Before and after implementation, the SUD outpatient service rate was higher in the comparison group compared to the target group. Overall, there is a 4.81% increase in the difference of the difference for SUD outpatient service rates in the target group compared to the comparison group. This difference was found to be significant at the 0.05 level. Figure 15 shows the SUD outpatient service rate between groups from the pre-implementation period to the post-implementation period. The dotted lines represent the expected trend if there were no implementation, and the solid lines represent the observed trends for each group.

Table 77. Difference in Differences of SUD Inpatient Stay Rates.

Variable	Target	Comparison	Difference
SUD outpatient rate before implementation	35.48%	48.17%	-12.68%

SUD outpatient rate after implementation	41.75%	49.62%	-7.88%
Change in SUD outpatient rate	6.27%	1.46%	4.81%

Figure 15. SUD Outpatient Services by Month and County.



Additional SUD Research Question: Will the number of beneficiaries who utilize withdrawal management services increase in implementing counties?

Table 78. Distribution of SUD Withdrawal Management Services for Eligible Members with SUD Diagnosis.

Year	SUD Withdrawal Management Service	Eligible Members with SUD Diagnosis	Percentage
2015	76	3,815	1.99%
2016	310	11,295	2.74%
2017	286	11,514	2.48%
2018	296	13,598	2.18%
2019	1,153	22,300	5.17%
2020*	909	18,475	4.92%

*Data for 2020 only includes the first 6 months.

Table 79. Distribution of SUD Withdrawal Management Services for Eligible Members with SUD Diagnosis.

Year	Group	SUD Withdrawal Management Service	Eligible Members with SUD Diagnosis	Percentage
2015				
	Target	47	1,853	2.54%

	Comparison	29	1,962	2.54%
2016				
	Target	163	5,031	3.24%
	Comparison	147	6,264	2.35%
2017				
	Target	128	5,074	2.52%
	Comparison	158	6,440	2.45%
2018				
	Target	148	6,286	2.35%
	Comparison	148	7,312	2.02%
2019				
	Target	847	10,025	8.45%
	Comparison	306	12,275	2.49%
2020*				

	Target	634	8,346	7.60%
	Comparison	275	10,129	2.71%

*Data for 2020 only includes the first 6 months.

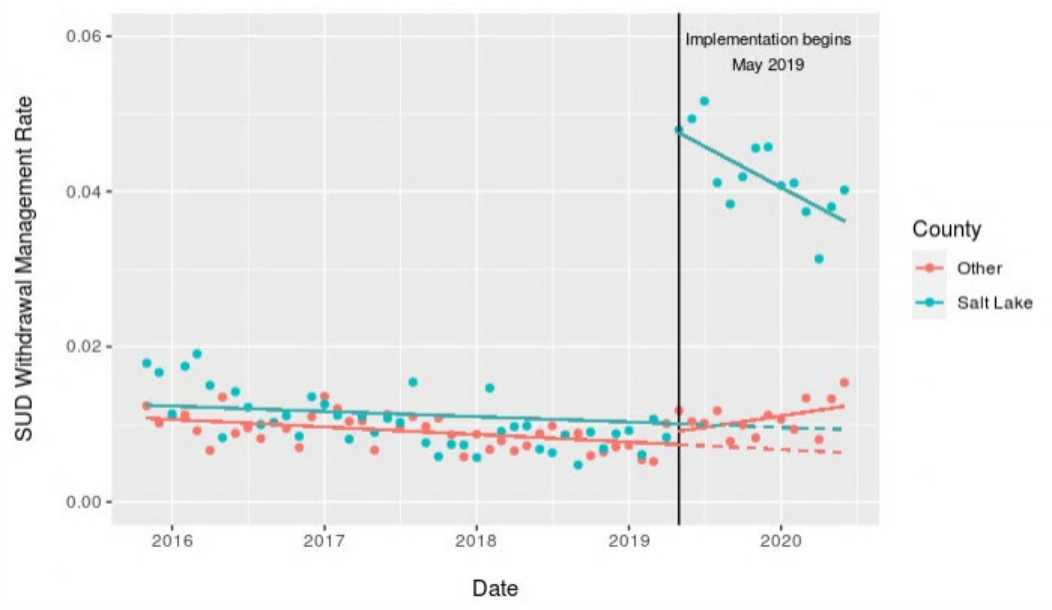
Tables 78 and 79 above shows the rate of SUD withdrawal management service increasing each year through 2019. Data for 2020 only included the first six months. As shown below in Table 80, both target and comparison groups show an increase in SUD withdrawal management services (3.08% and 0.31%, respectively). Before and after implementation, the SUD withdrawal management service rate was higher in the target group compared to the comparison group. Overall, there is a 2.78% increase in the difference of the difference for SUD withdrawal management service rates in the target group compared to the comparison group. This difference was found to be significant at the 0.05 level. Figure 16 shows the SUD withdrawal management service rate between groups from the pre-implementation period to the post-implementation period. The dotted lines represent the expected trend if there were no implementation, and the solid lines represent the observed trends for each group.

Table 80. Difference in Differences of SUD Withdrawal Management Stay Rates.

Variable	Target	Comparison	Difference
SUD withdrawal management rate before implementation	1.14%	0.81%	0.33%
SUD withdrawal management rate after implementation	3.63%	0.88%	2.75%

Change in SUD withdrawal management rate	2.49%	0.07%	2.42%

Figure 16. SUD Withdrawal Management Services by Month and County.



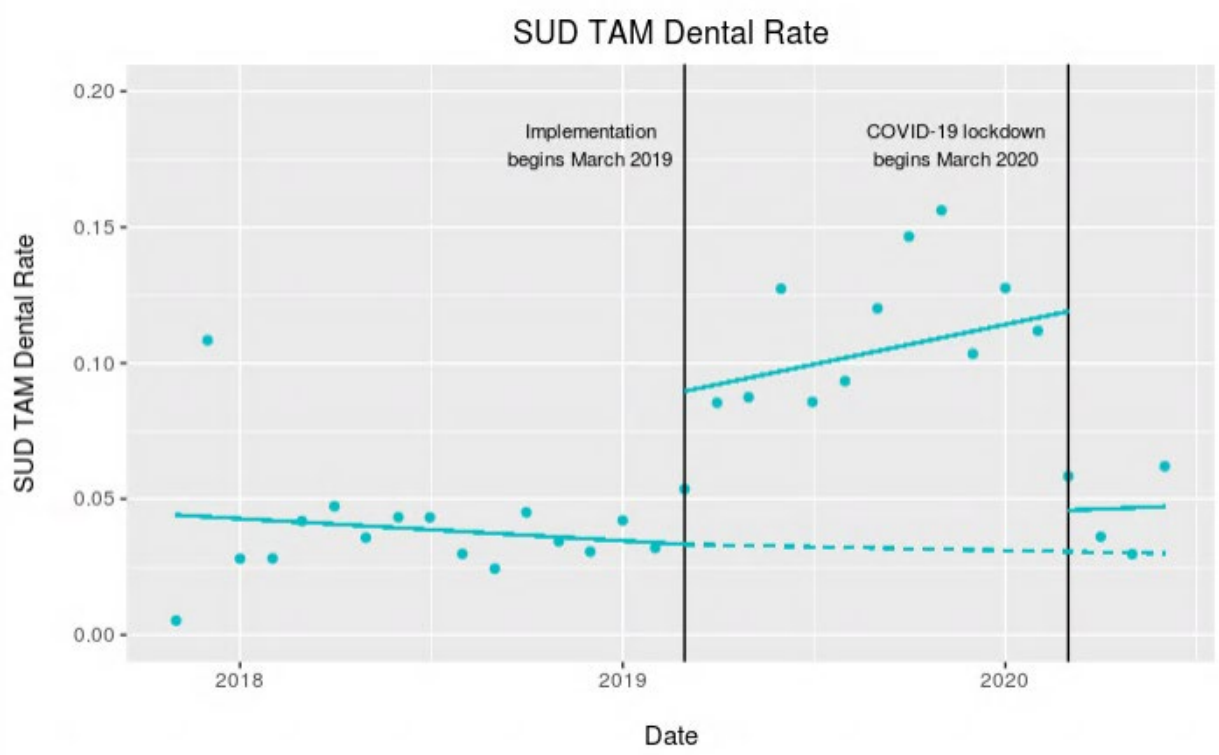
Additional Research Question: Will individuals receiving comprehensive dental treatment have a higher rate of SUD treatment completion?

Table 81: Distribution of Number of Dental Procedures and Total TAM SUD Beneficiaries.

Year	Number of Dental Procedures	Total SUD TAM Beneficiaries	Percentage
2017	32	332	9.64%
2018	434	2,831	15.33%
2019	1,893	4,441	42.63%
2020	824	3,688	22.34%

As shown above in Table 80, the number of dental procedures and the total number of SUD TAM beneficiaries increased each year with a decrease in 2020. However, this decrease could be due to the data only including the first six months of 2020. As shown below in Figure 16, the SUD TAM dental rate increased after implementation and decreased after March 2020, which could be due to the COVID-19 lockdown. The dotted line represents the expected trend if there were no implementation, and the solid lines represent the observed trends.

Fig 17: SUD TAM Dental Rate by Month.



Other Findings

UDOH Implementation Plan Monitoring

UDOH has been proactive in its efforts to collaborate with the Utah Division of Substance Abuse and Mental Health (DSAMH) and SUD service providers throughout waiver planning and implementation. For example, to strengthen and ensure state-wide capacity to implement evidence-based SUD treatment and trainings on ASAM assessment, treatment planning, and motivational interviewing have been provided several times by DSAMH. To support the waiver changes, the state established a policy requiring prior

authorization for clinically managed low-intensity residential services and included guidance for members enrolled in Pre-paid Mental Health Plan and traditional Fee-for-Service members. Further, contracts with the Pre-paid Mental Health Plans have been clarified to include the use of ASAM for placement criteria and the utilization review process. These and other implementation efforts by UDOH and collaborators at DSAMH and other SUD service providing entities began in the initial stages of demonstration roll out and have continued throughout these initial couple of years. But even with these early efforts, SUD service providers continue to report additional demand for treatment slots which creates delays for those seeking treatment.

COVID – 19 Adaptations

COVID-19 has impacted many aspects of the healthcare system, including SUD treatment services and programming. Two of the most important actions have been to quarantine beneficiaries before entering residential SUD treatment and to successfully transition outpatient individual and group therapeutic treatments from in-person to telehealth practice.

SUD Beneficiary Experience with Services

As previously described in the results section (SUD beneficiary experience with care) a beneficiary survey was conducted in the spring of 2020. Survey findings related to beneficiary understanding of the mental health and SUD service coverage provided, including service access availability, timeliness of services, and overall perceived quality of the services provided was encouraging. While beneficiary experience with care is not part of the SUD mid-point assessment of critical metrics per se, these findings do offer further evidence supporting the overall trend in positive SUD demonstration outcomes in Utah.

Conclusions

For many of the 1115 waiver hypotheses the results to date are largely preliminary, reflective of initial stages in the demonstration projects and early analysis of available data. One must take pause in making any definitive conclusions from the descriptive statistics provided here due primarily to the absence of adjustment for critical demographic and health factors in the changing enrollment populations. Tests of significance indicated by p-values, given large samples, are not meaningful at this juncture, from the standpoint of clinical significance. All conclusions are therefore tentative and await that fuller assessment in forthcoming reports in subsequent years.

These preliminary results do not yet demonstrate improved access and utilization of appropriate healthcare and associated health outcomes. Further, the reduction in costs is not yet reflected in the summary statistics associated with the demonstration populations, despite incentivizing preventive and primary care in lieu of more expensive care such as that provided in the emergency room.

Some tentative results that appear to align with affirming certain hypotheses, however, merit attention. CE enrollees, for example, had an increase in hypertension prescriptions per member diagnosed with hypertension between 2018 and 2019. Increased access to preventive care, in other words, may have contributed to this increase of quality management.

Also, there was reduced non-emergent use of the ED over the period assessed for CE enrollees that drove the reduction in overall ED among that population.

It is unclear what drove such apparent improvements. Given the longer tenure of the CE program, this may suggest that it will take some time for reduction in non-emergent use to arise among more recent programs. It would reinforce that enhanced access to care may result early on in increased ED utilization, both emergent and non-emergent, but over time, as preventive and continuous ambulatory care is improved and incentivized, such enrollees may exhibit reductions in ED use. Of course, more definitive assessments of outcomes await further experience with the program and more data.

Substantial and increased enrollment in several of the demonstrations between 2018 and 2019 also suggest that the programs are meeting significant need. This is evident among the TA demonstration, where enrollment nearly doubled during that period. Smoking cessation program utilization increased concomitantly, as did antidepressant prescriptions and primary care visitations. These results all align with the intent of the demonstration, and better assessment of such access and utilization on health outcomes and cost await longer term data analysis.

Among the BDD program, there also appears to be a substantial increase in utilization of preventive dental services that swamped a far more modest increase in ED dental services. Again, ED dental utilization may subside with longer exposure to such enhanced access.

The Utah Premium Partnership (UPP) is one program where enrollment has languished as a small number. Access to employer-provided health insurance for this low-income population is likely not substantial, and it is also possible that the incentives in the program for employers to offer such insurance is not significant enough to achieve broader success.

The results for 2020, as noted in several instances, were likely reflective of the impact of the COVID-19 pandemic and ought not to be considered at this juncture as indicative of trends. More detailed study of the effects of the pandemic of care among those enrolled in the demonstrations merit more attention.

Overall, most of the outcome measures are trending in the hypothesized direction, however as of 2018, none of the difference-in-difference models were significant which means there was no detectable impact of the demonstration on the outcomes.

For the SUD hypotheses, there were both positive and limited outcomes to date. Hypothesis 1, both Initiation and engagement of treatment had an increase in percentage over time as

hypothesized, but there was no significant change. It is possible that the IMD expansion is not yet having an impact on this outcome or other external factors could have an influence. The same may be true for all the metrics.

For Hypothesis 2, Continuity of Pharmacotherapy had an increase in percentage over time in both groups, but the difference was not significant. Continuity of pharmacotherapy for OUD has a decrease in both groups with a greater decrease in the comparison group. The difference in difference was not significant. For Any SUD treatment, there was a slight decrease in the target and a slight increase in the comparison but there were no significant changes.

For Hypothesis 3, Follow-up after ED had a decrease for 7 days and a decrease for 30 days with no significance. The rate for Inpatient stays for SUD had a small decrease that was not significant. The total number of inpatient stays decreased from 2016 to 2018 which is the desired direction, but the total eligible population also decreased so the rates stayed similar in 2018 and were not significant. This could mean that the decrease was due more to the decrease in the number of eligible individuals and that the IMDs had not yet been able to make an impact on the outcome in 2018.

For Hypothesis 4, preventative health care/ambulatory visits had an increase that was not significant. This may suggest, again, that the intervention is not yet having a detectable difference in the outcome because the demonstration policy has not been in place long enough. Bringing about population-based changes such as increasing preventive health services takes time. It is also critically important to both improving the health of individuals and reducing the overall costs of health care.

For Hypothesis 5, decreasing the rate of overdose deaths due to opioids has not been observed in both the number of deaths and rate thus far since demonstration implementation. This is likely due to the complex and multifaceted nature of opioid overdoses. These include factors such as: lack of awareness or understanding of the health risks of opioid usage on the respiratory system, overprescribing of opioids for pain relief, potential opioid drug interactions with other prescribed medications, and or alcohol or other illicit drugs. To bring about the desired reduction in opioid deaths, a well-designed implementation strategy that is tailored to address each of these factors will be required.

TAM

The rate of dental services for TAM (SUD) increased after implementation and decreased after March 2020. However, changes in dental rates could be due to other factors besides the TAM dental expansion. The COVID-19 lockdown could also account for the decrease in dental services after March 2020.

Clinically Managed Residential Withdrawal

For Hypothesis 1, emergency department utilization for SUD had an increase in rate over time in both groups which suggests there are external factors over time that have led to an increase such as Medicaid expansion or other policy changes. There was no significant difference between the target and comparison groups after the implementation of clinically managed withdrawal services which indicates that clinically managed withdrawal services have not yet led to the hypothesized decrease in emergency department utilization rates for the target group.

For Hypothesis 2, mean emergency department expenditures had an increase in cost over time in both groups with a greater increase in the comparison group. However, there was no significant difference between the target and comparison groups after the implementation of clinically managed withdrawal services which indicates that these services have not yet led to the hypothesized decrease in emergency department expenditures for the target group.

For Hypothesis 3, the number of inpatient services for SUD had an increase in percentage over time in both groups. The target group had a greater increase than the comparison group. SUD inpatient length of stay had a decrease in the target group and an increase in the comparison group. However, there was no significant difference between the target and comparison groups after the implementation of clinically managed withdrawal services which indicates that these services have not yet led to the hypothesized decrease in the number of inpatient services or the length of stay in inpatient services for the target group. For the first three hypotheses, it is possible that the reach of the program is not yet sufficient to create a detectable direct impact on the outcome, or there may be other external factors that we could not account for that may influence the outcome.

For Hypothesis 4, the number of outpatient services for SUD had an increase in percentage over time in both groups with a greater increase in the target group. This change was significant with an 4.81% increase in the difference of the differences for outpatient services in the target group compared to the comparison group. This indicates that the implementation of clinically managed withdrawal services may influence an increased utilization of outpatient services.

For Hypothesis 5, the number of withdrawal management for SUD had an increase in percentage over time in both groups with a greater increase in the target group. This change was significant with a 2.42% increase in the difference of the differences for withdrawal services in the target group compared to the comparison group. Since clinically managed withdrawal services are a component of this metric, it is intuitive that there was a significant increase in withdrawal management utilization in the target group compared to the comparison group.

For research questions related to Hypothesis 1 and 2, beneficiary experience with MH / SUD services appears to be quite positive. Most beneficiaries responding to the survey recognize there are specific services available in their community to address this specialized health care service, if needed. Of those members indicating they or a household member needed these services (in

the previous 12 months) 61% agreed they were able to obtain care “as soon as needed”. When asked to provide a rating of counseling or treatment received in the last 12 months the average rating was 6.43/10. Additionally, and perhaps the most important beneficiary finding was that respondents rated the care they received, with 62% found the counseling or treatment helped (somewhat or a lot).

Finally, supplemental monitoring metrics for this interim evaluation were largely trending positively in the direction desired, indicating UDOH is likely on-track to achieve nearly all their identified goals. Specifically, of the individual monitoring metrics, 14 were rated as “low risk” of not being achieved by the end of waiver demonstration period. Only 2 were rated “medium risk” of not being achieved, and 4 metrics were rated “high risk” of not being achieved.

In summary, although none of the waiver hypotheses demonstrated statistically significant change in the expected direction at mid-point in the demonstration, this does not mean significant progress with implementation of additional SUD services has not been achieved yet. On the contrary, there has been rapid expansion of new SUD services to many beneficiaries with significant needs. There has also been extensive programming instituted to strengthen and build a solid foundation statewide for the SUD treatment agencies and individual providers.

Interpretations, Policy Implications, and Interactions with Other State Initiatives

It is too early yet to make conclusive judgments regarding policy implications to date of the demonstrations analyzed, given the tentativeness of the results noted above in section F above. Progress in achieving enhanced and more efficient access to care, and the resultant improved health outcomes and potential reductions in cost for these low-income populations likely encounter additional barriers associated, for example, with longstanding habits, the lack of conveyance of easily digested and culturally appropriate information, stigma in the provider and broader community, and stringent demands in an often-disruptive life.

On the other hand, there is distinct evidence that when resources are made available, that the eligible population makes use of services. And, as indicated in Section F above, there is also some indication that in programs that have a longer tenure, such as CE, distinct improvements in care and outcome may be manifest, partly because of new incentives incorporated in the program.

Although there were no significant differences in the first year after the demonstration, change can be slow with systematic implementation of interventions. More time with the SUD treatment interventions will be needed to determine if the implementation of IMDs in the state are effective at improving the hypothesized outcomes. It can take a while for implementation to reach the level of fidelity where we would expect results. Treatment change can be slow when working with the high-risk SUD population. Bed space in IMDs is continuing to increase which will

improve access and may make year to year changes more detectable in the data if they are indeed effective. There is a small nominal improvement in most of the metrics from 2016 to 2018, with some indication that the rates are continuing to improve into 2019. It may be promising that the rates are moving in the hypothesized direction, even if the difference is not yet significant.

Beneficiary survey findings generally indicate a positive patient experience accessing services, doing so in a timely manner, and giving notable ratings to both the quality and helpfulness of the services received. Despite this and the changes in policy supporting expanded SUD benefits, demand for services continues to exceed treatment slots and bed availability in the State. While the collaboration between UDOH and DSAMH to strengthen the capacity of SUD treatment agencies and the professionals they employ has been key to the rapid roll out, ongoing long-term engagement between these entities and other SUD treatment agencies must continue to realize the goals of the demonstration more fully.

Lessons Learned and Recommendations

At this early stage of evaluation, the lessons learned are tentative, and therefore there are no attendant recommendations other than sustaining the 1115 Waiver demonstrations are likely worthwhile until greater experience with the programs are attained and more analysis with subsequent years of data are subject to evaluation. Given the stark impact of the COVID-19 pandemic on the health care system and upon its utilization, results from 2020 ought not to be considered indicative of trends.

In Utah, the Department of Health, Office of Health Care Statistics issued a report Preliminary COVID-19 Healthcare Trends: A Snapshot from Utah's All Payer Claims Database & Healthcare Facility Database (Updated December 2020). This report sought to highlight emerging healthcare consumption trends, utilizing insurance providers and hospitals with complete data for the entire period of analysis. They examined a wide variety of issues from telehealth to emergency department acute myocardial infarction, alcohol related disorders, and strokes. The utilization of nearly every condition saw significant decreases in March and April 2020. While these findings were not based on the experience of Medicaid beneficiaries, one specific finding related to preventive care visits and telehealth utilization demonstrated significant adoption of telehealth during the first and second quarter of 2020. This finding suggests there are further opportunities of utilizing telehealth. Similarly, behavioral health including SUD treatment quickly pivoted to utilize this technology.

Within the realm of SUD demonstration several lessons have been learned to date. First, the Utah implementation of additional SUD services could have prevented design changes by beginning collaboration with evaluators earlier in the demonstration planning process. The original evaluation design (DiD) will have to be changed to a single group longitudinal study design, because expansion of IMD facilities in the geographical location planned as a comparison site had a confounding effect on the design and analysis. The revised design will support examining

change with appropriate controls in subsequent years of the demonstration. Systematic change can often take time to see results particularly considering that IMDs were not all implemented at once and the number of beds has continued to increase throughout the duration of the demonstration. As such, one year of data may not have been enough time to detect significant changes in the analyses.

Second, based on the rapid expansion and enrollment of beneficiaries in SUD services as well as the impressive monitoring outcomes achieved to date for many of the supplemental metrics, there appears to be a need to adjust some of the demonstration goals. For example, Milestone 1. "Access to critical levels of care for OUD and other SUDs" have some metrics (e.g., #7 – early intervention, #8 – outpatient services, and #10 residential and inpatient services) with overall demonstration target goals established with a "5% increase". This goal, given the progress to date appears to be too low as all three metrics have in three years doubled and in one case tripled the original goal. Similar outcomes were also achieved in several other milestones and metrics. On the other end of the spectrum, there may also be the need to adjust and or change other target goals as achieving them may be unrealistic. An example of this would be with metric #18 whose definition changed after the first year, but the overall target waiver goal was not adjusted. A specific detailed discussion of this was included in the Supplemental Metrics section of this report.

Third, the central tenet of SUD treatment focuses on the goal of individual client behavior change. Accomplishing this goal at the individual level is a significant challenge for the most effective therapists. This is due to multiple factors including: the addictive nature of SUD, the involuntary participation of many in SUD treatment due to justice-system involvement, and other barriers that negatively impact effective treatment such as lack of jobs and inadequate housing supports for those seeking treatment.

Given these learnings, one recommendation regarding implementation of waiver policies and programs would be to have a well-developed implementation logic model for the provision of evidence-based SUD services. The logic model would serve as the key driver of all implementation efforts that focus on the policy goal and program service delivery. The logic model would also serve as a reference document to guide program implementation and monitoring efforts. Specifically, the logic model would enumerate actionable items that would ensure implementation of evidence-based practices (e.g., implementation of ASAM patient placement criteria) to fidelity. The logic model would also guide service providers to utilize fidelity checklists and other efforts to ensure other evidence-based therapeutic practices were being used by clinical staff.

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Attachment A

A.1: Initiation in Alcohol and Other Drug Dependence Treatment Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-1.0597	0.1243	-8.5234	<0.0001
Group ● 1 = target ● 0 = comparison	-0.0149	0.0700	-0.2129	0.8314
Post ● 1 = 2018 ● 0 = 2016	0.0810	0.0835	0.9698	0.3322
DiD (interaction of Group and Post)	**0.0016**	**0.0994**	**0.0162**	**0.9870**
Gender ● 1 = male ● 0 = female	0.0987	0.0474	2.0817	0.0374
Race ● 1 = white	-0.1527	0.0470	-3.2472	0.0012

• 0 = other or unknown				
Hispanic	0.0750	0.0720	1.0414	0.2977
Alcohol SUD	0.2408	0.0502	4.7971	<0.0001
Opioid SUD	0.2882	0.0488	5.9093	<0.0001
Other SUD	0.2745	0.0498	5.5090	<0.0001
Mental Health Diagnosis	-0.0107	0.0727	-0.1467	0.8834
Age	0.0049	0.0016	2.9905	0.0028

A.2: Engagement in Alcohol and Other Drug Dependence Treatment Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-0.8286	0.1983	-4.178	<0.001
Group • 1 = target • 0 = comparison	-0.3226	0.1218	-2.649	0.0081

Post ● 1 = 2018 ● 0 = 2016	0.2047	0.1370	1.494	0.1352
DiD	**0.1869**	**0.1680**	**1.112**	**0.2660**
Gender ● 1 = male ● 0 = female	0.0403	0.0825	0.488	0.6252
Race ● 1 = white ● 0 = other or unknown	-0.0175	0.0821	-0.213	0.8309
Hispanic	0.2059	0.1159	1.776	0.0758
Alcohol SUD	0.0928	0.0863	1.075	0.2821
Opioid SUD	0.3781	0.0836	4.521	<0.001
Other SUD	0.2623	0.0894	2.933	0.0034
Mental Health Diagnosis	-0.5177	0.1116	-4.637	<0.001

Age	-0.0353	0.0031	-11.355	<0.001

A.3: Continuity of Pharmacotherapy for OUD Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	0.4272	0.2806	2.32	0.1280
Group ● 1 = target ● 0 = comparison	-0.0806	0.2054	0.15	0.6948
Post ● 1 = 2018 ● 0 = 2016	-0.6338	0.2208	8.24	0.0041
DiD	**0.3281**	**0.2491**	**1.73**	**0.1879**
Gender ● 1 = male ● 0 = female	-0.0111	0.1258	0.01	0.1879
Race	0.3120	0.1178	7.02	0.0081

• 1 = white • 0 = other or unknown				
Hispanic	-0.2855	0.1885	2.29	0.1299
Alcohol SUD	-0.2505	0.2121	2.73	0.0984
Other SUD	-1.0829	0.1239	76.39	<0.0001
Mental Health Diagnosis	-0.6169	0.1247	24.48	<0.0001
Age	0.0164	0.0049	11.19	0.0008

A.4: Any SUD Treatment Service, Facility Claim, or Pharmacy Claim Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**Wald**	**Pr(>|W|)**
(Intercept)	-6.2971	0.05371	-117.25	<0.001
Group • 1 = target • 0 = comparison	0.1178	0.0453	2.60	0.0093

Post ● 1 = 2018 ● 0 = 2016	0.0216	0.0543	0.40	0.6903
Group*Post	**-0.0682**	**0.0650**	**-1.05**	**0.2939**
Gender ● 1 = male ● 0 = female	0.2058	0.0301	6.67	<0.001
Race ● 1 = white ● 0 = other or unknown	0.0656	0.0308	2.13	0.0330
Hispanic	-0.1826	0.0435	-4.20	<0.001
Alcohol SUD	6.7523	0.0618	109.28	<0.001
Opioid SUD	6.2182	0.0522	119.20	<0.001
Other SUD	6.4027	0.0501	127.87	<0.001
Mental Health Diagnosis	0.6231	0.0369	16.87	<0.001

Age	0.0051	0.0011	4.83	<0.001

A.5: Emergency Department Follow-up Within 7 Days Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-3.6150	0.5534	-6.5317	<0.0001
Group ● 1 = target ● 0 = comparison	0.0237	0.3196	0.0741	0.9409
Post ● 1 = 2018 ● 0 = 2016	-0.3896	0.4638	-0.8402	0.4008
DiD	**0.2829**	**0.5229**	**0.5411**	**0.5884**
Gender ● 1 = male ● 0 = female	0.0193	0.2166	0.0891	0.9290
Race	0.5823	0.2231	2.6107	0.0090

• 1 = white • 0 = other or unknown				
Hispanic	0.0936	0.4103	0.2280	0.8196
Opioid SUD	1.0966	0.2467	4.4460	<0.0001
Other SUD	0.0890	0.2412	0.3688	0.7123
Mental Health Diagnosis	0.5527	0.3347	1.6511	0.0987
Age	0.0145	0.0080	0.1898	0.0688

A.6: Emergency Department Follow-up Within 30 Days Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-3.5137	0.4809	-7.3069	<0.0001
Group • 1 = target • 0 = comparison	0.0567	0.2706	0.2097	0.8339

Post ● 1 = 2018 ● 0 = 2016	-0.1315	0.3633	-0.3619	0.7174
DiD	**0.0513**	**0.4165**	**0.1232**	**0.9019**
Gender ● 1 = male ● 0 = female	0.0795	0.1811	0.4389	0.6608
Race ● 1 = white ● 0 = other or unknown	0.2085	0.1804	1.1558	0.2478
Hispanic	0.2383	0.3405	0.6999	0.4840
Opioid SUD	0.8125	0.2184	3.7201	0.0002
Other SUD	0.1263	0.2025	0.6239	0.5327
Mental Health Diagnosis	0.9695	0.2973	3.2609	0.0011
Age	0.0208	0.0067	3.1187	0.0018

A.7: Inpatient Stays for SUD Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-6.6489	0.0605	-109.8601	<0.001
Group ● 1 = target ● 0 = comparison	-0.2685	0.0476	-5.6394	<0.001
Post ● 1 = 2018 ● 0 = 2016	-0.2057	0.0569	-3.6135	0.0003
DiD	**0.0487**	**0.0692**	**0.7043**	**0.4812**
Gender ● 1 = male ● 0 = female	-0.1345	0.0337	-3.9885	0.0001
Race ● 1 = white ● 0 = other or unknown	-0.1927	0.0331	-5.8279	<0.001

Hispanic	-0.1457	0.0515	-2.8298	0.0047
Alcohol SUD	3.5034	0.0420	83.3438	<0.001
Opioid SUD	2.8997	0.0380	76.2940	<0.001
Other SUD	3.2030	0.0360	88.8981	<0.001
Mental Health Diagnosis	0.9542	0.0377	25.2811	<0.001
Age	0.0293	0.0008	36.2006	<0.001

A.8: Access to Preventive/Ambulatory Health Services Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**Wald**	**Pr(>|z|)**
(Intercept)	-0.7128	0.1282	30.897	<0.001
Group ● 1 = target ● 0 = comparison	-0.0812	0.0744	1.190	0.2753
Post ● 1 = 2018	0.1948	0.0904	4.640	0.0312

• 0 = 2016				
Group*Post	**-0.0570**	**0.1066**	**0.286**	**0.5925**
Gender • 1 = male • 0 = female	-0.3036	0.0535	32.171	<0.001
Race • 1 = white • 0 = other or unknown	0.3111	0.0513	36.824	<0.001
Hispanic	0.1018	0.0852	1.426	0.2324
Alcohol SUD	-0.1375	0.0673	4.172	0.0411
Opioid SUD	0.4573	0.0654	48.941	<0.001
Other SUD	-0.3126	0.0607	26.561	<0.001
Mental Health Diagnosis	1.8117	0.0513	1245.627	<0.001
Age	0.0315	0.0021	223.789	<0.001

A.9: SUD Emergency Department Visit Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr (>|z|)**
(Intercept)	-3.3219	0.0125	-265.1204	<0.0001
Group ● 1 = target ● 0 = comparison	0.3983	0.0116	34.4264	<0.001
Post ● 1 = After implementation ● 0 = Before implementation	0.0245	0.0101	2.4319	0.0150
Time (months starting Nov 2015)	0.0050	0.0003	16.8460	<0.001
Group*Time (Interaction of Group and Time)	-0.0029	0.0004	-6.7586	<0.001
DiD (interaction of Group and Post)	**0.0256**	**0.0143**	**1.7936**	**0.0729**
Hispanic	-0.1954	0.0076	-25.8015	<0.001

• 1 = yes • 0 = no				
Age	0.0074	0.0002	46.6643	<0.001
Demonstration population: Blind/Disabled - Dental Eligible	-0.6484	0.0076	-85.1366	<0.001
Demonstration population: Current eligible CHIP Children	-12.5365	9.5791	-1.3087	0.1906
Demonstration population: Current Eligibles - PCR	-0.5219	0.0079	-66.3487	<0.001
Demonstration population: Demonstration population #3	-7.2908	1.000	-7.2904	<0.001
Demonstration population: Non-1115 waiver	-3.2939	0.0102	-321.7179	<0.001
Demonstration population: Targeted adults	1.7091	0.0086	198.4212	<0.001

A.10: SUD Inpatient Service Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-3.4558	0.0129	-267.6510	<0.001
Group ● 1 = target ● 0 = comparison	0.3895	0.0120	32.5198	<0.001
Post ● 1 = After implementation ● 0 = Before implementation	0.0297	0.0104	2.9649	0.0042
Time (months starting Nov 2015)	0.0055	0.0003	17.8598	<0.001
Group*Time (Interaction of Group and Time)	-0.0027	0.0004	-6.1814	<0.001
DiD (interaction of Group and Post)	**0.0196**	**0.0147**	**1.3359**	**0.1816**
Hispanic	-0.2226	0.0079	-28.2653	<0.001

• 1 = yes • 0 = no				
Age	0.0087	0.0002	53.0586	<0.001
Demonstration population: Blind/Disabled - Dental Eligible	-0.6600	0.0078	-84.33=223	<0.001
Demonstration population: Current eligible CHIP Children	-13.4243	15.7920	-.08501	0.3953
Demonstration population: Current Eligibles - PCR	-0.4868	0.0081	-60.4257	<0.001
Demonstration population: Demonstration population #3	-13.6603	15.2376	-0.8I<965	0.3700
Demonstration population: Non-1115 waiver	-3.2788	0.0106	-309.9731	<0.001
Demonstration population: Targeted adults	1.6995	0.0088	193.1223	<0.001

A.11: SUD Outpatient Services.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-0.2016	0.0230	-8.7595	<0.001
Group ● 1 = target ● 0 = comparison	-0.3708	0.0206	-18.0181	<0.001
Post ● 1 = After implementation ● 0 = Before implementation	-0.1234	0.0172	-7.1796	<0.001
Time (months starting Nov 2015)	0.0056	0.0005	11.0640	<0.001
Group*Time (Interaction of Group and Time)	-0.0059	0.0007	-7.8887	<0.001
DiD (interaction of Group and Post)	**0.3576**	**0.0248**	**14.4337**	**<0.001**
Gender ● 1 = male	-0.2039	0.0079	-25.6940	<0.001

• 0 = female				
Age	0.0023	0.0003	6.7124	<0.001
Demonstration population: Blind/Disabled - Dental Eligible	-0.1539	0.0138	-11.1793	<0.001
Demonstration population: Current Eligibles - PCR	0.0927	0.0142	6.5161	<0.001
Demonstration population: Non-1115 waiver	-0.0421	0.0161	-2.6185	0.0088
Demonstration population: Targeted adults	0.2057	0.0141	14.5471	<0.001

A.12. SUD Withdrawal Management Services Logistic Regression Results.

Coefficient	**Estimate**	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-4.1691	0.1008	-41.3585	<0.001
Group	0.1802	0.0963	1.8719	0.0612

• 1 = target • 0 = comparison				
Post • 1 = After implementation • 0 = Before implementation	0.2374	0.0877	2.7065	0.0068
Time (months starting Nov 2015)	-0.0099	0.0027	-3.7222	0.0002
Group*Time (Interaction of Group and Time)	0.0011	0.0035	0.3190	0.7497
DiD (interaction of Group and Post)	**1.0375**	**0.1118**	**9.2834**	**<0.001**
Gender • 1 = male • 0 = female	0.2252	0.0313	7.1952	<0.001
Age	0.0031	0.0014	2.2081	0.0272
Demonstration population:	-0.6072	0.0589	-12.4248	<0.001

Blind/Disabled - Dental Eligible				
Demonstration population: Current Eligibles - PCR	-0.3714	0.0515	-7.2079	<0.001
Demonstration population: Non-1115 waiver	-1.1692	0.0777	-15.0455	<0.001
Demonstration population: Targeted adults	-0.0800	0.0425	-1.8800	0.0601

Attachment B

2020 Utah Medicaid Beneficiary Survey

Q1.a Age How old are you (in years)?

Q1.b Reside In which state do you currently reside?

Q1.c.Enrolled Are you currently enrolled in Medicaid?

Q2 How long have you received health care through your medical plan?

Q3BRFSS Prior to being enrolled in your current medical plan, did you have other health care coverage, including health insurance, prepaid plans such as HMO's or government plans such as Medicare, or Indian Health Service?

Q4 How long were you enrolled in that coverage?

Q5BRFSS Was there a time before you were enrolled in your current medical plan when you needed to see a doctor but could not because of cost?

Q6CAHPS Prior to being enrolled in your medical plan, how would you rate your overall physical health?

Q7CAHPS Prior to being enrolled in your medical plan, how would you rate your overall mental or emotional health?

Q8CAHPS Your Health Care in the Last 6 Months: These questions ask about your own health care. Do not include care you got when you stayed overnight in a hospital. Do not include the times you went for dental care visits.

Q9 In the last 6 months, did you have an illness, injury, or condition that needed care right away in a clinic, emergency room or doctor's office?

Q10ED When you needed care right away, did you go to an emergency room?

Q11ED When you received medical treatment in the emergency room, were you required to pay a surcharge?

Q12CAHPS In the last 6 months, did you make any appointments for a check-up or routine care at a doctor's office or clinic?

Q13CAHPS In the last 6 months, not counting the times you went to an emergency room, how many times did you go to a doctor's office or clinic to get health care for yourself?

Q14CAHPS In the last 6 months, how often did you get an appointment for a check-up or routine care at a doctor's office or clinic as soon as you needed?

Q15CAHPS What number would you use to rate all your health care?

Q16BRFSS In thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

Q17BRFSS In thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Q18BRFSS During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?

Q19CAHPS Your Personal Doctor: This is someone you would see if you need a check-up, want advice about a Do you have a personal doctor?

Q20CAHPS In the last 6 months, how many times did you visit your personal doctor to get care for yourself?

Q21CAHPS In the last 6 months, how often did your personal doctor explain things in a way that was easy to understand?

Q22CAHPS In the last 6 months, how often did your personal doctor listen carefully to you?
health problem or get sick or hurt.Q23CAPHS In the last 6 months, how often did your personal doctor show respect for what you had to say?

Q24CAHPS In the last 6 months, how often did your personal doctor spend enough time with you?

Q25CAHPS What number would you use to rate your personal doctor?

Q26CAHPS Getting Dental Care: The next set of questions ask about your dental care, including any orthodontic procedures.

In the last 6 months did you make any appointments to see a dentist?

Q27CAHPS In the last 6 months, how often was it easy to get the care or treatment you needed?

Q28CAHPS In the last 6 months, how often did you get an appointment to see a dentist as soon as you needed?

Q29CAHPS What number would you use to rate the dentist or orthodontist you saw most often in the last 6 months?

Q30ECHO Your Health Plan: The next questions ask about your experience with other benefits available as part of your health care plan. For example, people can get counseling, treatment, or medicine for many different reasons, such as:

- For feeling depressed, anxious, or "stressed out"
- Personal problems (like when a loved one dies or when there are problems at work)
- Family problems (like marriage problems or when parents and children have trouble getting along)
- Needing help with drug or alcohol use
- For mental or emotional illness

Are these health care services covered as part of your health care plan?

Q31ECHO If you felt depressed, needed assistance with drug or alcohol use, or mental or emotional illness are there places in your community you could go to get the help needed?

Q32ECHO In the last 12 months, have you or a member of your household needed counseling, treatment, or medicine for depression, drug, or alcohol use, or mental or emotional illness?

Q33ECHO In the last 12 months, when you or a member of your household needed counseling, treatment, or medicine , how often were you or a family member able to see someone as soon as needed?

Q34ECHO Using any number from 0 to 10, where 0 is the worst counseling or treatment possible and 10 is the best counseling or treatment possible, what number would you use to rate all the counseling or treatment in the last 12 months?

Q35ECHO In the last 12 months, how much were you or a member of your household helped by the counseling, treatment, or medicine?

Q36CAHPS The last few questions ask about you?

In general, how would you rate your overall physical health?

Q37CAHPS In general, how would you rate your overall mental or emotional health?

Q38CAHPS Are you male or female?

Q39 What language do you mainly speak at home?

Q40CAHPS What is the highest grade or level of school you have completed?

Q41CAHPS Are you of Hispanic or Latino origin or descent?

Q42CAHPS What is your race?

Q43 Which county do you live in?

Attachment C

https://medicaid.utah.gov/Documents/pdfs/Utah%20PCN%20SUD%20evaluation%20Design%20Approval.pdf

Attachment D

Demonstration Populations, Outcomes and Measures (including procedure codes).

Demonstration Population & Hypothesis	**CE 1.** Outcome	Measure
CE-Hypothesis 1	**CE 2.**	Total copay amount=medical copay + pharmacy copay

	Average annual cost share	PMPM=Total copayment/Total enrollment months (Medicaid Claims)
	CE 3. Adults with hypertension diagnosis	Essential hypertension (ICD-10 code: I10) from NCQA
	CE 4. Pharmacy prescriptions per member per month	National drug code (NDC) in the pharmacy claims data was used to identify pharmacy prescriptions. (Medicaid Claims)
	CE 5. Hypertensive prescriptions	NDC and drug names from HEDIS https://www.ncqa.org/hedis/measures/hedis-2019-ndc-license/hedis-2019-final-ndc-lists/
PCN-Hypothesis 2a	**PCN 1.** Rate of uninsured adults in poverty in Utah	Adults in Utah under 100% of the poverty line not otherwise covered retrieved from the Utah Behavioral Risk Factor Surveillance System (BRFSS)

PCN-Hypothesis 2b	**PCN 2.** Hypertension diagnosis	Essential hypertension (ICD-10 code: I10) from NCQA
PCN-Hypothesis 3	**PCN 3.** Emergency department (ED) visit	Revenue code: 450, 451, 452, 456, 459, 981 Procedure code: 99281~99292 Place of service: 23
	PCN 4. Non-emergent ED visit	Defined from UDOH
UPP-Hypothesis 4	**UPP 1-4** Members receiving assistance obtaining employer-sponsored health insurance	List of enrollees provided from UDOH.
Targeted adults-Hypothesis 5	**TA 1.** Members receiving assistance	List of enrollees provided from UDOH.
Targeted adults-Hypothesis 6	**TA 2.** Smoking diagnosis	Smoking diagnosis, tobacco screening and cessation

		-Smoking diagnosis from CMS Chronic Conditions Data Warehouse https://www2.ccwdata.org/web/guest/condition-categories -Tobacco screening and cessation using CPT codes: 99406 and 99407 -Smoking diagnosis during outpatient visits -Outpatient visit codes from HEDIS Procedure code: 93784 93788 93790 99091 99201 99202 99203 99204 99205 99211 99212 99213 99214 99215 99241 99242 99243 99244 99245 99347 99348 99349 99350 99381 99382 99383 99384 99385 99386 99387 99391 99392 99393 99394 99395 99396 99397 99401 99402 99403 99404 99411 99412 99429 99455 99456 99483 99341 99342 99343 99344 99345 G0402 G0438 G0439 G0463 T1015 99304 99305 99306 99307 99308 99309 99310 99315 99316 99318 99324 99325 99326 99327 99328 99334 99335 99336 99337 We also used Place of Services to identify outpatient visits: 2, 3, 5, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 33, 49, 50, 71, 72
	TA 3. Antidepressant medication management	-Major depression diagnosis from CMS Chronic Conditions Data Warehouse https://www2.ccwdata.org/web/guest/condition-categories

		ICD-10: F3130 F3131 F3132 F3160 F3161 F3162 F3163 F3164 F3175 F3176 F3177 F3178 F3181 F3340 F3341 F3342 F4321 F4323 F314 F315 F3160 F320 F321 F322 F323 F324 F325 F329 F330 F331 F332 F333 F338 F339 F341 -list of antidepressant medications from HEDIS NDC https://catalog.data.gov/dataset/hypertension/resource/6f55a477-90a1-452e-8322-5bb9b5b07574 - Antidepressant medication management from HEDIS https://www.ncqa.org/hedis/measures/antidepressant-medication-management/
	TA 4. Preventive care visit	Procedure code: 99201 99202 99203 99204 99205 99211 99212 99213 99214 99215 99241 99242 99243 99244 99245 99341 99342 99343 99344 99345 99347 99348 99349 99350 99381 99382 99383 99384 99385 99386 99387 99391 99392 99393 99394 99395 99396 99397 99401 99402 99403 99404 99411 99412 99429 92002 92004 92012 92014 99304 99305 99306 99307 99308 99309 99310 99315 99316 99318 99324 99325 99326 99327 99328 99334 99335 99336

		99337 98966 98967 98968 99441 99442 99443 98969 99444 99483 G0402 G0438 G0439 G0463 T1015 S0620 S0621 Diagnosis code: Z0000 Z0001 Z0271 Z0279 Z0281 Z0282 Z0283 Z0289 Z00121 Z00129 Z003x Z005x Z008x Z020x Z021x Z022x Z023x Z024 Z025x Z026x Z029x Z761x Z762x
	Costs: smoking diagnosis, antidepressant medication, management, and preventive care visit	Reimbursed amounts.
TA -Hypothesis 7	**TA 4.** Non-emergent ED visit	ED visit Revenue code: 450, 451, 452, 456, 459, 981 Procedure code: 99281~99292 Place of service: 23 Non-emergent ED visit: Defined by UDOH
	TA 5. Cost of ED visits	Reimbursed amounts associated with ED visits.
	TA 6. Most commonly	-Primary diagnoses codes only in ED visits

	experienced diagnoses in ED and associated costs	-Reimbursed amounts associated with ED visits.
BBD-Hypothesis 9	**BDD 1.** ED dental services	CPT code: D0140
	BDD 2. ED dental care cost	Reimbursed amounts associated with ED dental visits.
	BDD 3. Utah rate of members with a preventive dental care	Retrieved from the Utah BRFSS.
	BDD 4. Preventive dental care cost	-All visits other than coded emergency dental visits. - Reimbursed amounts associated with preventive dental visits.