Cross-State Analysis of Section 1115 Substance Use Disorder Demonstration Monitoring Data

September 2022

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This report was prepared on behalf of the Centers for Medicare & Medicaid Services (CMS) as part of the Medicaid 1115 Demonstration Support Contract (contract number: HHSM-500-2014-00034I/75FCMC19F0008). Under the contract, Mathematica provides technical assistance focused on states' section 1115 demonstration monitoring and evaluation. This report presents analyses of data from states' section 1115 substance use disorder demonstration monitoring reports.

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Executive Summary

The purpose of this cross-state analysis is to support the Centers for Medicare & Medicaid Services (CMS) in monitoring the progress of Medicaid section 1115 substance use disorder (SUD) demonstrations. It presents analyses of state-submitted monitoring data to describe progress toward key SUD demonstration goals and milestones,[1] as well as other reporting topics that CMS has identified as important for monitoring. To support CMS in advancing health equity in the Medicaid program, this cross-state analysis analyzes disparities in demonstration effects for subgroups included in the state-reported monitoring data.[2]

This cross-state analysis analyzes qualitative data from 32 states and standardized monitoring metric data, from 26 states. Qualitative data are from monitoring reports received from December 2, 2021, through June 1, 2022. Metric data include all data submitted in monitoring reports by June 1, 2022.[3] As required by CMS, states have continued to submit additional data since that time, including updates to some data analyzed in this report. We conducted 2 types of quantitative analyses:

1. To analyze the effect of the demonstrations on monthly metrics, we estimated linear regressions, controlling for state, seasonality, and the coronavirus (COVID-19) pandemic.
2. To assess whether differences between years for annual metrics were likely to be attributable to normal variation, we conducted z-tests and indicated whether the differences are statistically significant.

In addition to including new data submitted in monitoring reports from December 2, 2021 through June 1, 2022, this cross-state analysis includes for the first time: (1) standardized monitoring metric data from three additional states (Idaho, Oklahoma, and Wisconsin) and (2) analyses for an additional three subpopulations (pregnant vs. non-pregnant, age [under 18 vs. 18-64 and 65 or older vs. 18-64], and beneficiaries involved in the criminal justice [CJ] system vs. those without such involvement).

For a state to be included in the regression analyses, we required a minimum of 15 months of data, with at least 6 of those months in the baseline year. For a state to be included in the analyses of annual metrics, we required at least two years of data. The data for both types of analyses need to pass a series of quality checks to be included (see Appendix Table A.1). As a result, the states included in each analysis can vary.

The next two sections provide an overview of findings and contextual background on the SUD demonstrations. Subsequent sections report on progress toward demonstration goals, the need for SUD treatment services, and progress toward the demonstration milestones.

[1] This analysis examines monitoring metrics aligned with 5 of the 6 goals outlined in the State Medicaid Director Letter (SMDL 17-003) for the SUD demonstration. The goal not addressed in the current analysis have been addressed in past analyses. This analysis also examines state progress toward the 6 milestones outlined in the letter.
[2] The subgroups are (1) beneficiaries with an opioid use disorder (OUD) diagnosis; (2) beneficiaries who are dually eligible for Medicaid and Medicare; (3) beneficiaries who are pregnant; (4) beneficiaries who have been involved in the criminal justice system[2]; (5) beneficiaries under 18 years old; and (6) beneficiaries 65 years old or older.
[3] The monitoring reports included in this cross-state analysis include data for CMS-constructed metrics representing the period from July 2017 to December 2021. Established quality measures are included for calendar years 2017 through 2020.

A. Overview of findings

Table ES.1 summarizes key findings for the SUD demonstration goals and milestones and indicates the implications of these findings for the demonstration objectives.

Table ES.1. Key findings and their alignment with demonstration objectives

Milestone or Goal[a]	Key findings	Alignment with demonstration objectives
Goal #3: Reductions in overdose deaths, particularly those due to opioids	• The rate of overdose deaths significantly increased in 8 of 10 reporting states between the last pre-COVID-19 year and the first year post COVID-19 pandemic onset.[b]	• Monitoring data suggest that **many demonstrations experienced setbacks related to this goal after the onset of the COVID-19 pandemic.**
Goal #4: Through improved access to other continuum of care services, reduced utilization of EDs and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate	• For the overall demonstration population, demonstration implementation was not associated with a significant change in ED visits or inpatient stays. • Among beneficiaries with OUD, demonstration implementation was associated with a significant decline in ED visits and inpatient stays (22.8 percent and 19.3 percent [$p < 0.05$], respectively), between the baseline and year 3 and later.	• Monitoring data suggest that **demonstrations are making progress toward this goal** for the OUD subpopulation.
Goal #5: Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate	• Not analyzed in current report. Analyzed in the March 2022 cross-state analysis.	• n.a.
Goal #6: Improved access to care for physical health conditions among beneficiaries	• The rate of ambulatory or preventive care use significantly declined in 11 of 14 states between CY 2019 and CY 2020.	• Monitoring data suggest that **many demonstrations experienced setbacks related to this goal in CY 2020**.
Milestone #1: Access to critical levels of care for OUD and other SUDs and Goal #2: Increased adherence to and retention in treatment	• Demonstrations were associated with a significant 17.1 percent increase in the number of beneficiaries using any SUD treatment between the baseline year and year 3 and later and were not associated with shifts in the share of treatment users receiving specific types of treatment between the baseline year and year 3 and later.	• Monitoring data suggest that **demonstrations are making progress toward this milestone/goal**.

Milestone or Goal[a]	Key findings	Alignment with demonstration objectives
Milestone #2: Widespread use of evidence-based, SUD-specific patient placement criteria	• States implementing Medicaid expansions during their demonstrations or adding or enhancing coverage of residential or inpatient SUD services as part of their demonstrations (beyond adding expenditure authority for services provided to residents of IMDs) generally saw increases in IMD use from baseline to the most recent reporting period. Trends in IMD use in other states were mixed. • The SMDL 17-003 indicates that states should aim for a statewide ALOS of no more than 30 days in residential treatment. ALOS exceeded 30 days only in 2 states (MN, UT).	• Monitoring data suggest that **most demonstrations are meeting ALOS expectations, but IMD use trends are mixed**.
Milestone #3: Use of nationally recognized, evidence-based SUD program standards to set provider qualifications for residential treatment facilities	• During the initial 24 months after demonstration approval, states reported varied approaches to implementing and monitoring compliance with evidence-based standards. States continued to refine and enhance compliance monitoring in later demonstration years	• Monitoring data suggest that **demonstrations are making progress toward this milestone**.
Milestone #4: Sufficient provider capacity at critical levels of care, including MAT	• Of the 19 states analyzed between the second most and most recently reported years, SUD providers per 10,000 Medicaid beneficiaries (1) increased significantly in 3 states, (2) decreased significantly in 9, and (3) did not change significantly in 7. • Of the 18 states analyzed between the second most and most recently reported years, MAT providers per 10,000 Medicaid beneficiaries (1) increased significantly in 4 states, (2) decreased significantly in 5, and (3) did not change significantly in 9. • Of the 14 declines, 10 were due to a large increase in the number of Medicaid beneficiaries, not a decline in the number of providers.	• Monitoring data suggest that **some demonstrations are making progress toward this milestone**; however, **others are not making progress** due to rising Medicaid enrollment.
Milestone #5: Implementation of comprehensive treatment and prevention strategies to address opioid abuse and OUD	• Concurrent use of opioids and benzodiazepines significantly decreased in 8 of 15 reporting states and significantly increased in 1 state between CY 2019 and CY 2020. • Among 14 states reporting data for both CY 2019 and CY 2020, use of opioids at high dosage in persons without cancer significantly changed in 6, decreasing in 3 and increasing in 3 states.	• Monitoring data suggest that **some demonstrations are making progress toward this milestone.**

Milestone or Goal[a]	Key findings	Alignment with demonstration objectives
Milestone #6: Improved care coordination and transitions between levels of care and Goal #1: Increased rates of identification, initiation, and engagement in treatment	• Between CY 2019 and CY 2020, the rate of treatment engagement for beneficiaries with OUD significantly increased in 5 of 14 states and significantly decreased in 2 states, and the rate of follow-up within 30 days of ED visit significantly increased in 6 of 17 states and significantly decreased in 2 states.	• Monitoring data suggest that **some demonstrations are making progress toward this milestone/goal.**

[a] This cross-state analysis examines monitoring metrics data for 5 of the 6 goals outlined in the State Medicaid Director Letter (SMDL 17-003) for the SUD demonstration. This analysis also examines state progress toward 5 of the 6 milestones outlined in the letter. The monitoring metrics for Goal #1 and Goal #2 overlap with those for Milestone #6 and #1, respectively.

[b] Overdose deaths are reported on an annual basis in alignment with each state's demonstration period. For each state, the first year post COVID-19 pandemic onset is the first reporting period for which at least half of the months are after March 2020, the first month of the national emergency concerning COVID-19. The last pre-COVID-19 year is the reporting period immediately prior to that year.

ALOS = average length of stay; CY = calendar year; ED = emergency department; IMD = institution for mental diseases; MAT = medication-assisted treatment; OUD = opioid use disorder; SMDL = State Medicaid Director Letter; SUD = substance use disorder.

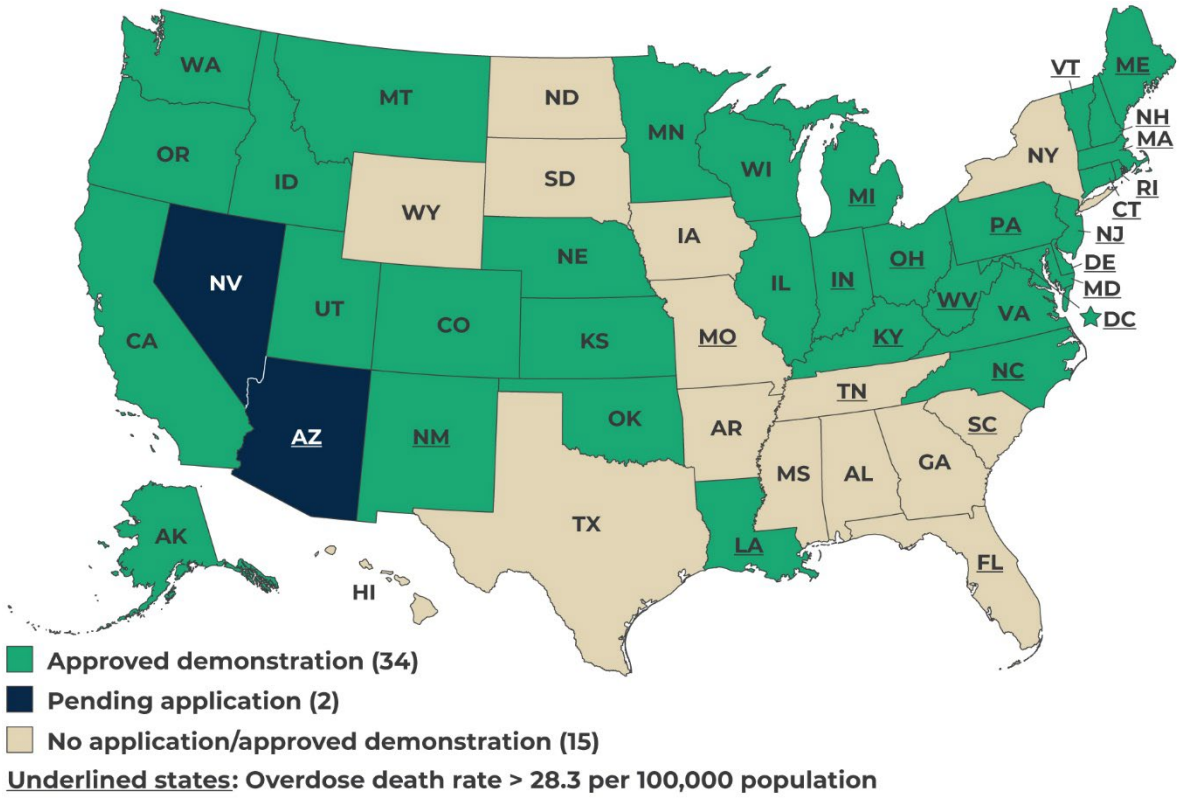
B. Overview and contextual background of the section 1115 SUD demonstrations

CMS initially announced the SUD demonstrations in July 2015 to support states in providing access to a continuum of care for beneficiaries with SUD. In November 2017, CMS announced a streamlined approach to the SUD demonstrations to accelerate states' response to the national opioid crisis by supporting improvements to SUD treatment access and quality, and requiring states undertake activities to prevent inappropriate opioid prescribing.

As of August 26, 2022, most states had either an approved demonstration (34 states) or pending application (2 states) for a SUD demonstration (Figure ES.1). Of the 24 states with an age-adjusted rate of drug overdose deaths that exceeds the national average of 28.3 per 100,000 population in 2020,[4] most have either an approved (19 states) or pending (1 state) SUD demonstration; however, 4 states have not submitted applications. SUD demonstrations and implementation plans are approved by CMS on a rolling basis once a state submits its application and implementation plan. Therefore, each state has a different demonstration start date and implementation timeline (see Appendix Table A.2).

[4] Excluding territories. The District of Columbia is included and counted with the states. Because CDC data from state monitoring reports are available for all states and the District of Columbia, we used CDC data on overdose death rates in 2020 (available at https://wonder.cdc.gov/) here instead of Overdose Deaths (rate) (Metric #27), which measures overdose deaths for the adult Medicaid population. Reported data for Metric #27 are analyzed in Section VI.

Figure ES.1. Status of SUD demonstration applications and approvals as of August 26, 2022



Source: Approved demonstrations and pending applications obtained from State Waivers List | Medicaid as of August 26, 2022. Drug overdose death rates for 2020 obtained from CDC WONDER.

Note: In underlined states, drug overdose death rates were higher than the national average in 2020 (>28.3 per 100,000 population).

C. Assessment of need and qualification for SUD services

If states are successful in increasing access to care and the continuity of care during the demonstrations, the percentage of beneficiaries with a SUD diagnosis (as indicated by a claim for treatment use) and the percentage of those with a diagnosis who receive treatment are likely to increase, at least in the short run.

Our regression analysis indicated that, across all states, demonstration implementation was associated with a significant 14 percent increase (from 37.0 to 42.3) in the percentage of Medicaid beneficiaries with a SUD diagnosis receiving treatment between the baseline year and year 3 and later.

In addition, the COVID-19 pandemic is likely to have affected rates of SUD treatment use. Our regression analysis found that beneficiaries with a SUD diagnosis in four subpopulations—dually eligible beneficiaries, beneficiaries younger than 18 years old, beneficiaries ages 65 or older, and beneficiaries involved in the CJ system—were less likely to receive SUD treatment than their comparison

subpopulation and their likelihood of receiving treatment declined post COVID-19 pandemic onset (Figure ES.2).[5]

Dually eligible vs. Medicaid only. Before the COVID-19 pandemic, beneficiaries who are dually eligible were 10 percent less likely to use treatment relative to beneficiaries eligible for Medicaid only. This figure significantly increased to 20 percent less likely post COVID-19 pandemic onset. The disparities in treatment for beneficiaries who are dually eligible may be due in part to incomplete data on treatment for these beneficiaries, as the monitoring data include only claims paid for by Medicaid; however, national estimates suggest that even with comprehensive data dually eligible beneficiaries might still be observed to receive treatment at lower rates.[6]

Age groups. Before the COVID-19 pandemic, beneficiaries under 18 years old or 65 years old or older were 40 percent and 20 percent less likely to receive treatment, respectively, relative to beneficiaries 18–64 years old. These disparities significantly increased to 50 percent and 30 percent, respectively, post COVID-19 pandemic onset. The lower rates of SUD treatment for both younger and older age groups correspond with estimates in the literature and may result from treatment facilities being unequipped to offer care aligned with the needs of these age groups.[7,8]

CJ vs. non-CJ. Because states used disparate methods to define beneficiaries involved with the CJ system, we analyzed disparities in receipt of treatment for this subpopulation separately for each state instead of using a pooled regression model. At baseline, relative to beneficiaries who were not CJ involved, beneficiaries involved with the CJ system had significantly higher rates of treatment in Ohio, similar rates of treatment in Alaska and Michigan, and significantly lower rates of treatment in all other reporting states (DC, IL, KY, LA, NJ, WA). During the demonstrations the disparity in treatment use significantly increased in 3 states, significantly decreased in 4 states, and did not change in 2 states. Ohio's higher rate of treatment may be due to the state's robust Medicaid pre-enrollment program, which ensures eligible individuals have Medicaid coverage as soon as they are released from incarceration, as well as the extended measurement period it uses to define criminal justice involvement.[9]

[5] Defined as the calendar months of May 2020 and later. April 2020 was excluded from the period post COVID-19 pandemic onset for the regression analyses because the sharp decline in SUD service use observed in April was not sustained in later months.

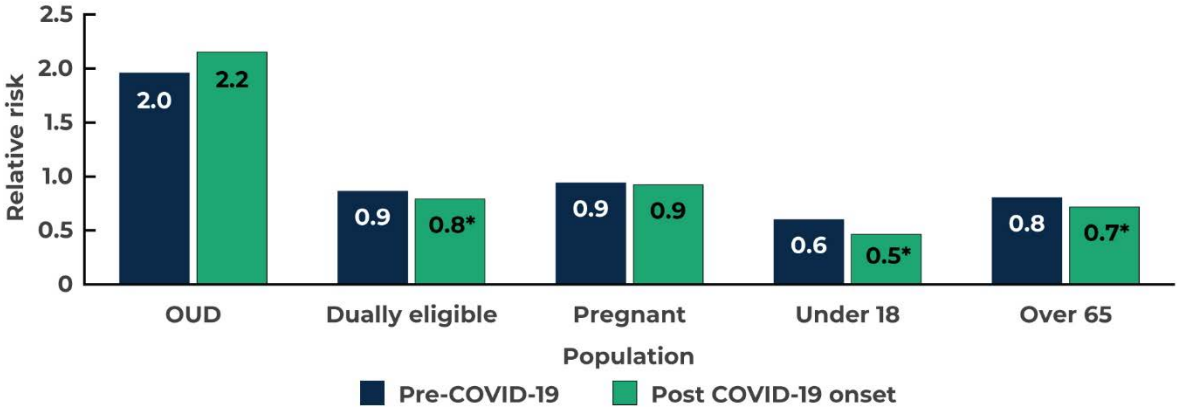
[6] See https://www.cdc.gov/mmwr/volumes/70/wr/mm7034a3.htm and https://generations.asaging.org/substance-use-disorders-older-adults-overview.

[7] Substance Abuse and Mental Health Services Administration (SAMHSA). "Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health." HHS Publication No. PEP21-07-01-003, NSDUH Series H-56. Rockville, MD: SAMHSA, Center for Behavioral Health Statistics and Quality, 2019. See Tables 5.12B and 5.19B.

[8] See https://publications.aap.org/pediatrics/article/143/2/e20182752/37310/Youth-and-the-Opioid-Epidemic, https://www.healthaffairs.org/do/10.1377/forefront.20220505.917481/ and https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/substance-use-treatment-older-adults.

[9] See https://bh.medicaid.ohio.gov/Portals/0/Providers/SUD-1115/SAC%209_25%20Meeting%20Deck%20Final.pdf?ver=pv8qMSxJXdPmI8QI-OGG2A%3D%3D and https://www.urban.org/sites/default/files/publication/88051/ohio_medicaid_1.pdf.

Figure ES.2. Predicted risk ratio of beneficiaries with a SUD diagnosis receiving treatment [(Metric #6/Metric #3) * 100] pre and post COVID-19 pandemic onset for subpopulations



Source: Metrics #3 and 6 were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: Estimates are predicted means based on linear regressions of the relative risk or ratio of the outcome rate for each subpopulation relative to its comparison population. All regression models control for demonstration year, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Medicaid Beneficiaries with a SUD Diagnosis (Metric #3) is reported monthly and counts beneficiaries with a SUD diagnosis in the measurement month and in the 11 prior months. Any SUD Treatment (Metric #6) is reported for each month.

Metrics #3 and 6 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in the SUD demonstration technical specification manual, version 3.0 (see Chapter IV for more information).

See Appendix B, Table B.1, for a list of states included in each regression.

* Difference between value prior to and post COVID-19 pandemic onset is statistically significant ($p < 0.05$) based on regression results.

Pre-COVID-19 = Months prior to April 2020; Post COVID-19 onset = Months after April 2020.

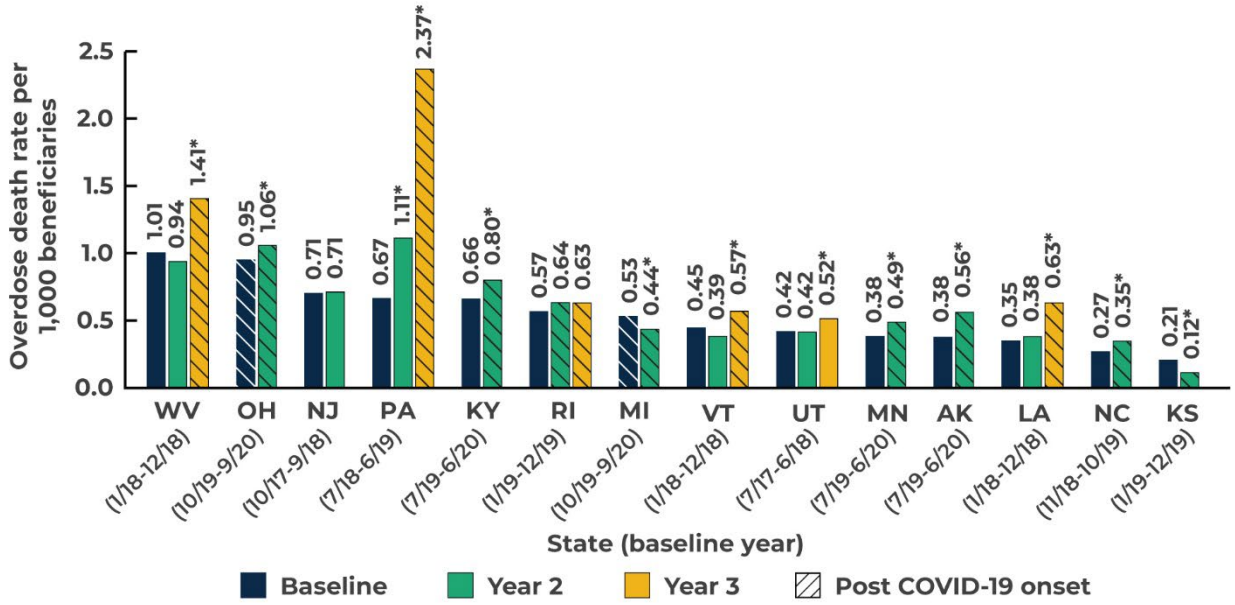
D. Progress toward demonstration goals[10]

Between CY 2019 and CY 2021, our analysis found little progress on demonstration goals #3, 4 and 6.

Overdose deaths (Goal #3). Goal #3 seeks a reduction in overdose deaths, particularly those due to opioids; however, we found, of the 10 states that reported on both a pre- and post-COVID-19 onset year (first year with at least half the months after March 2020), 8 observed a significant increase in overdose deaths in the first post-COVID-19 onset year relative to the prior year (Figure ES.3). Two states provided context in their monitoring reports. Kentucky had an increase in overdose deaths and indicated that a majority of the beneficiaries with overdose deaths had not received treatment under Medicaid. Minnesota speculated that increased overdose deaths may be attributable to reduced access to care resulting from the COVID-19 pandemic, increased drug use in shelter environments, and alteration of substances with fentanyl.

[10] Six goals are outlined in the State Medicaid Director Letter (SMDL 17-003) for the SUD demonstration. We limit our focus here to metrics related to Goal #3 (Reduction in overdose deaths, particularly those due to opioids) and Goal #5 (Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate). We selected these 2 goals because those metrics had sufficient reporting from states and were not analyzed under a milestone.

Figure ES.3. Overdose deaths (Metric #27) at baseline, year 2, and year 3, by state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metric #27, the baseline reporting period is the first year of the SUD demonstration.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Emergency department (ED) and inpatient hospital use (Goal #4). Goal #4 seeks to reduce preventable or medically inappropriate use of ED and inpatient hospital settings through improved access to other continuum of care services. Across the demonstration population overall, implementation of the demonstrations was not associated with a significant change in ED visits or inpatient stays; however, among beneficiaries with opioid use disorder (OUD), it was associated with a significant 22.8 percent decline in ED visits and a significant 19.3 percent decline in inpatient stays between the baseline and year 3 and later.[11] States did not report narrative information associated with these observed declines for the beneficiaries with OUD. However, research suggests that MAT use for OUD is associated with lower 12-month ED-visit and hospitalization rates.[12,13] Since the demonstrations have been associated with increased use of MAT, this may be contributing to the declines in ED and inpatient stays for Medicaid beneficiaries with OUD.

Access to preventive/ambulatory care (Goal #6). Goal #6 of the demonstration focuses on improving access to care for physical health conditions; however, we found that between CY 2019 and CY 2020

[11] For Metric #3, the average percent of the demonstration population with an OUD was 37.4 percent. However, there was significant variation across states. For example, under 20 percent of the demonstration population had an OUD in all months for three states (KS, NE, RI). While over 58 percent of the demonstration population had an OUD in all months for two states (VT, WA).

[12] Le, T., P. Cordial, M. Sankoe, C. Purnode, A. Parekh, T. Baker, B. Hiestand, et al. "Healthcare Use After Buprenorphine Prescription in a Community Emergency Department: A Cohort Study." *Western Journal of Emergency Medicine,* vol. 22, no. 6, September, pp. 1270–1275. doi:10.5811/westjem.2021.6.51306

[13] Mohlman, M.K., B. Tanzman, K. Finison, M. Pinette, and C. Jones. "Impact of Medication-Assisted Treatment for Opioid Addiction on Medicaid Expenditures and Health Services Utilization Rates in Vermont." *Journal of Substance Abuse Treatment,* vol. 67, no. 9, 2016, pp. 9–14. doi:10.1016/j.jsat.2016.05.002

access significantly declined in 11 of 14 states analyzed (KY, LA, MI, MN, NE, NJ, OH, PA, UT, VT, WA). Pennsylvania, the only state to provide context for its decline, noted decreased utilization of primary care during the COVID-19 public health emergency.

D. Progress toward demonstration milestones

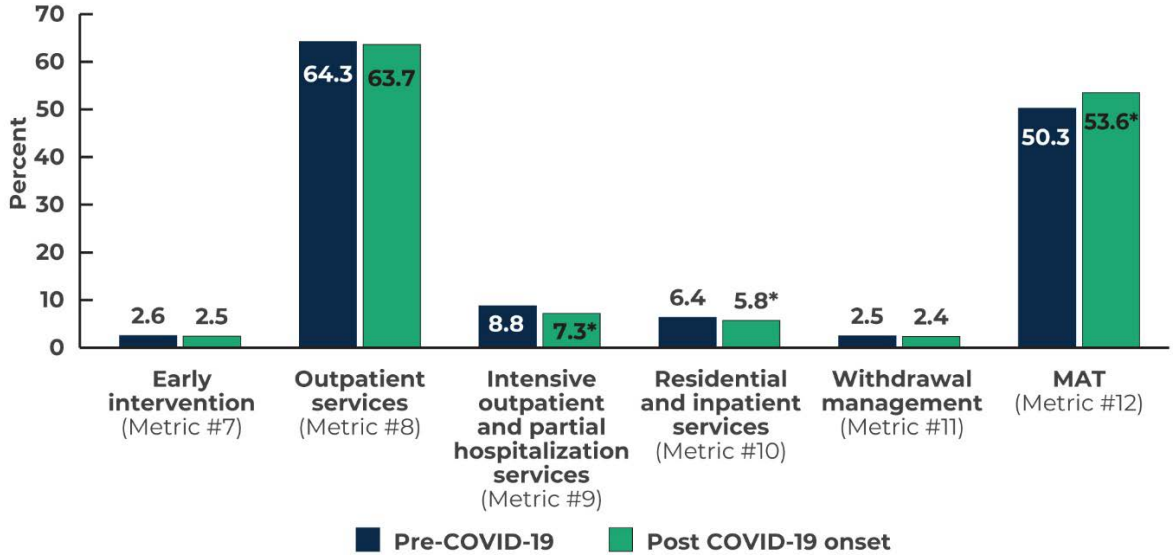
In this section, we assess progress toward each of the 6 demonstration milestones using metric and narrative data from the monitoring reports.

Milestone #1: Access to critical levels of care for OUD and other SUDs

Milestone #1 requires states to provide access to a continuum of care for OUD and other SUDs. To achieve this milestone, many participating states are implementing new coverage or making changes in coverage. However, the COVID-19 pandemic likely affected SUD treatment use and states' ability to proceed as planned with demonstration implementation activities. Thus, the analyses for this milestone address whether the demonstration periods and the post-COVID-19 pandemic onset period are associated with changes in the total number of beneficiaries using any SUD treatment and the share of beneficiaries using any SUD treatment who received each type of service.

After controlling for the COVID-19 pandemic, our regression results indicated that the demonstrations were associated with a significant 17.1 percent increase in the number of beneficiaries using any SUD treatment between the baseline year and year 3 and later (see Appendix Table B.2.e); however, they were not associated with shifts in the share of treatment users receiving specific types of treatment. In contrast, after controlling for demonstration implementation, the regression analysis found no significant change in the number of beneficiaries using any SUD treatment associated with the COVID-19 pandemic; however, the COVID-19 pandemic was associated with significant declines in the share of beneficiaries using SUD treatment who received intensive outpatient or partial hospitalization, and residential or inpatient services, as well as for significant increases in the share receiving medication-assisted treatment (MAT) (Figure ES.4).

Figure ES.4. Percentage of beneficiaries using any SUD treatment who received each type of service, prior to and post COVID-19 pandemic onset



Source: Mathematica's analysis of Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: Estimates are predicted means based on linear multiple regression models for the share of beneficiaries using any SUD treatment who received each treatment type. All regression models control for demonstration year, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Metric #8 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in the Medicaid Section 1115 SUD Demonstrations: Technical Specifications for Monitoring Metrics, versions 1.0 to 3.0 (see Chapter II for more information). Metric #7 may be underreported across states because states may not provide any coverage for early intervention services, may fund early intervention services outside of the Medicaid program, or may cover these services under their Medicaid program but the specifications for Metric #7 do not align with the billing guidelines for providers of these services within their Medicaid program.

* The difference between value prior to and post COVID-19 pandemic onset is statistically significant ($p < 0.05$) based on regression results.

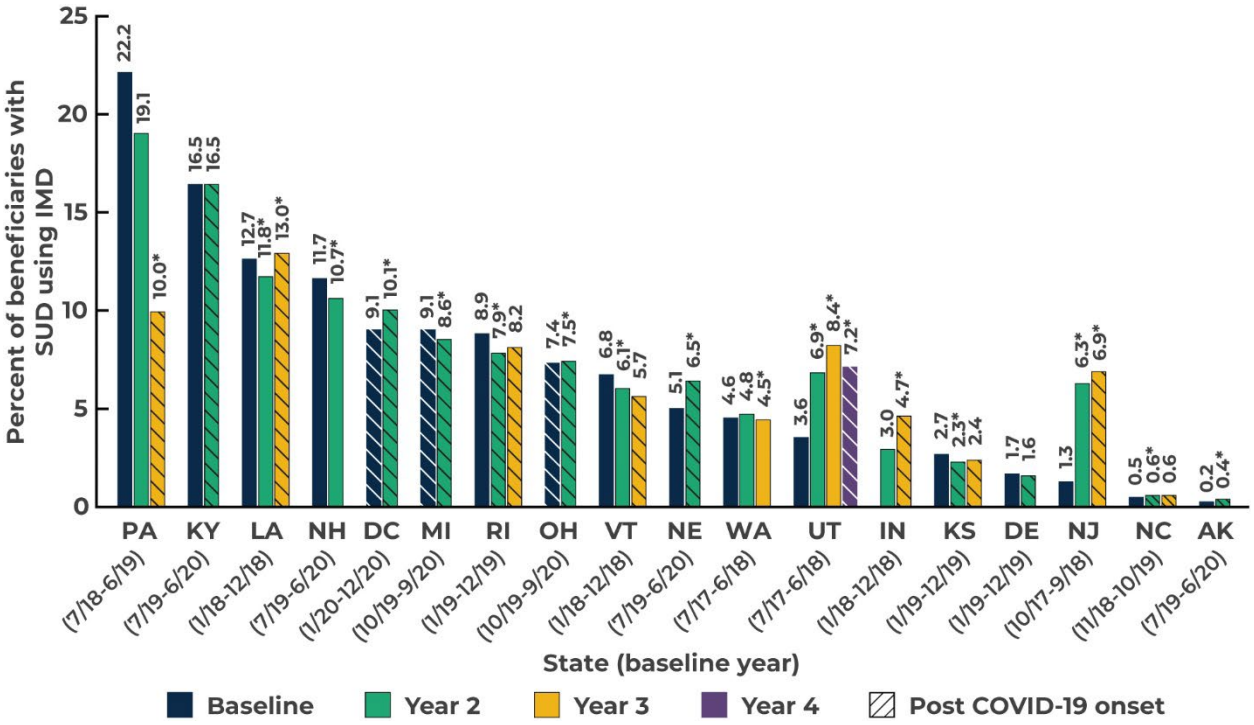
Pre-COVID-19 = Months prior to April 2020; Post COVID-19 onset = Months after April 2020.

Milestone #2: Widespread use of evidence-based, SUD-specific patient placement criteria

Milestone #2 requires states to ensure appropriate use of services in institutions for mental diseases (IMDs). Within 24 months of SUD demonstration implementation, CMS requires states to implement utilization management, and providers must assess treatment needs based on SUD-specific, multidimensional assessment tools. In this section, we analyze performance on this milestone based on the share of beneficiaries with a SUD using services in IMDs (annual Metric #5/annual Metric #4). We found use significantly changed ($p < 0.05$) between subsequent years in 16 of 18 states reporting—only Delaware and Kentucky saw no significant change. We found significant increases in 7 states, significant decreases in 7 and significant but inconsistent trends in two (Figure ES.5).

Potential drivers of these changes include Medicaid expansion and new or expanded coverage of residential levels of care during the demonstration. Of those states implementing Medicaid expansions during their demonstrations (NE, UT) or adding or enhancing coverage of residential and/or inpatient SUD services (AK, DC, IN, NC, NJ, NM, WV) as part of their demonstrations—beyond adding expenditure authority for services provided to residents of IMDs—all 7 that reported data of sufficient quality to be included in our analysis (AK, DC, IN, NC, NE, NJ, UT) saw significant increased rates of IMD use even post COVID-19 pandemic onset, while trends were mixed in the 10 other states (DE, KS, KY, LA, MI, NH, OH, PA, RI, VT) that reported data on IMD use post COVID-19 pandemic onset.

Figure ES.5. Percent of beneficiaries with a SUD using IMD services (Metric #5/Metric #4) at baseline, year 2, and year 3, by state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metrics #4 and 5, the baseline reporting period is the first year of the SUD demonstration. Variation in rates across states may result from differences in the levels of residential and inpatient care covered by Medicaid, Medicaid eligibility, and state regulations and laws affecting IMD service provision.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Milestone #3: Use of nationally recognized, evidence-based SUD program standards to set provider qualifications for residential treatment facilities

To meet Milestone #3, states must implement evidence-based standards for residential treatment provider qualifications, implement a review process to ensure compliance with these standards, and require that residential treatment facilities either offer MAT on site or facilitate access off site. There are no required metrics associated with this milestone, but states provided narrative updates. During the initial 24 months after demonstration approval, states reported varied approaches to implementing and monitoring compliance with evidence-based standards. States continued to refine and enhance compliance monitoring in later demonstration years.

Milestone #4: Sufficient provider capacity at critical levels of care, including MAT

Milestone #4 requires that states ensure sufficient provider capacity at critical levels of care (LOC), including MAT. Two monitoring metrics can support monitoring of progress in improving provider availability: (1) SUD Provider Availability (annual Metric #13) and (2) SUD Provider Availability—

MAT (annual Metric #14). To assess progress on these metrics, we analyzed trends in the rate per 10,000 beneficiaries (based on the denominator for Metric #23) for the 20 states that reported at least 2 years of data using consistent methods for either metric, 16 of which had a significant change:

- In 5 states (AK, LA, VT, WA, WV), SUD and/or MAT providers per 10,000 Medicaid beneficiaries significantly increased ($p < 0.05$) between subsequent years. For all of these states, the number of SUD and MAT providers increased overall.
- In 8 states (IN, KY, MN, NE, OH, PA, RI, UT), SUD and/or MAT providers per 10,000 beneficiaries significantly declined ($p < 0.05$) between subsequent years.
- In 3 states (MI, NC, NM) one of the two metrics, SUD or MAT providers per 10,000 beneficiaries, significantly increased and the other significantly declined.

Notably, for 8 states (IN, KY, MI, NC, NE, OH, PA, RI), although the rate per 10,000 beneficiaries decreased for at least one of two metrics, the total number of providers increased. The rate declined in these states because increases in the average monthly Medicaid population exceeded the increases in providers, likely attributable to the Families First Coronavirus Response Act (FFCRA). To help states respond to the COVID-19 pandemic, FFCRA provided for a 6.2 percentage point increase in states' federal medical assistance percentage, but only if states ensured continuous coverage for beneficiaries enrolled in Medicaid as of or after March 18, 2020, through the end of the last month of the public health emergency.[14]

Milestone #5: Implementation of comprehensive treatment and prevention strategies to address opioid abuse and OUD

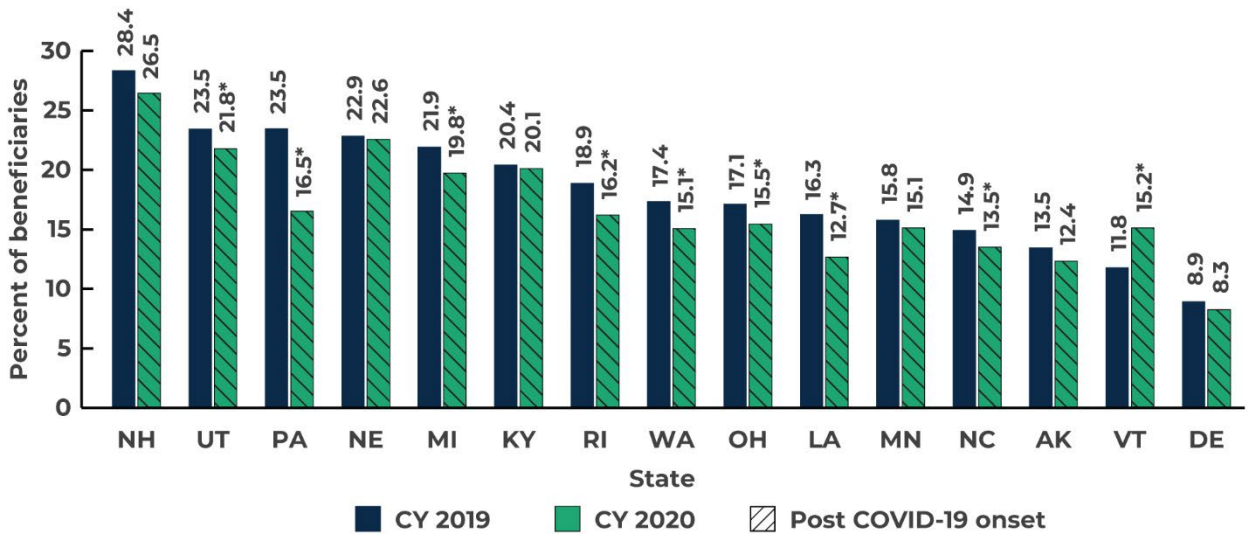
In addition to requirements for the SUD treatment system, under Milestone #5, CMS requires SUD demonstration states to undertake prevention strategies, including (1) implementing opioid prescribing guidelines to prevent opioid abuse, (2) expanding coverage of and access to naloxone, and (3) implementing strategies to increase use and improve functionality of state Prescription Drug Monitoring Program (PDMP) systems. We analyzed the trends in the 2 metrics associated with Milestone #5, (1) Concurrent Use of Opioids and Benzodiazepines (annual Metric #21) and (2) Use of Opioids at High Dosage in Persons Without Cancer (annual Metric #18):[15]

- Among the 15 states analyzed, concurrent use of prescription opioids and benzodiazepines decreased significantly in 8 states and increased significantly in 1 (Figure ES.6).
- Among the 14 states analyzed, use of opioids at high dosage in persons without cancer significantly changed ($p < 0.05$) for 6 states, decreasing in 3 (MI, UT, WA) and increasing in 3 (LA, MN, VT).

[14] See https://www.medicaid.gov/state-resource-center/downloads/covid-19-faqs.pdf (p. 114) and https://www.medicaid.gov/resources-for-states/coronavirus-disease-2019-covid-19/unwinding-and-returning-regular-operations-after-covid-19/index.html

[15] The threshold for high daily dosages decreased from 120 MME (morphine milligram equivalents) to 90 MME in the measure specifications for the use of opioids at high dosage measure between CY 2017 and CY 2018. Therefore, we analyze reported data only for CY 2018 and later so that the specifications are consistent in the values we analyze.

Figure ES.6. Concurrent use of opioids and benzodiazepines (Metric #21), CY 2019 and CY 2020



Source: Medicaid Section 1115 SUD Monitoring Report Workbook.

Note: Changes in Metric #21 specifications between years might impact the ability to directly compare the metric across years.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19

Milestone #6: Improved care coordination and transitions between levels of care

Under Milestone #6, SUD demonstration states are required to have or implement policies to ensure that residential and inpatient facilities link beneficiaries, especially those with OUD, to community-based services and supports following stays in such facilities. To assess whether states maintained care coordination between CY 2019 and CY 2020, we analyzed whether states saw increases in Engagement of Alcohol or Other Drug (AOD) Abuse or Dependence Treatment for beneficiaries with OUD (annual Metric #15[6]) in 14 states, and Follow-up within 30 days of the ED visit for AOD Abuse or Dependence (annual Metric #17[1.2]) in 17 states.

Between CY 2019 and CY 2020, among the 14 states analyzed, engagement in SUD treatment within 34 days of an initiation event for beneficiaries with OUD increased significantly in 5 states (LA, MN, OH, UT, WA) and decreased significantly in 2 (AK, NC). States did not attribute the significant changes to a specific activity; however, for Louisiana, Minnesota, and Ohio, the significant increases in the metric were partially driven by declines in the denominator (the number of new episodes of AOD abuse or dependence).

Among the 17 states analyzed, the rate of follow-up treatment within 30 days increased significantly in 6 states (KY, NH, NJ, NM, UT, WA) and decreased significantly in 2 (AK, MI) states. New Jersey reported maintaining a call center to facilitate care coordination.

E. Discussion and looking ahead

The conclusions in this report are based on monitoring metric data and narrative information submitted by states through June 1, 2022. Future analyses will include information from reports received after that date. As data for more states and demonstration periods are submitted and included in our analyses (including updates to some data analyzed in this report), our findings across states for effects associated with the demonstrations and the COVID-19 pandemic may change.

While the analyses in this report indicate substantial progress toward the milestones in many states, the findings also highlight opportunities to encourage further improvements in the following states:

- Under Milestone #4, Minnesota and Utah saw declines in the number of SUD and MAT providers and New Mexico saw declines in the number of MAT providers.
- Under Milestone #5, Minnesota saw a 6.3 percent increase in the number of beneficiaries prescribed opioids in high dosage and did not provide an explanation.
- Under Milestone #6, North Carolina was the only state with new data indicating a significant decline in the rate of engagement of SUD treatment within 34 days of initiation for beneficiaries with OUD. Likewise, Michigan was the only state that saw a decrease in follow-up within 30 days of the ED visit for AOD Abuse or Dependence and did not provide an explanation.

In addition, it is notable that on average across all states, beneficiaries younger than 18 years old, beneficiaries ages 65 or older, and beneficiaries involved in the CJ system—were less likely to receive SUD treatment than their comparison subpopulation and their likelihood of receiving treatment declined post COVID-19 pandemic onset. The lower rates of SUD treatment for both younger and older age groups correspond with estimates in the literature and may result from treatment facilities being unequipped to offer care aligned with the needs of these age groups.[16,17] Demonstration states could be encouraged to assess provider availability specifically for these age groups and develop plans for increasing access to them. Focusing on the disparity in treatment access for beneficiaries involved in the CJ system, Ohio was the only state in which this disparity was not observed. Ohio's pre-enrollment program could be assessed as a model for other states interested in addressing the disparity in access for beneficiaries involved in the CJ system.

[16] Substance Abuse and Mental Health Services Administration (SAMHSA). "Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health." HHS Publication No. PEP21-07-01-003, NSDUH Series H-56. Rockville, MD: SAMHSA, Center for Behavioral Health Statistics and Quality, 2019. See Tables 5.12B and 5.19B.

[17] See https://publications.aap.org/pediatrics/article/143/2/e20182752/37310/Youth-and-the-Opioid-Epidemic, https://www.healthaffairs.org/do/10.1377/forefront.20220505.917481/ and https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/substance-use-treatment-older-adults.

I. Introduction

The Centers for Medicare & Medicaid Services (CMS) initially announced the substance use disorder (SUD) demonstrations in July 2015 to support states in providing access to a continuum of care for beneficiaries with SUD. In November 2017, CMS announced a streamlined approach to the SUD demonstrations to accelerate states' response to the national opioid crisis by supporting improvements to SUD treatment access and quality, and requiring that states undertake activities to prevent inappropriate opioid prescribing.

The purpose of this cross-state analysis is to support CMS in monitoring Medicaid section 1115 SUD demonstration progress. It uses available state-reported monitoring data to describe progress toward key SUD demonstration goals and milestones,[18] as well as other reporting topics that CMS has identified as important for monitoring.

The cross-state analysis is one of three analytic products CMS developed that include a selection of SUD service utilization measures. The other two, both produced by the Data and Systems Group (DSG), are

1. Medicaid and CHIP services use patterns during the coronavirus (COVID-19) Public Health Emergency produced by the Medicaid and CHIP Business Information Solution (MACBIS) initiative[19], and
2. the Transformed Medicaid Statistical Information System (T-MSIS) SUD Data Book measures.[20]

The measures included in these three products differ on (1) the eligibility inclusion criteria for the beneficiary population included in the measures; (2) the types of claims and encounters used to define service utilization; (3) the measurement periods; and (4) other measure specifications, such as whether the inpatient hospital service utilization measure counts claims or stays.[21] When determining which analytic product should be used to address a specific research question or policy issue, data users should select the product that best aligns with the population, services, and time periods they plan to address.

To support CMS in advancing health equity in the Medicaid program, we analyzed disparities in demonstration effects for subgroups included in the state-reported monitoring data. These analyses can inform program improvements to advance equity in the delivery of services to populations with different health care needs and socioeconomic circumstances. The subgroup analyses focus on six groups of beneficiaries: (1) beneficiaries with an opioid use disorder (OUD) diagnosis; (2) beneficiaries who are dually eligible for Medicaid and Medicare; (3) beneficiaries who are pregnant; (4) beneficiaries who have been involved in the criminal justice system;[22] (5) beneficiaries under 18 years old; and (6) beneficiaries 65 years old or older. Some states have small numbers of beneficiaries in one or more subgroup.

[18] This analysis examines monitoring metrics aligned with 5 of the 6 goals outlined in the State Medicaid Director Letter (SMDL 17-003) for the SUD demonstration. The one goal not addressed in the current analysis was addressed in past analyses. This analysis also examines state progress toward the 6 milestones outlined in the letter.
[19] See https://www.medicaid.gov/state-resource-center/downloads/covid-19-medicaid-data-snapshot-01312022.pdf
[20] See https://www.medicaid.gov/medicaid/data-systems/downloads/2019-sud-data-book.pdf
[21] For more information, see Mathematica's memo to CMS of February 18, 2022, "Comparison of 1115 SUD demonstration, DSG COVID analytics, and SUD Data Book measures."
[22] The definition of involvement in the criminal justice population varies across states. Some states include only beneficiaries who have been recently incarcerated, whereas other states have broader definitions that include beneficiaries who were criminal court defendants within 3 years of the measurement period.

Analytic approaches are tailored to each subgroup, depending on the number of beneficiaries in the groups.

The next chapter discusses the data and methods used in this cross-state analysis. Subsequent chapters report on progress in implementing the SUD demonstration, the availability of SUD demonstration monitoring data, progress toward demonstration goals, the need for SUD treatment services, progress toward the demonstration milestones, highlights of state-specific treatment system improvements, and expectations for future monitoring report submissions. Supplemental information is provided in the appendices.

II. Data and Methods

This section discusses the data, methods, and limitations of this cross-state analysis.

A. Data

This cross-state analysis includes analyses of 2 types of monitoring data that states submitted in quarterly or annual monitoring reports:

- Qualitative data that 32 states reported from December 2, 2021, through June 1, 2022.[23]
- Standardized monitoring metric data that 26 states submitted by June 1, 2022.

As required by CMS, states have continued to submit additional data since that time, including updates to some data analyzed in this report. In the narrative section of standardized monitoring reports, states are asked to describe and explain metric trends with changes of at least two percent and are asked to provide implementation updates.[24] To put available data into context and identify key characteristics of the states' demonstrations, we use supplemental information from states' demonstration special terms and conditions and implementation plans. We also use other national and state-specific sources of information to provide context for our analyses.

We conducted a series of data quality checks on the standardized monitoring metric data (see Appendix A, Table A.1) and excluded metric data that failed any of these checks from all analyses. As discussed below, the analyses in this report only include states that have submitted data for a minimum period. Thus, a state may be included in some analyses but excluded from others because its data failed the quality checks or the state did not submit data for a specific metric for the required period. Appendix A, Table A.2, displays the period covered by the monitoring reports reviewed for this analysis and content of those reports for each state. Appendix A, Table A.3, displays the number of periods for which each state submitted monitoring data that passed quality assurance checks as of June 1, 2022.

Specifications for the standardized monitoring metrics that states are required to report for the demonstration are included in the Medicaid Section 1115 SUD Demonstrations: Technical Specifications for Monitoring Metrics. As of this analysis, version 4.0 of the specifications was the most recent version, although older monitoring reports may have used older versions of the specifications. The technical specifications are revised annually to reflect updates made by measure stewards, coding changes, and clarifications to existing specifications. These updates may cause shifts in metric trends. For example, from its inception, the SUD demonstration technical specifications manual has included codes for telephone visits and digital evaluation and management services for some metrics, as appropriate to the metric (see Appendix A, Table A.4). Use of these services expanded rapidly post COVID-19 pandemic onset.[25] Six codes for telehealth and online assessment services (G0071, G2010, G2012, G2061–G2063) were added to the codes for developing select metrics in version 4 of the technical specifications, released

[23] Previous cross-state analyses analyzed qualitative data submitted prior to December 2, 2021. For example, the cross-state analysis submitted in March 2022 analyzed qualitative data submitted from June 2, 2021, through December 1, 2021.

[24] "Implementation updates" are defined as changes to demonstration design and operational details since submitting original implementation plans. However, many states also provide broader implementation updates, including updates about activities that are consistent with initial implementation plans.

[25] See https://mental.jmir.org/2021/2/e25835/.

in September 2021. Only data submitted by states following this release will include the services these codes represent.

B. Methods

For each chapter in this cross-state analysis, we focus on select findings that may be the most valuable to CMS and states for program improvement. We assessed the value of the findings based on the dimensions summarized in Table II.1, giving priority to findings not presented in prior cross-state analyses. Thus, although the figures in each chapter include all the states that reported data that met the criteria for the analysis, the discussion may highlight select states and findings. Across the analyses included in this report, where statistical test results are reported, a 95 percent confidence threshold is used to determine the statistical significance of the findings.

Table II.1. Dimensions and criteria to determine the value of findings for program improvement

Dimension	Criteria
Strength of analytic findings	• Confidence in data quality, consistency, and methods • Number of states, observations per state, and size of analytic population in each state • Statistical significance of finding when significance has been tested
Availability of information on context and contributing factors	• Availability of narrative in state monitoring reports on context and factors related to the findings • Availability of information providing context on the finding from a reliable source other than state monitoring reports (such as a website or report sponsored by the state or another reliable source identified in a brief Internet search)
Identification of barrier or facilitator to achieving milestone or goal	• Obstacle to achieving implementation objectives in more than 1 state • Policy or programmatic change made in more than 1 state that may be supporting achievement of milestones or goals
Identification of differences for beneficiaries between subpopulations	• Substantial differences between subpopulations in baseline metric values • Statistically significant changes in metric values associated with the demonstration for subpopulations • Statistically significant changes in the disparity in outcome between subpopulations

The last dimension focuses on differences between subpopulations. The six subpopulation categories included in the demonstration monitoring reports are:

- **Dually eligible vs. Medicaid only.** Beneficiaries with a SUD who were dually enrolled in Medicaid and Medicare (dually eligible) versus beneficiaries with a SUD who were enrolled in Medicaid only.
- **OUD vs. non-OUD.** Beneficiaries with an OUD diagnosis in the reporting period (OUD) vs. beneficiaries with other SUD diagnoses who were not in the first group (non-OUD).
- **Pregnant vs. non-pregnant**. Beneficiaries with a SUD diagnosis and an eligibility group or claim indicating pregnancy (pregnant) vs. beneficiaries with a SUD diagnosis who were not in the first group (non-pregnant).
- **Under 18 years old.** Beneficiaries with a SUD diagnosis who are under 18 years old compared with those 18–64 years old.

- **Age 65 years old or older.** Beneficiaries with a SUD diagnosis who are 65 years old or older compared with those 18–64 years old
- **CJ vs. non-CJ.** Beneficiaries with a SUD who were involved with the criminal justice (CJ) system versus beneficiaries with a SUD who were not involved with the CJ system.

Subpopulation analyses are conducted only for the limited set of metrics for which states are required to report subpopulation data. The SUD demonstration technical specifications manual provides guidance to states on the specifications for identifying the beneficiaries and the periods of their Medicaid enrollment that should be classified in each subpopulation category. However, there is variation in the methods used across states due to issues such as data availability and features of the state's reimbursement coding. Appendix A, Table A.5, provides more information on this variation.

We assess the disparity between subpopulations based on relative risks calculated by dividing the rate for one subpopulation by that of its counterpart. For example, if 25 percent of beneficiaries with an SUD in one subpopulation receive treatment and 50 percent receive treatment in its counterpart, the relative risk for the subpopulation would be 0.5.

The methods for each type of analysis we conducted are described in the next 3 sections. Afterward, we discuss the limitations of our analyses.

1. Analyses of annual metrics

For annual metrics, we limited our analysis to states that reported data for at least 2 years. We assessed whether there were substantial differences between subsequent years for the same state. We considered whether reported values represent periods during the COVID-19 pandemic and how the pandemic may have affected the metric's value. For these analyses, we considered periods during the COVID-19 pandemic to be months later than March 2020, the month in which the national emergency related to the COVID-19 pandemic began. For metrics defined as proportions, we conducted z-tests to determine, for each state, whether the differences between the proportions for subsequent years were significantly different.[26] We conducted the z-tests under the assumption that each proportion is normally distributed for the beneficiaries in the demonstration population for each state. We also conducted state-level significance testing (using two-sided z-tests) for subpopulations for the annual metrics for which states reported subpopulation data.

2. Analyses of monthly metrics

For monthly metrics with sufficient data, we conducted separate linear regressions for each metric to assess whether differences in the values between baseline and later demonstration years were statistically significant. When data were available for fewer states than needed for regression analyses, we conducted state-level z-tests to assess the statistical significance between demonstration years at the state level. Table II.2 details the thresholds used to determine the analysis methods based on data availability

We conducted regressions and/or state-level z-tests for monthly metrics reported for the overall demonstration population and for 5 of the 6 subpopulations included in the monitoring reports. For the sixth subpopulation category, beneficiaries who were involved with the CJ system, we conducted only

[26] We assume the indicators represented in each proportion are drawn from a binomial distribution, and thus we estimate the standard deviation on the basis of the population size and the probability the indicator is 1. We did not conduct significance testing for annual metrics that are not defined as proportions.

state-level z-tests because the approach used to define the beneficiaries involved with the CJ system varied substantially across states, such that the characteristics of beneficiaries reflected in a pooled measure could not be consistently defined. Table II.3 identifies the metrics for which we conducted regressions for each subpopulation category.

Table II.2. Analysis methods for monthly metrics, by type

	Cross-state regressions	State-level z-tests
Overview of approach	• Cross-state regression models that estimate the effect of the demonstration on each outcome, controlling for COVID-19 pandemic, seasonality, and state. • For each subpopulation analysis, estimated 2 sets of regressions: (1) a set in which each outcome is the dependent variable and (2) a set in which relative risk of each outcome for the subpopulation of interest is the dependent variable. In the first set, the regressions included additional variables for subpopulation and interaction terms between the subpopulation indicator and the other independent variables. • For each set of regressions, estimated the average predicted value for each demonstration year and tested whether the difference between these values in the baseline and each subsequent demonstration year were statistically significant. • For subpopulations, when states included in the regressions had average monthly cell sizes less than 100 and greater than 75, conducted sensitivity tests to determine whether excluding these states affected the direction or statistical significance of the effects associated with the demonstration period.	• Conducted z-tests to determine, for each state, whether the differences between the proportions for subsequent years were significantly different. • For each subpopulation analysis, conducted a separate two-sided z-test to determine whether the difference between subsequent demonstration years in the mean of the outcome measure was statistically significant for (1) each outcome measure for each subpopulation and (2) relative risk for each outcome for the subpopulation of interest.
Requirements for a measure to be assessed through the analysis method	To be assessed, needed at least 7 states: **1.** With an average of 75 or more beneficiaries per month in the numerator for the population or each subpopulation of interest, and **2.** With at least 15 months of data with no quality issues, and at least 6 months must be in the baseline year, and **3.** Not otherwise excluded from the analysis due to substantial exogenous changes unrelated to the demonstration during the analysis period (for example, a Medicaid expansion) or data quality issues, and And, for subpopulations, additionally: **4.** Have generally consistent methods across states to define the subpopulation categories.[a]	To be assessed, needed at least 4 states not included in cross-state regressions for the measure for the same population or subpopulation analysis: **1.** With an average of 75 or more beneficiaries per month in the numerator for the population or each subpopulation of interest, and **2.** With at least 15 months of data with no quality issues, and at least 6 months must be in the baseline year, and **3.** Not otherwise excluded from the analysis due to data quality issues.

[a] The approach used to define beneficiaries involved with the CJ system varied substantially across states, such that the population reflected in a pooled measure could not be well-defined. As a result, we conducted only state-level significance tests for this subpopulation category. Methods for developing other subpopulation categories are more consistent across states. Therefore, we conducted regressions for all other subpopulation categories.

Table II.3. Populations for which regression analyses were conducted, by dependent variable

Regression dependent variable	Population
Chapter V. Assessment of need and qualification for SUD services	
• Percent of adult Medicaid beneficiaries with a SUD diagnosis (Metric #3/Total adult Medicaid enrollment [monthly] * 100)[a]	– Demonstration
• Percent of beneficiaries with a SUD diagnosis receiving treatment (Metric #6/Metric #3 * 100)	– Demonstration – Dually eligible vs. Medicaid only – OUD vs non-OUD – Pregnant vs. non-pregnant – Age (under 18 vs. 18–64; 65 or older vs. 18–64)
Chapter VI. Metrics associated with demonstration goals[b]	
• Metric #23 (monthly rate): Emergency department (ED) visits for SUD per 1,000 Medicaid beneficiaries • Metric #24 (monthly rate): Inpatient stays for SUD per 1,000 Medicaid beneficiaries	– Demonstration – OUD vs. non-OUD – Age (under 18 vs. 18–64; 65 or older vs. 18–64)
Chapter VII.A. Milestone #1: Access to critical levels of care for OUD and other SUDs	
• Number of beneficiaries using any SUD treatment (monthly Metric #6) • Percent of SUD treatment users who use early intervention services (monthly Metric #7/Metric #6) • Percent of SUD treatment users who use outpatient services (monthly Metric #8/Metric #6) • Percent of SUD treatment users who use intensive outpatient/partial hospitalization services (monthly Metric #9/Metric #6) • Percent of SUD treatment users who use residential or inpatient services (monthly Metric #10/Metric #6) • Percent of SUD treatment users who use withdrawal management services (monthly Metric #11/Metric #6) • Percent of SUD treatment users who use medication-assisted treatment (MAT) (monthly Metric #12/Metric #6)	– Demonstration – Dual vs. Medicaid only – OUD vs. non-OUD – Pregnant vs. non-pregnant – Age (under 18 vs. 18–64; 65 or older vs. 18–64)

[a] Calculated by dividing the number of Medicaid beneficiaries with a SUD diagnosis (Metric #3) by the total number of adult Medicaid enrollees (Metric #23 demonstration denominator minus Metric #23 denominator for beneficiaries under age 18) and multiplying the result by 100. This metric was not calculated for subpopulations because the denominator is not available by subpopulation.

[b] States do not report Metrics #23 and 24 for the remaining subpopulations (dually eligible, pregnant, and CJ). Therefore, subpopulation analyses were not conducted for these subpopulation categories for these measures.

The variables included in each regression model are listed in Table II.4, below, and described in more detail here:

- **Demonstration period.** The key independent variable of interest in the regressions is the demonstration period, which we divided into baseline, year 2, and year 3 and later.[27]

[27] Year 4 was combined with Year 3 because most states have not reported any data for Year 4. Of the 19 states included in at least 1 regression, only 7 states (IL, LA, NH, NJ, VT, WA, WV) have any data in year 4, and only 5 had data for at least 6 months of the year.

- **COVID-19 pandemic period.** Because many states reported beneficiary hesitancy to receive SUD treatment and provider or government actions that altered access to SUD care associated with the COVID-19 pandemic, we included an indicator of the calendar periods associated with the COVID-19 pandemic onset:
  - *Before the COVID-19 pandemic.* This period is defined as time periods prior to April 2020.[28]
  - *April 2020.* This period is defined as the calendar month April 2020. Review of monitoring data trends found sharp declines in treatment service use in April 2020 for many service types. Because this month had much more substantial declines relative to later months, we included a separate indicator for this month in the regressions.
  - *Post COVID-19 pandemic onset.* This period is defined as the calendar period from May 2020 onward.[29]
- **Months since March 2020.** Medicaid enrollment increased substantially from March 2020 onward, likely as a result of increased unemployment and federal incentives to maintain beneficiary enrollment during the COVID-19 pandemic (see Chapter IV). The increase in Medicaid enrollment substantially decreased the value of measures for which the denominator is total Medicaid enrollment: (1) Percent of adult Medicaid beneficiaries with a SUD diagnosis, (2) ED visits for SUD per 1,000 Medicaid beneficiaries, and (3) inpatient stays for SUD per 1,000 Medicaid beneficiaries. These decreases may have occurred because those enrolled in Medicaid because of the COVID-19 pandemic are on average healthier than traditional Medicaid beneficiaries.[30] Thus, in addition to the COVID-19 pandemic period indicator, which captures general changes in service use associated with the pandemic, regression models for these three dependent variables included a count of the number of months since March 2020 to control for the gradual increase in total Medicaid enrollment.
- **Seasonality.** An indicator for the calendar month was included to control for variation in the use of and need for SUD treatment services during the year, as some literature indicates seasonal patterns in alcohol consumption and mental health disorders, which may affect SUD treatment in individuals with comorbid mental health and SUD treatment needs.[31]
- **State indicators.** Indicators for each state were included. The state indicators controlled for variation that might result from varying state Medicaid policies, SUD treatment systems, beneficiary needs, or other factors.
- **Subpopulation indicators.** Indicators for the subpopulation represented by each observation (OUD vs. non-OUD, dually eligible vs. Medicaid only, pregnant vs. non-pregnant, CJ vs. non-CJ, and age group) were included in relevant subpopulation regressions.[32]
- **Interaction terms.** The subpopulation regression models include interaction terms between the subpopulation indicator and each of the other independent variables in the regression to allow each variable to have a different effect on each subpopulation.

We adjusted the standard errors for all models for the clustering of observations by state.

[28] The national emergency associated with the COVID-19 pandemic began in March 2020.
[29] Review of trends in the SUD demonstration monitoring data indicated treatment use increased from April to May 2020, but from May to the last month for which data were reported (December 2021), remained below pre-pandemic levels for some metrics, with no other consistent pattern.
[30] See https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-07027-6.
[31] See https://www.sciencedirect.com/science/article/pii/S0165178100001402.
[32] Subpopulation indicators were not included in the relative risk regressions.

The regression models for the overall demonstration population and each of the subpopulations vary on how an observation is defined and on the independent variables included in the model (Table II.4). As submitted in the monitoring reports, each observation in the regressions represents the value of the metric aggregated across all beneficiaries in a specific population (for example, all beneficiaries participating in the demonstration or beneficiaries with OUD) for a specific state and month. Each observation receives equal weight.

Based on the cross-state regression models, we estimated the average predicted value for each outcome measure for each demonstration period (baseline, year 2, and year 3 and later) and tested whether the difference between the predicted value for each demonstration year and the baseline year was statistically significant. For the overall demonstration population, we calculated the predicted means at the mean for the observations included in the model for all regression variables other than the demonstration year. For the subpopulation regression models, the predicted means are calculated at the mean for all observations included in the model that represent the subpopulation of interest.[33] Likewise, for each regression model we estimated the predicted value for each measure for the COVID-19 periods (prior to the COVID-19 pandemic, April 2020, and post COVID-19 pandemic onset) and tested whether the differences between the predicted value for the period prior to the COVID-19 pandemic and April 2020 and the period post COVID-19 pandemic onset and prior to the COVID-19 pandemic are statistically significant. Results for all models are reported in Appendix B.

Specific states were excluded from regression analyses when their experience was affected by exogenous factors or measurement issues:

- Nebraska and Utah were excluded from all regressions because their monthly rates were affected by Medicaid expansions.[34]
- Washington was excluded from any regression analyses for which the calculation of the outcome measure includes Medicaid Beneficiaries with a SUD Diagnosis (monthly Metric #3) because it reported a large increase in this metric during its baseline year, when it integrated physical and behavioral health care. Because of this policy change, Washington's experience does not align with the experience we expected on average in demonstration states.
- Four states (DE, OH, RI, WV) were excluded from regressions for the Percentage of Medicaid beneficiaries with a SUD diagnosis who received treatment (monthly Metric #6/Metric #3 * 100) for the subpopulation of beneficiaries with OUD because of the high rates of treatment use reported by these states for beneficiaries with OUD. Treatment rates for beneficiaries with OUD were an average of 95 percent or higher in these states. Version 5 of the technical specifications for Metric #3 clarified that beneficiaries with a claim indicating an OUD diagnosis in the measurement month or the 11 months prior to the measurement month should be counted. The high rates in these states may indicate that they used claims only in the measurement month to identify beneficiaries with OUD for Metric #3 instead of using the measurement month and the 11 prior months.[35]

[33] Estimates are generated using the LSMEANS statement in the GENMOD procedure in SAS software.
[34] Nebraska's Medicaid expansion was effective October 1, 2020, and Utah's was implemented in 2 phases. Effective April 2019, Utah expanded Medicaid eligibility to include all adults 19 to 64 with income up to the poverty level, and effective January 2020, the income threshold was increased to 138 percent of the poverty level.
[35] The technical specifications for Metric #6 require counting beneficiaries with a claim for an OUD treatment in the measurement month. Meanwhile, the specifications for Metric #3 require counting beneficiaries with a claim for an OUD diagnosis in the measurement month and the 11 months prior to the measurement month (as clarified in

Table II.4. Regression outcome measures and associated analysis

Population	Observations for metric regressions	Observations for relative risk regressions	Independent variables[a]
All beneficiaries participating in the demonstration	One observation per state per month representing all beneficiaries in the state with a SUD	Not applicable	– Demonstration period – COVID-19 period – Months since March 2020[b] – Seasonality (calendar month) – State indicator
Dually eligible vs. Medicaid only	Two observations per state per month, with 1 observation representing beneficiaries participating in the demonstration who were dually enrolled in Medicare and Medicaid and the other representing beneficiaries who were enrolled in Medicaid only	One observation for each state per month, in which the dependent variable is calculated by dividing the percentage or rate for beneficiaries participating in the demonstration who were dually enrolled in Medicare and Medicaid by the percentage or rate for beneficiaries who were enrolled in Medicaid only	In metric and relative risk regressions: – Demonstration period – COVID-19 period – Months since March 2020[b] – Seasonality (calendar month) – State indicator Only in metric regressions: – Beneficiaries who were dually enrolled in Medicare and Medicaid indicator (DUAL) – DUAL*Demonstration period – DUAL*COVID-19 period – DUAL*Months since March 2020[b] – DUAL*Seasonality (calendar month) – DUAL*State indicator

Version 5.0 of the specifications). A high rate of alignment between the reported values for these two metrics for the same measurement month suggests states may be limiting Metric #3 counts to beneficiaries with an OUD diagnosis in the measurement month only and not including additional beneficiaries with a diagnosis in the 11 months prior to the measurement month (and therefore analyzing the ratio of Metric #6 to Metric #3 for this subpopulation would have limited value). We are aware that Delaware did not use the 11 months prior to the measurement period to identify the OUD diagnosis subpopulation for Metric #3 (based on the state's technical assistance request in February 2022). For the OUD subpopulation in Delaware, the average percentage of Medicaid beneficiaries receiving treatment (Metric #6/Metric #3 * 100) was 95 percent. Three additional states (OH, RI, WV) had average rates of 95 percent or higher for the OUD subpopulation. Among the 7 states included in the regression, the highest average rate for the OUD subpopulation was 74 percent (in VT).

Population	Observations for metric regressions	Observations for relative risk regressions	Independent variables[a]
OUD vs. non-OUD	Two observations per state per month, with 1 observation representing beneficiaries participating in the demonstration with an OUD and the other representing beneficiaries with other SUD diagnoses who were not in the first group (non-OUD)	One observation for each state per month, in which the dependent variable is calculated by dividing the percentage or rate for beneficiaries participating in the demonstration with an OUD by the percentage or rate for beneficiaries with other SUD diagnoses who were not in the first group	In metric and relative risk regressions: – Demonstration period – COVID-19 period – Months since March 2020[b] – Seasonality (calendar month) – State indicator Only in metric regressions: – OUD population indicator (OUD) – OUD*Demonstration period – OUD*COVID-19 period – OUD*Months since March 2020[b] – OUD*Seasonality (calendar month) – OUD*State indicator
Pregnant vs. non-pregnant	Two observations per state per month, with 1 observation representing beneficiaries participating in the demonstration who were pregnant and the other representing beneficiaries who were not pregnant	One observation for each state per month, in which the dependent variable is calculated by dividing the percentage or rate for beneficiaries participating in the demonstration who were pregnant by the percentage or rate for beneficiaries who were not pregnant	In metric and relative risk regressions: – Demonstration period – COVID-19 period – Months since March 2020[b] – Seasonality (calendar month) – State indicator Only in metric regressions: – Pregnant population indicator – Pregnant*Demonstration period – Pregnant*COVID-19 period – Pregnant*Months since March 2020[b] – Pregnant*Seasonality (calendar month) – Pregnant*State indicator
Age Under 18 years old	Two observations per state per month, with 1 observation representing beneficiaries participating in the demonstration who were under 18 years old and the other beneficiaries 18–64 years old	One observation for each state per month, in which the dependent variable is calculated by dividing the percentage or rate for beneficiaries participating in the demonstration who were under 18 years old by the percentage or rate for those 18–64 years old	In metric and relative risk regressions: – Demonstration period – COVID-19 period – Months since March 2020[b] – Seasonality (calendar month) – State indicator Only in metric regressions: – Age 18 population indicator (age < 18, 18–64) – Age18*Demonstration period – Age18*COVID-19 period – Age18*Months since March 2020[b] – Age18*Seasonality (calendar month) – Age18*State indicator

Population	Observations for metric regressions	Observations for relative risk regressions	Independent variables[a]
Age 65 years old or older	Two observations per state per month, with 1 observation representing beneficiaries participating in the demonstration who were 65 years old or older and the other beneficiaries 18–64 years old	One observation for each state per month, in which the dependent variable is calculated by dividing the percentage or rate for beneficiaries participating in the demonstration who were 65 years old or older by the percentage or rate for those 18–64 years old	In metric and relative risk regressions: – Demonstration period – COVID-19 period – Months since March 2020[b] – Seasonality (calendar month) – State indicator Only in metric regressions: – Age 65 population indicator (18–64, 65+) – Age65*Demonstration period – Age65*COVID-19 period – Age65*Months since March 2020[b] – Age65*Seasonality (calendar month) – Age65*State indicator

[a] In this column we use "DUAL" to represent the indicator variable for the subpopulation of beneficiaries who are dually enrolled in Medicaid and Medicare, "OUD" to represent the indicator variable for beneficiaries with OUD diagnosis, "pregnant" to represent the indicator variable for beneficiaries who were pregnant, "Age18" to represent a categorical variable indicating less than 18 years old or 18–64 years old, and "Age65" to represent a categorical variable indicating 65 years old and older. We use an asterisk (*) to indicate an interaction between regression variables.

[b] The variable Months since March 2020 is included in the models for only 3 of the regression outcome measures: (1) percent of adult Medicaid beneficiaries with a SUD diagnosis, (2) ED visits for SUD per 1,000 Medicaid beneficiaries, and (3) inpatient stays for SUD per 1,000 Medicaid beneficiaries.

3. Analysis of health information technology metrics

CMS requires each state participating in the demonstration to report at least 3 health information technology (health IT) metrics. The state selects whether the period for each metric will be a month, quarter, or year. We limited our analysis of health IT metrics to metrics with reported values that represent at least 2 years. We assessed whether there were substantial differences between years for the same state. We also considered whether the reported data represent periods during the COVID-19 pandemic and how the pandemic may have affected these data.

C. Limitations

The regression analyses in this report have some limitations:

Measure specifications. CMS requires monitoring data submitted by states to align with the guidance in the technical specifications manual. However, CMS has approved deviations to these specifications for some states (see Appendix A, Table A.6). Also, specifications for some metrics have been updated over time to align with established quality measure and billing code updates, and to provide clarifications to the existing specifications. Changes to specifications may affect the consistency of measures over time.

Exogenous activities. Various federal, state, local, and clinical efforts that address the opioid epidemic and aim to reduce overdose deaths may predate or run concurrently with SUD demonstrations; some of these may not be highlighted in the state's demonstration reporting. Our analysis cannot differentiate

between the influence of specific demonstration activities and the activities conducted outside the demonstration that were implemented during the same time period. We are therefore unable to determine the causal impact of the demonstrations.

Pre-demonstration trends. Because monitoring data are not available for the period prior to the start of each state's demonstration, our analyses do not account for pre-demonstration trends. Accordingly, we cannot determine the extent to which changes between the baseline and later years are simply a continuation of preexisting trends.

Seasonality trends. While our analysis includes variables designed to control for change in treatment use and access associated with seasonal trends, it assumes that the related effects are the same across the states included in the regressions. However, we understand that differences across states in seasonal factors are likely.

Effects from COVID-19. While our analysis includes variables designed to control for changes in treatment use and access associated with the COVID-19 pandemic, the pandemic's effects on the dependent variables likely fluctuated with shifts in infection rates and changes in government policy, which varied across states; our control measures cannot fully capture the effects of such fluctuations. Also, although we take advantage of differences across states in the demonstration implementation timeline to distinguish the demonstration effects from those related to the COVID-19 pandemic, the limited number of states analyzed and the variation across states in the timing and size of the effects of the demonstration and COVID-19 limit our ability to fully distinguish these effects.

Limited data. We included metric data submitted through June 1, 2022, in our analysis. However, the most recent month represented in our analysis for any state is December 2021. As data for more states and demonstration periods are submitted (and some data analyzed in this report are updated), analysis findings may change.

Additionally, the state-level z-tests have some limitations:

Lack of aggregate trends. The state-level analysis applies to each state and therefore cannot provide an aggregate measure of the association between the demonstration and changes in measure values.

Seasonality trends. State-level analysis cannot control for seasonal or COVID-19-related trends.

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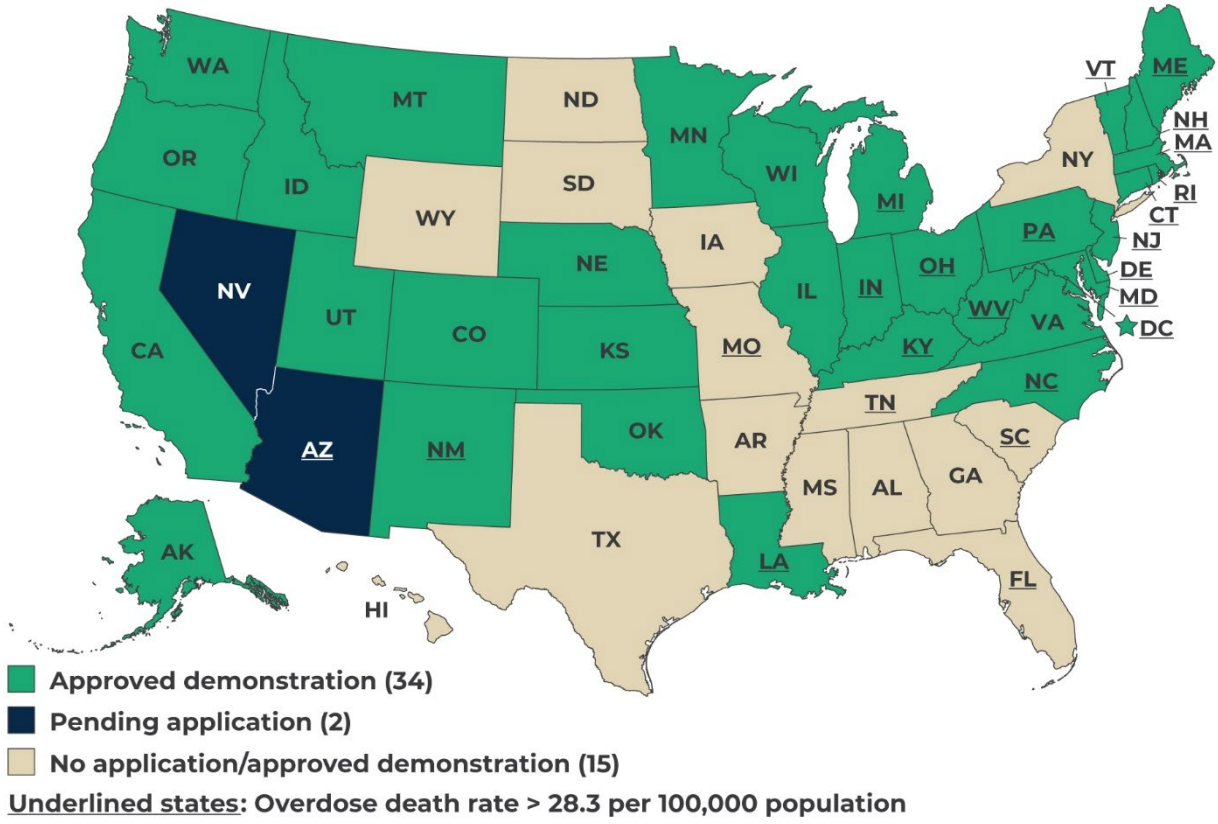
III. Overview and Contextual Background of the Section 1115 SUD Demonstrations

As of August 26, 2022, most states had either an approved (34 states) or pending (2 states) application for a SUD demonstration (Figure III.1). Participating states are spread across the nation; however, there is lower participation among states in the South.

Almost all states that are most severely affected by the opioid epidemic are electing to participate in the demonstration. Specifically, the Centers for Disease Control and Prevention (CDC) has identified 24 states with an age-adjusted rate of drug overdose deaths that exceeds the national average of 28.3 per 100,000 population in 2020.[36] Most of these states have either an approved (19 states) or pending (1 state) SUD demonstration; however, 4 states have not submitted applications.

Figure III.1. Status of SUD demonstration applications and approvals as of August 26, 2022



Source: Approved and pending applications obtained from State Waivers List | Medicaid as of August 26, 2022. Drug overdose death rates for 2020 obtained from CDC WONDER.

Note: States that are underlined had drug overdose death rates higher than the national average in 2020 (>28.3 per 100,000 population).

[36] Territories are excluded. The District of Columbia is included and counted with the states. Here we used CDC data on overdose death rates in 2020 (available at https://wonder.cdc.gov/) instead of Overdose Deaths (rate) (Metric #27), which measures overdose deaths for the adult Medicaid population, from the state monitoring reports because the CDC data are available for all states and the District of Columbia. Reported data for Metric #27 are analyzed in Chapter V. States that are underlined in the map have overdose death rate that is above the national average of 28.3.

A. SUD demonstration deliverables status

States must meet the federal administrative requirements for SUD demonstrations, with CMS's demonstration approval being the first step of a multistep process. After demonstration approval, states must submit and obtain approval for the implementation plan, monitoring protocol, and evaluation design (see Table III.1). Between February 25, 2022, and August 26, 2022, CMS approved an implementation plan for 2 states and a monitoring protocol for 2 states. CMS approved evaluation designs for 4 states. Furthermore, during the same period, CMS staff worked with 2 states that submitted draft monitoring protocols and 2 states that submitted evaluation designs to ensure the proposed methods and content for monitoring and evaluation provide a strong basis for continuous monitoring and program improvement. Monitoring report status is discussed in Section B, below.

Table III.1. Deliverable status

Deliverable[a]	Description	States with approved/ submitted deliverable[b]
Implementation plan	Specifies action and implementation approach to meeting SUD-specific milestones and requirements of SUD demonstration	34 states
Monitoring protocol	Specifies the timeline, data collection methods, and content to be included in a state's monitoring reports	29 states[c] approved; 2 states submitted
Evaluation design	Describes the timeline, scope, data sources, and methods for an independent evaluation	30 states approved; 2 states submitted
Midpoint assessment	Describes states' progress toward meeting demonstration goals at the halfway point in their demonstration; an independent evaluator must consult with key stakeholders, describe the methodology, assess limitations, and evaluate the risk of not achieving goals.	18 states submitted
Interim evaluation report	Discusses evaluation progress and presents data on the hypotheses the state tested, including subpopulations to identify disparities in access and health outcomes	11 states submitted
Final evaluation report	Presents data and an interpretation of the findings; assesses demonstration outcomes; measures progress on demonstration goals and milestones; explains evaluation limitations in design, data, and analysis; offers recommendations for changes the state will undertake in the future; and discusses any implications for future Medicaid policy	3 states submitted

[a] Although states' special terms and conditions provide sequential due dates for these deliverables, some states do not complete these steps in the order listed above. States also may receive approval for their deliverables in a different order than that in which they are submitted.

[b] As of August 26, 2022.

[c] Two states (CA, MA) were not required to submit monitoring protocols; however, they are expected to do so upon extension or renewal of their demonstration. Two states (CA, OR) have submitted monitoring protocol but have not yet received CMS approval.

B. Monitoring data status

The data summarized in this cross-state analysis are from state-submitted quarterly and annual monitoring reports (See Appendix A, Table A.2). Below, we outline the extent to which states are using the SUD

demonstration monitoring report tools that CMS provides to states for reporting their monitoring information—an important indicator of progress toward conducting more systematic analysis of state monitoring data.

- Thirty-two out of 33 states with approved demonstrations as of June 1, 2022,[37] submitted monitoring reports containing SUD demonstration information during the period summarized in this cross-state analysis.
- Twenty-nine states reported monitoring data using some version of the monitoring report tools.[38] Between December 2, 2021, and June 1, 2022, the number of states (29) using some version of the monitoring report tools remained the same since the March 2022 cross-state analysis.
- Twenty-six states used the Medicaid Section 1115 SUD Monitoring Report Workbook (hereafter "monitoring workbook") to report their monitoring metrics. Use of the monitoring workbook is important because it ensures that monitoring metrics are being reported consistently and allows for cross-state comparison. Between December 2, 2021, and June 1, 2022, the number of states using the monitoring workbook increased from 23 to 26.

The monitoring report tools include sections for states to report on their metric trends, implementation updates, and changes related to each of the demonstration milestones. The monitoring data provided by states varies in the number of monitoring topics and the level of detail being reported.

C. Overview of COVID-19 pandemic-related narrative information

Twenty-five out of 32 (78 percent) reporting states provided some narrative information related to effects of the COVID-19 pandemic on demonstration activities in monitoring reports included in this cross-state analysis. We identified four types of information reported: (1) delayed activities, (2) provider capacity impacts, (3) context provided for metric trends, and (4) activities implemented in response to the COVID-19 pandemic (Table III.2). Later chapters of this cross-state analysis provide more details when relevant to specific goals or milestones.

[37] This cross-state analysis discusses narrative information provided in monitoring reports received between December 2, 2021, and June 1, 2022. Reports submitted after June 1, 2022 (including updated reports) will be included in future analyses.

[38] The monitoring report tools consist of a document capturing narrative data (the Medicaid Section 1115 SUD Monitoring Report Template) and an Excel workbook capturing metrics data (the Medicaid Section 1115 SUD Monitoring Report Workbook). For the purpose of this summary, we considered a state to have submitted monitoring reports using the monitoring report tools if it used either the narrative document, the monitoring workbook, or both.

Table III.2. Overview of COVID-19 pandemic-related narrative information

	Number of states
Delays or challenges with implementing planned activities resulting from the COVID-19 pandemic	
Delaying demonstration implementation (general)	6 (AK, IN, NE, OR, RI, WI)
Monitoring/evaluation activities, data collection, and/or conducting research	3 (KY, RI, WI)
Other activities[a]	5 (ME, MI, NC, NM, VT)
Provider capacity impacts	
Reporting SUD workforce shortages	11 (AK, CA, CO, ID, KS, ME, MN, NM, OR, RI, WA)
Metric trends	
Increasing or decreasing metric trends due to the COVID-19 pandemic	19 (CA, DC, DE, IL, KS, LA, MI, MN, NC, NE, NH, NJ, NM, OH, PA, UT, VT, WA, WV)
Metrics trended toward pre-COVD-19 pandemic levels	7 (CA, IL, KS, MN, NE, OH, VT)
Activities implemented in response to COVID-19	
Allowing telehealth use	6 (CA, MI, NC, NJ, NM, VT)
Providing take-home medication for MAT	3 (IN, NC, NJ)
Increasing reimbursement rates or other financial support for providers	3 (ME, OR, WV)
Removing prior authorization requirements	2 (KY, NC)
Other activities[b]	10 (AK, CO, IN, LA, MA, ME, NJ, OR, VT, WV)

[a] Other delayed implementation activities due to COVID-19 include delaying ASAM (American Society of Addiction Medicine) provider qualifications for residential treatment facilities, revising provider licensure rules and waiver process to align with ASAM Criteria, creating a bed registry system, holding ECHO (Extension for Community Health Outcomes) trainings on pain management, developing value-based payment model for residential programs, and integrating health system electronic health records.

[b] Other activities implemented in response to COVID-19 are implementing community outreach, connecting public health stakeholders to better equip them to respond to COVID-19, convening a workgroup to support policies to enhance access to services, identifying appropriate bed placement alternatives when treatment facilities were closed or had limited capacity as a result of COVID-19, removing counseling/therapy requirements for MAT, implementing COVID-19 vaccination requirements for the SUD workforce, providing managed care coverage for 24-hour SUD services for enrollees who are unable to be transitioned or discharged appropriately as a result of COVID-19-related challenges.

IV. Assessment of Need and Qualifications for SUD Services

Key takeaways

Beneficiaries with a SUD diagnosis in the following subpopulations were less likely to receive SUD treatment than their comparison subpopulation, and their likelihood of receiving treatment declined post COVID-19 pandemic onset: (1) dually eligible beneficiaries compared with Medicaid-only beneficiaries and (2) beneficiaries under 18 years old and those 65 years old or older, compared with beneficiaries 18–64 years old.

Before and after the COVID-19 pandemic onset, beneficiaries with OUD were twice as likely to receive SUD treatment as beneficiaries with other SUD diagnoses.

At baseline, in 6 of the 9 states analyzed, beneficiaries with SUD involved with the CJ system were less likely to receive treatment than beneficiaries with SUD not involved with the CJ system. During the demonstrations, the disparity in treatment use for the CJ subpopulation increased in 3 states and decreased in 4.

CMS requires that states with SUD demonstrations implement policies to ensure and improve access to SUD services, including requiring that providers assess treatment needs based on SUD-specific, multi-dimensional assessment tools, such as the ASAM Criteria, and requiring coverage of a range of SUD services, including MAT. If states are successful in increasing access to care and in ensuring continuity of care during the demonstrations, the percentage of beneficiaries with claims that contain a SUD diagnosis and indicate treatment use is likely to increase, at least in the short run. In addition, the COVID-19 pandemic is likely to have affected rates of SUD diagnosis and treatment use. Thus, in this chapter we report on the association between changes in the following metrics and the COVID-19 pandemic period and demonstration years:

- The percentage of adult Medicaid beneficiaries with a SUD diagnosis (monthly Metric #3/adult Medicaid enrollment)
- The percentage of beneficiaries with a SUD diagnosis receiving treatment (monthly Metric #6/monthly Metric #3)

For the latter, we also report results for subpopulations.

A. The percentage of adult Medicaid beneficiaries with a SUD diagnosis

Figure IV.1 shows the percentage of adult Medicaid beneficiaries with a SUD diagnosis in (1) the first baseline month of the demonstrations, (2) March 2021 (one year following the onset of the COVID-19 pandemic), and (3) in the most recent reported month.[39] Although the demonstrations and the COVID-19 pandemic onset were not associated with a change in the raw number of beneficiaries with a SUD diagnosis (Appendix B, Tables B.2.a and B.2.b), the percentage of beneficiaries with a SUD diagnosis was lower in the most recent reported month compared with the first baseline month in 14 of 18

[39] Only states reporting for all three periods are included in the analysis.

states.[40,41] Among the states where the percentage of beneficiaries with a SUD diagnosis declined, the rate of decrease has slowed since March 2021; these states saw an average monthly decline in the percentage of beneficiaries with a SUD diagnosis of 0.54 percent from their first baseline month through March 2021, but an average monthly decline of just 0.06 percent between March 2021 through their last reported month, with the percentage actually increasing overall for 5 states.

Declines in the percentage of adult Medicaid beneficiaries with a SUD diagnosis observed between the first baseline month and the most recent reported month are likely attributable to increased Medicaid enrollment as a result of the Families First Coronavirus Response Act (FFCRA). To help states respond to the COVID-19 pandemic, FFCRA provided for a 6.2 percentage point increase in states' federal medical assistance percentage, but only if states ensured continuous coverage for beneficiaries enrolled in Medicaid as of or after March 18, 2020, through the end of the last month of the public health emergency.[42] As a result, adult Medicaid enrollment increased 33.3 percent between February 2020 and March 2022. The beneficiaries maintained on Medicaid as a result of FFCRA are likely to be healthier and less likely to interact with the health care system relative to beneficiaries enrolled prior to the COVID-19 pandemic, and thus less likely to have a claim with a SUD diagnosis, driving down the percentage of adult Medicaid beneficiaries with a SUD diagnosis.[43] However, the pace of Medicaid enrollment increases has begun to slow. Adult Medicaid enrollment increased by 21.9 percent between February 2020 and April 2021, but by only an additional 9.4 percent from April 2021 to March 2022.[44]

[40] The increase in the percentage of beneficiaries with a SUD diagnosis in Washington is associated with the state's integration of physical and behavioral health care in 2017. The increases in Nebraska and Utah are associated with the expansions of Medicaid eligibility to all adults with income up to 138 percent of the federal poverty level, as authorized through the Affordable Care Act (ACA) and implemented in Nebraska on October 1, 2020, and phased in in April 2019 and January 2020 in Utah. Individuals eligible for the ACA expansions had higher rates of SUDs than existing Medicaid beneficiaries at the time of expansion, which would increase the percentage of adult Medicaid beneficiaries with a SUD. See https://ps.psychiatryonline.org/doi/full/10.1176/appi.ps.201200011 for more information.

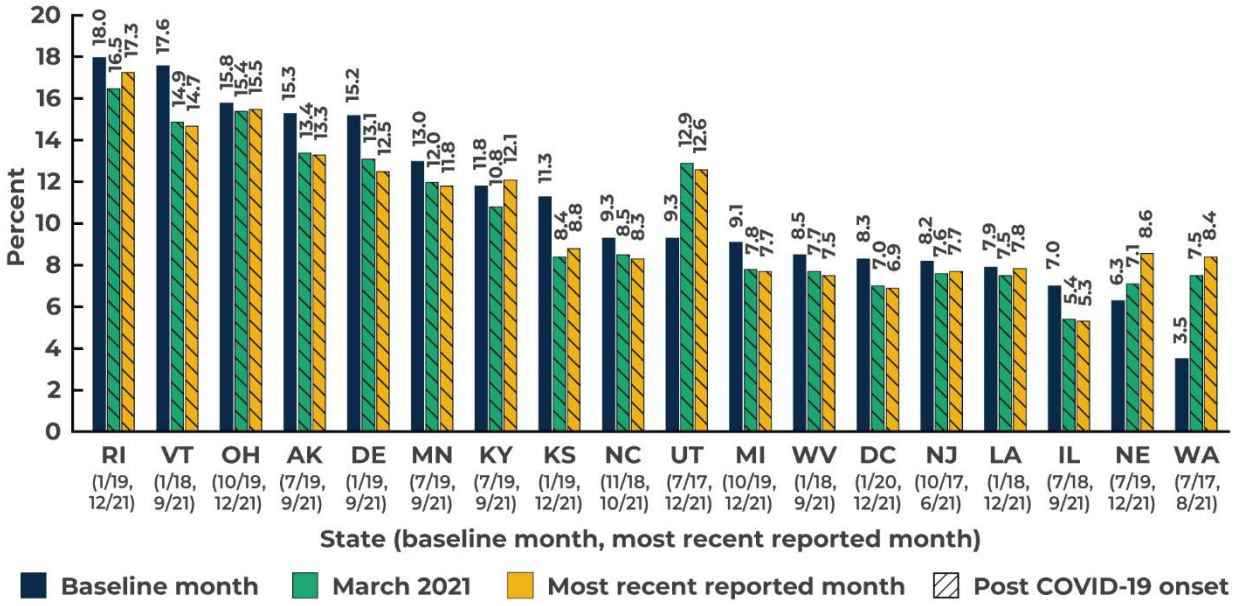
[41] Kentucky is one of two demonstration states where Medicaid enrollment has begun to decline, despite the continuation of the public health emergency. See https://www.wtvq.com/temporary-pe-medicaid-ending-june-30-for-some-kentuckians/ for more information.

[42] See https://www.medicaid.gov/state-resource-center/downloads/covid-19-faqs.pdf (p. 114) and https://www.medicaid.gov/resources-for-states/coronavirus-disease-2019-covid-19/unwinding-and-returning-regular-operations-after-covid-19/index.html

[43] See https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-07027-6#Tab4.

[44] See March 2022 Medicaid and CHIP Enrollment Snapshot.

Figure IV.1. Percentage of adult Medicaid beneficiaries with a SUD diagnosis ([Metric #3/total adult Medicaid enrollment] * 100) in the first baseline month, March 2021, and most recent reported month



Source: Metric #3 and total adult Medicaid enrollment (total Medicaid population [Metric #23 denominator] minus total Medicaid population under 18 years old [Metric #23 denominator for beneficiaries under 18 years old]) were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: Medicaid Beneficiaries with a SUD Diagnosis (Metric #3) is reported monthly; it counts beneficiaries with a SUD diagnosis in the measurement month and in the 11 prior months. The denominator for Metric #23, used to calculate total adult Medicaid enrollment, is also reported monthly.

Metric #3 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in the set of services reviewed for SUD diagnoses in the SUD demonstration technical specifications manual (see Chapter II for more information). For Metric #3, the baseline reporting period is the first year of the SUD demonstration; the first baseline month is the first month of the SUD demonstration.

Post COVID-19 onset = Month is after March 2020.

Although the percentage of Medicaid beneficiaries with a SUD diagnosis has declined overall, the multiple regression model, after controlling for the trend in Medicaid enrollment, seasonality, and state, disaggregates changes in the percentage of adult Medicaid beneficiaries with a SUD diagnosis into those associated with COVID-19 pandemic health precautions (see Appendix B, Table B.2.b) and those associated with demonstration periods (see Appendix B, Table B.2.a):

- **COVID-19 pandemic health precautions.** Compared with the pre-COVID-19 period, the percentage of adult Medicaid beneficiaries diagnosed with a SUD declined significantly by 6.7 percent post COVID-19 pandemic onset.[45] This significant decline was likely due to two factors: (1) many individuals were reluctant to seek treatment during the pandemic out of concern that they would contract COVID-19 while receiving or traveling to and from treatment; and (2) providers made

[45] Defined as the calendar months of May 2020 and later. April 2020 was excluded from the period post COVID-19 pandemic onset for the regression analyses because the sharp decline in SUD service use observed in April was not sustained in later months.

changes to their services to reduce the likelihood of COVID-19 transmission during treatment, such as reducing treatment capacity and shifting services to telehealth. These changes may have reduced access to services, which would in turn reduce the number of beneficiaries with a claim containing a SUD diagnosis. In recent monitoring reports, a number of states noted that lower COVID-19 case rates and increases in vaccination had led to more care-seeking among beneficiaries and increased capacity among facilities, as staff shortages eased and capacity restrictions could be reduced. This may contribute to the slowing or reversal of declines in the percentage of Medicaid beneficiaries with a SUD diagnosis in some states (Figure IV.1).

- **Demonstration activities.** Demonstration implementation was associated with a significant 3.3 percent increase in the percentage of Medicaid beneficiaries with a SUD diagnosis between the baseline year and year 2, but no significant change between the baseline year and year 3 and later. State demonstrations have multiple components that could have contributed to increasing this rate between the baseline and year 2. For example, the demonstrations require states to (1) increase access to services (Milestone #1) and (2) implement treatment and prevention strategies (Milestone #5), both of which should increase the number of beneficiaries with a claim containing a SUD diagnosis. Increased rates may not be sustained in later demonstration years because the treatment received in the initial period of the demonstrations could support recovery, and thus reduce beneficiaries' need for future SUD treatment services.[46]

B. The percentage of beneficiaries with a SUD diagnosis receiving treatment

Similar to the results discussed above, the regression model disaggregates changes in the percentage of beneficiaries with a SUD diagnosis receiving treatment into those associated with the COVID-19 pandemic (see Appendix B, Tables B.2.b, B.3.b, B.4.b, B.5.b, B.6.b, and B.7.b) and those associated with the demonstration periods (see Appendix B, Tables B.2.a, B.3.a, B.4.a, B.5.a, B.6.a, and B.7.a):

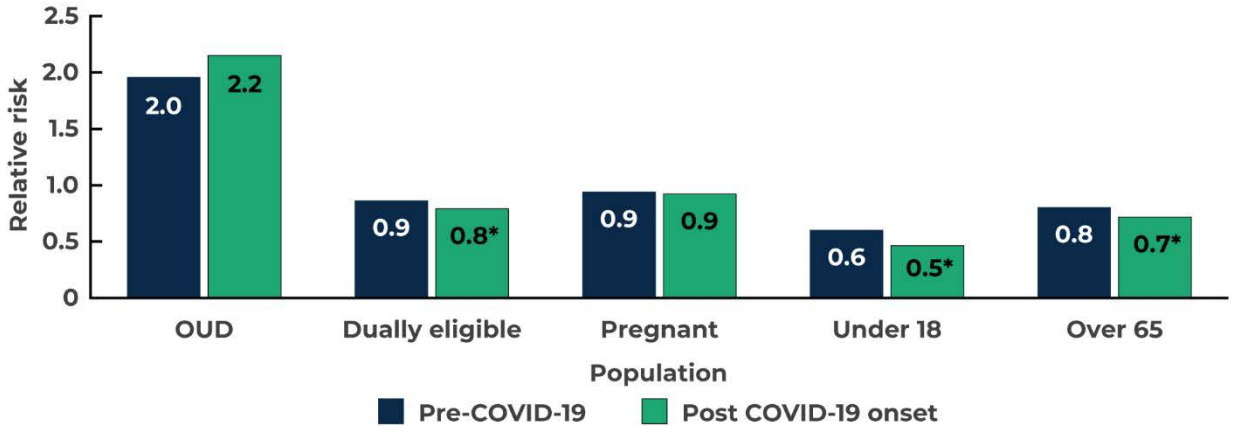
COVID-19 pandemic health precautions. Compared with the pre-COVID-19 period, the regression results found no significant change overall in the percentage of Medicaid beneficiaries with a SUD diagnosis who used any SUD treatment post COVID-19 pandemic onset. While this rate and disparities among some subpopulations stayed relatively consistent, disparities in treatment among other subpopulations were amplified after the COVID-19 pandemic onset (Figure IV.2):

- **OUD vs. non-OUD.** In both the pre-COVID-19 period and post COVID-19 pandemic onset, beneficiaries with OUD were twice as likely to use SUD treatment as beneficiaries with other SUD diagnoses. The greater likelihood of treatment use among those with an OUD for the Medicaid demonstration population aligns with national estimates for the United States.[47,48] Individuals with OUD may be more likely to receive treatment than individuals with disorders related to other substances because of public health efforts to address the opioid epidemic, as well as the availability of effective medications for OUD. Expanding access to effective medications for alcohol use

[46] While beneficiaries in recovery may continue to need treatment, they will access treatment less frequently than those not in recovery. This will result in a reduction in the size of the population with SUD in our measure, because beneficiaries are included only if they have a claim with a SUD diagnosis.
[47] See Has Treatment for Substance Use Disorders Increased? Issue Brief | ASPE (hhs.gov), Table 1.
[48] SAMHSA. "Key Substance Use and Mental Health Indicators in the United States: Results from the 2018 National Survey on Drug Use and Health." HHS Publication No. PEP19-5068, NSDUH Series H-54. Rockville, MD: SAMHSA, Center for Behavioral Health Statistics and Quality, 2019.

disorder (AUD) has received less attention, and medications for treating SUDs related to other substances are not available or as effective as available medications for OUD and AUD.[49]

Figure IV.2. Predicted risk ratio of beneficiaries with a SUD diagnosis receiving treatment ([Metric #6/Metric #3] * 100) pre and post COVID-19 pandemic onset for subpopulations



Source: Metrics #3 and 6 were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks

Note: Estimates are predicted means based on linear regressions of the relative risk or ratio of the outcome rate for each subpopulation relative to its comparison population. All regression models control for demonstration year, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Medicaid Beneficiaries with a SUD Diagnosis (Metric #3) is reported monthly and counts beneficiaries with a SUD diagnosis in the measurement month and in the 11 prior months. Any SUD Treatment (Metric #6) is reported for each month.

Metrics #3 and 6 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in the SUD demonstration technical specifications manual, version 3.0 (see Chapter II for more information).

See Appendix B, Table B.1, for a list of states included in each regression.

* Difference between value prior to and post COVID-19 pandemic onset is statistically significant ($p < 0.05$) based on regression results.

Pre-COVID-19 = Months prior to April 2020; Post COVID-19 onset = Months after April 2020.

- **Dually eligible vs. Medicaid only.** Before the COVID-19 pandemic, beneficiaries who are dually eligible were 10 percent less likely to use SUD treatment relative to beneficiaries eligible for Medicaid only. This increased to 20 percent less likely post COVID-19 pandemic onset.
- The disparities in treatment for beneficiaries who are dually eligible may be due in part to incomplete data on treatment for these beneficiaries. The monitoring data reported by states include only claims paid for by Medicaid. However, Medicaid is the payer of last resort, so treatment received by beneficiaries who are dually eligible will be billed to Medicare first and not included in the monitoring data, unless also billed to Medicaid. Medicare's coverage of MAT services, which began January 1, 2020, may also be a factor in a decline in the likelihood of receiving treatment for beneficiaries who are dually eligible, since MAT services would be covered by Medicare after this date and therefore not included in states' reported data.

[49] See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767185/pdf/nihms496118.pdf.

- However even with incomplete data, national estimates suggest that these beneficiaries may still receive treatment at lower rates. The dually eligible population includes a greater proportion of individuals qualified for Medicare based on disability or being 65 years old or older,[50] and national data indicate individuals with these characteristics have lower treatment rates than their counterparts.[51] In addition, the disparities in treatment use for beneficiaries who are dually eligible may have increased during the COVID-19 pandemic because these beneficiaries tend to be older, with a greater risk of severe illness due to contracting COVID-19,[52] and thus had greater risk involved in seeking SUD treatment.
- **Pregnant vs. non-pregnant.** Before the COVID-19 pandemic, beneficiaries who were pregnant were 10 percent less likely to receive SUD treatment relative to beneficiaries who were not pregnant, and this disparity persisted post COVID-19 pandemic onset. Beneficiaries who were pregnant may have more difficulty finding facilities for treatment, as many opioid treatment programs refuse to treat pregnant women.[53] In addition, these beneficiaries often have children and may lack childcare or they may be reluctant to seek treatment due to potential legal consequences or child removal.[54]
- **Age groups.** Before the COVID-19 pandemic, beneficiaries under 18 years old or 65 years old or older were 40 percent and 20 percent less likely to receive treatment, respectively, relative to beneficiaries 18–64 years old. These disparities increased to 50 percent and 30 percent, respectively, post COVID-19 pandemic onset. The lower rates of SUD treatment for both younger and older age groups, compared to those ages 18–64 years old, aligns with national estimates.[55] Beneficiaries in these age groups may be less likely to receive treatment in part because many treatment facilities are not equipped to offer age-friendly care for either youths or older adults.[56] In addition, many beneficiaries 65 years old or older are likely to be dually eligible and may be affected by the issues described above for that subpopulation.

Demonstration activities. Our regression analysis indicated that, across all states, demonstration implementation was associated with a significant 14 percent increase (from 37.0 percent to 42.3 percent)

[50] While the Medicaid-only population also includes individuals with disabilities, these individuals make up a smaller portion of Medicaid-only beneficiaries compared with dually eligible beneficiaries. For example, in 2019, 51 percent of dually eligible beneficiaries qualified for Medicaid based on disability, while only 15 percent of Medicaid-only beneficiaries qualified based on disability. See https://www.macpac.gov/wp-content/uploads/2022/02/Beneficiaries-Dually-Eligible-for-Medicare-and-Medicaid-February-2022.pdf for more information.

[51] See https://www.cdc.gov/mmwr/volumes/70/wr/mm7034a3.htm and https://generations.asaging.org/substance-use-disorders-older-adults-overview.

[52] See https://nam.edu/protecting-the-medically-vulnerable-amid-covid-19-insights-from-the-dually-eligible-population-in-the-united-states/

[53] See https://journals.lww.com/journaladdictionmedicine/Abstract/2022/02000/Pregnant_Patients_Using_Opioids__Treatment_Access.28.aspx.

[54] See https://www.sciencedirect.com/science/article/pii/S0376871619304296#bib0080, https://www.sciencedirect.com/science/article/pii/S0740547221000672 and https://www.sciencedirect.com/science/article/pii/S0146000519300023.

[55] Substance Abuse and Mental Health Services Administration (SAMHSA). "Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health." HHS Publication No. PEP21-07-01-003, NSDUH Series H-56. Rockville, MD: SAMHSA, Center for Behavioral Health Statistics and Quality, 2019. See Tables 5.12B and 5.19B.

[56] See https://publications.aap.org/pediatrics/article/143/2/e20182752/37310/Youth-and-the-Opioid-Epidemic, https://www.healthaffairs.org/do/10.1377/forefront.20220505.917481/, and https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/substance-use-treatment-older-adults.

in the percentage of Medicaid beneficiaries with a SUD diagnosis receiving treatment between the baseline year and year 3 and later. The analysis indicated that the percentage of beneficiaries with a SUD diagnosis receiving treatment increased for all subpopulations in year 3 and later, but none of the increases were significant (see Appendix B, Tables B.2.a, B.3.a, B.4.a, B.5.a, B.6.a, and B.7.a).

1. CJ subpopulation

This section assesses disparities in treatment between beneficiaries involved with the CJ system and those without such involvement. While individuals are incarcerated, Medicaid can cover only inpatient treatment provided outside the prison or jail once the beneficiary has been admitted for at least 24 hours.[57] After release from incarceration, participation in treatment is particularly important as the risk of overdose and death in this period increases.[58] Additionally, post-release, individuals with a SUD may be more likely to experience re-arrest or re-incarceration;[59] however, participating in evidence-based treatment can reduce recidivism for individuals with a SUD who are involved in the CJ system.[60]

Because states used disparate methods to define beneficiaries involved with the CJ system (Table IV.1), we analyzed disparities in receipt of treatment for this subpopulation separately for each state instead of using a pooled regression model.

Of the 9 states analyzed, we found that at baseline, relative to beneficiaries who were not CJ-involved, beneficiaries involved with the CJ system had higher rates of treatment in Ohio, similar rates of treatment in Alaska and Michigan, and lower rates of treatment in all other reporting states (Figure IV.3). Ohio's higher rate of treatment may be due to the state's robust Medicaid pre-enrollment program, which ensures eligible individuals have Medicaid coverage as soon as they are released from incarceration, as well as the extended measurement period it uses to define criminal justice involvement.[61] Alaska and Michigan have a broader definition of the subpopulation than used by other states, including beneficiaries who have not been incarcerated. During the demonstrations, the disparity in treatment use significantly increased in 3 states, significantly decreased in 4 states, and did not significantly change in 2 states.

Table IV.1. Criminal justice-involved subpopulation methodology

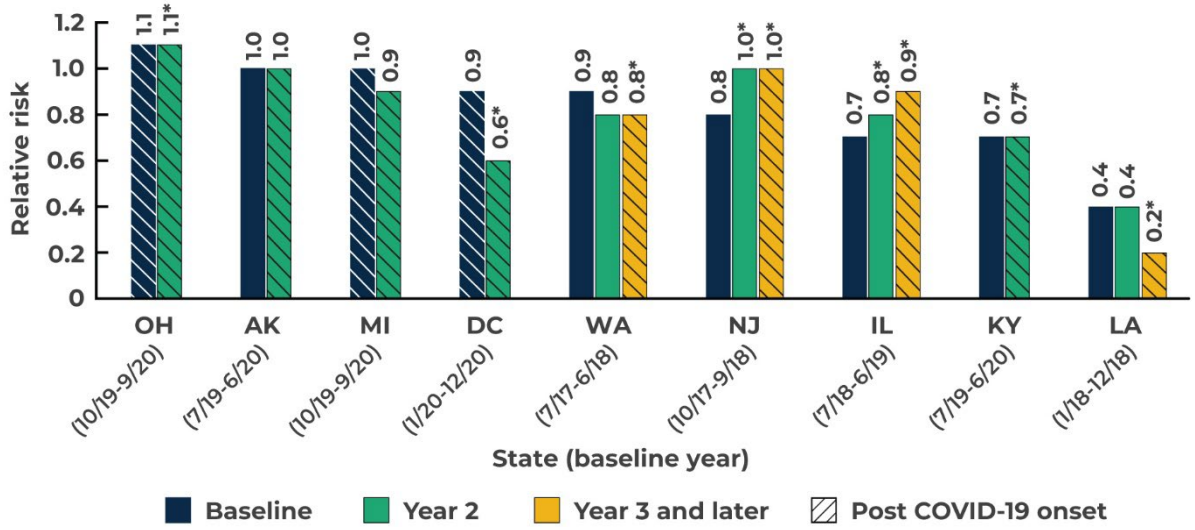
State	Criminal justice status of individuals included	Timing of determination of criminal justice status[a]
AK	Criminal court defendant	Standard measurement period of metric plus previous 36 months
DC	Incarcerated	Standard measurement period of metric plus previous 11 months

[57] See https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/08/how-and-when-medicaid-covers-people-under-correctional-supervision.
[58] See https://www.nejm.org/doi/full/10.1056/nejmsa064115.
[59] Baillargeon, J., J.V. Penn, K. Knight, A.J. Harzke, G. Baillargeon, and E.A. Becker. "Risk of Reincarceration Among Prisoners with Co-Occurring Severe Mental Illness and Substance Use Disorders." *Administration and Policy in Mental Health and Mental Health Services Research*, vol. 37, no. 4, July 2010, pp. 367–374. doi:10.1007/s10488-009-0252-9
[60] See Less Is More: The Effect of a Short-term Substance Use Disorder Treatment Program on Recidivism: Corrections: Vol 0, No 0 (tandfonline.com).
[61] See https://bh.medicaid.ohio.gov/Portals/0/Providers/SUD-1115/SAC%209_25%20Meeting%20Deck%20Final.pdf?ver=pv8qMSxJXdPmI8QI-OGG2A%3D%3D and https://www.urban.org/sites/default/files/publication/88051/ohio_medicaid_1.pdf.

State	Criminal justice status of individuals included	Timing of determination of criminal justice status[a]
IL	Previously incarcerated or enrolled in state's SUD jail diversion case management program	Unknown
KY	Incarcerated	Unknown
LA, NJ	Incarcerated	Standard measurement period of metric
MI	In prison/jail/juvenile detention center, paroled, on probation, tethered, pre-trial, pre-sentence, or in diversion	Standard measurement period of metric
OH	Incarcerated	Standard measurement period of metric plus previous 12 months
WA	Arrested	Reference month or the prior 6 months

[a] The standard measurement period for Medicaid Beneficiaries with SUD Diagnosis (Metric #3) is one month and the 11 months prior. The standard measurement period for Any SUD Treatment (Metric #6) is one month.

Figure IV.3. Predicted risk ratio of beneficiaries involved with the CJ system receiving treatment relative to beneficiaries not involved with the CJ system ([Metric #6/Metric #3] * 100) in the baseline year, year 2, and year 3 and later, by state



Note: Relative risk calculated by dividing the mean rate of SUD treatment for the period for beneficiaries with CJ involvement by that for beneficiaries without CJ involvement. Medicaid Beneficiaries with a SUD Diagnosis (Metric #3) is reported monthly and counts beneficiaries with a SUD diagnosis in the measurement month and in the 11 prior months. Any SUD Treatment (Metric #6) is reported for each month. A risk ratio below 1 indicates a lower likelihood of receiving treatment for beneficiaries involved with the CJ system compared to beneficiaries not involved with the CJ system.

For Metrics #3 and 6, the baseline reporting period is the first year of the SUD demonstration; the first baseline month is the first month of the SUD demonstration. Metrics #3 and 6 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in the SUD demonstration technical specifications manual, version 3.0 (see Chapter II for more information).

* Difference between the relative risk value in the indicated year and its baseline value is statistically significant ($p < 0.05$) based on a z-test. Existing differences between years may not be apparent due to rounding.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

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V. Progress Toward SUD Demonstration Goals

Key takeaways

Between CY 2019 and CY 2021, our analysis found little progress toward demonstration Goals #3 (reduced overdose deaths) and #6 (increased rates of ambulatory/preventive care), but some progress toward Goal #4 (reduced preventable emergency department and inpatient hospital utilization):

- The rate of overdose deaths significantly increased in 8 of 10 states between the last pre-COVID-19 year and the first year post COVID-19 pandemic onset.
- The rate of ambulatory or preventive care use significantly declined in 11 of 14 states.
- For the overall demonstration population, demonstration implementation was not associated with a significant change in ED visits or inpatient stays; however, the period post COVID-19 pandemic onset was associated with a significant decline in ED visits (7.9 percent [$p < 0.05$]), but with no significant change in the rate of inpatient stays.
- Among beneficiaries with OUD, demonstration implementation was associated with a significant decline in ED visits and inpatient stays (22.8 percent and 19.3 percent [$p < 0.05$]), respectively, between the baseline and year 3 and later.

The State Medicaid Director Letter (SMDL 17-003) outlines six goals for the SUD demonstrations. Table V.1 lists the goals and associated monitoring metrics and indicates where relevant information may be found in this cross-state analysis. The metrics for Goals #1 and #2 are analyzed in Chapter VI.F and VI.A, respectively, with the associated milestones. Each cross-state analysis includes analyses for two or three of the other four goals, prioritizing analyses most valuable to CMS and states for program improvement (see Chapter II, Table II.1). In this chapter, we examine the metrics aligned with goals #3, #4, and #6. These goals were previously examined in cross-state analyses; additional data are now available and included in this analysis.

Table V.1. SUD demonstration goals and associated monitoring metrics

Goal	Associated monitoring metric	Analysis in cross-state analysis
1. Increased rates of identification, initiation, and engagement in treatment	Metric #15: Initiation and engagement of alcohol and other drug abuse or dependence treatment	See Section VI.F (Milestone #6)
2. Increased adherence to and retention in treatment	Metric #22: Continuity of pharmacotherapy for OUD	See Section VI.A (Milestone #1)
3. Reductions in overdose deaths, particularly those due to opioids	Metric #27: Overdose deaths (rate)	See Section V.A
4. Through improved access to other continuum of care services, reduced utilization of EDs and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate	Metric #23: ED utilization for SUD per 1,000 Medicaid beneficiaries Metric #24: Inpatient stays for SUD per 1,000 Medicaid beneficiaries	See Section V.B
5. Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate	Metric #25: Readmissions among beneficiaries with SUD	Not analyzed in this cross-state analysis; analyzed in the March 2022 cross-state analysis
6. Improved access to care for physical health conditions among beneficiaries	Metric #32: Access to preventive/ambulatory health services for adult Medicaid beneficiaries with SUD	See Section V.C

Source: SMDL 17-003 and Section 1115 SUD demonstration technical specifications for monitoring metrics.

A. Overdose death rates (Goal #3)

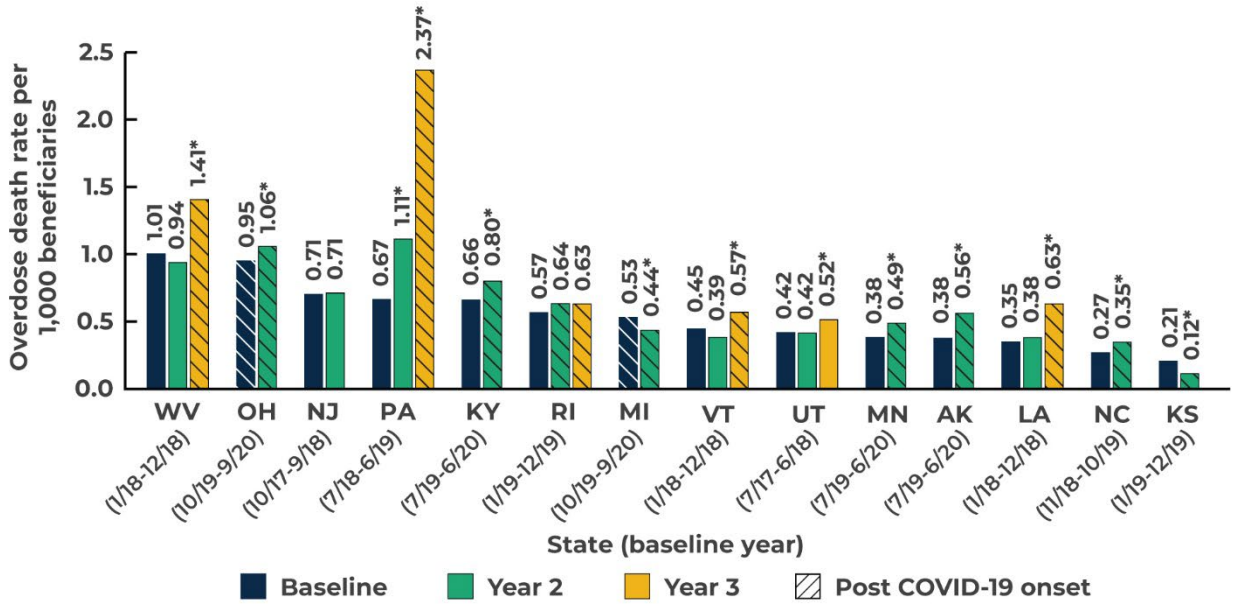
Demonstration Goal #3 aims to reduce overdose deaths, particularly those related to opioids. Unfortunately, nationally, overdose deaths have increased substantially in the last 2 years. The CDC reported an increase in overdose deaths of 31 percent from 2019 to 2020[62] and, based on provisional data, 15 percent from 2020 to 2021.[63] Increased use of synthetic opioids is an important factor in these trends, with 83 percent of overdose deaths nationally involving a synthetic opioid in 2020.[64]

The demonstrations' monitoring data include an Overdose Death Rate (annual Metric #27) limited to Medicaid beneficiaries. Of the 10 states that reported on both a pre- and post-COVID-19 pandemic onset year (first year with at least half the months after March 2020), 8 observed a significant increase in overdose deaths in the first post-COVID-19 onset year relative to the prior year (Figure V.1). Only 2 states with significant changes provided context in their monitoring reports:

- Kentucky noted that most of the beneficiaries who died from overdoses had not received SUD treatment under Medicaid within the prior year.
- Minnesota speculated that increased overdose deaths may be attributed to reduced access to care from the COVID-19 pandemic, increased use in shelter environments, and substances altered with fentanyl, a synthetic opioid.

[62] See https://www.cdc.gov/drugoverdose/deaths/index.html.
[63] See U.S. Overdose Deaths In 2021 Increased Half as Much as in 2020 - But Are Still Up 15% (cdc.gov)..
[64] See https://nihcm.org/publications/visualizing-the-impact-of-the-opioid-overdose-crisis.

Figure V.1. Overdose deaths (Metric #27) at baseline, year 2, and year 3, by state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metric #27, the baseline reporting period is the first year of the SUD demonstrations.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

B. Emergency department and inpatient stays for SUD per 1,000 Medicaid beneficiaries (Goal #4)

This section analyzes trends in Emergency Department (ED) Visits for SUD per 1,000 Medicaid Beneficiaries (monthly Metric #23) and Inpatient Stays for SUD per 1,000 Medicaid Beneficiaries (monthly Metric #24)[65] post COVID-19 pandemic onset and across demonstrations years. Goal #4 aims to reduce these rates by improving access to a broad continuum of SUD treatment services to (1) reduce acute episodes by improving continuity of care and (2) ensure that acute care services are used only when that level of care is necessary.

To provide context for our analysis, we reviewed national data on ED utilization patterns during the COVID-19 pandemic. As we reported in the previous cross-state analysis (March 2022), nationally, ED visits initially declined by 42 percent early in the COVID-19 pandemic (in April 2020 compared with a similar period in 2019). Later in the first year of the pandemic, between December 2020 and January 2021, declines persisted but were less extreme, with visits 25 percent lower compared with the same months in the prior year. However, a higher proportion of ED patients were seeking care for mental and

[65] Note that primary SUD diagnosis is not required for these metrics (numerators include visits or stays with SUD diagnosis in any position on the claim). Also, Version 4 of the technical specifications manual was released on September 9, 2021; it includes updated instructions noting that states should exclude residential stays from Metric #24. Before this release, New Hampshire, Louisiana, and New Jersey included residential stays in the counts for Metric #24; whether any other states did so is unknown.

behavioral health related concerns.[66] Moreover, ED visit counts for SUD had smaller changes compared with the pre-pandemic period (April 2020, compared with the previous period in 2019), and one national study has shown that ED visits for OUD specifically have increased above pre-pandemic levels from May 2020 through April 2021.[67] We did not identify similar analyses of national trends for SUD-related inpatient stays during the pandemic.

The regression analysis indicates that, across all states, demonstration implementation was not associated with a significant change in ED visits or inpatient stays; however, the period post COVID-19 pandemic onset was associated with a significant 7.9 percent decline in ED visits ($p < 0.05$), but no significant change in the rate of inpatient stays (Figure V.2). Aligning with this finding, some states reported that beneficiaries were hesitant to utilize services due to COVID-19 and stay-at-home orders. Also, Kansas noted that ED visits (Metric #23) may have decreased due to a shorter wait time for non-emergency services.

Although the regression analysis indicates that demonstration implementation was not associated with a significant change in ED visits or inpatient stays for the demonstrations population overall, the results indicate significant decreases for beneficiaries with OUD, with declines between the baseline and year 3 and later in ED visits (22.8 percent) and inpatient stays (19.3 percent) per 1,000 ($p < 0.05$) (Figure V.3).[68,69] Notably, this contrasts with recent increases in ED visits for OUD nationally noted above. There was no significant change in these rates for beneficiaries with other SUD diagnoses.[61] States did not report narrative information associated with these observed declines for the beneficiaries with OUD. However, research suggests that MAT use for OUD is associated with lower 12-month ED-visit and hospitalization rates.[70,71] Since the demonstrations have been associated with increased use of MAT, this may be contributing to the declines in ED and inpatient stays for Medicaid beneficiaries with OUD.

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[66] Adjemian, J., K.P. Hartnett, A. Kite-Powell, J. DeVies J, R. Azondekon, L. Radhakrishman, K.S. van Santen, et al. "Update: COVID-19 Pandemic-Associated Changes in Emergency Department Visits—United States, December 2020–January 2021." *Morbidity and Mortality Weekly Report*, vol. 70, no. 15, April 2021, pp. 552–556. https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7015a3-H.pdf .

[67] Venkatesh, A. K., A.T. Janke, J. Kinsman, C. Rothenberg, P. Goyal, C. Malicki, G. D'Onofrio, A. Taylor, A., and K. Hawk. "Emergency Department Utilization for Substance Use Disorders and Mental Health Conditions During COVID-19." *PLOS ONE,* vol. 17, no. 1, January 2022. doi.10.1371/journal.pone.0262136. The study utilized data from the American College of Emergency Physicians' clinical emergency data registry sample sites in the following states: Arizona, California, Connecticut, Florida, Georgia, Idaho, Illinois, Kentucky, Indiana, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Utah, and Virginia.

[68] For Metric #3, the average percent of the demonstration population with an OUD was 37.4 percent. However, there was significant variation across states. For example, under 20 percent of the demonstration population had an OUD in all months for three states (KS, NE, RI). While over 58 percent of the demonstration population had an OUD in all months for two states (VT, WA).

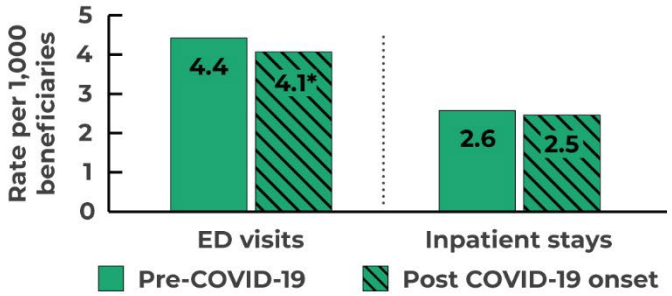
[69] For beneficiaries with OUD or other SUD, the denominator for ED visits and inpatient stays was Medicaid beneficiaries with an OUD or other SUD, respectively (Figure V.3). In contrast, the denominator for the demonstration overall is all Medicaid beneficiaries, including those who do not have a SUD (Figure V.2). Thus, the rates for the overall demonstration are not comparable to those for beneficiaries with an OUD or other SUD.

[70] Le, T., P. Cordial, M. Sankoe, C. Purnode, A. Parekh, T. Baker, B. Hiestand, et al. "Healthcare Use After Buprenorphine Prescription in a Community Emergency Department: A Cohort Study." *Western Journal of Emergency Medicine,* vol. 22, no. 6, September, pp. 1270–1275. doi:10.5811/westjem.2021.6.51306

[71] Mohlman, M.K., B. Tanzman, K. Finison, M. Pinette, and C. Jones. "Impact of Medication-Assisted Treatment for Opioid Addiction on Medicaid Expenditures and Health Services Utilization Rates in Vermont." *Journal of Substance Abuse Treatment,* vol. 67, no. 9, 2016, pp. 9–14. doi:10.1016/j.jsat.2016.05.002

At baseline, beneficiaries with OUD were 7.8 and 14.2 times more likely to use ED and inpatient stays, respectively, than beneficiaries with other SUD diagnoses. By year 3 and later, these relative risks had declined to 7.0 and 11.9, respectively, but only the change for inpatient stays was statistically significant ($p < 0.05$) (see Appendix B, Table B.3.c).

Figure V.2. Predicted ED visits and inpatient stays for SUD per 1,000 beneficiaries, pre and post COVID-19 pandemic onset for the overall demonstration population



Source: Metrics #23 and 24 were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks

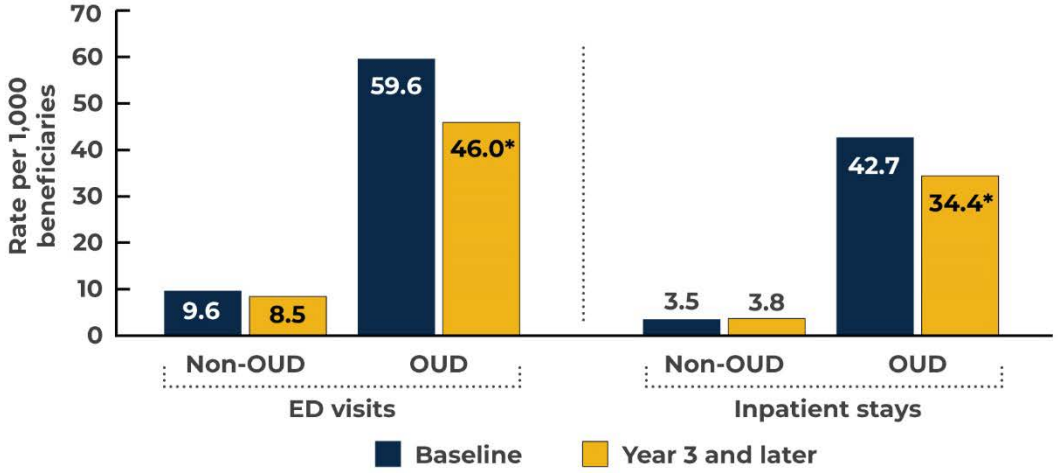
Note: Estimates are predicted means based on linear multiple regression models for Metrics #23 and 24. All regression models control for demonstration year, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Metrics #23 and 24 are reported monthly. The baseline for each state is months 1–12, and month 25 and later for year 3 and later. Primary SUD diagnosis is not required for these metrics (numerators include visits or stays with SUD diagnosis in any position on the claim).

See Appendix B, Table B.1, for a list of states included in each regression.

* The difference between value prior to and post COVID-19 pandemic onset is statistically significant ($p < 0.05$) based on regression results.

Pre-COVID-19 = Months prior to April 2020; Post COVID-19 onset = Months after April 2020.

Figure V.3. Predicted ED visits and inpatient stays for SUD per 1,000 beneficiaries with SUD in the demonstration baseline year and in year 3 and later for the non-OUD and OUD subpopulations



Source: Metrics #23 and 24 were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks

Note: For a list of states' demonstrations start dates, see Appendix A, Table A.2. Estimates are predicted means based on linear multiple regression models for Metrics #23 and 24. All regression models control for COVID-19 pandemic period, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Metrics #23 and 24 are reported monthly. The baseline for each state is months 1–12, and month 25 and later for year 3 and later. See Appendix B, Table B.1, for a list of states included in each regression. Primary SUD diagnosis is not required for these metrics (numerators include visits or stays with SUD diagnosis in any position on the claim).

* Difference between value and baseline value is statistically significant ($p < 0.05$) based on regression results.

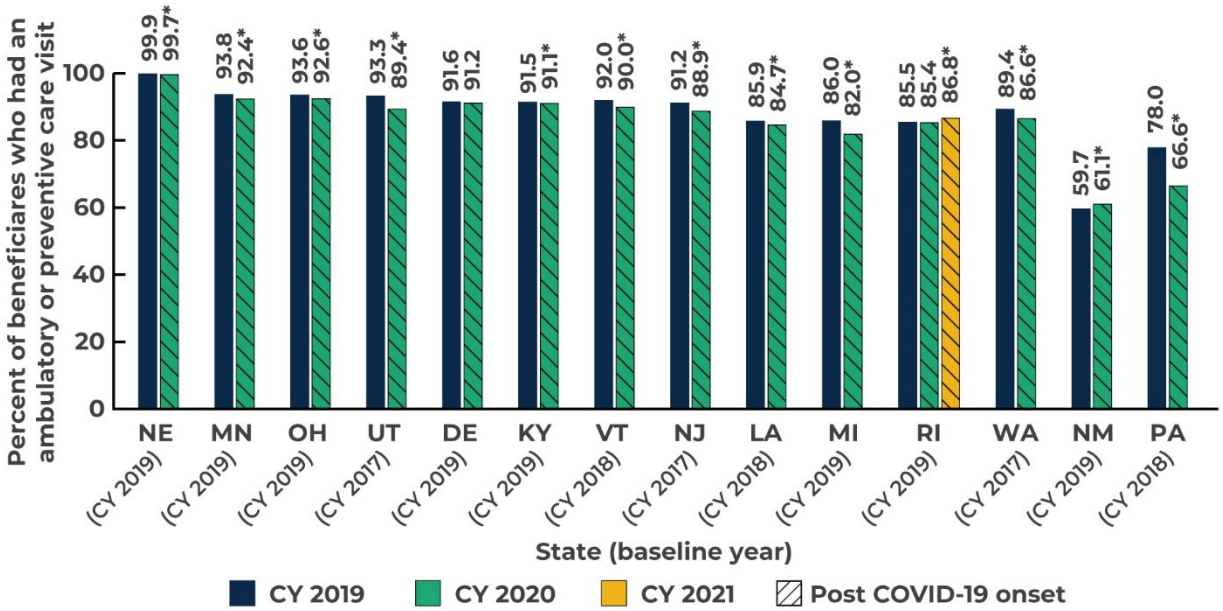
C. Access to preventive/ambulatory health services (Goal #6)

This section analyzes trends in Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD (annual Metric #32). Goal #6 of the demonstration focuses on improving access to care for physical health conditions among beneficiaries. Demonstration states must require SUD treatment providers to assess treatment needs on the basis of a multidimensional assessment tool that reflects evidence-based clinical guidelines. Such tools will include determining whether the person requires stabilization of acute physical health needs or ongoing treatment for chronic needs; thus, this requirement is expected to improve access to preventive/ambulatory health care. The demonstration also requires states to implement policies to ensure beneficiaries are linked to community-based services and supports following residential and inpatient stays. This requirement may also improve access to preventive/ambulatory health services.

Access to preventive/ambulatory health services (Figure V.4) significantly declined in 11 of 14 states between CY 2019 and CY 2020. Pennsylvania, the only state to provide context for its decline, noted decreased utilization of primary care during the COVID-19 public health emergency, which aligns with

other research indicating that many beneficiaries did not utilize health care services, including primary preventive/ambulatory health services, as a result of the COVID-19 pandemic.[72]

Figure V.4. Access to preventive/ambulatory health services for adult Medicaid beneficiaries with SUDs (Metric #32), by calendar year and state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19

[72] See https://www.nia.nih.gov/news/return-expected-rates-ambulatory-care-services-after-covid-19-differ-insurance-coverage-study.

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VI. Progress Toward SUD Demonstration Milestones

State Medicaid Director Letter (SMDL 17-003) for the SUD demonstration identifies 6 milestones and 6 goals on which states' performance is monitored. In this chapter, we review metric and narrative data from the state monitoring reports to assess (1) baseline status and progress toward each milestone (Sections A–F), (2) health information technology (health IT) improvements (Section G), (3) grievances and appeals (Section H), and (4) common implementation themes related to each milestone (Section I).

A. Milestone #1: Access to critical levels of care for OUD and other SUDs

Key takeaways

Our analysis found that the COVID-19 pandemic onset was associated with the following:

- No change in the overall number of beneficiaries using any SUD treatment
- Declines in the share of beneficiaries using any SUD treatment who received intensive outpatient or partial hospitalization, and residential or inpatient services
- Increases in the share of beneficiaries using any SUD treatment who received MAT

After controlling for the COVID-19 pandemic onset, the demonstrations were associated with:

- Increases in the number of beneficiaries using any SUD treatment, but no change in the share of beneficiaries who received each type of service between the baseline year and year 3 and later

Milestone #1 requires states to provide access to a continuum of care for OUD and other SUDs. To achieve this milestone, many participating states are implementing new coverage or making changes in coverage. However, the COVID-19 pandemic likely affected SUD treatment use and states' ability to proceed as planned with demonstration implementation activities. Thus, this section addresses whether the demonstration periods and the period post COVID-19 pandemic onset are associated with changes in the following metrics:

- The total number of beneficiaries using any SUD treatment (Any SUD Treatment [monthly Metric #6])
- The share of beneficiaries using any SUD treatment (Metric #6) who received each type of service: early intervention (monthly Metric #7), outpatient services (monthly Metric #8), intensive outpatient and partial hospitalization (monthly Metric #9), residential and inpatient services (monthly Metric #10), withdrawal management (monthly Metric #11), and MAT (monthly Metric #12)
- The number of beneficiaries receiving continuous pharmacotherapy for at least 6 months (annual Metric #22 numerator)
- Disparities between subpopulations in changes associated with the demonstration in the share of beneficiaries using any SUD treatment who received MAT (Metric #12), residential and inpatient services (Metric #10), outpatient services (Metric #8), and withdrawal management (Metric #11).[73]

[73] Regression analysis to assess disparities between subpopulations was not conducted for early intervention (monthly Metric #7) and intensive outpatient and partial hospitalization (monthly Metric #9) because the available reported data did not include at least 7 states with an average of 75 or more beneficiaries per month in the subpopulations for these types of service.

- Updates on monitoring data and access challenges with early intervention services (monthly Metric #7).

1. Total number of beneficiaries using any SUD treatment per month

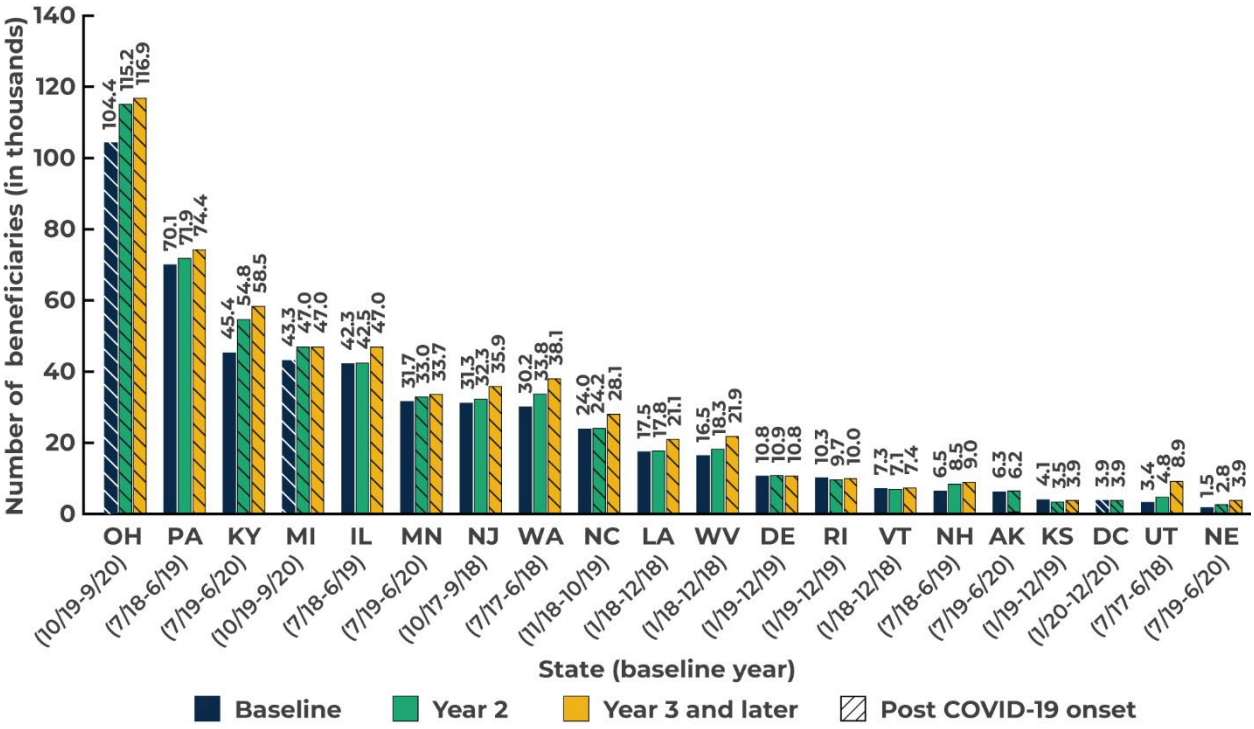
The average number of beneficiaries using any SUD treatment per month increased between the baseline year and the most recent reported demonstration year in 15 of 20 states (Figure VI.1). The regression model disaggregated the changes into those associated with the demonstration activities and those associated with the COVID-19 pandemic health precautions:

- **Demonstration activities.** After controlling for the COVID-19 pandemic, our regression analysis indicated the demonstrations were associated with a significant 5.7 percent increase in beneficiaries using any SUD treatment between the baseline year and year 2, and a significant 17.1 percent increase between the baseline year and year 3 and later (see Appendix B, Table B.2.e).
- **COVID-19 pandemic health precautions.** While multiple states reported fluctuations in beneficiaries using any SUD treatment associated with the COVID-19 pandemic, the regression analysis found no significant change post COVID-19 pandemic onset for the demonstration population overall (see Appendix B, Table B.2.f).[74] However, the regression analysis indicated the COVID-19 pandemic was associated with significant ($p < 0.05$) declines in the number of beneficiaries using any SUD treatment for three subpopulations: beneficiaries under 18 years old, beneficiaries 65 years old or older, and beneficiaries who were dually eligible for Medicaid and Medicare (Figure VI.2). These findings align with our findings and discussion in Chapter IV that these 3 subpopulations all saw declines in the likelihood of receiving treatment associated with the COVID-19 pandemic.

In the next section, we use the number of beneficiaries using any SUD treatment as the denominator to assess the share who receive each type of service.

[74] Defined as the calendar months of May 2020 and later. April 2020 was excluded from the period post COVID-19 pandemic onset for the regression analyses because the sharp decline in SUD service use observed in April was not sustained in later months.

Figure VI.1. The average monthly number of Medicaid beneficiaries using any SUD treatment (Metric #6), baseline, year 2, and year 3 and later

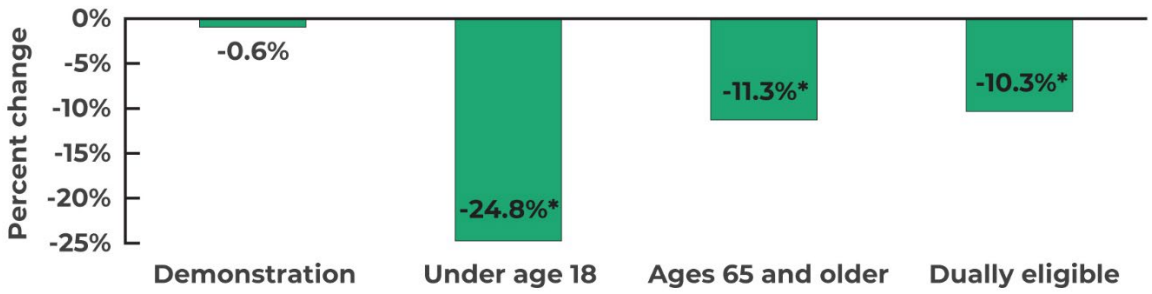


Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metric #6, the baseline reporting period is the first year of the SUD demonstration. This figure reports the average number of Medicaid beneficiaries receiving any SUD treatment (Metric #6) across all reported months with no identified quality issues in the indicated period. Nebraska implemented a Medicaid expansion, effective October 1, 2020; and Utah implemented Medicaid expansion in 2 phases, effective April 2019 (covered individuals up to the poverty level) and January 2020 (covered individuals up to 138 percent of the poverty level). These policy changes likely increased the number of beneficiaries using SUD treatment.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Figure VI.2. Percent change of beneficiaries using any SUD treatment by subpopulation post COVID-19 pandemic onset



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: Only subpopulations with statistically significant ($p < 0.05$) decreases are depicted: 18–64 years old, OUD, Medicaid only, and pregnant and not pregnant subpopulations did not have statistically significant changes associated with the post COVID-19 pandemic onset period. The overall demonstration population is included in the chart for context; this change was not statistically significant.

Values shown are percent changes in the estimated predicted means based on linear multiple regression models for the number of beneficiaries using any SUD treatment (Metric #6) for the overall demonstration population and each subpopulation. All regression models control for demonstration year, seasonality (based on the calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level.

* The difference between values prior to and post COVID-19 pandemic onset is statistically significant ($p < 0.05$) based on regression results.

2. Share of beneficiaries using any SUD treatment who received each type of service

In this section, we discuss the association between demonstration activities and COVID-19 pandemic health precautions and the share of beneficiaries who received each type of service.

- **Demonstration activities.** After controlling for the COVID-19 pandemic, the regression analysis found the demonstrations were not associated with significant changes in the share of beneficiaries using any SUD treatment who received specific types of SUD services between baseline and year 3 and later (Appendix B, Table B.2.e).
- **COVID-19 pandemic health precautions.** In contrast, the results indicated the COVID-19 pandemic was associated with significant declines in the share of beneficiaries using any SUD treatment who received intensive outpatient or partial hospitalization, and residential and inpatient services, and significant increases in the share who received MAT (Figure VI.3 and Appendix B, Table B.2.f).

States reported activities and challenges related to COVID-19 health risks that were similar to those identified in the March 2022 cross-state analysis:

- Five states (DC, LA, MN, NM, VT) reported reductions in residential and inpatient services due to capacity restrictions, stay at home orders, COVID-19 outbreaks at facilities, or staffing shortages.
- While states still see declines in residential and inpatient treatment post COVID-19 pandemic onset, 2 states (IL, MN) reported increases in residential and inpatient services as COVID-19 case rates have declined and vaccines have become more available.

- Utah attributed decreases in the number of beneficiaries who received residential treatment to billing delays but did not specify whether this was related to challenges brought on by the COVID-19 pandemic.

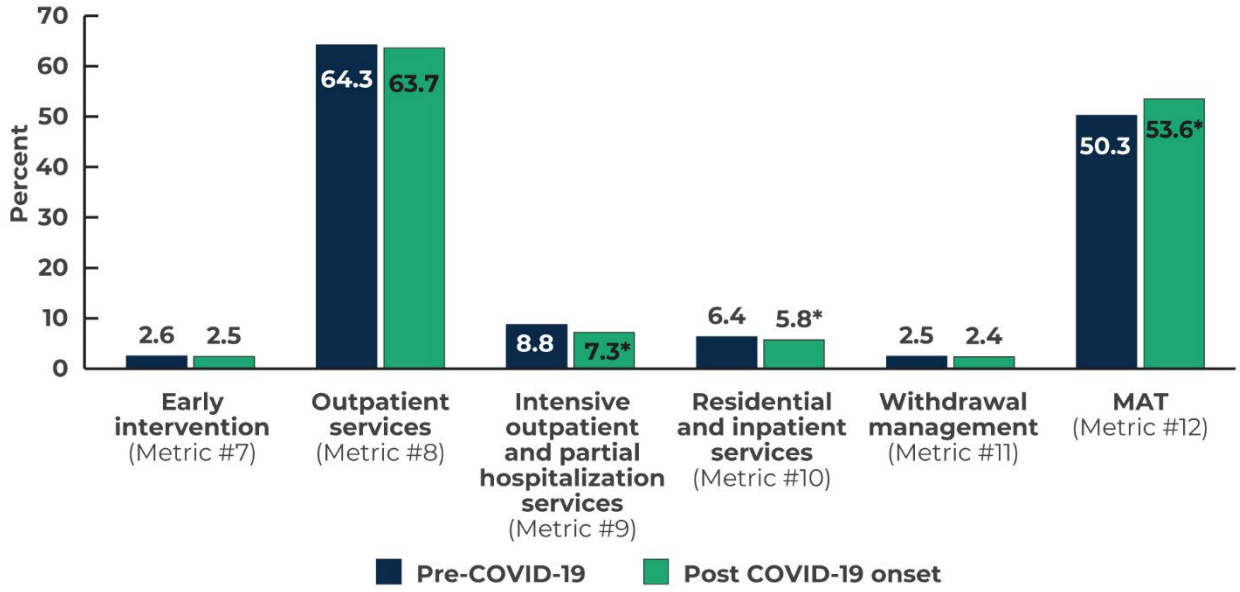
Five states (IL, LA, MN, NC, NJ) acknowledged the increase in the number of beneficiaries who received MAT services in their monitoring reports. This increase could be due to the Substance Abuse and Mental Health Services Administration's and CMS's regulation changes allowing for increased flexibility in prescribing MAT and for state activities to increase MAT provider capacity.[75,76,77] The March 2022 cross-state analysis included more detailed information on these regulation changes.

States continue to implement and expand telehealth capabilities and remove barriers to receiving care via telehealth. Initial research suggests telehealth can be as effective as in-person SUD treatment services in some cases,[78] and one study showed telehealth expansion improved access to MAT and contributed to lower use of inpatient and ED visits among beneficiaries with OUD.[79] State activities, including additional actions taken in response to this research, could result in continued increases in the share of beneficiaries using any SUD treatment who receive MAT after the public health emergency ends. States provided the following observations and information regarding telehealth:

- Louisiana speculated that telehealth expansion may have contributed to smaller declines in outpatient services compared with other services.
- Vermont (as reported in the March 2022 cross-state analysis) continues to have challenges implementing telehealth because of the lack of Internet broadband infrastructure in rural areas.
- California, Indiana, and West Virginia will continue reimbursement for telehealth services after the end of the public health emergency.

[75] See https://www.samhsa.gov/sites/default/files/otp-guidance-20200316.pdf.
[76] See https://www.medicaid.gov/sites/default/files/Federal-Policy-Guidance/Downloads/cib040220.pdf.
[77] See https://www.medicaid.gov/federal-policy-guidance/downloads/sho20005.pdf.
[78] See https://ps.psychiatryonline.org/doi/10.1176/appi.ps.202100088.
[79] See https://www.cms.gov/files/document/data-highlight-jan-2022.pdf.

Figure VI.3. Percentage of beneficiaries using any SUD treatment who received each type of service, prior to and post COVID-19 pandemic onset



Source: Mathematica's analysis of Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: Estimates are predicted means based on linear multiple regression models for the share of beneficiaries using any SUD treatment who received each treatment type. All regression models control for demonstration year, seasonality (based on the calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Metric #8 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in the SUD demonstration technical specifications manual, versions 1.0 to 3.0 (see Chapter II for more information). Metric #7 may be underreported across states because states may not provide any coverage for early intervention services, may fund early intervention services outside of the Medicaid program, or may cover these services under their Medicaid program but the specifications for Metric #7 do not align with the billing guidelines for providers of these services within their Medicaid program.

* The difference between value prior to and post COVID-19 pandemic onset is statistically significant ($p < 0.05$) based on regression results.

Pre-COVID-19 = Months prior to April 2020; Post COVID-19 onset = Months after April 2020.

3. Number of beneficiaries receiving continuous pharmacotherapy for at least 6 months

The number of beneficiaries receiving medication for OUD continuously for at least 6 months (continuity of pharmacotherapy; Metric #22 numerator) increased in all 14 states with reported data for CY 2019 to CY 2020 (Figure VI.4). According to guidelines for the treatment of OUD, treatment with the most commonly prescribed medications, methadone and buprenorphine, for less than 90 days provides little benefit and a substantially longer span of treatment is associated with more positive long-term outcomes.[80] Thus, increases in the number of beneficiaries receiving pharmacotherapy continuously are likely to be associated with more beneficiaries having better long-term outcomes.

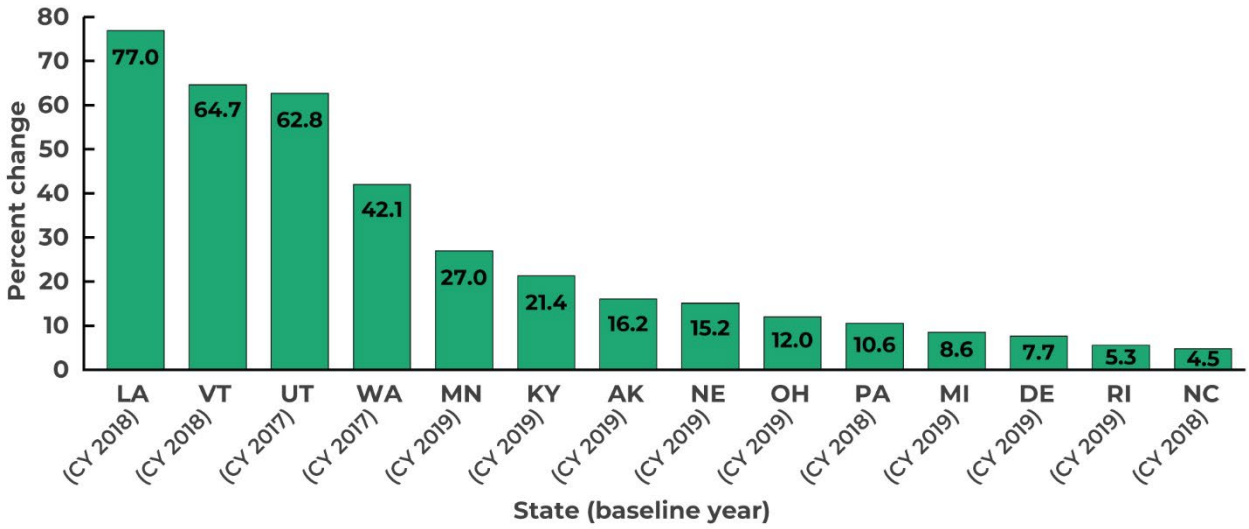
Two states reported narrative information related to these trends:

[80] See npg-jam-supplement.pdf (windows.net).

- Minnesota reported the increase in the number of beneficiaries receiving medication for OUD continuously was likely due to an increase in MAT providers and new flexibilities for buprenorphine prescribing.
- North Carolina revised its criteria for medically monitored intensive inpatient services (ASAM 3.7) to create improvements related to staffing and access to MAT services which could explain the increase.

As discussed above, in response to the COVID-19 pandemic and demonstration requirements, federal and state governments implemented policies to increase access to and utilization of MAT, which may have impacted the number of beneficiaries receiving continuous treatment. Additionally, some research suggests that continuous enrollment in insurance is a large factor in retention in MAT.[81] The requirement to maintain continuous Medicaid enrollment through the end of the COVID-19 public health emergency, instituted in FFCRA as a condition for states to receive enhanced FMAP, may have increased the stability of access to MAT in this period.

Figure VI.4. Percent change in the number of beneficiaries using MAT continuously for at least 6 months (Metric #22 numerator) between CY 2019 and CY 2020



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metric #22, the calendar year in which the demonstrations started is the baseline reporting period. However, Washington reported a baseline period (CY 2017) 1 year prior to the calendar year in which its demonstration started. For a list of states' demonstration start dates, see Appendix A, Table A.2. Specifications for Metric #22 indicate take-home dosing of methadone and buprenorphine should not be counted toward future days supply. This may result in an undercount of beneficiaries continuously using MAT, especially in March 2020 and later after the federal government permitted exemptions to some restrictions on take-home doses in response to the COVID-19 pandemic.

[81] See https://ps.psychiatryonline.org/doi/10.1176/appi.ps.201700363.

4. Disparities between subpopulations in the share of beneficiaries using any SUD treatment who received certain types of service

In this section, we highlight disparities between subpopulations in the changes associated with the demonstration in the share of beneficiaries using any SUD treatment who received certain types of service.

OUD vs. non-OUD. The regression analysis indicates the demonstrations are associated with a significant increase ($p < 0.05$) from baseline to year 3 and later in the share of beneficiaries using any SUD treatment who received MAT services for the OUD subpopulation, and no significant change in this share for beneficiaries with other SUD diagnoses (non-OUD) (Figure VI.5).

Policies and guidelines that encourage long-term use of MAT for OUD to address the opioid epidemic and reduce overdose deaths may have contributed to observed differences between the OUD and non-OUD subpopulations. Expanding access to effective medications for alcohol use disorder has received less attention, and medications for treating SUDs related to other substances are not available or as broadly effective as available medications for OUD and alcohol use disorder.[82]

In addition to MAT, the regression analysis results indicate a significant decrease ($p < 0.05$) from baseline to year 3 and later in the share of beneficiaries with OUD using any SUD treatment who received withdrawal management services and no significant change in this share for beneficiaries with other SUD diagnoses (Figure VI.6). Two states provided some context for this change, although the information was not specific to the OUD subpopulation. New Mexico and New Jersey noted the decline in withdrawal management services may be related to the COVID-19 pandemic because beneficiaries could opt for other services such as those available via telehealth. New Mexico also noted that reimbursement complications could explain the decline.

Dually eligible vs. Medicaid only. The regression analysis indicates the demonstrations are associated with a significant decrease ($p < 0.05$) from baseline to year 3 and later in the share of beneficiaries who received MAT services for dually eligible beneficiaries (Figure VI.5). At baseline, dually eligible beneficiaries using any SUD treatment were half as likely as those who were only eligible for Medicaid to receive MAT services. By year 3 and later, this disparity had increased such that dually eligible beneficiaries were 60 percent less likely than beneficiaries who were only eligible for Medicaid to receive MAT services.

Pennsylvania noted that Medicare began covering MAT on January 1, 2020. Since Medicare is the first payer for dually eligible beneficiaries, this was expected to result in less MAT provided through Medicaid for this subpopulation.[83] This is likely to have a similar effect in other states.

In addition to MAT, the regression analysis indicates a significant increase ($p < 0.05$) from baseline to year 3 and later in the share of dually eligible beneficiaries using any SUD treatment who received residential and inpatient services (Figure VI.6). States did not provide narrative information on this change.

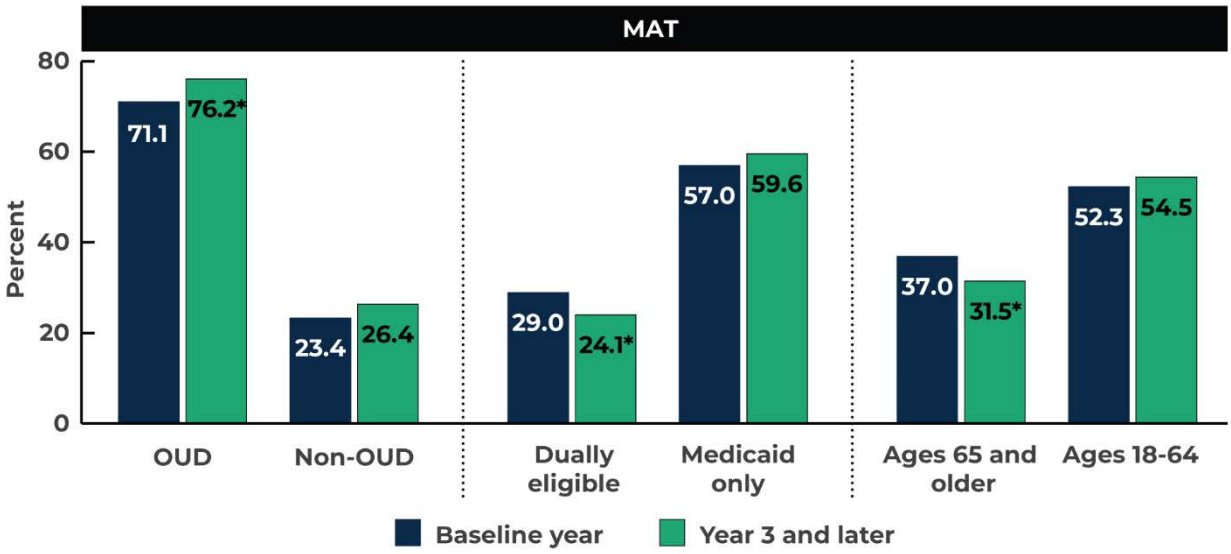
Sixty-five years old or older vs. 18–64 years old. The regression analysis indicates the demonstrations are associated with a significant decrease ($p < 0.05$) from baseline to year 3 and later in the share of beneficiaries who received MAT services for those 65 years old and older (Figure VI.5). At baseline,

[82] See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767185/pdf/nihms496118.pdf.
[83] See https://crsreports.congress.gov/product/pdf/IF/IF10875.

beneficiaries 65 years old and older who received any SUD treatment were 30 percent less likely to receive MAT services than beneficiaries 18–64 years old. By year 3 and later, this disparity had increased such that beneficiaries 65 years old and older were 40 percent less likely than beneficiaries 18–64 years old to receive MAT services. The 65 years old and older subpopulation overlaps with much of the dually eligible subpopulation. Given this, Medicare's coverage of MAT beginning on January 1, 2020, as described above, is also likely to be a driver of the increase in this disparity.

In addition to MAT, the regression analysis results indicate a significant increase ($p < 0.05$) from baseline to year 3 and later in the share of beneficiaries 65 years old and older using any SUD treatment who received outpatient services (Figure VI.6). At baseline, beneficiaries 65 years old and older were 10 percent less likely to receive outpatient services than beneficiaries 18–64 years old; however, by year 3 and later, the disparity no longer existed. States did not report related narrative information.

Figure VI.5. Percentage of beneficiaries using any SUD treatment who receive MAT (Metric #12/Metric #6), by subpopulation at baseline and year 3 and later



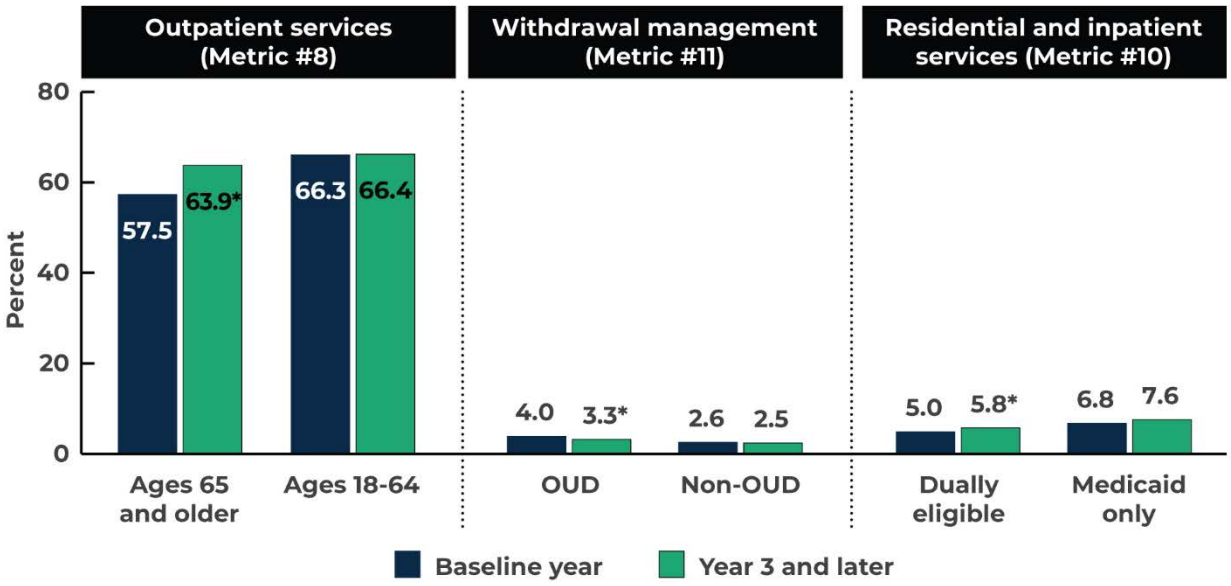
Source: Mathematica's analysis of Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metrics #6 and 12, the baseline reporting period is the first year of the SUD demonstrations. For a list of states' demonstration start dates, see Appendix A, Table A.2.

Estimates are predicted means based on linear multiple regression models for the share of beneficiaries using any SUD treatment who use MAT. All regression models control for COVID-19 pandemic, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level.

* Difference between the baseline value and the value for year 3 and later is statistically significant ($p < 0.05$) based on regression results.

Figure VI.6. Percentage of beneficiaries using any SUD treatment who received certain types of services, baseline and year 3 and later, among specific subpopulations



Source: Mathematica's analysis of Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metrics #6 and 12, the baseline reporting period is the first year of the SUD demonstration. For a list of states' demonstration start dates, see Appendix A, Table A.2. Estimates are predicted means based on linear multiple regression models for the share of beneficiaries using any SUD treatment who use outpatient services, withdrawal management, or residential and inpatient services. All regression models control for the COVID-19 pandemic, seasonality (based on calendar month), and state. Predicted means are calculated at the sample mean for these variables. Standard errors are adjusted for clustering at the state level. Only analyses finding statistically significant disparities are shown.

* Difference between the baseline value and the value for year 3 and later is statistically significant ($p < 0.05$) based on regression results.

5. Updates on monitoring data and access challenges with early intervention services

Early intervention services (Metric #7) have a low rate of reporting across states compared with other types of service metrics (Metrics #8–12).[84] Therefore, meaningful conclusions are hard to draw from the available data. Nine states reported narrative information on Screening, Brief Intervention, and Referral to Treatment (SBIRT) and other early intervention services, noting some causes for the low rate of reporting.

- Three states (KY, NJ, WA) reported declines in service use. Only Washington provided context for its decline, noting it could be related to barriers in billing for SBIRT caused by staff turnover and uncertainty around reimbursement.

[84] Note that the technical specifications for Metric #7 indicate that if a beneficiary receives early intervention services on the same date and from the same billing provider as services in a higher level of care, the beneficiary should be counted in the metric for the higher level of care (Metrics #8 to 10) and should not be counted as having an early intervention service on that date.

- Two states (IL, NC) reported on expanded coverage. North Carolina expanded licensed clinicians' ability to bill SBIRT in a primary care setting. Illinois began providing Medicaid coverage for SBIRT in January 2022.
- Four states (DC, ID, MN, OH) commented on limitations related to reporting monitoring data for this metric. Idaho noted reporting issues for this metric but is working to improve reporting parameters and identifying new codes so this metric can be included in the next report. The District of Columbia, Minnesota, and Ohio reported that the variation in this metric over time was due to small sample sizes. Minnesota noted the small sample sizes could be due to lack of widespread use of SBIRT for early intervention across the state.

B. Milestone #2: Widespread use of evidence-based, SUD-specific patient placement criteria

Key takeaways

Most of the reporting states saw substantial changes in the use of and average length of stay (ALOS) in institutions for mental diseases (IMDs) during their first 2 to 3 demonstration years; however, the direction of the changes varied across the states.

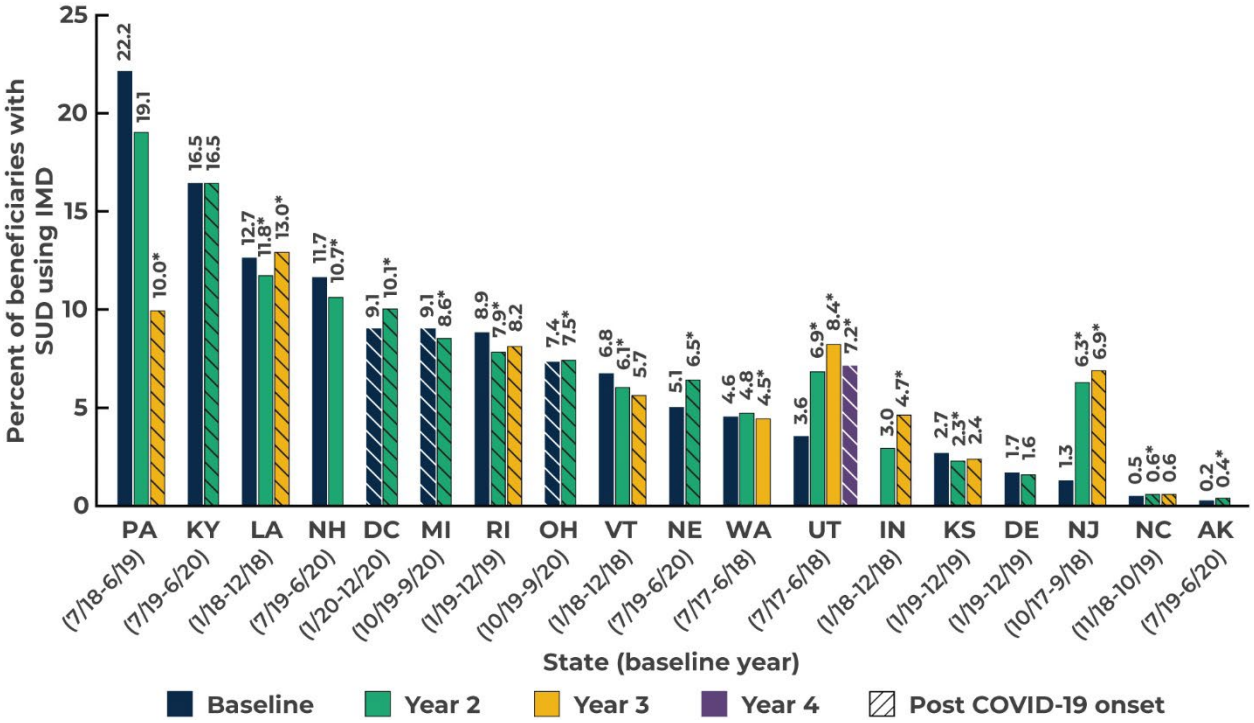
States implementing Medicaid expansions during their demonstrations or adding or enhancing coverage of residential or inpatient SUD services as part of their demonstrations (beyond adding expenditure authority for services provided to residents of IMDs) generally saw increases in IMD use, even post COVID-19 onset.

Milestone #2 is intended to ensure that services, including those provided by IMDs, are used appropriately by requiring that states implement utilization management and providers assess treatment needs based on SUD-specific multidimensional assessment tools. States report on Medicaid Beneficiaries Treated in IMDs for SUD (annual Metric #5) and ALOS in IMDs (annual Metric #36) to monitor trends in service use in IMDs. This section addresses changes in the use of IMDs, including among individuals with OUD, and ALOS between the baseline and first 2 demonstration years;[85] it also highlights potential drivers of these changes. We include 21 states in this analysis, with Kansas included only for use of IMDs and Minnesota, New Mexico, and West Virginia included only for ALOS.

The share of beneficiaries with a SUD using services in IMDs (Metric #5/annual Metric #4) significantly changed ($p < 0.05$) between subsequent years in 16 of 18 states reporting—only Delaware and Kentucky saw no significant change. We found significant increases in 7 states, significant decreases in 7, and significant but inconsistent trends in 2 states (Figure VI.7). The trends for the beneficiaries with OUD mostly align with the trends in the overall demonstration population, with some exceptions (Figure VI.8). We summarize these trends and how they relate to those for the overall demonstration population in Table VI.1.

[85] Because Utah is the only state reporting four years of data, this chapter discusses only changes between baseline and the first two demonstration years.

Figure VI.7. Percentage of beneficiaries with a SUD using IMD services (Metric #5/Metric #4) at baseline, year 2, and year 3, by state



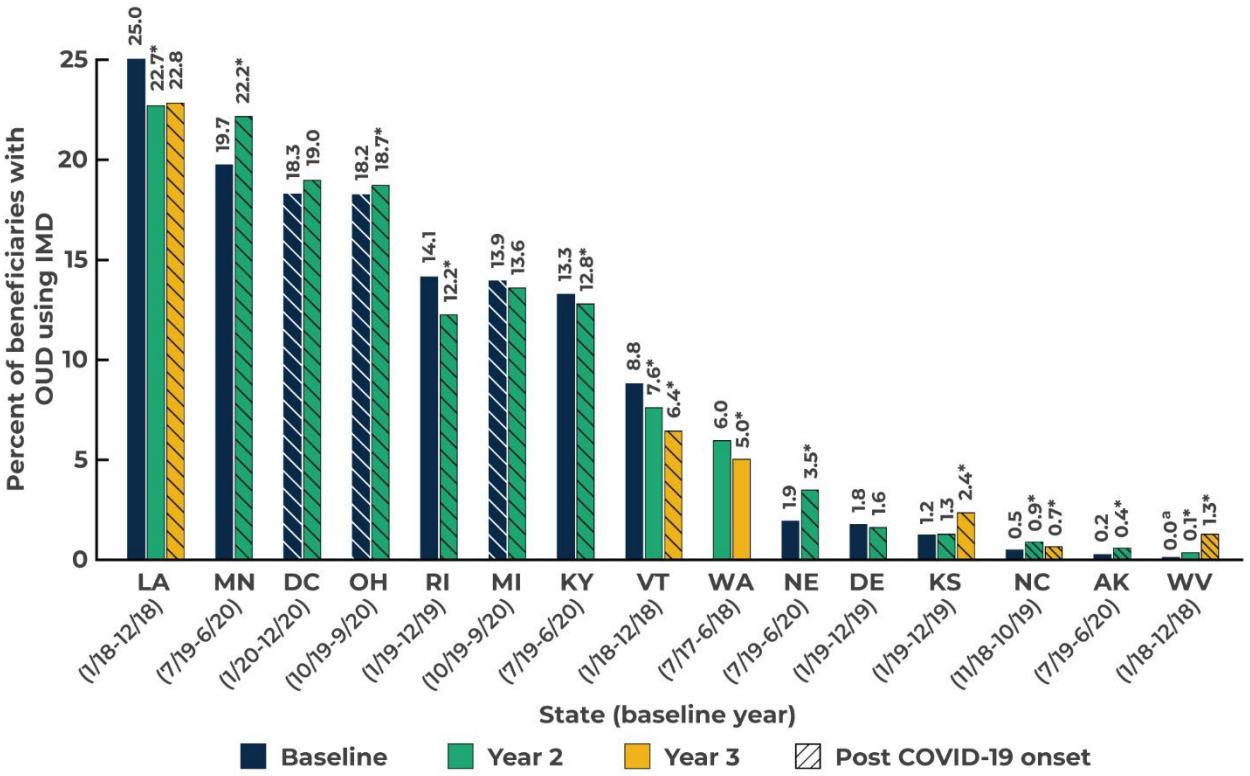
Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metrics #4 and 5, the baseline reporting period is the first year of the SUD demonstration. Variation in rates across states may result from differences in the levels of residential and inpatient care covered by Medicaid, Medicaid eligibility, and state regulations and laws affecting IMD service provision.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Figure VI.8. Percentage of beneficiaries with an OUD using IMD services (Metric #5/Metric #4) at baseline, year 2, and year 3, by state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: For Metrics #4 and 5, the baseline reporting period is the first year of the SUD demonstration. West Virginia's baseline rate is 0.04; however, percentages are displayed only to one decimal place. Variation in rates across states may result from differences in the levels of residential and inpatient care covered by Medicaid, Medicaid eligibility, and state regulations and laws affecting IMD service provision.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Table VI.1. Comparison of trends in the percentage of beneficiaries with a SUD using IMD services (Metric #5/Metric #4) between overall demonstration population and beneficiaries with OUD

IMD use for OUD subpopulation	IMD use for overall demonstration population				
	Increase	No change	Decrease	Inconsistent	Not reported
Increase	AK, NE, OH	None	KS	None	MN[a]
No change	DC	DE	MI	None	None
Decrease	None	KY	RI, VT, WA	LA	None
Inconsistent	NC	None	None	None	None

Note: Increase or decreases are identified as all differences between demonstration years that are significant are in the indicated direction. "Inconsistent" is defined as having a significant increase and a significant decrease. "No change" is defined as not having a difference between reported demonstration years that is statistically significant ($p < 0.05$) based on a z-test. Statistical significance is the difference between a demonstration year value and the prior year value being statistically significant ($p < 0.05$) based on a z-test.

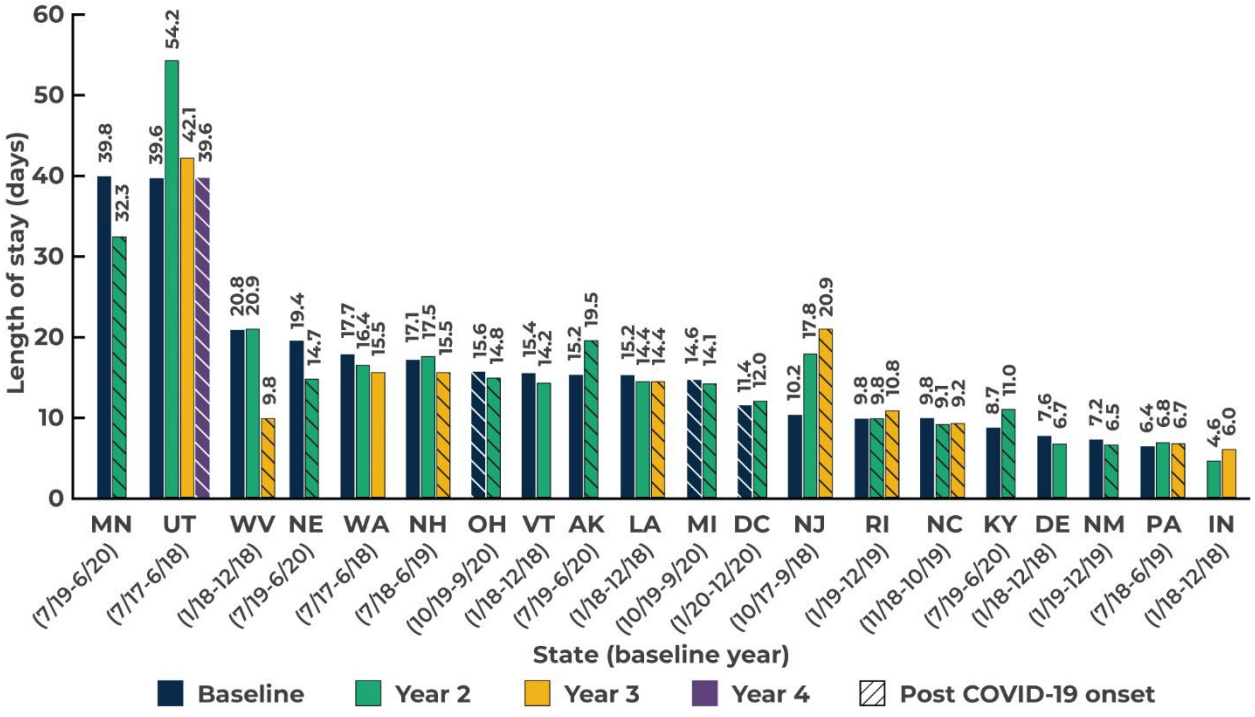
[a] Mathematica identified a significant increase in the share of individuals with OUD using services in IMDs for Minnesota; however, Minnesota's data were not included in the overall demonstration metric values for IMD use because it failed quality checks.

ALOS changed by 5 percent or more[86] between subsequent years in 19 of 20 reporting states, with increases in 7, decreases in 11, and inconsistent trends in only 1 (Figure VI.9). The SMDL 17-003 indicates that states should aim for a statewide ALOS of no more than 30 days in residential treatment.[87] ALOS varied substantially across states, with ALOS exceeding 30 days only in 2 states (MN, UT). Minnesota saw an 18.8 percent decline from baseline to year 2; Utah saw a 36.9 percent increase from baseline to year 2, but since then it has declined by 22.2 percent from year 2 to year 3 and by 6.1 percent from year 3 to year 4.

[86] Due to the special nature of Metric #36 (highly right-skewed, discrete, positive distribution with many tied observations and sometimes extreme outliers), there is insufficient specific research to provide a definitive guide on the appropriate statistical tests for comparing the ALOS distributions in 2 independent samples. A good choice of method requires empirically evaluating different options with regard to the type I error under the null hypothesis and the type II error under alternative hypotheses, as well as their sensitivity to the distributional assumption of the data. Thus, we did not conduct a statistical test for this metric.

[87] The statewide requirement for ALOS of no more than 30 days in residential treatment outlined in the SMDL 17-003 is specific to residential SUD treatment. The SDML 17-003 is available at https://www.medicaid.gov/federal-policy-guidance/downloads/smd17003.pdf.

Figure VI.9. ALOS in IMDs (in days) (Metric #36) at baseline, year 2, and year 3, by state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: We did not conduct z-tests for ALOS because of concern that the distribution of this metric would not conform with the assumption of normality. For Metric #36, the baseline reporting period is the first year of the SUD demonstration. Variation in rates across states may result from differences in the levels of residential and inpatient care covered by Medicaid, Medicaid eligibility, and state regulations and laws affecting IMD service provision.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

States generally did not provide explanations for observed trends in IMD use and ALOS. However, a few factors may be related to the observed trends, as follows:

New or expanded coverage of residential care levels during the demonstration. Beyond adding expenditure authority for services provided to residents of IMDs, 7 of the states we analyzed (AK, DC, IN, NC, NJ, NM, WV) planned to cover new ASAM levels of care or enhance existing coverage of particular ASAM levels of residential and/or inpatient SUD services as part of their demonstrations:[88]

- Consistent with a service expansion, use of IMDs increased significantly in all 5 of these 7 states (AK, DC, IN, NC, NJ) that reported data of sufficient quality to be included in our analysis.
- Trends in ALOS for the 7 states were mixed, with increases in 4 states (AK, DC, IN, NJ) and decreases in 3 (NC, NM, WV). Expansion of IMD services could increase or decrease ALOS, depending on whether the expanded service levels tend to provide more or less intensive services than the existing levels. For example:

[88] Information about states' plans to add or enhance services is based on states' implementation plans; we did not correlate information about timing of any changes with the data for Milestone #2.

- New Jersey implemented new coverage of long-term residential services (ASAM 3.5) and the District of Columbia expanded residential services in three ASAM levels (ASAM 3.3, 3.5, and 3.7). New Jersey highlighted coverage expansion as a reason for its increase in ALOS, whereas the District of Columbia attributed the increases in both metrics to changes in IMD coverage policy and an associated ramp-up of billing for such services.
- After adding coverage for lower residential treatment services (ASAM 3.1–3.5) as part of its demonstration, West Virginia reported that in the third year of its demonstration, more than half of its residential beds were at lower care levels. The state's shift away from its pre-demonstration approach of only offering medically monitored intensive inpatient services (ASAM 3.7)[89] may have influenced the observed reduction in ALOS.
- Similar shifts in access to new levels of care may be affecting ALOS in other states that have added or expanded coverage for residential services.

Medicaid expansion during the demonstration. Two states (NE, UT) implemented Medicaid expansions during the analysis period.[90] Both of these states experienced increases in use of IMDs and decreases in ALOS following their implementation of Medicaid expansion. Because the ACA Medicaid expansion population has higher rates of SUDs than adults traditionally eligible for Medicaid, Medicaid expansion is expected to increase rates of SUD treatment use in the Medicaid population, including use of IMDs.[91] The impact of Medicaid expansion on ALOS in IMDs is not well researched.

COVID-19 pandemic. Studies show that in response to the COVID-19 pandemic, some psychiatric facilities scaled down levels of activity, eliminated outpatient and day-hospital activities, cut down inpatient admissions, and reduced the number of available beds because of social distancing policies and staff limitations. Facilities may have also extended patient stays due to quarantine requirements.[92,93,94] These changes may have reduced use of IMDs and impacted ALOS. In addition to the 4 states (NC, NJ, VT, WV) that noted lower residential provider capacity because of the pandemic (finding presented in the March 2022 cross-state analysis), 4 states (KS, MN, OH, PA) noted that the pandemic affected IMD use or ALOS.

IMD use in states that expanded Medicaid eligibility or coverage of residential services increased significantly even in years post COVID-19 pandemic onset (in 6 of 7 states [AK, DC, IN, NC, NE, NJ, UT[95]] with available data). However, trends in IMD use post COVID-19 pandemic onset varied in the 10 states (DE, KY, KS, LA, MI, NH, OH, PA, RI, VT) that did not expand Medicaid eligibility or coverage of residential services. IMD use declined significantly in 5 states (KS, MI, NH, PA, RI)[96] increased

[89] Based on a monitoring report included in the August 2020 cross-state analysis.
[90] Nebraska's expansion was effective October 1, 2020, and Utah's was phased in, effective April 2019 and January 2020.
[91] The rate of SUDs among currently uninsured individuals who are 20 to 64 years old and eligible for Medicaid expansion based on income was higher than the rate among current Medicaid enrollees in the same age range (14.6 percent versus 11.5 percent, p = 0.03). See https://ps.psychiatryonline.org/doi/full/10.1176/appi.ps.201200011.
[92] See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8345711/.
[93] See https://www.samhsa.gov/sites/default/files/covid19-interim-considerations-for-state-psychiatric-hospitals.pdf.
[94] See https://www.statnews.com/2020/12/23/mental-health-covid19-psychiatric-beds/.
[95] For Utah, although the rates of IMD service use among those with an IMD diagnosis declined between year 3 and 4 after increasing for the prior three years, the number of beneficiaries receiving IMD services (the numerator of the rate) increased between year 3 and 4.
[96] Kansas and Rhode Island demonstration years 2 and 3 occurred post-COVID onset and both had similar trends showing both a significant decrease in their demonstration year 2 and no significant changes during demonstration year 3.

significantly in 2 states (LA, OH), and had no significant change in 3 states (DE, KY, VT). ALOS decreased in 3 of these states (DE, NH, OH), increased in two states (KY, RI), and had no substantial change in 3 states (LA, MI, PA).[97]

The declines in use of IMDs and ALOS observed in states that were not affected by expansion activities align with findings from our regression analyses (reported in Section VI.A above), which indicated that, after controlling for demonstration implementation, the COVID-19 pandemic onset was associated with a reduced share of SUD treatment users using residential and inpatient services (see Figure VI.3).

Utilization management. Many states reported updates to utilization management strategies aligned with requirements of the demonstration, including updating documents to align with required utilization management and patient placement criteria and training providers, contractors, or managed care organizations (MCOs) on patient placement. However, it is unclear how improvements to utilization management may affect use of IMDs as well as ALOS in IMDs because the expected direction of any change will depend on whether services were over- or under-utilized before the demonstration relative to any updated utilization management guidelines.

For example, IMD use in Pennsylvania was higher than in all other states at baseline and declined by more than 50 percent, resulting in a rate more consistent with other states (see Figure VI.7). During its demonstration, the state has taken significant steps to implement utilization management strategies. Before the demonstration, the state did not use the ASAM Criteria[98] to determine the type, level, and length of stay but rather used a state-specific placement criterion. The state worked to align its SUD system of care (including services hours, credentialing) with ASAM Criteria, including requiring the use of ASAM standards in MCO contracts and the use of the self-assessment tool to designate ASAM level of care. In its second and third demonstration years, the state reported ongoing implementation activities, among them offering provider trainings and technical assistance focused on ASAM Criteria and releasing guidance focused on residential services and LOC requirements through changes in provider contracts.

C. Milestone #3: Use of nationally recognized, evidence-based SUD program standards to set provider qualifications for residential treatment facilities

Key takeaways

During the initial 24 months after demonstration approval, states reported varied approaches to implementing and monitoring compliance with evidence-based standards. States continued to refine and enhance compliance monitoring in later demonstration years.

To meet Milestone #3, states must (1) implement evidence-based standards for residential treatment provider qualifications, (2) implement a review process to assure compliance with these standards, and (3) require that residential treatment facilities offer MAT on-site or facilitate access off-site. There are no required monitoring metrics associated with this milestone. However, states report narrative information on activities for Milestone #3. Based on narrative reporting submitted from December 2019 to June 2022, this section highlights the work of seven states that exemplify the varied actions states undertook to meet the second of these requirements. States must meet this requirement within 24 months of demonstration

[97] Kansas was excluded from the analysis of ALOS because of data quality issues.

[98] ASAM Criteria are national guidelines for identifying the appropriate ASAM LOC for patients with SUDs at each stage of treatment, based on a multidimensional assessment. These criteria are used to determine a patient's initial placement at a treatment level and to identify when a patient should be transferred to a different level. For more information, see https://www.asam.org/asam-criteria/about-the-asam-criteria.

approval. Thus, we compared the date of the reported activities to the state's demonstration approval date to determine whether these activities took place during the initial implementation period (within 0 to 24 months of the demonstration approval date) or during the ongoing implementation period (25 or more months after the demonstration approval date).

All seven states reported activities related to implementing a review process (Table VI.2), but their reporting suggests variation in the entity responsible for the monitoring compliance (for example, MCOs or externally contracted auditors) and in the approaches used (for example, following ASAM Criteria or developing a state-specific tool). The table also shows states that have entered the ongoing implementation period continue to perform, refine, and/or enhance compliance assurance processes.

Table VI.2. Reported activities related to implementing a review process to assure residential treatment providers comply with evidence-based treatment standards, by state and period

State (approval date)	Initial implementation period (0–24 months)	Ongoing implementation period (25 or more months)
Colorado (11/13/2020)	Completed its contract for an independent QA reviewer to conduct audits	n.a.
Kentucky (1/12/2018)	Began conducting desk audits of residential providers	Established workgroups to develop quality measures for SUD treatment across the state
Nebraska (6/28/2019)	Added specific provider standards for residential treatment settings, including MAT availability, to QA LOC assessment standards for MCOs	Continued to develop MCO contract language requiring compliance reviews
New Hampshire (7/10/2018)	Developed a shared audit process with MCOs to monitor use of ASAM Criteria	Conducted audits to ensure compliance with ASAM Criteria
Ohio (9/24/2019)	Began updating rules and policies to align with ASAM Criteria and developed on-site monitoring processes	No reported activities
Oregon (4/8/2021)	Began drafting contracts with ASAM related to external review	n.a.
Vermont (6/6/2018)	Used its compliance assessment tool to certify residential SUD providers	Revised its SUD provider compliance assessment tool

ASAM = American Society of Addiction Medicine; LOC = level of care; MAT = medication-assisted treatment; MCO = managed care organization; n.a. = not applicable (indicates states whose demonstrations have not entered the ongoing implementation period); QA = quality assurance; SUD = substance use disorder.

D. Milestone #4: Sufficient provider capacity at critical levels of care, including MAT for OUD

Key takeaways

We found some progress and some setbacks in states' efforts to ensure sufficient provider capacity. Of the 20 states analyzed, SUD and MAT providers per 10,000 Medicaid beneficiaries had:

- Increased significantly between years in 5 states
- Decreased significantly between years in 8 states

Decreased significantly for one provider type and increased significantly for the other provider type in 3 states. Notably, in 8 states, the decline in the rate was due to a large increase in the number of Medicaid beneficiaries, not a decline in the number of providers. Across milestones, states frequently reported offering provider trainings to improve provider capacity. These trainings were most frequently focused on MAT, the ASAM Criteria, and workforce development and support.

Milestone #4 requires that states ensure sufficient provider capacity at critical levels of care, including MAT. To monitor whether states have addressed this milestone, within 12 months of demonstration approval, states are required to assess the availability of providers who are enrolled in Medicaid and accepting new patients in critical LOC throughout the state, including those that offer MAT. In addition, two monitoring metrics can support assessment of progress in improving provider availability: (1) SUD Provider Availability (annual Metric #13) and (2) SUD Provider Availability—MAT (annual Metric #14). The next section presents findings from analyses of these metrics. The second section discusses narrative reporting on provider trainings.

1. Sufficient provider capacity

Technical specifications for the provider availability metrics allow states to choose the data source and methods for counting providers. Thus, differences in reported provider availability between states may be related to states' definitions and methods. CMS gathers additional information from states on the definition and methods used to calculate certain monitoring metrics to improve its understanding of the data. Of the 20 states analyzed, 13 (AK, DC, DE, KS, LA, MI, NC, NE, NJ, OH, PA, RI, VT) provided their methodology for these metrics.[99] All of these states count providers at the individual and facility levels, depending on practice setting, for both metrics, except for Alaska (which reports providers only at the individual level for Metric #13 and organization level for Metric #14) and Rhode Island (which did not specify whether the measure is reported at the individual provider or facility level). To assess changes in access to providers over time, we normalized the reported overall SUD provider or MAT provider availability metrics by calculating the number of providers per 10,000 adult Medicaid beneficiaries ([number of providers/average number of adult Medicaid beneficiaries per month] * 10,000[100]).

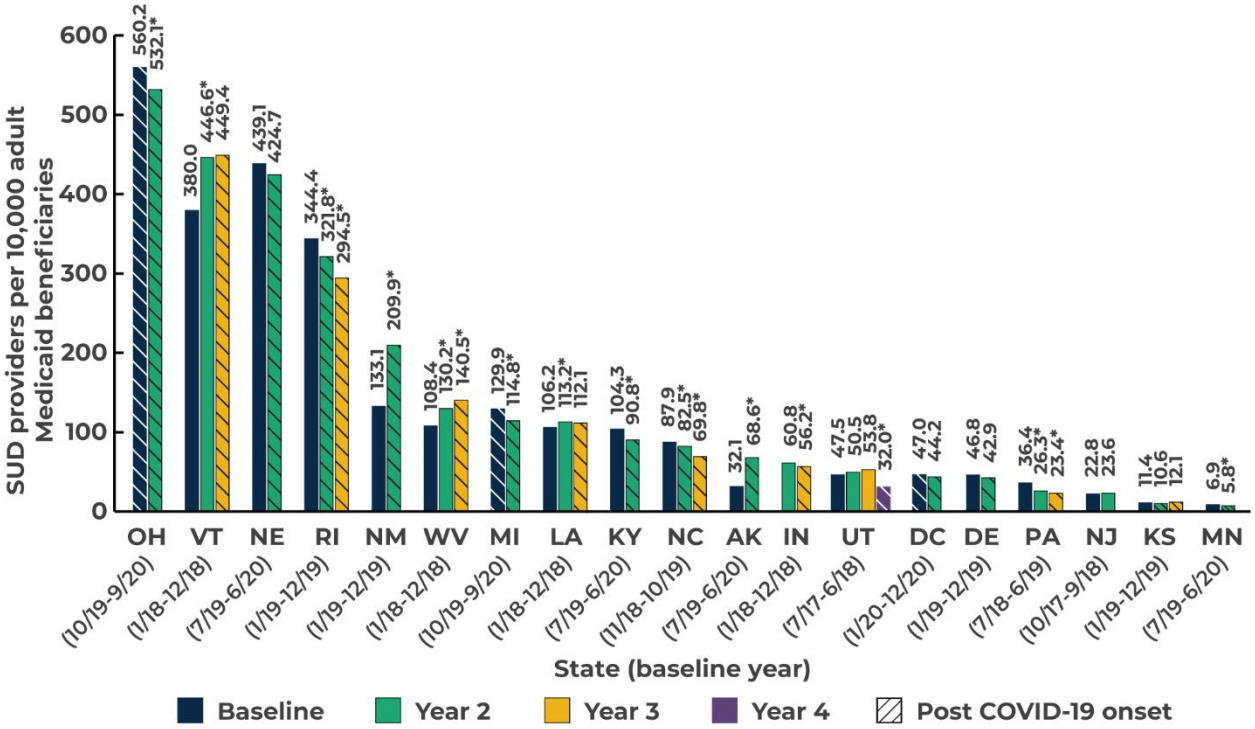
The March 2022 cross-state analysis discussed factors associated with increases in SUD or MAT providers per 10,000 beneficiaries, including service expansion (AK, LA), an initiative to enhance access to MAT (VT), increased payment rates (VT), and increases in providers seeking DATA 2000 waivers (NM). It also highlighted declines in these rates associated with increased Medicaid enrollment. Since

[99] This report considers provider capacity measure methodology information received by July 20, 2022.
[100] The number of adult Medicaid beneficiaries is derived from the denominator for Metric #23.

the March 2022 cross-state analysis, 11 states reported an additional year of data, and 6 of these states reported narrative context.

- Michigan and West Virginia reported an additional year of metric data indicating an increase in provider capacity within the following context (Figures VI.10 and VI.11):
  - West Virginia, which had a significant 7.9 percent increase in SUD providers between the second and third years of the demonstration, increased reimbursement rates in the state in response to the public health emergency.
  - Michigan, which had a significant 18.5 percent increase in MAT providers between the baseline and second year of the demonstration, reported increasing efforts to offer support and resources to providers who treat SUD.
- Minnesota and Utah reported an additional year of metric data indicating a decrease in provider capacity with the following context (Figures VI.10 and VI.11):
  - Minnesota, which had a significant 15.9 percent decline in SUD providers and 21.6 percent decline in MAT providers from baseline to year 2, reported closing SUD treatment facilities because of staffing and COVID-19-related issues.
  - Utah, which had a significant 40.6 percent decline in SUD providers per 10,000 beneficiaries between year 3 and year 4, noted workforce shortages.
- North Carolina and Ohio reported an additional year of metric and narrative data during which the rate of SUD or MAT providers per 10,000 beneficiaries decreased due to a large increase in the Medicaid population. Figure VI.12 reports the percent change in the components of the rate for those states in which the decline in the overall indicator (rate) between the most recent year reported and the year prior was due to a large increase in the number of Medicaid beneficiaries (rate denominator), not a decline in the number of providers (rate numerator).
  - Providers per 10,000 beneficiaries significantly decreased in North Carolina (15.5 percent for SUD providers and 7.7 percent for MAT providers). However, the number of providers increased (by 6.3 percent for SUD providers and by 16.2 percent for MAT providers) from year 2 to year 3, which the state associated with an increase in the number of providers seeking DATA 2000 waivers.
  - SUD providers per 10,000 beneficiaries significantly decreased in Ohio by 5.0 percent. However, the number of SUD providers increased by 8.0 percent from baseline to year 2, which the state associated in part to gaining access to a more complete record of buprenorphine-waivered providers.

Figure VI.10. SUD providers per 10,000 Medicaid beneficiaries (Metric #13/10,000 Medicaid beneficiaries) at baseline, year 2, year 3, and year 4, by state



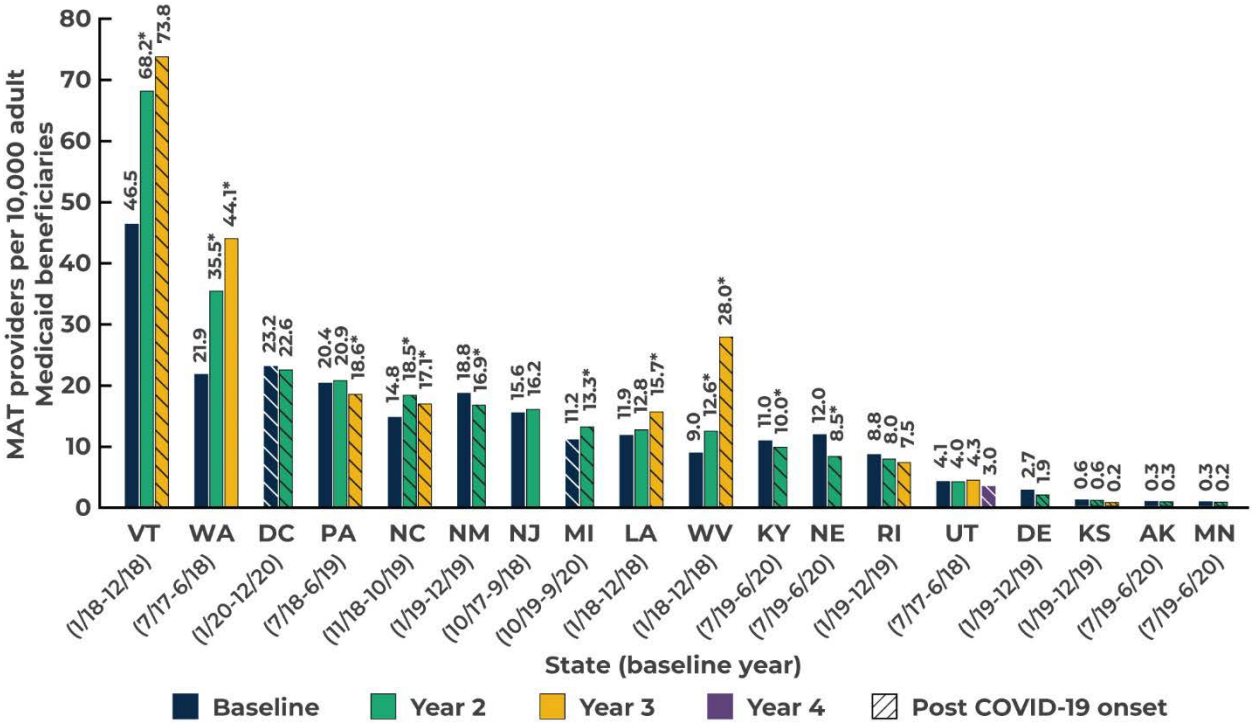
Source: Metric #13 data and the total adult Medicaid population (Metric #23 demonstration denominator minus Metric #23 under 18 denominator) were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: The number of SUD providers per 10,000 adult Medicaid beneficiaries was calculated by dividing the annual count of providers (Metric #13) by the average monthly count of adult Medicaid beneficiaries for the same year. We then multiplied this quotient by 10,000. Adult Medicaid beneficiaries for each month were calculated by subtracting the denominators for the under 18 subpopulation for Metric #23 from the demonstration Metric #23 denominator. Alaska noted that the increase in its year 2 rate was partially due to registration of existing providers in its tracking system. Washington reported a change in its method for calculating Metric #13 but has not resubmitted historical data using the new method; therefore, the state was excluded from the analysis for Metric #13. For Metric #13, the baseline reporting period is the first year of the SUD demonstration. Indiana has not yet reported data for its baseline period.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Figure VI.11. MAT providers per 10,000 Medicaid beneficiaries (Metric #14/10,000 Medicaid beneficiaries) at baseline, year 2, and year 3



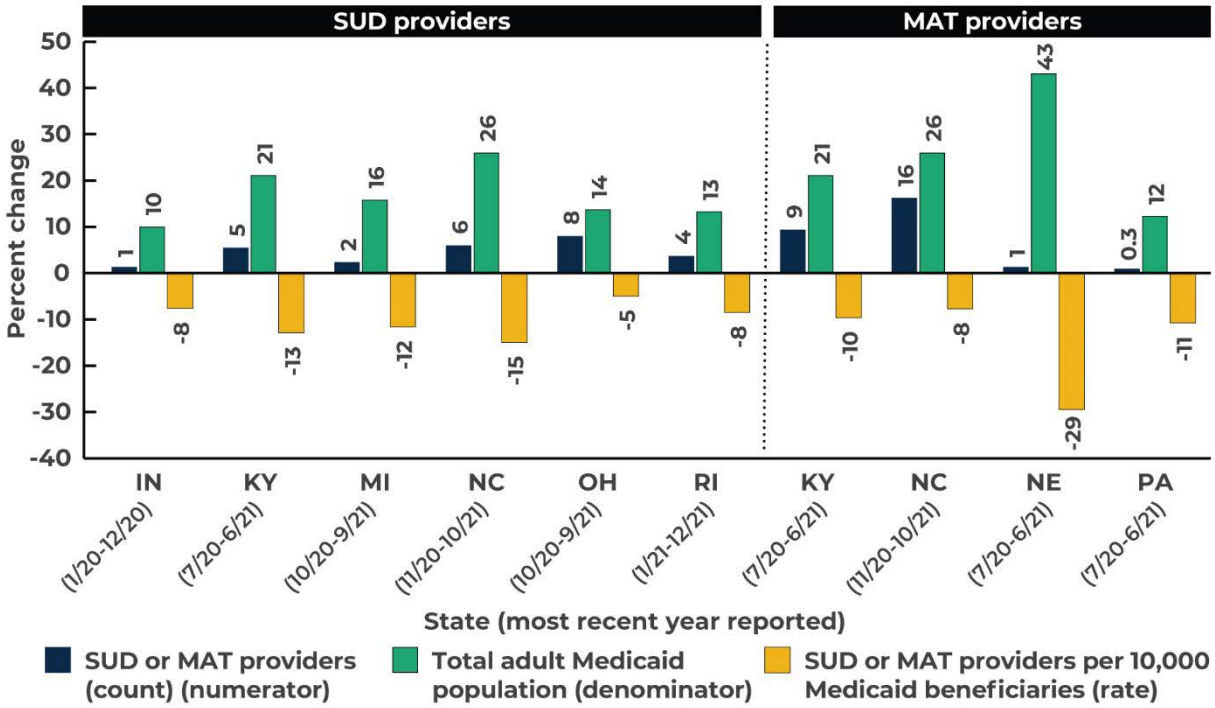
Source: Metric #14 data and the total adult Medicaid population (Metric #23 demonstration denominator minus Metric #23 under 18 denominator) were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: The number of MAT providers per 10,000 adult Medicaid beneficiaries was calculated by dividing the annual count of MAT providers (Metric #14) by the average monthly count of adult Medicaid beneficiaries for the same year. We then multiplied this quotient by 10,000. Adult Medicaid beneficiaries for each month were calculated by subtracting the under 18 Metric #23 denominator from the demonstration Metric #23 denominator. Indiana's reported data for Metric #14 for year 3 failed the quality checks so were excluded from this analysis. For Metric #14, the baseline reporting period is the first year of the SUD demonstration. However, Washington reported a baseline period (July 1, 2017, to June 30, 2018) that began about a year before its demonstration start date (July 17, 2018).

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

Figure VI.12. Percent change in numerator, denominator, and overall indicator (number of SUD or MAT providers per 10,000 Medicaid beneficiaries) between the most recent year reported and year prior among states with a significant decline in the overall indicator



Source: Metrics #13 and 14 data and the total adult Medicaid population (Metric #23 demonstration denominator minus Metric #23 under 18 denominator) were obtained from Medicaid Section 1115 SUD Monitoring Report Workbooks.

2. Provider trainings

States reported offering provider training as a means to improving provider capacity. This section compiles information about provider trainings and provides insight into the variety of activities states have undertaken to improve provider capacity. We reviewed the monitoring reports submitted between October 2021 to June 2022 and found 14 states (CO, DC, DE, LA, MI, MN, NC, NH, NJ, NM, OK, PA, RI, WI) reported conducting provider training. Table VI.3 summarizes the training the 14 states offered.

Trainings focused on 11 topic areas, most commonly:

- **ASAM Criteria.** Eight states reported offering ASAM Criteria training to providers. These trainings covered ASAM LOC certification requirements[101] and/or use of the ASAM patient placement assessment tool.[102]
- **MAT.** Seven states reported they provided MAT training to educate and encourage use by providers. For example, New Hampshire provided training on buprenorphine, specifically reviewing new federal rules around its administration.

[101] See https://www.asam.org/asam-criteria/level-of-care-certification.
[102] See https://www.asam.org/asam-criteria/criteria-intake-assessment-form.

- **Other workforce development and support.** Lastly, six states reported that they were offering trainings that focused on workforce development and support, with a broad array of topics. For example, Rhode Island held provider trainings on best practices for treating SUD, and New Hampshire reported hosting substance use counselor trainings. The other four states held trainings focused on building provider capacity through topics such as developing staffing and training plans (NM) or facilitating professional development (LA).

States also reported offering population-focused provider trainings, but there was no overlap among states in the populations on which the trainings focused. Of the states reporting such trainings, only Delaware reported offering trainings related to a subpopulation that was reported on in the SUD demonstration metrics (people who are pregnant).

Table VI.3. Summary of provider trainings offered by states

Topic	States
Addiction and recovery	NH
ASAM Criteria	CO, MI, MN, NC, NM, OK, PA, WI
Billing	MN
Cognitive behavioral therapy	PA
Harm reduction	NH
MAT	CO, LA, NJ, NH, NM, OK, PA
Naloxone	LA, NM
Motivational interviewing	PA
SBIRT and other screening tools	CO, LA, NM
Stigma	NM
Workforce development and support	DC, LA, NH, NJ, NM, RI
Population-Focused	
People with co-occurring disorders	PA
People with complex conditions	NH
People experiencing homelessness	RI
People with OUD who are pregnant and/or are parents of infants	DE

Source: States' Medicaid Section 1115 SUD Monitoring Reports.

E. Milestone #5: Implementation of comprehensive treatment and prevention strategies to address opioid abuse and OUD

Key takeaways

Both measures of safer opioid prescribing practices indicate some improvements:

- Concurrent use of opioids and benzodiazepines significantly decreased in 8 of 15 reporting states and significantly increased in 1 state between CY 2019 and CY 2020.
- Among 14 states reporting data for both CY 2019 and CY 2020, use of opioids at high dosage in persons without cancer significantly changed in 6, decreasing in 3 and increasing in 3 states.
- Nine states reported a variety of activities to increase access to naloxone.

Milestone #5 requires SUD demonstration states to implement comprehensive treatment and prevention strategies, including (1) implementing opioid prescribing guidelines to prevent opioid abuse, (2) expanding coverage of and access to naloxone, and (3) implementing strategies to increase the use of and improve functionality of their Prescription Drug Monitoring Program" (PDMP) systems. This section discusses trends in opioid prescribing among reporting states through the first 2 to 4 years of their demonstrations.

In this section, we analyze state-reported data for 2 required metrics that address opioid prescribing:[103]

1. **Concurrent Use of Opioids and Benzodiazepines (annual Metric #21)**, which measures the percentage of beneficiaries age 18 and older who have at least 2 prescription claims for opioid medications with a cumulative supply of at least 15 days, and who concurrently use prescription opioids and benzodiazepines.[104] This measure is important in overdose prevention, because in 2020, benzodiazepines contributed to 16 percent of overdose deaths involving opioids. In 2016, the CDC issued guidelines on the concurrent use of benzodiazepines and opioids, and the U.S. Food and Drug Administration issued a warning that clinicians avoid prescribing benzodiazepines concurrently with opioids, because both types of drugs sedate users and suppress breathing—the cause of overdose death.[105, 106, 107]
2. **Use of Opioids at High Dosage in Persons Without Cancer (annual Metric #18)**, which measures the percentage of beneficiaries older than age 18 who receive prescriptions for opioids with a daily dosage greater than 90 morphine milligram equivalents (MME) for 90 days.[108] This measure is important because clinical evidence indicates that higher opioid dosages are associated with increased risks for motor vehicle injury, OUD, and overdose. Meanwhile, the benefits of high-dose opioids for chronic pain have not been established in the clinical literature.[109]

Following the analysis of these metrics, we briefly discuss state activities to increase access to naloxone.

1. Concurrent use of opioids and benzodiazepines

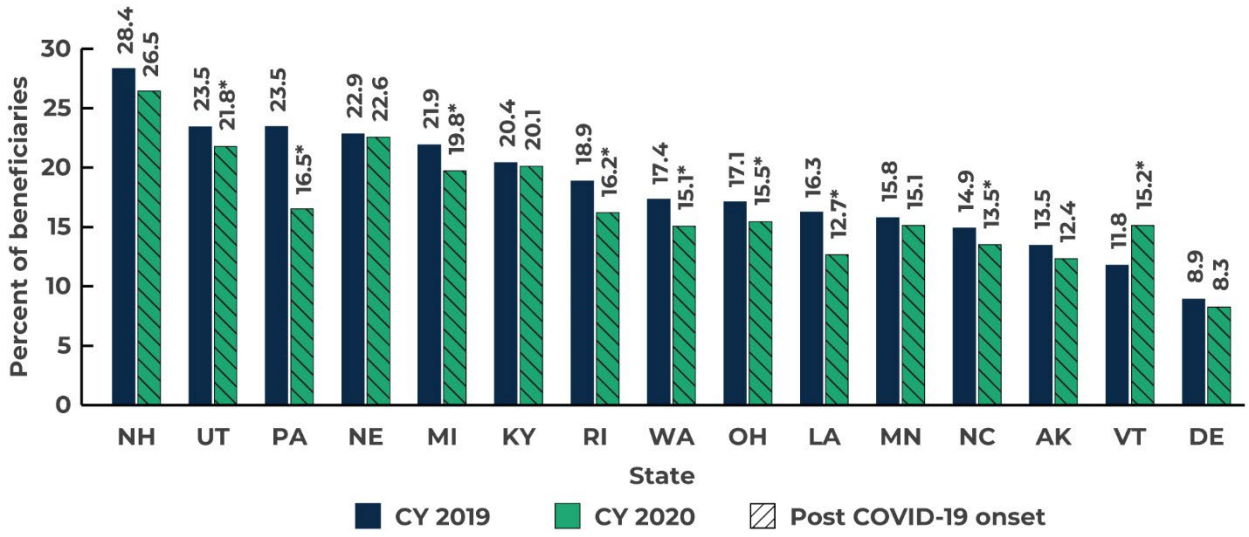
Concurrent use of prescription opioids and benzodiazepines significantly decreased in 8 states and significantly increased in 1 state (Figure VI.13). The reported declines in concurrent use of prescription opioids and benzodiazepines for the Medicaid demonstration population align with recent national and state trends between CY 2016, when the FDA and CDC first warned against concurrent use, and CY 2019.[110]

[103] Beneficiaries with a cancer diagnosis, sickle cell disease diagnosis, or in hospice are excluded from the numerator and denominator of both metrics (annual Metrics #21 and 18).
[104] Concurrent use is identified using the dates of service and the number of days' supply of an individual's prescription claims. The days of concurrent use is the count of days with overlapping days' supply for an opioid and a benzodiazepine.
[105] See https://nida.nih.gov/drug-topics/opioids/benzodiazepines-opioids.
[106] See https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2785392.
[107] See https://www.cdc.gov/drugoverdose/pdf/prescribing/CDC-DUIP-QualityImprovementAndCareCoordination-508.pdf
[108] From CY 2017 to CY 2018, the threshold for high daily dosages decreased from 120 MME to 90 MME in the specifications for this measure. This analysis includes only CY 2019 and CY 2020, in which the 90 MME threshold was used.
[109] See https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm.
[110] See https://www.acpjournals.org/doi/10.7326/M21-4656.

The March 2022 cross-state analysis reported declines in Louisiana and Washington, noting that Louisiana attributed its decline to a safer prescribing education effort and Washington cited multiple initiatives as potential contributors to its decline. That analysis also noted that Vermont's increase was driven by an overall reduction in long-term opioid prescriptions without concurrent benzodiazepine prescriptions, the majority of prescriptions in the rate's denominator. Since the March 2022 cross-state analysis, 6 states (MI, NC, OH, PA, RI, UT) reported an additional year of data; all of them had a decrease. Two of these states provided related narrative information:

- Michigan associated the decline to multiple strategies, including use of a hub-and-spoke model that utilizes care coordination and ensures that beneficiaries have support for SUD treatment, but did not note specific support services or mechanisms.[111]
- Effective July 2, 2018, Rhode Island required prescribers prescribing any dose of opioid to a patient prescribed benzodiazepines to include a note in the patient's record documenting how the benefits of concurrently prescribing of these substances outweigh the risks identified in the FDA's warning.[112] Rhode Island reported reduced co-prescribing since the law was implemented.

Figure VI.13. Concurrent use of opioids and benzodiazepines (Metric #21), CY 2019 to CY 2020



Source: Medicaid Section 1115 SUD Monitoring Report Workbook.

Note: Changes in Metric #21 specifications between years might impact the ability to directly compare the metric across years.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19

[111] One of the contributors to concurrent prescribing of opioids and benzodiazepines is treatment by multiple prescribers. Thus, care coordination may mitigate concurrent use. See https://link.springer.com/article/10.1007/s11606-015-3470-8.

[112] See https://health.ri.gov/healthcare/medicine/about/safeopioidprescribing/.

2. Use of opioids at high dosage in persons without cancer

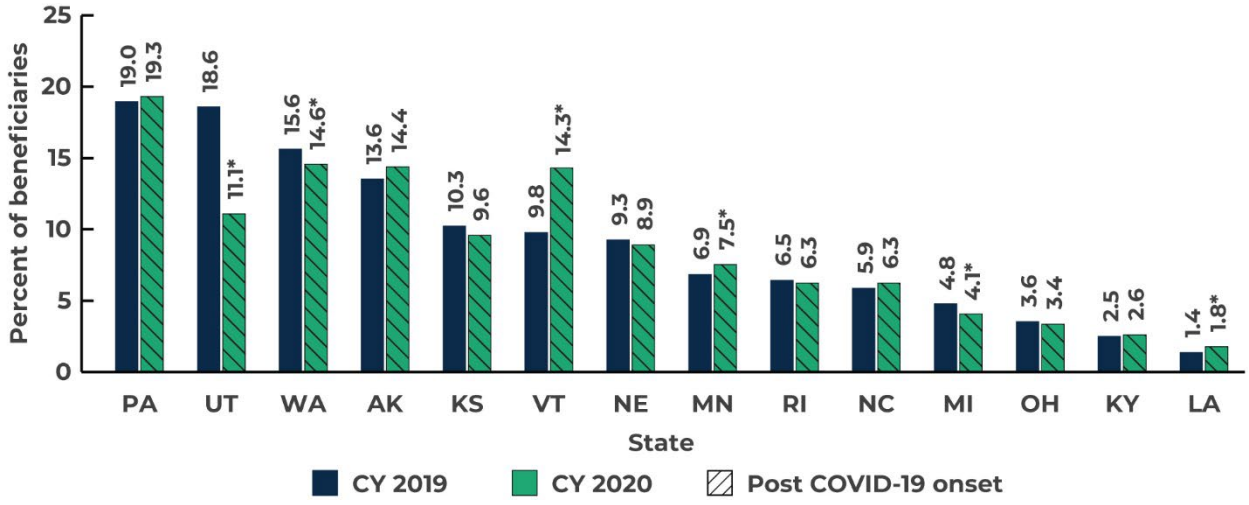
Use of opioids at high dosage in persons without cancer significantly decreased in 3 states and significantly increased in 3 states (Figure VI.14). Of the 3 states reporting declines, only Washington's was reported in the March 2022 report, and the state did not provide narrative context on this change. Michigan and Utah reported declines for the first time in this analysis, and attributed them to different factors:

- In Michigan, the number of beneficiaries receiving prescriptions for opioids in high dosage (numerator) and the number of beneficiaries prescribed opioids for at least 90 days (denominator) both decreased; however, prescriptions for opioids in high dosages decreased more than the number of beneficiaries prescribed opioids for at least 90 days. In its narrative information, as noted above, the state shared that it implemented a hub-and-spoke model for beneficiaries with OUD to increase care coordination and ensure that beneficiaries have support for SUD treatment but did not note specific support services or mechanisms. By supporting beneficiaries in receiving SUD treatment, these activities may have reduced the likelihood that beneficiaries would seek opioids at high doses from multiple prescribers.
- In Utah, the number of beneficiaries prescribed opioids in high dosage (numerator) decreased, but the number of beneficiaries prescribed opioids for more than 90 days (denominator) increased. The increase in the denominator may be due to Medicaid expansion, which was implemented in Utah during this period and extended benefits to select groups of adults without dependents, including people who are chronically homeless, who may use opioids at higher rates.[113] The state attributed the decline in high dosage opioid use to state interventions to decrease the dose prescribed.

The March 2022 cross-state analysis reported on the increased rates observed in Louisiana and Vermont, noting that they were both associated with substantial declines in the metric denominator (the number of adult beneficiaries with prescribed opioids for at least 90 days). Louisiana's increase was also related to a 9.0 percent increase in the number of beneficiaries prescribed opioids in high dosage (numerator). This is the first report with multiple years of data for Minnesota. Like Louisiana and Vermont, Minnesota saw a decline in the rate denominator; however, it also saw a 6.3 percent increase in the number of beneficiaries prescribed opioids in high dosage. The state did not provide an explanation on why high-dosage opioid prescriptions increased.

[113] The rate of SUDs among currently uninsured individuals, 20 to 64 years old, eligible for Medicaid expansion based on income was higher than the rate among current Medicaid enrollees in the same age range (14.6 percent versus 11.5 percent, p = 0.03). See https://ps.psychiatryonline.org/doi/full/10.1176/appi.ps.201200011.

Figure VI.14. Use of opioids at high dosage in persons without cancer (Metric #18), CY 2019 to CY 2020



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19

3. Activities to increase access to naloxone

Twelve states (CO, KS, KY, ME, MI, NC, NH, NJ, NM, OR, RI, VT) reported conducting activities to increase access to naloxone:

- Colorado funds most of the naloxone distributed in the state through a statewide bulk purchase fund, and distributes naloxone to syringe service programs, law enforcement, local public health agencies, school districts, first responders, and harm-reduction agencies.
- Kansas ordered 1,530 kits in December 2021 that included naloxone, pocket guidelines on naloxone use, treatment referral cards, and instructions for how to administer naloxone. The state also increased naloxone training in rural counties.
- Kentucky covers naloxone without prior authorization and added naloxone to the state's standing order.[114]
- Maine provides Medicaid coverage for low-barrier access and has additional efforts underway to incentivize and/or require co-prescribing of naloxone with MAT. The state is also considering a standing order for naloxone.
- Michigan increased naloxone distribution in conjunction with providing training and rapid response team activities to relieve the burden on hospitals.

[114] A standing order or protocol is a set of treatment guidelines that include a definitive order, or prescription, for medication, with information on the medication name, frequency of administration, specified doses, indications, and potential side-effects. Prescriptions have been authorized by a prescriber to be administered by a certified or licensed health care professional to a patient for a specific condition.

- North Carolina distributed naloxone to more than 170 agencies, including opioid treatment programs, law enforcement, opioid response teams, community coalitions, and other organizations.
- New Hampshire distributed approximately 4,000 naloxone kits at the beginning of 2022.
- New Jersey distributed naloxone to law enforcement agencies, pharmacies, community organizations, and treatment programs. The state also allowed providers to dispense opioid antidotes without a prescription.
- New Mexico is training health home providers on naloxone use.
- Oregon distributed naloxone to high-need areas.
- Rhode Island increased naloxone distribution funding.
- Vermont targeted naloxone distribution to the state's homeless population.

F. Milestone #6: Improved care coordination and transitions between levels of care

Key takeaways

Between CY 2019 and CY 2020, the rate of treatment engagement for beneficiaries with OUD significantly increased in 5 of 14 states, and the rate of follow-up within 30 days of ED visit significantly increased in 6 of 17 states. Each rate significantly decreased in 2 states.

Milestone #6 requires states to have or implement policies to ensure that residential and inpatient facilities link beneficiaries, especially those with OUD, to community-based services and supports following stays in facilities. This section compares state performance in CY 2019 (prior to the onset of the COVID-19 pandemic) to CY 2020 (which includes the onset of COVID-19 public health emergency in March 2020)[115] for 2 annual established quality measures that CMS is using to assess progress on this milestone:[116]

- **Engagement of Alcohol and Other Drug (AOD) Abuse or Dependence Treatment (annual Metric #15[6])**, which measures the rate of engagement of SUD treatment within 34 days of initiation for beneficiaries with OUD. For this measure, treatment initiation is defined as receipt of SUD treatment within 14 days of a new SUD diagnosis and engagement is defined as receipt of additional SUD treatment services within 34 days of the treatment initiation event. The number of services required to be considered engaged depends on the type of services in which the beneficiary participates.
- **Follow-Up After ED Visit for AOD Abuse or Dependence (annual Metric #17[1.2])**, which measures the rate of follow-up treatment within 30 days of an ED visit for AOD abuse or dependence.

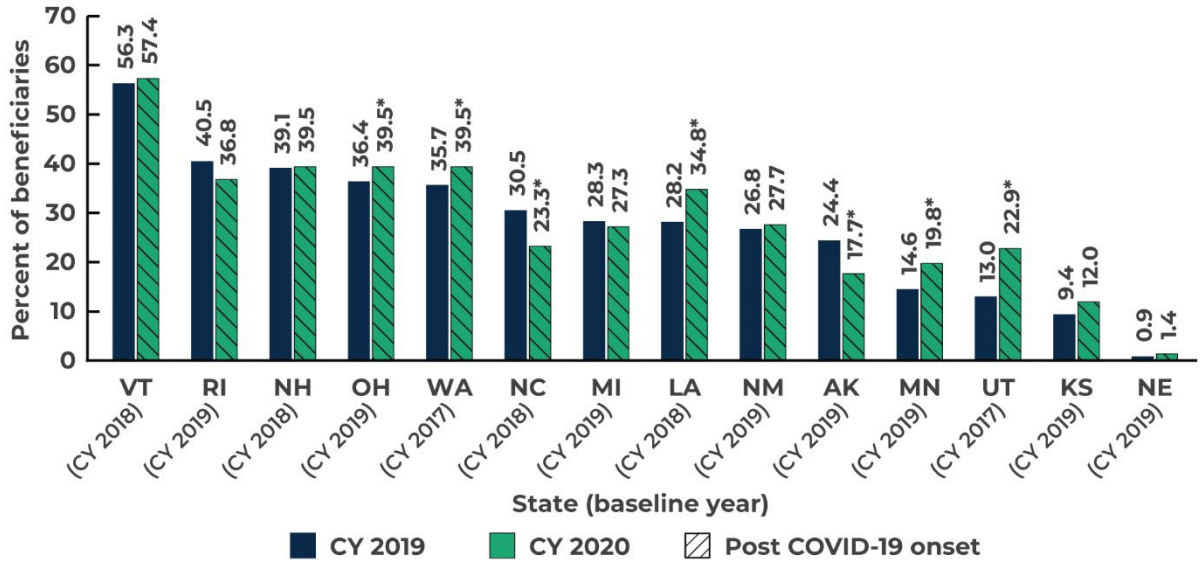
[115] To identify the full scope of activities that states reported for CY 2020, we referenced information reported in the August 2020, March 2021, September 2021, and March 2022 cross-state analyses.

[116] Metrics #15 and 17 comprise multiple rates for different cohorts and time periods. In our March 2022 cross-state analysis, we noted that other rates of these metrics increased in several states (Metrics #15[4] and 17[1.1]). We selected Metrics #15[6] and #17[1.2] for inclusion in our report to highlight changes in rates of beneficiaries engaging with SUD services 30 days after AOD diagnosis or emergency department visits. We did not include follow-up after ED visit for mental illness (Metric #17[2]) in this report because it is not specific to SUD.

1. Engagement in AOD abuse or dependence treatment for beneficiaries with OUD

Between CY 2019 and CY 2020, in the 14 reporting states, engagement in SUD treatment for beneficiaries with OUD significantly increased in 5 states and significantly decreased in 2 (Figure VI.15).

Figure VI.15. Engagement in AOD abuse or dependence treatment for beneficiaries with OUD (Metric #15[6]), CY 2019 to CY 2020



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks

Note: Note that some changes in Metric #15 specifications between years might impact the ability to directly compare the metric across years.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

The March 2022 cross-state analysis discussed factors such as policy changes in MCO provider contracts and staffing-related challenges potentially associated with changes in treatment initiation for Washington and Alaska. Because treatment initiation is a precursor to engagement, activities that impacted treatment may have consequently impacted engagement in these states. Since the March 2022 cross-state analysis, 5 additional states have reported CY 2020 data indicating a significant change between CY 2019 and CY 2020. These states did not attribute the changes to specific activities, but they did provide narrative information highlighting factors that may have influenced observed shifts:

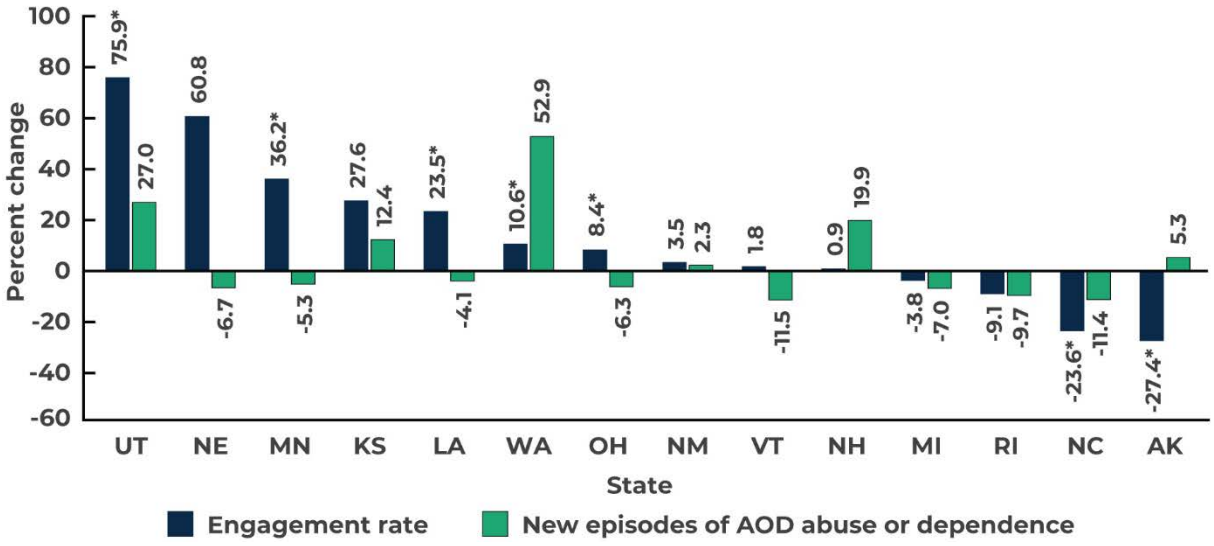
- For the 4 states (LA, MN, OH, UT) with new data in which the rate significantly increased, the number of beneficiaries who were engaged in treatment (numerator) increased. However, only 3 reported information on factors that may have influenced these increases:
- Minnesota cited easing COVID-19-related restrictions in the latter half of 2020.
- Louisiana reported developing an MCO reporting system to monitor transitions in care and updating provider contracts to include care coordination language.

- Utah expanded Medicaid eligibility to all adults up to 138 percent of the federal poverty level in this period. This may have resulted in a shift in the characteristics and needs of the population with new episodes of AOD abuse or dependence.

For 3 (LA, MN, OH) of 4 states in which the rate significantly increased, the denominator (the number of new episodes of AOD abuse or dependence) decreased (Figure VI.16). The states noted overall disruptions to service utilization post COVID-19 pandemic onset, which may have led to declines in new episodes and driven an increase in the overall rate.

- North Carolina, the only state with new data indicating a significant decline, noted that the decline in the reported number of beneficiaries engaged with AOD treatment (numerator) was greater than the decline in new episodes (denominator), driving the significant decline in overall rate of engagement; however, the state did not identify specific factors that may have contributed to these shifts.

Figure VI.16. For beneficiaries with OUD, percent change in engagement in SUD treatment (rate) and change in number of beneficiaries with new treatment episode (rate denominator)



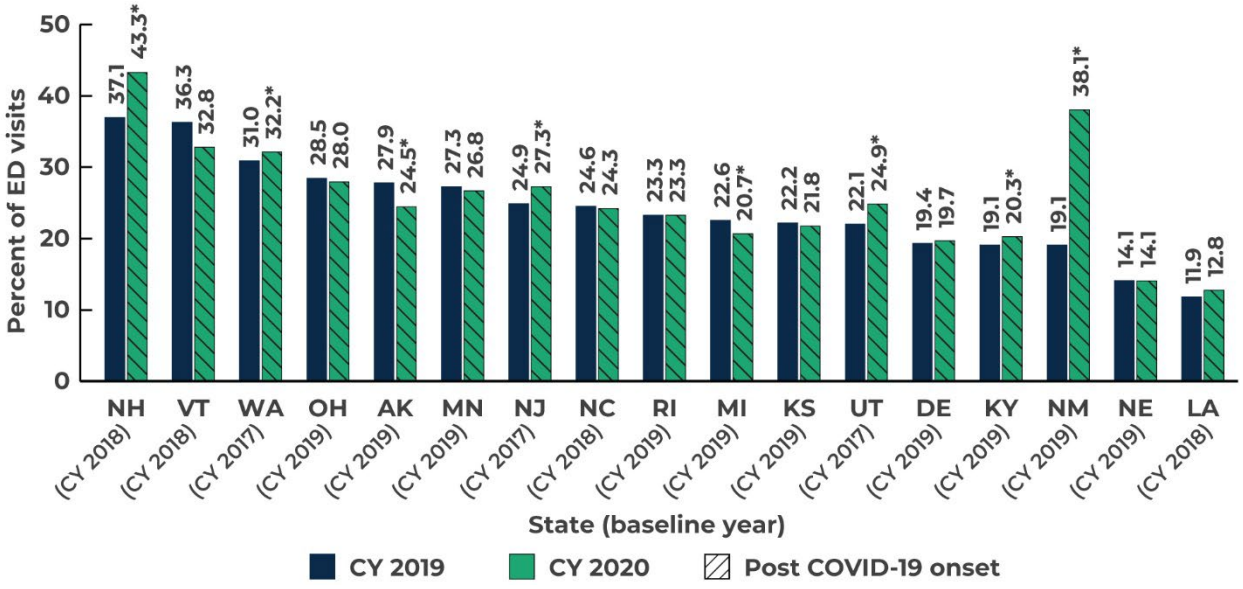
Source: Medicaid Section 1115 SUD Monitoring Report Workbooks

* The difference between values for two years for which percent change is reported is statistically significant ($p < 0.05$) based on a z-test.

2. Follow-up after ED visit for AOD

Similar to rates of engagement, the rate of follow-up after an ED visit for AOD increased in most states with significant changes between CY 2019 and CY 2020 (Figure VI.17). Of the 17 reporting states, rates significantly increased in 6 states and declined in 2.

Figure VI.17. Percentage of ED visits for alcohol or other drug abuse or dependence after which the beneficiary received follow-up treatment within 30 days (Metric #17[1.2]), CY 2019 to CY 2020



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks

Note: Some changes in Metric #17 specifications between years might impact the ability to directly compare the metric across years.

* The difference between value and prior year value is statistically significant ($p < 0.05$) based on a z-test.

Post COVID-19 onset = At least half the months in the indicated period are after March 2020, the first month of the national emergency concerning COVID-19.

The March 2022 cross-state analysis discussed care coordination and follow-up trends that may have contributed to significant changes in the rate for Kentucky, Alaska, Washington, and New Mexico. Since then, 4 additional states (NH, NJ, UT, MI) reported CY 2020 data, and in 3 this rate increased significantly between CY 2019 and CY 2020. Although states did not identify specific factors influencing these trends, they did provide the following context:

- New Jersey maintained a call center to help screen individuals in need of SUD treatment and refer them to appropriate care coordination and treatment services. The state led learning collaboratives for hospital quality improvement, including care delivery.
- As noted above, Utah expanded Medicaid eligibility in this period, which may have resulted in a shift in the characteristics and needs of the population receiving treatment after ED visits.

The rate of follow-up significantly decreased in Michigan; the state did not provide narrative context.

G. Health IT

Key takeaways

Through health IT improvements, states are making progress in supporting SUD prevention and use of evidence-based treatment appropriate to each patient's needs:

- States continue to increase access to and use of prescription drug monitoring programs, particularly through integration with electronic health records/health information exchanges (EHRs/HIEs).
- States engaged in data-sharing efforts to (1) improve connections between patients and care facilities with the capacity to meet their needs through registry systems and care coordination networks and (2) increase provider access to information on patient history and clinical guidelines by developing HIEs and improving EHR/HIE integration.
- States are working to further their care coordination and data-sharing efforts for beneficiaries involved with the criminal justice system, particularly immediately following release from incarceration.

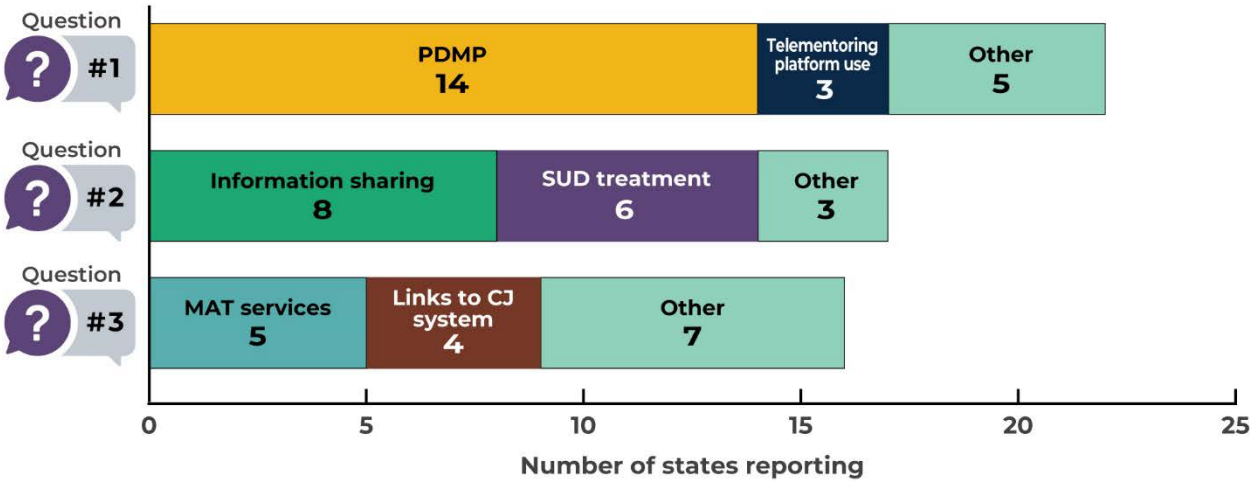
CMS requires each state participating in the demonstration to report at least 3 health IT metrics, with 1 corresponding to each of the following 3 CMS-identified health IT questions:

- Question #1: How is information technology being used to slow down the rate of growth of individuals identified with SUD?
- Question #2: How is information technology being used to treat effectively those individuals identified with SUD?
- Question #3: How is information technology being used to effectively monitor "recovery" supports and services for individuals identified with SUD?

Each state independently selects and defines the metrics it will use to address each question. To address Questions #1 and #2, states commonly report measures of PDMP access and use and information-sharing improvements, respectively (Figure VI.18). Metrics selected by states to demonstrate how health IT is being used to monitor progress related to recovery supports and services are less consistent across states. Further details on the metrics states report for each CMS-identified health IT question are included in Appendix C, Appendix Table C.1.

In the sections below, we highlight examples of progress for each question.

Figure VI.18. Most frequent types of metrics reported under each health IT question, by question



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

Note: States may choose to report more than 1 metric under each health IT question. Thus, some states may represent more than 1 metric in a particular category. For each question, the states included across the categories are not necessarily unique.

CJ = criminal justice; MAT = medication-assisted treatment; PDMP = Prescription Drug Monitoring Program; SUD = substance use disorder.

1. Question #1: How is information technology being used to slow down the rate of growth of individuals identified with SUD?

To meet requirements under Milestone #5, many states are implementing strategies to increase use and improve the functionality of their PDMP. Fourteen states (CO, IL, IN, KY, LA, MI, NC, NH, NJ, NM, OH, PA, RI, VT) reported metric data and/or narrative information on activities to increase PDMP use and functionality. A primary focus of these efforts is integrating PDMPs with EHRs and HIEs. Although all 14 reporting states require providers to query the PDMP prior to initial prescription and/or periodically thereafter, many are integrating PDMPs with EHRs or HIEs to allow for faster PDMP querying, which increases the likelihood that providers will query the PDMP prior to prescribing.[117] The following states reported narrative information on such integration:

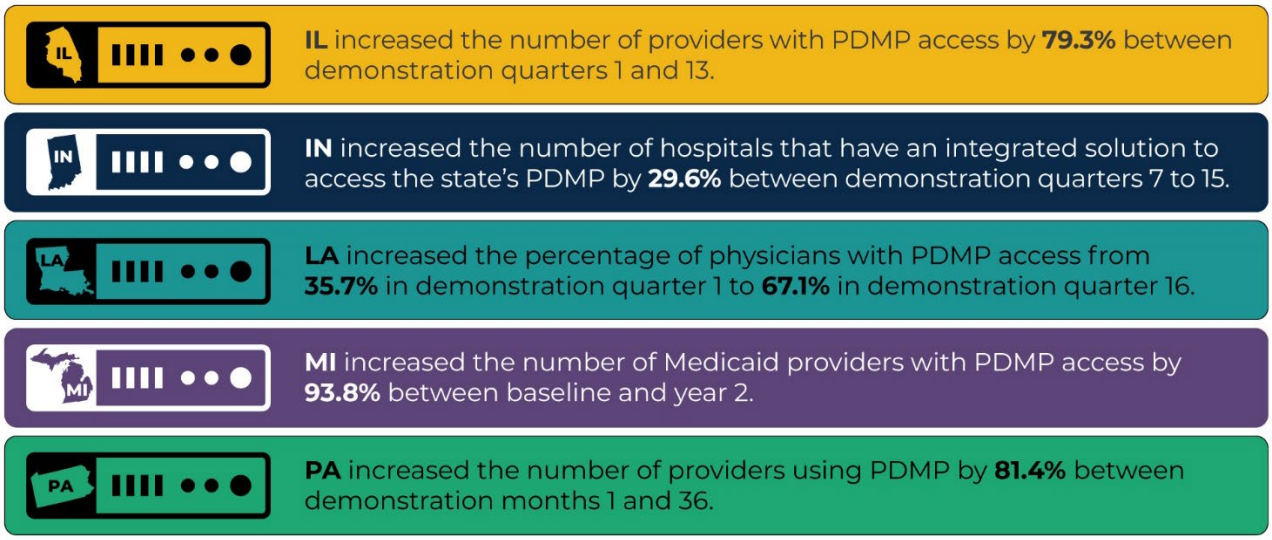
- Colorado and Kentucky aim to improve PDMP/EHR integration by utilizing existing data-sharing tools. Colorado plans to integrate PDMP access into the state's prescriber tool, which is already integrated into providers' EHRs throughout the state. Kentucky now allows users to view PDMP data in the Kentucky HIE, which is also incorporated in users' EHRs.
- New Jersey and New Mexico reported implementing programs for financial support for PDMP/EHR integration. Similarly, Michigan is covering the full cost of PDMP integration into clinical workflows for health systems, physician groups, and pharmacies until August 31, 2023.

[117] Neprash, H.T., D.M. Vock, A. Hanson, B. Elert, S. Short, P. Karaca-Mandic, A.J. Rothman, et al. "Effect of Integrating Access to a Prescription Drug Monitoring Program Within the Electronic Health Record on the Frequency of Queries by Primary Care Clinicians. *JAMA Health Forum,* vol. 3, no. 6 (June 2022). Available at https://jamanetwork.com/journals/jama-health-forum/fullarticle/2793161.

- Vermont expanded access to the state PDMP for Department of Veteran's Affairs providers without a Vermont medical license.

Figure VI.19 highlights select findings on increases in PDMP use or integration reported in metric data.

Figure VI.19. Select trends in PDMP access and integration, by state

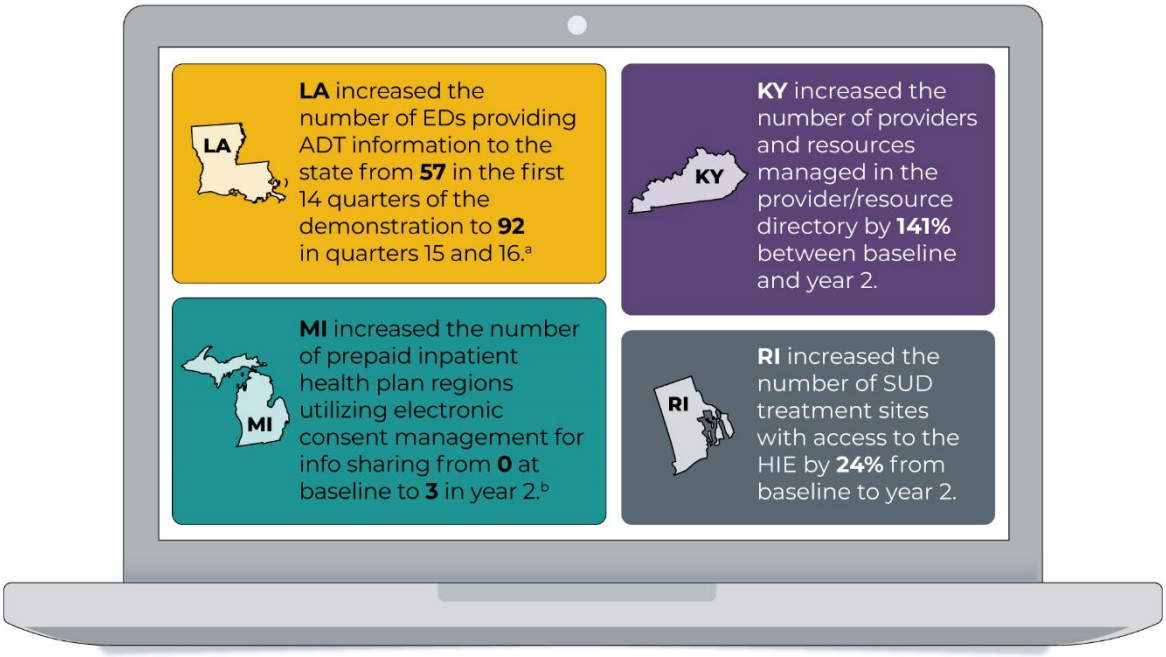


Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.
PDMP = prescription drug monitoring program.

2. Question #2: How is information technology being used to treat effectively those individuals identified with SUD?

States commonly describe information sharing efforts under Question #2. Most recently, states' data-sharing efforts focus primarily on three goals: (1) connecting patients with care, (2) sharing information across providers to enable appropriate treatment and care coordination, and (3) facilitating access to clinical guidelines. We detail some state activities regarding information sharing in Figure VI.20.

Figure VI.20. Select trends in communication and information sharing, by state



Source: Medicaid Section 1115 SUD Monitoring Report Workbooks.

[a] ADT systems are used by healthcare facilities to track patients from arrival to departure.

[b] Electronic consent management allows patients to electronically select the health data they permit be shared.

ADT = admissions, discharges, and transfers; ED = emergency department; HIE = health information exchange; SUD = substance use disorder.

Given the increased number of states reporting SUD treatment workforce shortages, as discussed in Chapter III, states continue to focus on connecting patients to facilities with the current capacity to meet their care needs. In addition to workforce shortages, states utilizing managed care as their Medicaid delivery model often create separate reimbursement streams for behavioral health services, which creates difficulties in coordinating care and sharing data across providers and systems.[118] Activities aimed at connecting patients with care across providers and systems are described in the narrative information for 3 states:

- Colorado developed the Behavioral Health Capacity Registry to share bed and staffing availability for inpatient behavioral health, residential SUD treatment, and opioid treatment programs across the state. For each facility the registry also tracks information such as intake requirements, age range(s) accepted, payers accepted, and opioid treatment program medication availability.
- Michigan is working to produce a SUD residential bed registry system; however, these efforts were delayed because of the COVID-19 pandemic.
- New Hampshire is contracting with a vendor to maintain a care coordination network that will include the New Hampshire Department of Health and Human Services, Federally Qualified Health Centers,

[118] See State Strategies for Integrating Physical and Behavioral Health Services (commonwealthfund.org).

Community Mental Health Centers, OUD and other SUD help centers, and other social service organizations.

States also reported developments in facilitating provider access to more comprehensive and timely information on patient history and clinical guidelines. Ten states (CO, DC, KS, KY, NC, NJ, NM, OK, VT, WA) reported activities to increase provider access to various types of information. Four of these states reported on activities for developing or expanding access to HIEs:

- Colorado developed the Rural Health Information Exchange Connectivity project to increase affordable access to health IT for rural providers.
- The District of Columbia added Medicaid behavioral health providers to its HIE.
- New Mexico implemented the Emergency Department Information Exchange for health homes.
- Oklahoma plans to finish developing an HIE by late 2022.

Four states reported on actions regarding EHR/HIE integration:

- North Carolina targeted outreach to hospital leadership and practitioners and saw an increase in EHR/HIE integration.
- New Jersey extended funding for a SUD interoperability program that financially incentivizes EHR/HIE connectivity.
- Vermont expanded interstate data-sharing software and is working to increase health system EHR integration among providers.
- Washington is developing an EHR for behavioral health agencies and providers for care/service coordination.

Colorado and Kansas reported activities to improve provider access to clinical guidelines:

- Colorado offers a Prescriber Tool, which "provides patient-specific benefit and cost information to prescribers at the point of care, and eases administrative burden and rework for prescribers while improving service to patients as well."[119] The Prescriber Tool includes an opioid risk module that provides access to clinical guidelines. Additionally, Colorado drafted the Colorado Health Information Governance Guidebook to inform future data-sharing projects and provide best practices and ideas for the consent, standardization, sharing, and application of health and health-related data across the state.
- Kansas is working to improve provider access to clinical guidelines by contracting with a vendor to develop a single state hospital EHR system to combine mental health and SUD health IT solutions in a single system to implement guidelines for prescribers to clinical workflows.

3. Question #3: How is information technology being used to effectively monitor "recovery" supports and services for individuals identified with SUD?

There is less commonality in the activities states are focusing on for Question #3. However, four states (KY, LA, PA, RI) reported metric data regarding care coordination for beneficiaries involved with the CJ system who were recently released from incarceration, as well as data-sharing efforts between care providers and correctional facilities.

[119] Prescriber Tool Project | Colorado Department of Health Care Policy & Financing.

According to data collected through the 2007 and 2008–2009 National Inmate Surveys, more than half (58 percent) of state prisoners and two-thirds (63 percent) of sentenced jail inmates met the criteria for drug dependence or abuse in the year prior to incarceration.[120] A recent retrospective study found that North Carolina residents who were released from incarceration between 2000 and 2015 were 40 times more likely to overdose in the two weeks post-incarceration than North Carolina residents who have not recently been incarcerated.[121] Thus, the immediate post-release period is critical for care coordination and delivery.

Additionally, although individuals in correctional facilities can be enrolled in Medicaid while incarcerated, outpatient care provided in medical institutions to individuals currently incarcerated is not covered by Medicaid due to the inmate payment exclusion.[122] As of December 2021, 6 states (AZ, CA, KY, MT, UT, VT) submitted section 1115 waivers requesting a partial waiver to the inmate payment exclusion and the ability to provide Medicaid coverage and pre-release care coordination to beneficiaries with SUD who are incarcerated.[123] Four states (KY, LA, PA, RI) reported health IT metric data regarding correctional facilities and/or beneficiaries involved with the CJ system:

- During Kentucky's demonstration, the state has maintained both live connections between corrections systems and care delivery systems for beneficiaries entering the community following incarceration to allow new information to be immediately accessible by all connected data systems.
- Louisiana reported that the number of individuals currently incarcerated who are Medicaid-eligible and enrolled with a managed care organization prior to their release increased from 102 in month 1 to 216 in month 48. The number of individuals enrolled fluctuated across the 48 months reported, but generally increased in the first year of the demonstration (CY 2018) and held steady through year 2 until enrollees began to decline in year 3. The state did not provide an explanation for these fluctuations.
- Pennsylvania reported the number of correctional facilities connected to the hospital admissions, discharge, and transfer notification system increased from 0 facilities in the first 17 months of the demonstration to an average of 24 in each of the most recent 19 months of the demonstration.
- Rhode Island reported the number of Department of Corrections EHRs with bi-directional exchange with the state's HIE decreased from 1 in baseline to 0 in years 2 and 3. The state did not provide an explanation for this decline.

H. Grievances and appeals

States are required to provide a narrative update, or indicate that they have no update, regarding grievances and appeals in their annual reports. Additionally, states may choose to report metrics that count grievances, appeals, and critical incidents related to SUD treatment services (quarterly Metrics #33, 34, and 35, respectively).[124]

[120] https://bjs.ojp.gov/content/pub/pdf/dudaspji0709.pdf.
[121] Opioid Overdose Mortality Among Former North Carolina Inmates: 2000–2015 | AJPH | Vol. 108 Issue 9 (aphapublications.org).
[122] IF11830 (congress.gov).
[123] State Policies Connecting Justice-Involved Populations to Medicaid Coverage and Care | KFF.
[124] Grievances, appeals, and critical incidents are defined by the states.

Five states (DC, IN, KS, LA, VA) reported metric data on grievances, appeals, or critical incidents among beneficiaries using any SUD treatment (Metric #6) in monitoring reports submitted through June 1, 2022 (Table VI.4).

Table VI.4. Range across quarters for reported grievances, appeals, and critical incidents per 100,000 beneficiaries receiving SUD treatment

State[a]	Number of quarters reported	Time frame	Range across quarters per 100,000 beneficiaries using SUD treatment		
			Grievances	Appeals	Critical incidents
DC	6	Jul 2020—Dec 2021	0.0 to 16.8	0.0 to 25.2	33.2 to 92.2
IN	7[b]	Oct 2019—Sept 2021	2.2 to 18.5	12.2 to 37.0	615.9[c]
KS	12	Jan 2019—Dec 2021	0.0 to 16.0	0.0 to 40.1	0.0[c]
LA	15[d]	Jan 2018—Dec 2021	0.0 to 5.2	1.9 to 24.9	0.0 to 5.6
VA	3	Jan 2021—Sept 2021	5.6 to 15.1	368.4 to 576.0	N.R.

Note: We calculate grievances or appeals per 100,000 beneficiaries using SUD treatment by dividing the number of grievances (Metric #33), appeals (Metric #34), or critical incidents (Metric #35), respectively, which are reported quarterly, by the sum of the number of beneficiaries receiving SUD treatment (Metric #6) for the 3 months represented in the quarter. We then multiply the quotient by 100,000. The same beneficiary can be counted in multiple months in the denominator for these rates.

[a] Oklahoma reported one quarter (July–September 2021) of data for these metrics, in which 0 grievances, appeals, and critical incidents were filed; however, the state did not report on beneficiaries using SUD treatment in this period.

[b] One quarter (January 2021— March 2021) is excluded for Indiana because the state did not report data for Metrics #33, 34 or 35 for this period.

[c] Indiana and Kansas reported critical incidents and beneficiaries using SUD treatment for only 1 quarter. Indiana reported critical incidents for Jul 2021—Sept 2021, and it reported 831 incidents among 134,930 beneficiaries using SUD treatment. Kansas reported for Jan 2021—-Mar 2021, and it reported no incidents in that quarter

[d] The quarter Jul 2021—Sept 2021 is excluded for Louisiana because data on beneficiaries using any SUD treatment were not available for this quarter due to timing of report submission.

N.R. = Not reported.

In addition to the metric data summarized above, 7 states (CA, DC, IN, KS, LA, PA, RI) reported narrative information on grievances, appeals, or critical incidents in the analysis period for their SUD or comprehensive demonstration. Several states cited declines in grievances or appeals, some of which provided context for the declines. Kansas, Louisiana, and Pennsylvania reported a decrease in the number of appeals filed related to SUD treatment. Pennsylvania also saw a decline in mental health treatment/SUD grievances. Louisiana noted that the state's decrease in appeals was due to fewer recipients presenting for care as a result of the COVID-19 public health emergency; however, the number of beneficiaries using SUD treatment (Metric #6) increased in each consecutive quarter from April 2020 through June 2021. The state did see a decline in Metric #6 in the most recent quarter reported (October 2021—December 2021).

I. Common activities and themes related to demonstration milestones

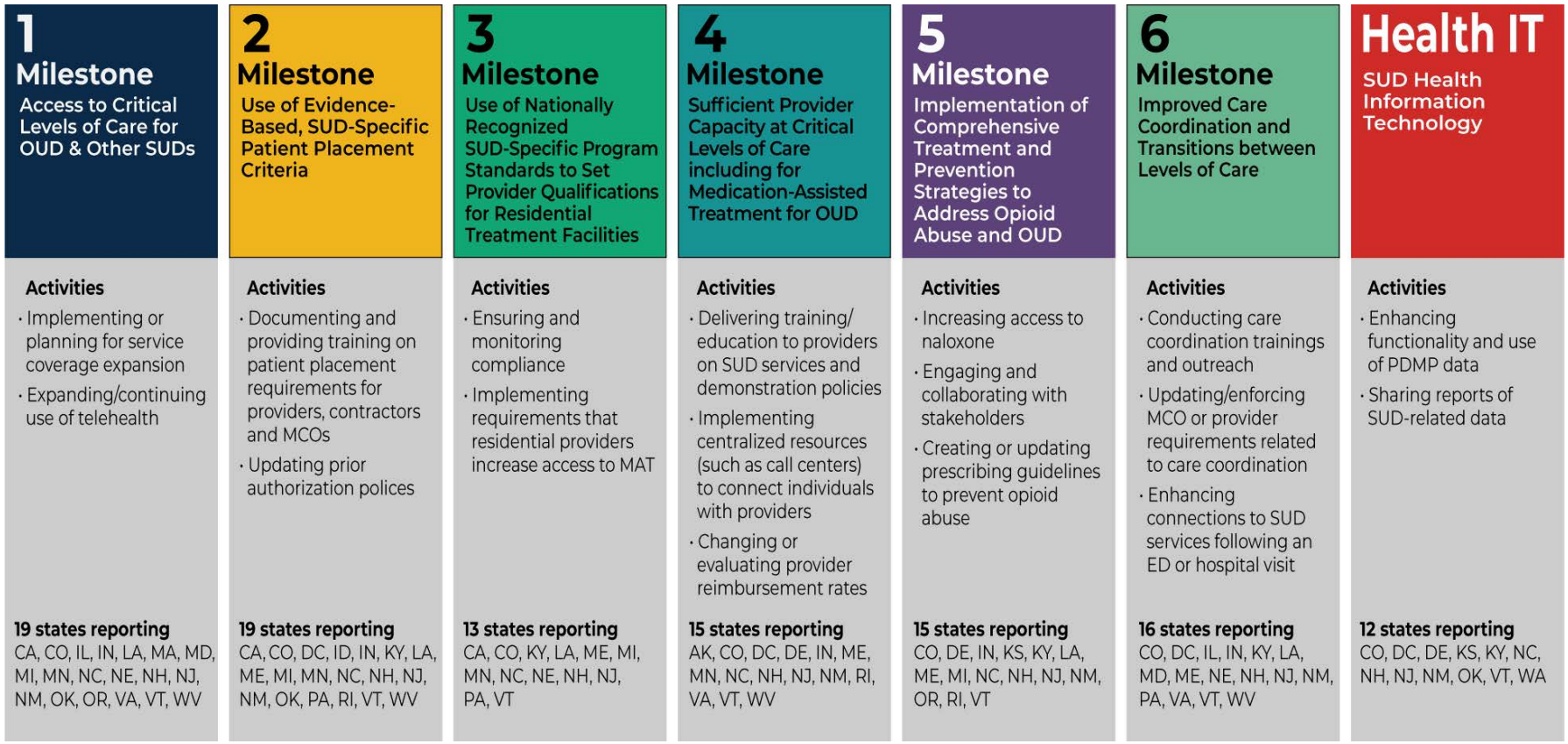
Many states are undertaking similar activities to achieve the milestones. Figure VI.21 summarizes the most common activities reported by states. New common activities based on monitoring reports submitted between December 2, 2021, and June 1, 2022 are (1) new or updated opioid prescribing

guidelines or other activities to prevent opioid abuse (Milestone 5), (2) updating/enforcing MCO or provider requirements related to care coordination (Milestone 6), and (3) enhancing connections to SUD services following an emergency department or hospital visit (Milestone 6).[125]

Appendix D provides more detail on common activities and themes identified by 2 or more states. Appendix E summarizes the narrative data each state submitted about its activities.

[125] New activities are in comparison to those included in the March 2022 cross-state analysis. In the similar figure in that analysis, Milestone 6 included the broad activity of "Conducting care coordination improvements, trainings, and outreach." However, this figure identifies more specific activities related to Milestone 6 in Figure VI.21.

Figure VI.21. Recent commonly reported activities among states providing updates, by milestone



Source: Qualitative data reported by states in their Medicaid Section 1115 SUD Monitoring Protocol Template (Part B) or a non-standard format and submitted from December 2, 2021, through June 1, 2022. Additional information on states' activities is available in states' implementation plans and mid-point assessments.

Note: Each state listed as reporting for a milestone is conducting at least one of the activities listed for the milestone.

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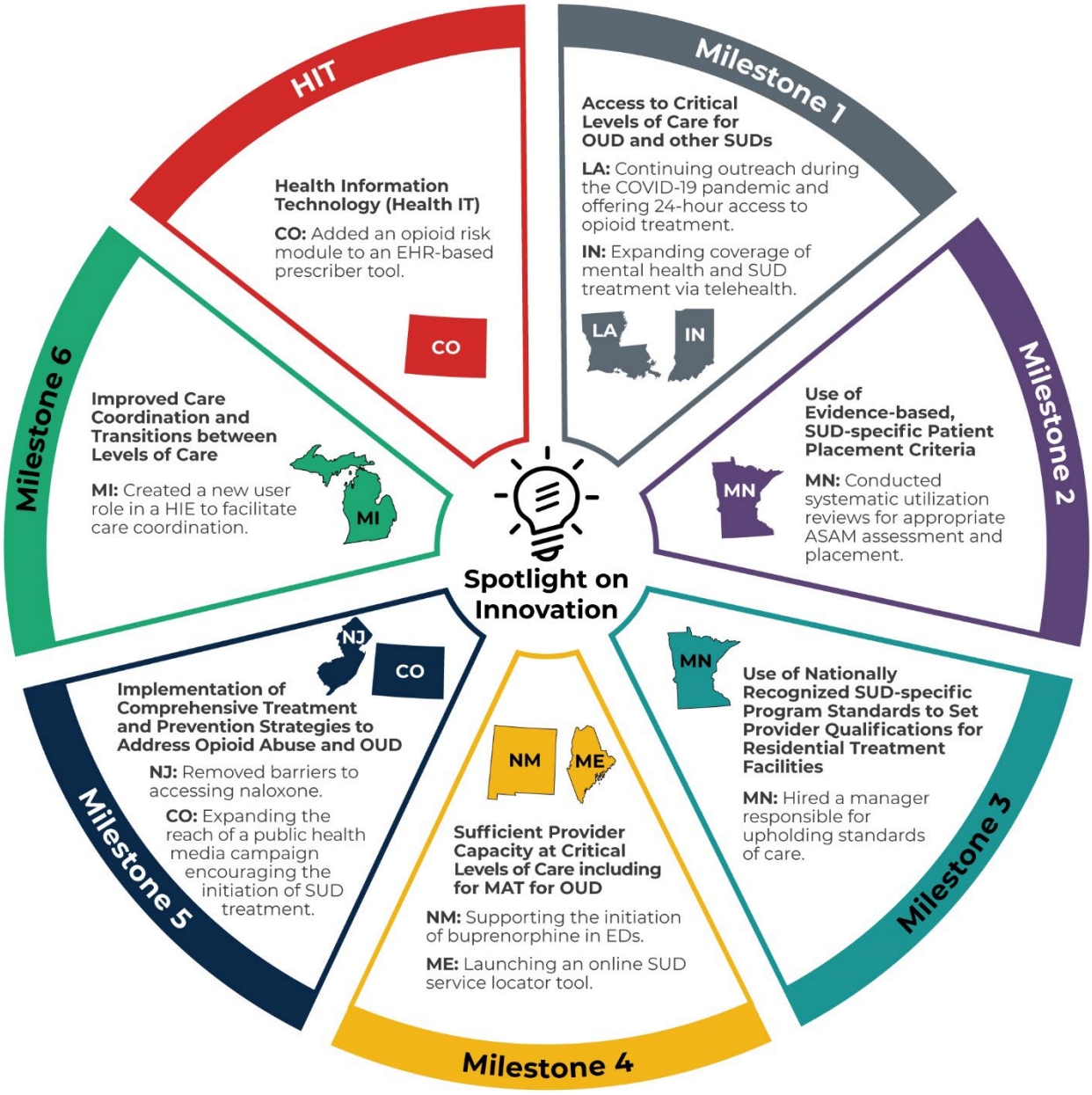
VII. Spotlight on State SUD Treatment System Improvements

SUD demonstrations have supported improvements in SUD treatment delivery systems. Based on narrative data in each state's monitoring reports, we noted examples of states that were leveraging their SUD demonstrations to drive payment, policy, and practice reforms. Figure VII.1 highlights examples for each milestone and Appendix E provides additional examples.

Figure VII.1. Select treatment system improvements, by milestone



Source: Qualitative data reported by states in monitoring reports submitted from June 2, 2021, through December 1, 2021. Activities were identified in monitoring reports. Other sources were used to understand the activities, if needed.

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VIII. Discussion and looking ahead

The conclusions in this report are based on monitoring metric data and narrative information submitted by states through June 1, 2022. Future analyses will include information from reports received after that date As data for more states and demonstration periods are submitted and included in our analyses (including updates to some data analyzed in this report), our findings across states for effects associated with the demonstrations and the COVID-19 pandemic may change.

While the analyses in this report indicate substantial progress toward the milestones in many states, the findings also highlight opportunities to encourage further improvements in the following states:

- Under Milestone #4, Minnesota and Utah saw declines in the number of SUD and MAT providers and New Mexico saw declines in the number of MAT providers.
- Under Milestone #5, Minnesota saw a 6.3 percent increase in the number of beneficiaries prescribed opioids in high dosage and did not provide an explanation.
- Under Milestone #6, North Carolina was the only state with new data indicating a significant decline in the rate of engagement of SUD treatment within 34 days of initiation for beneficiaries with OUD. Likewise, Michigan, was the only state that saw a decrease in follow-up within 30 days of the ED visit for AOD Abuse or Dependence and did not provide an explanation.

In addition, it is notable that on average across all states, beneficiaries younger than 18 years old, beneficiaries ages 65 or older, and beneficiaries involved in the CJ system—were less likely to receive SUD treatment than their comparison subpopulation and their likelihood of receiving treatment declined post COVID-19 pandemic onset. The lower rates of SUD treatment for both younger and older age groups correspond with estimates in the literature and may result from treatment facilities being unequipped to offer care aligned with the needs of these age groups.[126,127] Demonstration states could be encouraged to assess provider availability specifically for these age groups and develop plans for increasing access to them. Focusing on the disparity in treatment access for beneficiaries involved in the CJ system, Ohio was the only state in which this disparity was not observed. Ohio's pre-enrollment program could be assessed as a model for other states interested in addressing the disparity in access for beneficiaries involved in the CJ system.

[126] Substance Abuse and Mental Health Services Administration (SAMHSA). "Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health." HHS Publication No. PEP21-07-01-003, NSDUH Series H-56. Rockville, MD: SAMHSA, Center for Behavioral Health Statistics and Quality, 2019. See Tables 5.12B and 5.19B.

[127] See https://publications.aap.org/pediatrics/article/143/2/e20182752/37310/Youth-and-the-Opioid-Epidemic, https://www.healthaffairs.org/do/10.1377/forefront.20220505.917481/ and https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/substance-use-treatment-older-adults.

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Appendix A

Data Availability and Quality Assurance

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This appendix provides information on the availability and quality of the data in this cross-state analysis. First, we summarize the process we used to develop the analytic file, which serves as the basis of the analyses in this cross-state analysis. We then discuss the quality checks we conducted to ensure that the reported data are in a reasonable range and internally consistent (Table A.1). Finally, we use tables to summarize the following information:

(1) the monitoring reports used for the narrative information and the metric data included in this cross-state analysis (Table A.2);

(2) the number of time periods, as of June 1, 2022, for which each state submitted monitoring data that passed quality assurance checks (Table A.3);

(3) the telehealth codes included in Medicaid Section 1115 SUD Demonstration: Technical Specifications for Monitoring Metrics for Metrics #2–4, 6, 8, 28, 30 (Table A.4);

(4) the key differences among state methodologies for developing metrics on subpopulations (Table A.5); and

(5) the approved deviations for each monitoring metric (Table A.6).

Analytic file development

Building the base file

To analyze state-submitted monitoring data for the cross-state analyses, we created—and continue to maintain—a SAS data set that contains all the monitoring data states have submitted for their SUD demonstrations.

We use a basic Python script to extract the monitoring data from each state-submitted monitoring workbook. This converts the data into a format more conducive to analysis and exports it to a comma-separated value (CSV) file, which is then imported into SAS.

The Python script names variables in terms of the following:

- metric number
- population (demonstration; subpopulations, such as beneficiaries younger than 18, ages 18 to 64, and 65 and older; beneficiaries with and without criminal justice [CJ] involvement; beneficiaries enrolled in both Medicaid and Medicare [dually eligible] or only enrolled in Medicaid [Medicaid only]; beneficiaries who were or were not pregnant; and beneficiaries with an opioid use disorder diagnosis [OUD])
- metric components (denominator, numerator or count, rate or percentage) and time period (month, quarter, year).

In addition to state-submitted monitoring report data, we include several external data sets and internally developed SAS data files to support our analyses and conduct data quality checks. The data sets include the following:

External Medicaid data sets (measurement period):

- Core Set of Adult Health Care Quality Measures for Medicaid (Medicaid Adult Core Set 2019)[128]
- Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF) (2019)[129]
- T-MSIS SUD Data Book (2019)[130]

Internal data sets:

- A file containing state characteristics discussed in a prior cross-state analysis (August 2020)[131]
- A file containing the following information for each state: (1) the baseline month (month 1) for CMS-constructed monthly metrics,[132] (2) the baseline year for established quality measures, (3) the baseline year for other CMS-constructed annual metrics, (4) the demonstration start date, and (5) the implementation date

Quality assurance reviews

Once the data are collated in a SAS file, we run the 10 quality checks outlined in Table A.1 to identify possible reporting issues.

A SUD metric subject matter expert (SME) reviews any failed checks from the SAS output. Specifically, the SME reviews the data from checks that fail to determine if the state provided any relevant context in Part B or in the Part A Reporting Issues tab in its monitoring reports. The SME also reviews historical data trends for the state. If the SME finds an explanation for the discrepancy, or if we can manually update the data so they are calculated correctly,[133] we use the data in our analysis. If we cannot identify any context to explain a failed check or update the data to correct it, we flag the data with CR (check reporting) to show that we are not confident in the quality of that data point. If, based on its approved monitoring protocol, a state does not report data as expected, we list it as NR (not reported). For example, if a state reported months 1 and 2 for a measure but left month 3 blank, we would complete month 3 with NR.

When states submit revised data, we update the data set using the process outlined above and repeat the quality checks to ensure the data are as accurate as possible.

[128] Available at https://www.medicaid.gov/medicaid/quality-of-care/downloads/performance-on-the-adult-core-set-measures-ffy-2020.zip.
[129] Metric estimates based on the preliminary version of 2019 TAF data (Version 4.0) come from Task 10 of the Medicaid section 1115 contract. More information about TAF is available at https://www.medicaid.gov/medicaid/data-systems/macbis/medicaid-chip-research-files/transformed-medicaid-statistical-information-system-t-msis-analytic-files-taf/index.html.
[130] Available at https://www.medicaid.gov/medicaid/data-systems/downloads/2019-sud-data-book.pdf.
[131] We initially developed these characteristics for the August 2020 cross-state analysis; characteristics for states with demonstrations approved since that report have been added to this file.
[132] Month 1 refers to the first month of a state's baseline reporting period for CMS-constructed metrics.

[133] For example, an earlier version of the monitoring report workbook (Version 4.0) contained an error in the formula for Metric #18. We corrected this formula for states that used that version of the monitoring report workbook to report their data.

Table A.1. Data quality checks

Name	Metrics reviewed	Description	Reasoning
Change over time	All metrics	Checks the percent change from 1 time period (month, quarter, or year) to the previous time period	We do not expect large changes between time periods. This quality check flags data if values change by 50 percent or more and by over 50 beneficiaries.
Denominators and numerators comparison: rates less than 1	Metrics #15–25, 27, and 32	Checks whether the denominator is less than the numerator	Because we expect a rate less than 1, we expect the denominator to be greater than the numerator. If the denominator is less than the numerator, this quality check flags the metric.
Denominators and numerators comparison: rates greater than 1	Metrics #30, 31, and 36	Checks whether the denominator is greater than the numerator	Because we expect a rate greater than 1, we expect the numerator to be greater than the denominator.
Required subpopulations	Metrics #1–3, 6–12, 23–24, and 26–27	Checks that the combined total across subpopulation categories is within 5 percent of the demonstration population	The required subpopulation categories are mutually exclusive; we therefore expect the category totals to approximate the overall demonstration population. We allow for a 5 percent margin of error because states may determine these subpopulation categories differently, which may result in subtotals that are slightly different from the overall demonstration population.
Cross-metric relationships	Metrics #3–6, 23–24, and 26–31	Compares values across metrics that are related	Several metrics have the same value among their numerators and denominators; these components should therefore be equal as follows: • The numerator in Metric #4 should equal the denominator in Metric #30 • The denominator in Metric #23 should equal the denominator in Metric #24 • The numerator in Metric #27 should equal the numerator in Metric #26 • The numerator in Metric #30 should equal the numerator in Metric #28 • The denominator in Metric #31 should equal the numerator in Metric #5 • The numerator in Metric #31 should equal the numerator in Metric #29 Also, Metric #3 includes beneficiaries with a SUD diagnosis in either the measurement period or the 11 months prior to the measurement period, while Metric #6 includes beneficiaries with a SUD treatment claim in only the measurement period; we therefore expect Metric #6 to be less than Metric #3 • The numerator in Metric #6 should not be greater than 60% of the numerator in Metric #3

Table A.1 (*continued*)

Name	Metrics reviewed	Description	Reasoning
T-MSIS SUD Data Book benchmark	Metrics #3 and 6	Compares state-reported monitoring data to data in the 2019 T-MSIS SUD Data Book	We use the 2019 T-MSIS SUD Data Book as a benchmark for Medicaid beneficiaries with a SUD diagnosis (monthly Metric #3) and any SUD treatment (monthly Metric #6). We compare the values states reported in their section 1115 monitoring reports to a range of values generated from the SUD Data Book for each state. We use ranges instead of direct comparisons to account for differences in the SUD definition among Metric #3, Metric #6, and the SUD Data Book: • To assess Metric #3, we determine whether the state's value for Metric #3 falls between (1) an upper bound based on the total number of beneficiaries treated for a SUD (including a tobacco use disorder) and (2) a lower bound based on the total number of beneficiaries treated for a SUD minus those diagnosed with a tobacco use disorder. • To assess Metric #6, we multiply the upper and lower bounds of the range described for Metric #3 by the expected share of annual SUD services expected to occur per month. • To assess each of the subpopulations for Metric #3, we determine whether the state's reported values fall within 10 percent of the value for the corresponding data on subpopulations in the SUD Data Book. If a state's reported value falls outside the ranges described above (Range 1), we compare that state's data to another range, which is based on SUD prevalence as reported nationally across states. For each metric and subpopulation, we multiply the state's total number of beneficiaries (as reported in the SUD Databook) by the percentage of beneficiaries treated for a SUD in the 25th and 75th national quartiles of states (Range 2). This calculation is based on the SUD Data Book for the overall demonstration and each subpopulation.[a] This quality check aims to account for shifts in SUD treatment due to policy changes since publication of the SUD Data Book. We flag the state's data if it falls outside both Range 1 and Range 2.
EQMs and Medicaid Adult Core Set benchmark	Metrics #15, 17(1), 17(2), and 18	Compares EQMs to the Medicaid Adult Core Set	Metrics #15, 17(1), 17(2), and 18 are part of the Medicaid Adult Core Set. We flag values in the monitoring reports if they differ from the corresponding Core Set value by at least 20 percent. In addition, Metrics 17(1) and 17(2) each have a 7-day and a 30-day rate. We also compare these 2 rates for each metric; we expect the 7-day rate to be lower than the 30-day rate.
TAF benchmark	Metrics #3 and 18	Compares state-reported monitoring data to TAF data	We compare state-reported data to either (1) the average TAF value or (2) the TAF value from the same time period as the state-reported data. We flag the state-reported value if it differs from the TAF value by at least 20 percent.[b]
Providers	Metrics #13 and 14	Checks whether Metric #13 is less than Metric #14	Metric #13 represents all SUD providers; Metric #14 represents only those SUD providers that can provide MAT. We therefore expect Metric #14 to be a subset of Metric #13.

Table A.1 (*continued*)

Name	Metrics reviewed	Description	Reasoning
Cross-state	Metrics #15, 17–18, 21–25, 27, and 30–32	Compares a state's reported metric average for each time period (quarter or year) to the average metric value for all other states	Because these metrics are rates, we do not expect them to differ significantly across states. For this quality check, we flag a value if a state's average or reported value is at least 75 percent higher or lower than the next closest state average or reported value.

[a] To determine national quartiles of Metrics #3 and 6 for the overall demonstration, we multiplied the number of Medicaid beneficiaries in each state by the fifth highest and fifth lowest proportion of Medicaid beneficiaries treated for a SUD nationally (according to the SUD Data Book). Similarly, to calculate the higher and lower percentiles of Medicaid beneficiaries treated for a SUD in each subpopulation, we multiplied the number of Medicaid beneficiaries in each state by the fifth highest and fifth lowest proportion of Medicaid beneficiaries treated for a SUD in each subpopulation (according to the SUD Data Book).

[b] Estimates determined through the TAF feasibility analysis, which was conducted under Task 10 of the section 1115 Demonstration Support Contract.

EQMs = established quality metrics; TAF = T-MSIS analytic files; T-MSIS = transformed Medicaid statistical information system; MAT = medication-assisted treatment; SUD = substance use disorder

Table A.2. Section 1115 SUD demonstration types and dates; monitoring reports submitted between December 1, 2021, and June 1, 2022

State (Demonstration type[a])	Approval date	Start date[b]	End date	Monitoring reports submitted between December 1, 2021 and June 1, 2022	Monitoring data reviewed for this report included							
					Milestones							
					1	2	3	4	5	6	Health IT	Other
Alaska (Comprehensive)	11/21/2018	1/1/2019	12/31/2023	**Quarterly reports:** • October–December 2021				X			X	X
California (Comprehensive)	8/13/2015	8/13/2015	12/31/2026	**Quarterly reports:** • October–December 2021 **Close out reports:** • July–December 2021			X	X		X		X
Colorado (Stand-alone)	11/13/2020	1/1/2021	12/31/2025	**Quarterly reports:** • October–December 2021 • January–March 2022	X	X	X	X	X	X	X	X
Connecticut (Stand-alone)	4/14/2022	4/14/2022	3/31/2027	**n.a.**								
Delaware (Comprehensive)	7/31/2019	8/1/2019	12/31/2023	**Quarterly reports:** • October–December 2021 • January–March 2022 **Annual reports:** • January–December 2021		X		X			X	X
District of Columbia (Comprehensive including SMI/SED)	11/6/2019	1/1/2020	12/31/2024	**Quarterly reports:** • October–December 2021 • January–March 2022	X	X		X	X	X	X	X
Idaho (Joint SUD-SMI/SED)	4/17/2020	4/17/2020	3/31/2025	**Quarterly reports:** • October–December 2021	X	X		X				X

Table A.2 (*continued*)

State (Demonstration type[a])	Approval date	Start date[b]	End date	Monitoring reports submitted between December 1, 2021 and June 1, 2022	Monitoring data reviewed for this report included							
					Milestones							
					1	2	3	4	5	6	Health IT	Other
Illinois (Comprehensive)	5/7/2018	7/1/2018	6/30/2023	**Quarterly reports:** • July–September 2021 • October–December 2021 • January–March 2022	X	X		X	X	X	X	X
Indiana (Comprehensive including SMI/SED)	2/1/2018	2/1/2018	12/31/2025	**Quarterly reports:** • October–December 2021	X	X	X	X	X	X	X	X
Kansas (Comprehensive)	12/18/2018	1/1/2019	12/31/2023	**Quarterly reports:** • October–December 2021 • January–March 2022	X	X		X	X	X	X	
Kentucky (Comprehensive)	1/12/2018	1/12/2018	9/30/2023	**Quarterly reports:** • October–December 2021 • January–March 2022	X	X	X	X	X	X	X	X
Louisiana (Stand-alone)	2/1/2018	2/1/2018	12/31/2022	**Quarterly reports:** • July–September 2021 • October–December 2021	X	X	X		X	X	X	X
Maine (Stand-alone)	12/22/2020	1/1/2021	12/31/2025	**Quarterly reports:** • January–March 2021	X	X	X	X	X	X		X
Maryland (Comprehensive including SMI/SED)	12/22/2016	1/1/2017	12/31/2026	**Quarterly reports:** • October–December 2021	X	X	X			X		X
Massachusetts (Comprehensive)	11/4/2016	7/1/2017	6/30/2022	**Quarterly reports:** • October–December 2021 • January–March 2022	X					X		X

Table A.2 (*continued*)

State (Demonstration type[a])	Approval date	Start date[b]	End date	Monitoring reports submitted between December 1, 2021 and June 1, 2022	Monitoring data reviewed for this report included							
					Milestones							
					1	2	3	4	5	6	Health IT	Other
Michigan (Stand-alone)	4/5/2019	4/5/2019	9/30/2024	**Quarterly reports:** • July–September 2021 • October–December 2021 • January–March 2022	X	X	X	X	X		X	X
Minnesota (Stand-alone)[c]	6/28/2019	7/1/2019	6/30/2024	**Quarterly reports:** • April–June 2021 • July–September 2021 • October–December 2021	X	X	X	X	X	X	X	X
Nebraska (Stand-alone)	6/28/2019	7/1/2019	6/30/2024	**Quarterly reports:** • October–December 2021 • January–March 2022	X		X	X	X	X	X	X
New Hampshire (Stand-alone)	7/10/2018	7/10/2018	6/30/2023	**Quarterly reports:** • October–December 2021 • January–March 2022	X	X	X		X	X	X	X
New Jersey (Comprehensive)[c]	10/31/2017	10/31/2017	12/31/2022	**Quarterly reports:** • July–September 2021 • October–December 2021	X		X	X	X	X	X	X
New Mexico (Comprehensive)	12/14/2018	1/1/2019	12/31/2023	**Quarterly reports:** • July–September 2021 • October–December 2021	X	X	X		X	X	X	X

Table A.2 (*continued*)

State (Demonstration type[a])	Approval date	Start date[b]	End date	Monitoring reports submitted between December 1, 2021 and June 1, 2022	Monitoring data reviewed for this report included							
					Milestones							
					1	2	3	4	5	6	Health IT	Other
North Carolina (Comprehensive)	10/19/2018	1/1/2019	10/31/2023	**Quarterly reports:** • May–June 2020 • February–April 2021 • August–October 2021 • November 2021–January 2022 **Annual reports:** • November 2020–October 2021	X	X	X	X	X	X	X	X
Ohio (Stand-alone)	9/24/2019	10/1/2019	9/30/2024	**Quarterly reports:** • July–September 2021 • October–December 2021 • January–March 2022	X	X		X	X	X	X	X
Oklahoma (Comprehensive including SMI/SED)[c]	12/22/2020	12/22/2020	12/31/2025	**Annual reports:** • October–December 2021	X	X					X	X
Oregon (Stand-alone)[c]	4/8/2021	4/8/2021	3/31/2026	**Quarterly reports:** • October–December 2021	X	X	X	X	X	X	X	X
Pennsylvania (Comprehensive)[c]	6/28/2018	7/1/2018	9/30/2022	**Quarterly reports:** • October–December 2021 **Annual reports:** • July 2020–September 2021	X	X	X	X	X	X	X	X

Table A.2 (*continued*)

State (Demonstration type[a])	Approval date	Start date[b]	End date	Monitoring reports submitted between December 1, 2021 and June 1, 2022	Monitoring data reviewed for this report included							
					Milestones							
					1	2	3	4	5	6	Health IT	Other
Rhode Island (Comprehensive)	12/20/2018	1/1/2019	12/31/2023	**Quarterly reports:** • July–September 2021 • October–December 2021 • January–March 2022 **Annual reports:** • January–December 2021		X		X	X	X	X	X
Utah (Comprehensive including SMI/SED)	10/31/2017	11/1/2017	6/30/2022	**Quarterly reports:** • July–September 2021 • October–December 2021 • January–March 2022 **Annual reports:** • July 2020–June 2021	X	X	X	X	X	X	X	X
Vermont (Comprehensive including SMI/SED)	6/6/2018	7/1/2018	12/31/2027	**Quarterly reports:** • July–September 2021 **Annual reports:** • January–December 2021	X	X	X	X	X	X	X	
Virginia (Comprehensive)	12/15/2016	12/15/2016	12/31/2024	**Quarterly reports:** • July–September 2021 • October–December 2021	X	X		X	X	X		X
Washington (Comprehensive including SMI/SED)	7/17/2018	7/17/2018	12/31/2022	**Quarterly reports:** • October–December 2021 • January–March 2022	X				X		X	X

Table A.2 (*continued*)

State (Demonstration type[a])	Approval date	Start date[b]	End date	Monitoring reports submitted between December 1, 2021 and June 1, 2022	Monitoring data reviewed for this report included							
					Milestones							
					1	2	3	4	5	6	Health IT	Other
West Virginia (Stand-alone)	10/6/2017	1/1/2018	12/31/2022	**Quarterly reports:** • July–September 2020 • October–December 2021 **Annual reports:** • January–December 2020 • January–December 2021	X	X	X	X	X	X	X	X
Wisconsin (Comprehensive)	10/31/2018	10/31/2018	12/31/2023	**Quarterly reports:** • January–March 2021								X

Note: This table summarizes information for the 33 states with approved SUD demonstrations as of June 1, 2022.

[a] *Comprehensive* demonstrations do not include an SMI/SED component but do include other activities and goals outside the demonstration's SUD component. *Comprehensive including SMI/SED* demonstrations have an SMI/SED component as well as activities outside the SUD and SMI/SED components. *Stand-alone* demonstrations include only SUD-focused activities. *Joint SUD-SMI/SED* demonstrations include both SUD- and SMI/SED-focused activities, but they do not include activities or goals outside the SUD and SMI/SED components.

[b] For monitoring purposes, the SUD demonstration start date refers to the effective date listed in the state's STCs at the time of the SUD demonstration approval. In many cases, the effective date of a demonstration is distinct from its approval date; that is, in certain cases, CMS may approve a section 1115 demonstration with a future effective date. In many cases, the effective date also differs from the date a state begins implementing its demonstration. We are compiling information on implementation dates and may use those dates to inform future analyses.

[c] State is participating in the Section 223 Demonstration Program for Certified Community Behavioral Health Clinics. Section 223 of the Protecting Access to Medicare Act creates and evaluates a two-year demonstration program for states to certify community behavioral health clinics.

CMS = Centers for Medicare & Medicaid Services; SED = serious emotional disturbance; SMI = serious mental illness; STCs = special terms and conditions; SUD = substance use disorder.

Table A.3. Available reporting periods of monitoring data available as of June 1, 2022 (by metric and state[a])

Metric	Metric (measurement period)	AK	DC	DE	ID	IL	IN	KS	KY	LA	MI	MN	NC	NE	NH	NJ	NM	OH	OK	PA	RI	UT	VA	VT	WA	WI	WV
1[b]	Assessed for SUD treatment needs using a standardized screening tool (monthly)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
2[b]	Medicaid beneficiaries with newly initiated SUD treatment or diagnosis (monthly)	0	24	33	3	39	21	0	27	45	0	27	0	0	0	42	0	0	0	0	0	0	0	0	0	0	45
3	Medicaid beneficiaries with SUD diagnosis (monthly)	27	24	33	0	39	24	36	27	45	27	27	36	30	33	45	0	27	0	36	36	54	12	45	50	6	45
4	Medicaid beneficiaries with SUD diagnosis (annually)	2	2	2	0	1	2	3	2	3	2	0	3	2	3	3	2	2	0	3	3	4	1	3	3	0	0
5	Medicaid beneficiaries treated in an IMD for SUD (annually)	2	2	2	0	1	2	3	2	3	2	1	3	2	2	3	1	2	0	3	3	4	1	3	3	0	1
6	Any SUD treatment (monthly)	18	24	33	0	39	27	36	27	45	27	27	36	30	39	45	0	27	0	36	36	54	12	45	50	6	45
7	Early intervention (monthly)	27	22	33	3	39	27	36	27	45	27	27	36	30	39	45	30	27	3	36	8	51	12	45	49	6	45
8	Outpatient services (monthly)	18	24	33	3	39	24	36	27	45	27	27	36	30	36	45	30	27	3	36	36	54	12	45	50	6	45
9	Intensive outpatient and partial hospitalization services (monthly)	27	24	33	3	39	0	36	27	45	27	0	36	30	21	45	30	27	3	36	36	54	12	45	0	6	0

Table A.3 (*continued*)

Metric	Metric (measurement period)	AK	DC	DE	ID	IL	IN	KS	KY	LA	MI	MN	NC	NE	NH	NJ	NM	OH	OK	PA	RI	UT	VA	VT	WA	WI	WV
10	Residential and inpatient services (monthly)	27	24	33	3	39	24	36	27	45	27	27	36	30	39	45	30	27	3	36	36	54	12	45	49	6	45
11	WM (monthly)	27	24	33	3	39	27	36	21	45	27	27	36	30	39	45	30	27	3	36	36	54	12	45	47	6	45
12	MAT (monthly)	27	24	33	3	39	27	36	27	45	27	27	36	30	21	45	30	27	3	33	36	54	12	45	50	6	45
36	ALOS in IMDs (annually)	2	2	2	0	1	2	1	2	3	2	2	3	2	3	3	2	2	0	3	3	4	1	2	3	0	3
13	SUD provider availability (annually)	2	2	2	0	1	2	3	2	3	2	2	3	2	1	2	2	2	0	3	3	4	1	3	3	0	3
14	SUD provider availability – MAT (annually)	2	2	2	0	1	2	3	2	3	2	2	3	2	1	2	2	1	0	3	3	4	1	3	3	0	3
15	Initiation and engagement of alcohol and other drug dependence treatment (IET-AD) [NCQA; NQF #0004; Medicaid Adult Core Set; Adjusted HEDIS measure] (annually)	2	1	0	0	1	1[c]	2	0	3	2	2	3	2	3[d]	3	2	2	0	0	2	3[e]	1	3	4	0	1
18	Use of opioids at high dosage in persons without cancer (OHD-AD) [PQA, NQF #2940; Medicaid Adult Core Set] (annually)	2	1	0	0	1	1	2	2	3	2	2	3	2	2	3	0	2	0	2	3	4	1	3	4	0	1
19[b]	Use of opioids from multiple providers in persons without cancer [PQA; NQF #2950] (annually)	0	0	2	0	1	1	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0

Table A.3 (*continued*)

Metric	Metric (measurement period)	AK	DC	DE	ID	IL	IN	KS	KY	LA	MI	MN	NC	NE	NH	NJ	NM	OH	OK	PA	RI	UT	VA	VT	WA	WI	WV
20[b]	Use of opioids at high dosage and from multiple providers in persons without cancer [PQA, NQF #2951] (annually)	0	0	2	0	1	1	0	2	0	0	2	0	0	1	0	0	2	0	0	0	0	1	0	0	0	0
21	Concurrent use of opioids and benzodiazepines (COB-AD) [PQA] (annually)	2	1	2	0	1	1	1	2	3	2	2	3	2	3	3	1	2	0	2	3	4	1	3	4	0	1
22	Continuity of pharmacotherapy for OUD [USC; NQF #3175] (annually)	2	1	2	0	1	1	0	2	3	2	2	3	2	1	3	1	2	0	2	2	4	1	3	4	0	1
16[b]	SUB-3 alcohol and other drug use disorder treatment provided or offered at discharge; SUB-3a alcohol and other drug use disorder treatment at discharge [Joint Commission; NQF #1664] (annually)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17(1)	Follow-up after ED visit for alcohol or other drug dependence (FUA-AD) [NCQA; NQF #2605; Medicaid Adult Core Set; Adjusted HEDIS measure] (annually)	2	1	2	0	1	1	2	2	3	2	2	3	2	3	4	2	2	0	1[f]	2	4	1	3	4	0	1

Table A.3 (*continued*)

Metric	Metric (measurement period)	AK	DC	DE	ID	IL	IN	KS	KY	LA	MI	MN	NC	NE	NH	NJ	NM	OH	OK	PA	RI	UT	VA	VT	WA	WI	WV
17(2)	Follow-up after ED visit for mental illness (FUM-AD) [NCQA; NQF #2605; Medicaid Adult Core Set; Adjusted HEDIS measure] (annually)	2	1	2	0	0	1	2	2	3	2	2	3	2	3	3	2	2	0	2	2	3	1	3	4	0	1[g]
23	ED utilization for SUD per 1,000 Medicaid beneficiaries (monthly)	25	24	33	0	36	27	36	27	45	27	27	36	30	39	45	30	27	0	33	0	54	3	45	50	6	45
24	Inpatient stays for SUD per 1,000 Medicaid beneficiaries (monthly)	25	24	33	3	39	27	36	27	45	27	27	36	30	39	45	30	27	0	0	36	54	3	45	50	6	45
25	Readmissions among beneficiaries with SUD (annually)	2	2	2	0	1	2	3	2	3	2	2	3	2	2	3	2	2	0	2	3	4	1	3	4	0	3
26	Overdose deaths (count) (annually)	2	0	0	0	1	0	2	2	3	2	2	2	0	1	2	1	2	0	3	3	4	0	3	2	0	3
27	Overdose deaths (rate) (annually)	2	0	0	0	1	0	2	2	3	2	2	2	0	1	2	1	2	0	3	3	4	0	3	2	0	3
28[b]	SUD spending (annually)	0	2	2	0	1	1	0	2	0	0	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	3
29[b]	SUD spending within IMDs (annually)	0	2	2	0	1	1	0	2	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
30[b]	Per capita SUD spending (annually)	0	2	2	0	1	1	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0	1	0	0	0	0
31[b]	Per capita SUD spending within IMDs (annually)	0	2	2	0	1	1	0	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Table A.3 (*continued*)

Metric	Metric (measurement period)	AK	DC	DE	ID	IL	IN	KS	KY	LA	MI	MN	NC	NE	NH	NJ	NM	OH	OK	PA	RI	UT	VA	VT	WA	WI	WV
32	Access to preventive or ambulatory health services for adult Medicaid beneficiaries with SUD (AAP) [Adjusted HEDIS measure] (annually)	0	1	2	0	1	1	1	2	3	2	2	2	2	2	4	2	2	0	2	3	4	1	3	4	0	1
33[b]	Grievances related to SUD treatment services (quarterly)	0	7	0	0	0	8	13	0	16	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0
34[b]	Appeals related to SUD treatment services (quarterly)	0	7	0	0	0	8	13	0	16	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0
35[b]	Critical incidents related to SUD treatment services (quarterly)	0	6	0	0	0	2	1	0	16	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

Note: This table summarizes data available from the 26 states with approved SUD demonstrations that submitted monitoring reports through June 1, 2022.

[a] Counts indicate the number of data reporting periods available for analysis. Some metrics use a monthly reporting period, some use a quarterly reporting period, and others use an annual reporting period. Counts exclude data that meet two conditions: (1) do not pass the data quality check discussed in this appendix and (2) are recommended for removal by the SUD metrics SME.

[b] Metric recommended, not required.

[c] One year of data for Metrics #15[1]–15[4] was available for analysis for Indiana. No years of data for Metrics #15[5]–15[8] were available for analysis.

[d] Three years of data for Metrics #15[1]–15[7] were available for analysis for New Hampshire. Only 2 years of data were available for Metric #15[8].

[e] Four years of data for Metrics #15[4] and 15[8] were available for analysis for Utah. Metric #15 had only 2 rates for CY 2017, Utah's baseline year.

[f] Only Metric #17[1.1] was available for analysis for Pennsylvania. Metric #17[1.2] did not pass the data checks and was not available for analysis.

[g] Only Metric #17[2.1] was available for analysis for West Virginia. Metric #17[2.2] did not pass the data checks and was not available for analysis.

AAP = American Academy of Pediatrics; ALOS = average length of stay; CY = calendar year; ED = emergency department; HEDIS = Healthcare Effectiveness Data and Information Set; IMD = institutions for mental diseases; MAT = medication-assisted treatment; NCQA = National Committee for Quality Assurance; NQF = National Quality Forum; OUD = opioid use disorder; PQA = Pharmacy Quality Alliance; SME = subject matter expert; SUD = substance use disorder; WM = withdrawal management.

Table A.4. Telehealth codes included in the SUD demonstration technical specifications manual for Metrics #2–4, 6, 8, 28, 30[a]

HCPCS code	Description
Included in version 3	
98966-98968	Telephone assessment and management services provided by a qualified nonphysician health care professional to an established patient, parent, or guardian that does not originate from a related assessment and management service provided within the previous 7 days or lead to an assessment and management service or procedure within the next 24 hours or at the soonest available appointment
98970-98972	Qualified nonphysician health care professional online digital assessment and management service for an established patient for up to 7 days, cumulative time during the 7 days
99421-99423	Online digital evaluation and management service for an established patient for up to 7 days, cumulative time during the 7 days
99441-99443	Telephone evaluation and management service provided by a physician to an established patient, parent, or guardian that does not originate from a related E/M service provided within the previous 7 days or lead to an E/M service or procedure within the next 24 hours or at the soonest available appointment
Added in version 4	
G0071	Payment for communication technology services for 5 minutes or more of virtual (non–face-to-face) communication between a practitioner from a rural health clinic (RHC) or federally qualified health center (FQHC) and an RHC or FQHC patient, or payment for 5 minutes or more of a remote evaluation of recorded video and/or images by an RHC or FQHC practitioner done in lieu of an office visit; RHC or FQHC only
G2010	Remote evaluation of recorded video and/or images submitted by an established patient, including follow-up with interpretation with the patient within 24 business hours
G2012	Brief communication technology service provided by a physician (or other qualified health care professional who can report E/M services) to an established patient that does not originate from a related E/M service provided within the previous 7 days or lead to an E/M service or procedure within the next 24 hours or at the soonest available appointment; includes 5–10 minutes of medical discussion
G2061-G2063	Online assessment and management by a qualified nonphysician healthcare professional for an established patient for up to 7 days

[a] Counts for Metrics #2-4, 6, 8, 28, 30 may be underreported for calendar year 2020 or later because some telehealth and online assessment codes were not included in 1115 SUD demonstration technical specification manual version 3 (see Chapter II for more information).

E/M = evaluation and management; HCPCS = Healthcare Common Procedure Coding System.

Table A.5. Key differences in state methodologies for developing metrics on subpopulations[a]

Subpopulation	Subpopulation definition	Period used to determine group eligibility
Beneficiaries who were enrolled in both Medicaid and Medicare (dually eligible)	• Used T-MSIS code referenced in SUD demonstration technical specifications manual or in state code: – Used T-MSIS code (ME, MI, NE) – Used state code (CO, DE, ID, KS, KY, LA, NC, NJ, OH, OK, PA, VT) – State did not specify (AK, NH, NE) • Reported deviating from specifications to limit to beneficiaries eligible for full Medicaid benefits (DE, NC)	• First day (AK, CO, DC, NJ, OH) (consistent with technical specifications) • Last day (NH) • Any point during the metric measurement period (DE, KY, LA, MI, NE, NJ, OK, PA, VT) • Any point during the annual reporting period (ID) • State did not specify (KS, ME, NC)
Beneficiaries with an opioid use disorder (OUD) diagnosis	• All states included in the assessment used the diagnosis codes in the HEDIS measurement year 2020 Opioid Abuse and Dependence Value Set referenced in the SUD demonstration technical specifications manual (AK, CO, ID, KS, KY, LA, ME, MI, NC, NE, OH, VT, WI, WV) • Ohio added codes for opioid dependence remission and opioid dependence, unspecified.	• Metric measurement period only (AK, CO, ID, LA, ME, NC, NE, OH, WI) • At any time in claims history (MI) • Any time during the period specified in the monitoring report (WV) • State did not specify (KS, KY, VT) • It is unclear whether some states use the claims lookback period to identify those with an OUD diagnosis for Metric #3 specifically

Table A.5 (*continued*)

Subpopulation	Subpopulation definition	Period used to determine group eligibility
Beneficiaries who were pregnant	• MACBIS Pregnancy Code List provided with the SUD demonstration technical specifications manual, Versions 3.0 and 4.0 (AK, CO, DE, IL, KY, MI, NE, OH, OK, WI)[c, d] • HEDIS pregnancy and/or pregnancy diagnosis value sets (DC, LA, NC)[d] • Diagnosis and procedure codes from the U.S. Department of Health and Human Services, Office of Population Affairs (MD) • Pregnancy diagnosis codes identified by state, abortion-related codes excluded (ID) • Pregnancy diagnosis codes O00-O9A or Medicaid category indicating eligibility based on pregnancy (ME) • Delivery, obstetric, and antepartum care procedure codes (PA) • State-specific rate codes (WV) • Pregnancy indicator code in state's Medicaid Management Information System (KS) • Medicaid eligibility based on pregnancy (NH, VT) • Use claim information on gestational age to create a span of time during which the woman was pregnant (NJ)	• Pregnancy-related claims in the metric measurement period only (CO, DE, KY, LA, WV) • Pregnancy-related claims in the metric measurement period or 2 months prior (AK, DC, MI, NE, OH, WI) (consistent with the technical specifications) • Pregnancy-related claims in the demonstration year that overlap with the metrics measurement period (OK) • The metric measurement period falls anytime during pregnancy (NJ) • Eligible for Medicaid based on pregnancy during metric measurement period (NH) • State did not specify (DC, ID, IL, KS, MD, ME, NC, PA, VT)
Beneficiaries involved with the criminal justice system	• Incarcerated (KY, LA, NJ, OH, OK) • Incarcerated and/or parolees (CO) • Previously incarcerated or enrolled in state's SUD jail diversion case management program (IL) • Treatment episode data admission record indicates: In prison, jail, or juvenile detention center; paroled; on probation; tethered; pre-trial; pre-sentence; or in diversion (MI) • Criminal court defendant (AK) • Living arrangement that indicates criminal justice involvement (NC)	• Metric measurement period only (DC, LA, MI, NJ) (consistent with technical specifications) • Metric measurement period and additional months (AK, OH, OK)[b] • State did not specify (CO, IL, KY, NC)

[a] Age subpopulations are not listed in this table because states did not submit information on their methods for developing these groups.

[b] Three states identify the criminal justice population based on the metrics measurement period and additional periods: (1) Alaska used the measurement period and the 36 prior months, (2) Ohio used the measurement period and the prior 12 months, and (3) Oklahoma used the demonstration year overlapping with the measurement period.

[c] Colorado supplemented these codes with bundled payment delivery codes; Illinois supplemented them with diagnostic-related labor and delivery group codes 540-566.

[d] Louisiana limited those identified as pregnant to females ages 9 or older, and Ohio limited them to females ages 13 or older.

Table A.6. Approved state deviations as of December 1, 2021 (by metric)

Metric #	Metric Description	Deviation
1	Assessed for SUD treatment needs using a standardized screening tool	None
2	Medicaid beneficiaries with newly initiated SUD treatment or diagnosis	• The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination). • Illinois added HCPCS code H0006 (drug and/or alcohol services case management). This code is only used for SUD case management in Illinois's Medicaid program.
3	Medicaid beneficiaries with SUD diagnosis (monthly)	• Colorado does not include (1) several HCPCS codes for detoxification and outpatient identification of alcohol and other drug services; (2) SNOMED CT code 4525004 (emergency department visit); and (3) several CPT codes for outpatient identification of alcohol and other drug services. Due to the lookback period, Colorado added HCPCS codes S3005 (depression self-evaluation of patient), T1007 (alcohol and/or substance abuse treatment plan development), T1019 (personal care services), and T1023 (program intake assessment). • The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination). • Illinois added HCPCS code H0006 (drug and/or alcohol services case management). In Illinois, this code is only used for SUD case management in the state Medicaid program. • Ohio added (1) claims with a provider type code 95 (this code represents SUD treatment programs in the state); (2) several National Drug Codes used for pharmacy-dispensed buprenorphine MAT in Ohio; and (3) HCPCS codes T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug). • Pennsylvania added (1) several National Drug Codes for methadone or buprenorphine and naloxone; (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services); and (4) HCPCS codes H0006 (alcohol and/or drug services; case management), H0004 (behavioral health counseling and therapy), H2034 (halfway house services), H0018 (behavioral health short-term residential treatment), and T2048 (long-term residential care). • Vermont added HCPCS code H0018 (behavioral health short-term residential treatment). This code is only used for SUD treatment in Vermont's Medicaid program.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
4	Medicaid beneficiaries with a SUD diagnosis (annually)	• Colorado does not include (1) several HCPCS codes for detoxification and outpatient identification of alcohol and other drug services; (2) SNOMED CT code 4525004 (emergency department visit); and (3) several CPT codes for outpatient identification of alcohol and other drug services. Due to the lookback period, Colorado added HCPCS codes S3005 (depression self-evaluation of patient), T1007 (alcohol and/or substance abuse treatment plan development), T1019 (personal care services), and T1023 (program intake assessment). • The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination). • Illinois added HCPCS code H0006 (drug and/or alcohol services case management). In Illinois, this code is only used for SUD case management in the state Medicaid program. • Ohio added (1) claims with a provider type code 95 (this code represents SUD treatment programs in the state); (2) several National Drug Codes used for pharmacy-dispensed buprenorphine MAT in Ohio; and (3) HCPCS codes T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug). • Pennsylvania added (1) several National Drug Codes for methadone or buprenorphine and naloxone; (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services); and (4) HCPCS codes H0006 (alcohol and/or drug services; case management), H0004 (behavioral health counseling and therapy), H2034 (halfway house services), H0018 (behavioral health short-term residential treatment), and T2048 (long-term residential care). • Vermont added HCPCS code H0018 (behavioral health short-term residential treatment). This code is only used for SUD treatment in Vermont's Medicaid program.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
5	Medicaid beneficiaries treated in an IMD for a SUD	• Illinois utilized the state-defined provider type code 075 and HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under withdrawal management (WM) in Illinois's Medicaid program. • The District of Columbia used a state defined list of IMDs identified based on Medicaid agency billing provider IDs. • Indiana added HCPCS code H2034 (SUD halfway house services). • Kansas identified IMDs using a list maintained by the Behavioral Health Services Licensing Manager of those licensed to provide SUD services. • Kentucky added HCPCS codes H2034 (SUD halfway house services) and H2036 (alcohol and/or other drug treatment program). • Louisiana added HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or other drug treatment program), H0011 (acute detoxification - residential addiction program, inpatient), and H0012 (subacute detoxification - residential addiction program, outpatient). • Maryland used any instance of procedure codes W7310 (ASAM level 3.1), W7330 (ASAM level 3.3), W7350 (ASAM level 3.5), W7370 (ASAM level 3.7), or W7375 (ASAM level 3.7) or revenue codes 0124 (room and board, semi-private, 2 beds) and 0169 (other room and board) with a SUD primary diagnosis and an MHD diagnosis in a subsequent diagnosis field. • Michigan utilizes claims or encounters to identify IMDs. • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center). • Nebraska identified IMDs using a roster from Medicaid provider enrollment and Nebraska Public Health Provider Licensure Mental & Substance Use Treatment Centers roster. • Ohio added HCPCS codes H2034 (SUD halfway house services) and H2036 (alcohol and/or other drug treatment program).
6	Any SUD treatment	• Colorado does not include (1) several HCPCS codes for detoxification and outpatient identification of alcohol and other drug services; (2) SNOMED CT code 4525004 (emergency department visit); (3) several CPT codes for outpatient identification of alcohol and other drug services. Due to the lookback period, Colorado added HCPCS codes S3005 (depression self-evaluation of patient), T1007 (alcohol and/or substance abuse treatment plan development), T1019 (personal care services), and T1023 (program intake assessment). • The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination).

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
6	Any SUD treatment (continued)	• Illinois utilized the (1) state-defined provider type code 075 (substance use provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. Illinois added HCPCS code H0006 (drug and/or alcohol services case management); this code is only used for SUD case management in Illinois's Medicaid program. • Indiana added (1) diagnosis-related groups 770 and 772-776 (inpatient hospital drug and/or alcohol abuse or dependence treatment) and (2) HCPCS code H2034 (SUD halfway house services). • Kentucky removed HCPCS code H2036 (alcohol and/or other drug treatment program) and added several CPT codes regarding psychiatric services and alcohol and/or other drug treatment services. • Louisiana added HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or other drug treatment program), H0011 (acute detoxification - residential addiction program, inpatient), and H0012 (subacute detoxification - residential addiction program, outpatient). • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center). • Ohio added (1) HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or other drug treatment program), T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug); (2) claims with a provider type code 95 (this code represents SUD treatment programs in the state); and (3) several National Drug Codes used for pharmacy-dispensed buprenorphine MAT in Ohio. • Pennsylvania added (1) Place of Service code 99 (other place of service); (2) several National Drug Codes for methadone or buprenorphine and naloxone; (3) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (4) HCPCS code H2034 (SUD halfway house services) and H0006 (alcohol and/or drug case management); and (5) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). • Rhode Island required that all services counted in this metric include a primary or secondary SUD diagnosis.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
7	Early intervention	• Colorado does not include (1) HCPCS codes H0050 (alcohol and/or drug services intervention), G0396 (alcohol and/or substance misuse structured assessment), and G0397 (alcohol and/or substance misuse structured assessment) and (2) several SNOMED-CT codes regarding telephone visits. • Maryland does not include the HCPCS and CPT codes listed in CMS specifications. The state used procedure codes 99408 (alcohol and/or substance abuse structured screening and brief intervention services), 99409 (alcohol and/or substance abuse structured screening and brief intervention services), W7000 (alcohol or substance use disorder screening), W7010 (alcohol and/or substance use disorder screening), W7020 (intervention up to 10 minutes), W7021 (intervention over 10 minutes up to 20 minutes), and W7022 (intervention over 20 minutes) for SBIRT. • Rhode Island noted that its providers are not using the codes indicated in this metric's specifications when billing for early intervention services. Therefore, the utilization counts indicated in this metric for Rhode Island underrepresents the provision of these services. • Washington is limiting the utilization count reported in this measure to screening, brief intervention, and referral to treatment. • West Virginia used (1) HCPCS code H0031 (mental health assessment by a non-physician) and (2) CPT codes 90791 (psychiatric diagnostic evaluation) and 90792 (psychiatric diagnostic evaluation with medical services). In West Virginia's Medicaid program, these codes are used for assessments that include screening, brief intervention, and referral to treatment.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
8	Outpatient services	• Colorado does not include (1) several CPT and HCPCS codes regarding identification of alcohol and other drug services codes; (2) several SNOMED-CT codes regarding telephone visits; (3) several CPT codes for online assessments; and (4) CPT code 90845 (psychotherapy). • The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination). • Illinois added HCPCS code H0006 (drug and/or alcohol services case management). This code is only used for SUD case management in Illinois's Medicaid program. Illinois excludes HCPCS codes H0004 (behavioral health counseling and therapy) and H0005 (group counseling by a clinician) when 36 or more units of the service are billed for a single recipient in a rolling 7-day period. Illinois will include revenue codes 0944 (drug rehabilitation therapeutic services) and 0945 (alcohol rehabilitation therapeutic services) as outpatient services when the service is rendered under the state-defined category of service for outpatient hospital services. • Kentucky removed HCPCS code H2036 (alcohol and/or other drug treatment program) and added several CPT codes regarding psychiatric services and alcohol and/or other drug treatment services. • Ohio added claims with a provider type code 95 (this code represents SUD treatment programs in the state). Ohio excludes HCPCS code H2036 (alcohol and/or other drug treatment program). • Pennsylvania added (1) HCPCS code H0006 (drug and/or alcohol services case management) and (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders). Pennsylvania added revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). Pennsylvania excluded HCPCS code H2035 (alcohol and/or drug treatment program). • Rhode Island required that all services counted for this metric include a primary or secondary SUD diagnosis. • Washington's claim system does not contain codes for intensive outpatient services; thus, these claims will be captured by Metric #8 instead of Metric #9. • Wisconsin added HCPCS codes H0002 (behavioral health screening for treatment admission) and H0004 (behavioral health counseling and therapy).

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
9	Intensive outpatient and partial hospitalization services	• Colorado does not cover CPT code 90845 (psychotherapy) and several HCPCS codes for psychological services. • The District of Columbia currently cannot consistently identify these services or ensure that a visit was in an intensive outpatient or partial hospitalization setting and is not reporting parts of the specifications that require it. • Illinois added HCPCS codes H0004 (behavioral health counseling and therapy) and H0005 (group counseling by a clinician) when 36 or more units of the service are billed for a single recipient in a rolling 7-day period. • Ohio only counts claims with HCPCS code H0015 (intensive outpatient, including assessment, counseling, crisis intervention, and activity therapies or education). All other codes are considered outpatient services. • Pennsylvania added (1) HCPCS code H2035 (alcohol and/or other drug treatment program); (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); and (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). • Rhode Island required all services counted for this metric to include a primary or secondary SUD diagnosis. • Washington does not cover partial hospitalization, and the state's claim system does not contain codes for intensive outpatient services; thus, these claims are captured by Metric #8 instead of Metric #9, and, accordingly, no data are reported for this metric. • West Virginia cannot identify intensive outpatient services in their claims system.
10	Residential and inpatient services	• Colorado does not cover (1) several HCPCS codes regarding alcohol and substance abuse assessments and (2) several revenue codes regarding skilled nursing services and revenue code 1001 (behavioral health accommodations). • The District of Columbia is currently unable to determine the discharge date for residential treatment based on claims alone. Instead, any beneficiary with a residential treatment service during the month is counted. • Illinois utilized (1) state-defined provider type code 075 (Substance Use Provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. • Indiana added (1) HCPCS code H2034 (SUD halfway house services) and (2) diagnosis-related groups 770 and 772-776 (inpatient hospital drug and/or alcohol abuse or dependence treatment).

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
10	Residential and inpatient services (continued)	• Kentucky added HCPCS codes H2034 (SUD halfway house services) and H2036 (alcohol and/or other drug treatment program). • Louisiana added HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or drug treatment program), H0011 (acute detoxification - residential addiction program, inpatient), H0012 (subacute detoxification - residential addiction program, outpatient), and H2013 (psychiatric health facility service). • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center). • Ohio added HCPCS codes H2034 (SUD halfway house services) and H2036 (alcohol and/or drug treatment program). • Pennsylvania added (1) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (2) HCPCS code H2034 (SUD halfway house services); and (3) revenue codes 0760, 0761, 0762, 0769, and 0949. • Rhode Island required that all services counted for this metric include a primary SUD diagnosis. • Wisconsin utilized HCPCS code H0018 (behavioral health, short-term residential treatment). • Vermont added HCPCS code H0011 (acute detoxification - residential addiction program, inpatient). Vermont considers stays longer than 3 days to be both WM and residential/inpatient services. • Virginia used the following codes to identify IMD claims: for ASAM level 3.3, HCPCS code H0010 and revenue center code 1002 with modifier TG; for ASAM level 3.5, HCPCS code H0010 and revenue center code 1002 with modifiers HB or HA; for ASAM level 3.7, HCPCS code H2036 and revenue center code 1002 with modifiers HB or HA.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
11	Withdrawal management (WM)	• Colorado excluded several HCPCS codes for detoxification. Due to the lookback period, Colorado added HCPCS codes S3005 (depression self-evaluation of patient), T1007 (alcohol and/or substance abuse treatment plan development), T1019 (personal care services), and T1023 (program intake assessment). • The District of Columbia is currently unable to determine the discharge date for residential treatment based on claims alone. Instead, any beneficiary with a residential treatment service during the month is counted. • Illinois added ICD-10 PCS code HZ2ZZZZ (detoxification services for substance abuse treatment) to the HEDIS 2020 Detoxification Value Set. • Kentucky excluded HCPCS code H0011 (acute alcohol and/or drug detoxification). • Pennsylvania added (1) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders) and (2) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). • Rhode Island only included detoxification services in this metric because other services captured in this metric are not included in Medicaid claims. • Vermont excluded HCPCS code H0011 (acute detoxification - residential addiction program, inpatient) due to bundled billing for H0011 and H0018 (behavioral health, short-term residential treatment). In Vermont, residential stays of more than 3 days were counted as both WM and residential/inpatient services regardless of bill coding.
12	Medication-assisted treatment (MAT)	• Ohio added (1) several National Drug Codes used for pharmacy-dispensed buprenorphine MAT in Ohio and (2) HCPCS codes T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug). • Pennsylvania added several National Drug Codes for methadone or buprenorphine and naloxone. • Rhode Island added state-specific HCPCS code H0020 (methadone administration and/or service). • Vermont added HCPCS code H0020 (methadone administration and/or service). Providers participating in Vermont's hub-and-spoke model bill H0020 as a case rate for MAT[a]

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
13	SUD provider availability	• Kansas defined SUD providers as those licensed by the state to provide SUD treatments. Kansas defined MAT providers as SUD providers licensed to provide acute detox, methadone, or inpatient treatment. • Maryland included all Medicaid enrolled OTPs, ADAA Certified Addiction Outpatient Programs, Data 2000 Waived Practitioners, Adult Residential SUD Programs, and ICF-A Programs with active enrollment during the reporting period. • Nebraska identified SUD providers as those with a paid claim for SUD services during the demonstration year. • Ohio added (1) HCPCS codes H2034 (SUD halfway house services) and H2036 (alcohol and/or other drug treatment program) and (2) provider type code 95 (this code represents SUD treatment programs in the state).
14	SUD provider availability - MAT	• Alaska cannot report the number of practitioners who have a waiver to dispense buprenorphine as this data cannot be released to the state. • Kansas defined SUD providers as those licensed by the state to provide SUD treatments. Kansas defined MAT providers as SUD providers licensed to provide acute detox, methadone, or inpatient treatment. • Maryland included all Medicaid enrolled OTPs, ADAA Certified Addiction Outpatient Programs, Data 2000 Waived Practitioners, Adult Residential SUD Programs, and ICF-A Programs with active enrollment during the reporting period. • Nebraska identified providers with SAMHSA data. • Ohio added (1) several National Drug Codes used for pharmacy-dispensed buprenorphine and naloxone MAT in Ohio and (2) HCPCS codes T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug). • Utah used Medicaid claims to identify Medicaid prescribers of MAT.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
15	Initiation and engagement of alcohol and other drug dependence treatment (IET-AD) [NCQA; NQF #0004; Medicaid Adult Core Set; Adjusted HEDIS measure]	• The District of Columbia could not include suspended, pending, or denied claims. • Illinois added HCPCS code H0006 (drug and/or alcohol services case management); this code is only used for SUD case management in Illinois's Medicaid program. • Ohio added (1) several National Drug Codes used for pharmacy-dispensed buprenorphine MAT in Ohio and (2) HCPCS codes T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug). • Pennsylvania added (1) HCPCS codes H0006 (drug and/or alcohol services case management), H0006TF (drug and alcohol case management), H0004 (behavioral health counseling and therapy), H2034 (halfway house services), H0018HF (non-hospital residential treatment program), and T2048HF (long-term residential care); (2) several National Drug Codes; (3) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); and (4) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). • Rhode Island excluded dually eligible beneficiaries and did not report services delivered through the FFS delivery system. • Vermont added HCPCS code H0018 (behavioral health, short-term residential treatment) to represent subacute inpatient care. Vermont bills HCPCS code H0020 (methadone administration and/or service) as a monthly unit and will use this code to represent multiple visits. • West Virginia was unable to verify whether claims on the same day of service involved different providers and considered all claims on the same day as a single service. West Virginia could not include suspended, pending, or denied claims.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
18	Use of opioids at high dosage in persons without cancer (OHD-AD) [PQA, NQF #2940; Medicaid Adult Core Set]	• New Hampshire excluded dually eligible beneficiaries from this metric. • Pennsylvania added (1) National Drug Codes for methadone or buprenorphine and naloxone; (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services); and (4) HCPCS codes H0006TF (drug and alcohol case management), H0004 (behavioral health counseling and therapy), H0006 (drug and/or alcohol services case management), H2034 (halfway house services), H0018HF (non-hospital residential treatment program), and T2048HF (long-term residential care). • Rhode Island required that all services counted for this metric include a primary or secondary SUD diagnosis. • Washington used metrics designed by the Bree Collaborative to capture this information (instead of the CMS measure specifications).
19	Use of opioids from multiple providers in persons without cancer [PQA; NQF #2950]	None
20	Use of opioids at high dosage and from multiple providers in persons without cancer [PQA, NQF #2951]	None
21	Concurrent use of opioids and benzodiazepines (COB-AD) [PQA]	• Pennsylvania added (1) National Drug Codes for methadone or buprenorphine and naloxone; (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services); and (4) HCPCS codes H0006TF (drug and alcohol case management), H0004 (behavioral health counseling and therapy), H0006 (drug and/or alcohol services case management), H2034 (halfway house services), H0018HF (non-hospital residential treatment program), and T2048HF (long-term residential care). • New Hampshire excluded dually eligible beneficiaries from this metric. • Rhode Island excluded dually eligible beneficiaries and did not report services delivered through the FFS delivery system. • Washington used metrics designed by the Bree Collaborative to capture this information (instead of the CMS measure specifications).

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
22	Continuity of pharmacotherapy for OUD [USC; NQF #3175]	• New Hampshire excluded dually eligible beneficiaries from this metric. • Ohio added (1) HCPCS codes T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug) and (2) National Drug Codes used for pharmacy-dispensed buprenorphine and naloxone MAT in Ohio. Ohio also includes take-home dosing of methadone and buprenorphine. • Pennsylvania added National Drug Codes for methadone and for buprenorphine and naloxone together. Pennsylvania could not include suspended, pending, or denied claims. • Rhode Island required that all services counted for this metric include a primary or secondary SUD diagnosis. • Washington restricted the measurement period to 12 months (instead of 2 years) but allowed for OUD identification during a 2-year lookback window (the measurement year and the year before the measurement year).
16	SUB-3 alcohol and other drug use disorder treatment provided or offered at discharge; SUB-3a alcohol and other drug use disorder treatment at discharge [Joint Commission; NQF #1664]	• Illinois added HCPCS code H0006 (drug and/or alcohol services case management); this code is only used for SUD case management in Illinois's Medicaid program.
17(1)	Follow-up after emergency department (ED) visit for alcohol or other drug dependence (FUA-AD) [NCQA; NQF #2605; Medicaid Adult Core Set; Adjusted HEDIS measure]	• The District of Columbia could not include suspended, pending, or denied claims. • New Hampshire excluded dually eligible beneficiaries from this metric. • Ohio added codes for remission and substance dependence, unspecified. • Pennsylvania added (1) National Drug Codes for methadone or buprenorphine and naloxone; (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services); and (4) HCPCS codes H0006TF (drug and alcohol case management), H0004 (behavioral health counseling and therapy), H0006 (drug and/or alcohol services case management), H2034 (halfway house services), H0018HF (non-hospital residential treatment program), and T2048HF (long-term residential care). • Rhode Island counted individuals ages 13 and older in the 18 to 64 age group. Rhode Island excluded dually eligible beneficiaries and did not include services delivered through the FFS delivery system. • West Virginia only included individuals ages 18 to 64.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
17(2)	Follow-up after ED visit for mental illness (FUM-AD) [NCQA; NQF #2605; Medicaid Adult Core Set; Adjusted HEDIS measure]	• The District of Columbia could not include suspended, pending, or denied claims. • New Hampshire excluded dually eligible beneficiaries from this metric. • Pennsylvania added (1) National Drug Codes for methadone or buprenorphine and naloxone; (2) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders); (3) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services); and (4) HCPCS codes H0006TF (drug and alcohol case management), H0004 (behavioral health counseling and therapy), H0006 (drug and/or alcohol services case management), H2034 (halfway house services), H0018HF (non-hospital residential treatment program), and T2048HF (long-term residential care). • Rhode Island excluded dually eligible beneficiaries from this metric. • West Virginia only included individuals ages 18 to 64.
23	ED utilization for SUD per 1,000 Medicaid beneficiaries	• Ohio added codes for remission and substance dependence, unspecified. • Vermont only included ED services billed on outpatient hospital claims.
24	Inpatient stays for SUD per 1,000 Medicaid beneficiaries	• Maryland calculated according to the current HEDIS specifications. • Ohio added codes for remission and substance dependence, unspecified. • Pennsylvania added (1) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders) and (2) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). • Vermont only included ED services billed on inpatient hospital claims.
25	Readmissions among beneficiaries with SUD	• Maryland will calculate according to the current HEDIS specifications. • Ohio added codes for remission and substance dependence, unspecified. • Pennsylvania added (1) diagnosis-related groups 433 (alcohol/drug abuse or dependence, leave against medical advice), 521 (drug-induced sleep disorders), 522 (drug-induced sleep disorders), and 523 (drug-induced sleep disorders) and (2) revenue codes 0760 (specialty services general), 0761 (specialty services treatment room), 0762 (specialty services observation hours), 0769 (specialty services other), and 0949 (other therapeutic services). Pennsylvania could not include suspended or pending claims. • West Virginia included beneficiaries who were age 18 or older at any point in the reporting period. West Virginia cannot exclude admissions with planned readmissions, and it cannot calculate continuous enrollment based on the index date; instead, it substitutes continuous enrollment for the reporting period.

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
28	SUD spending	• Delaware used the paid amounts MCOs reported to identify the costs of SUD encounters and the paid amounts for SUD FFS claims to identify those costs. • The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination). The District of Columbia currently cannot consistently identify these services or ensure that a visit was in an intensive outpatient or partial hospitalization setting and is not reporting parts of the specifications that require it. The District of Columbia is currently unable to determine the discharge date for residential treatment based on claims alone. Instead, any beneficiary with a residential treatment service during the month is counted. • Illinois utilized (1) state-defined provider type code 075 (substance use provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care, residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center). • Ohio added (1) claims with a provider type code 95 (this code represents SUD treatment programs in the state); (2) National Drug Codes 00781723864 (buprenorphine and naloxone), 47781035703 (buprenorphine and naloxone), and 62175045832 (buprenorphine and naloxone), which are used for pharmacy-dispensed buprenorphine MAT in Ohio; and (3) HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or other drug treatment program), T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug).

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
29	SUD spending within IMDs	• Delaware used the paid amounts MCOs reported to identify the costs of SUD encounters and the paid amounts for SUD FFS claims to identify those costs. • The District of Columbia used a state-defined list of IMDs identified based on Medicaid agency billing provider IDs. • Illinois utilized (1) state-defined provider type code 075 (substance use provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care, residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center).
30	Per capita SUD spending	• Delaware used the paid amounts MCOs reported to identify the costs of SUD encounters and the paid amounts for SUD FFS claims to identify those costs. • The District of Columbia added state-specific procedure codes to supplement this metric, including: H2027 (counseling), H2033 (therapy), H0006 (case management), T1017 (clinical care coordination). The District of Columbia currently cannot consistently identify these services or ensure that a visit was in an intensive outpatient or partial hospitalization setting and is not reporting parts of the specifications that require it. The District of Columbia is currently unable to determine the discharge date for residential treatment based on claims alone. Instead, any beneficiary with a residential treatment service during the month is counted. • Illinois utilized (1) state-defined provider type code 075 (substance use provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. • Ohio added (1) claims with a provider type code 95 (this code represents SUD treatment programs in the state); (2) National Drug Codes for buprenorphine and naloxone; and (3) HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or other drug treatment program), T1502 (administration of oral, intramuscular, and/or subcutaneous medication by a health care agency/professional), S5000 (generic prescription drug), S5001 (brand name prescription drug), and J8499 (oral, non-chemotherapeutic prescription drug).

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
31	Per capita SUD spending within institutions for mental diseases (IMDs)	• Delaware used the paid amounts MCOs reported to identify the costs of SUD encounters and the paid amounts for SUD FFS claims costs to identify those costs. • The District of Columbia used a state-defined list of IMDs identified based on Medicaid agency billing provider IDs. • Illinois utilized (1) state-defined provider type code 075 (substance use provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. • Indiana added HCPCS code H2034 (SUD halfway house services). • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care, residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center).
32	Access to preventive or ambulatory health services for adult Medicaid beneficiaries with SUD (AAP) [Adjusted HEDIS measure]	• The District of Columbia could not include suspended, pending, or denied claims. • Ohio added codes for remission and substance dependence, unspecified. • Pennsylvania could not include suspended or pending claims. • Rhode Island could not include suspended, pending, or denied claims.
33	Grievances related to SUD treatment services	None
34	Appeals related to SUD treatment services	None
35	Critical incidents related to SUD treatment services	None

Table A.6 (*continued*)

Metric #	Metric Description	Deviation
36	Average length of stay (ALOS) in institutions for mental diseases (IMDs)	• Delaware used a state defined list of IMDs identified by Provider Taxonomy code 283Q00000X (psychiatric hospital). • The District of Columbia used a state-defined list of IMDs identified based on Medicaid agency billing provider IDs. • Illinois utilized (1) state-defined provider type code 075 (substance use provider) and (2) HCPCS codes H0010 (subacute detoxification - residential addiction program, inpatient), H0047 (alcohol and/or other drug abuse services, not otherwise specified), and H0012 (subacute detoxification - residential addiction program, outpatient). In Illinois, H0047 is only used to represent ASAM level 3.5 care in facilities that are not psychiatric residential treatment facilities, and H0012 is only used for services provided under WM in Illinois's Medicaid program. • Indiana added HCPCS code H2034 (SUD halfway house services). • Kansas identified IMDs using a list maintained by the Behavioral Health Services Licensing Manager of those licensed to provide SUD services. • Louisiana added HCPCS codes H2034 (SUD halfway house services), H2036 (alcohol and/or other drug treatment program), H0011 (acute detoxification - residential addiction program, inpatient), H0012 (subacute detoxification - residential addiction program, outpatient), and H2013 (psychiatric health facility service). • Maryland used any instance of procedure codes 'W7310' (ASAM level 3.1)', 'W7330' (ASAM level 3.3), 'W7350' (ASAM level 3.5), 'W7370' (ASAM level 3.7), or 'W7375' (ASAM level 3.7); or, revenue code '0124' (room and board- semi private 2 beds) and '0169' (other room and board) with a SUD primary diagnosis and an MHD diagnosis in a subsequent diagnosis field • Minnesota does not include claims for (1) HCPCS codes H0008-H0011 (acute and subacute detoxification), H0017-H0019 (residential treatment program), and T2048 (long-term care, residential) or for (2) Place of Service codes 55 (residential substance abuse treatment facility) and 56 (psychiatric residential treatment center). • Nebraska identified IMDs using a roster from Medicaid provider enrollment and Nebraska Public Health Provider Licensure Mental & Substance Use Treatment Centers. • Ohio added HCPCS codes H2034 (SUD halfway house services) and H2036 (alcohol and/or other drug treatment program). • Virginia used the following codes to identify IMD claims: for ASAM level 3.3, HCPCS code H0010 and revenue center code 1002 with modifier TG; for ASAM level 3.5, HCPCS code H0010 and revenue center code 1002 with modifiers HB or HA; for ASAM level 3.7, HCPCS code H2036 and revenue center code 1002 with modifiers HB or HA. • West Virginia only used in-state claims data.

Note: This table summarizes approved deviations for states with approved SUD demonstrations that submitted monitoring reports between December 2, 2021, and June 1, 2022. These reported deviations are based on each state's approved monitoring protocols as recorded on Medicaid.gov and state feedback

Table A.6 (*continued*)

on a draft of this report. Deviations approved after CMS's initial approval of a state's original monitoring protocol (i.e., new deviations included in a state's migrated monitoring protocols or monitoring reports) will be added in future cross-state analyses.

[a] In the hub-and-spoke model, individuals with complex needs receive care through regional specialty treatment hubs that offer SUD expertise; individuals with less complex needs receive care through local spokes comprised of MAT-prescribing physicians and collaborating professionals who provide supportive services.

ADAA = Anxiety and Depression Association of America; ALOS = average length of stay; ASAM = American Society of Addiction Medicine; CMS = Centers for Medicare & Medicaid Services; CPT = current procedural terminology; ED = emergency department; FFS = fee-for-service; FQHC = federally qualified health center; HCPCS = Healthcare Common Procedural Coding System; HEDIS = Healthcare Effectiveness Data and Information Set; ICF = International Classification of Functioning, Disability and Health; IMD = institution for mental diseases; MAT = medication-assisted treatment; MCO = managed care organization; MHD = mental health disorders; NCQA = National Committee for Quality Assurance; NQF = National Quality Forum; OTP = opioid treatment programs; OUD = opioid use disorder; PQA = Pharmacy Quality Alliance; RHC = rural health clinic; SAMHSA = Substance Abuse and Mental Health Services Administration; SBIRT = screening, brief intervention, and referral to treatment; SUD = substance use disorder; WM = withdrawal management.

Appendix B

Regression Results

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Table B.1. Summary of regression models

Regression model(s)	Included states	Appendix tables with results
Demonstration		
Medicaid beneficiaries with a SUD diagnosis as a percentage of beneficiaries with a SUD diagnosis in the first baseline month (monthly Metric #3)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NJ, OH, PA, RI, VT, WV	Table B.2.a Table B.2.b
Percentage of Medicaid beneficiaries with a SUD diagnosis (Metric #3/Total adult Medicaid enrollment [monthly]*100)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NJ, OH, PA, RI, VT, WV	
Percentage of Medicaid beneficiaries with a SUD diagnosis who used any treatment (monthly Metric #6/Metric #3*100)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, VT, WV	
Emergency department (ED) visits for SUD per 1,000 Medicaid beneficiaries (monthly Metric #23)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, NM, OH, PA, VT, WA, WV	Table B.2.c Table B.2.d
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (monthly Metric #24)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, NM, OH, RI, VT, WA, WV	
Medicaid beneficiaries using any SUD treatment (Metric #6)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, VT, WA, WV	Table B.2.e Table B.2.f
Percentage of Medicaid beneficiaries using any SUD treatment (Metric #6) who received the following:	-	
• Early intervention services (monthly Metric #7)	KY, MI, NC, NH, OH, PA, WA, WV	
• Outpatient services (monthly Metric #8)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, VT, WA, WV	
• Intensive outpatient or partial hospitalization services (monthly Metric #9)	AK, DE, IL KS, KY, LA, MI, NC, NJ, OH, PA, RI, VT	
• Residential or inpatient services (monthly Metric #10)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, VT, WA, WV	
• Withdrawal management (monthly Metric #11)	AK, DC, DE, IL, LA, MI, MN, NC, NH, NJ, OH, PA, RI, WA, WV	
• Medication-assisted treatment (monthly Metric #12)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NJ, OH, PA, RI, VT, WA, WV	
Beneficiaries with an OUD		
Medicaid beneficiaries with a SUD diagnosis (Metric #3)	AK, DC, DE, KS, LA, MI, MN, OH, RI, VT, WV	Table B.3.a Table B.3.b
Percentage of Medicaid beneficiaries with a SUD diagnosis who received treatment (Metric #6/Metric #3*100)	AK, DC, KS, LA, MI, MN, VT	
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)	AK, DE, LA, MN, OH, WA, WV	Table B.3.c Table B.3.d
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)	AK, DE, LA, MN, OH, RI, WA, WV	

Table B.1 (*continued*)

Regression model(s)	Included states	Appendix tables with results
Medicaid beneficiaries using any SUD treatment (Metric #6)	AK, DC, DE, KS, LA, MI, MN, NC, OH, RI, VT, WA, WV	Table B.3.e Table B.3.f
Percentage of Medicaid beneficiaries using any SUD treatment (Metric #6) who received the following:	-	
• Outpatient services (Metric #8)	AK, DC, DE, KS, LA, MI, MN, NC, OH, RI, VT, WA, WV	
• Residential or inpatient services (Metric #10)	DC, DE, LA, MI, MN, OH, RI, WA, WV	
• Withdrawal management (Metric #11)	DE, LA, MI, MN, OH, RI, WA	
• Medication-assisted treatment (Metric #12)	AK, DC, DE, LA, MI, MN, OH, RI, VT, WA, WV	
Beneficiaries who were dually eligible		
Medicaid beneficiaries with a SUD diagnosis (Metric #3)	AK, DC, DE, IL, KS, KY, MI, MN, NC, NH, NJ, OH, PA, RI, WV	Table B.4.a Table B.4.b
Percentage of Medicaid beneficiaries with a SUD diagnosis who received treatment (Metric #6/Metric #3*100)	AK, DC, DE, IL, KS, KY, MI, MN, NC, NH, NJ, OH, PA, RI, WV	
Medicaid beneficiaries using any SUD treatment (Metric #6)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, WA, WV	Table B.4.c Table B.4.d
Percentage of Medicaid beneficiaries using any SUD treatment (Metric #6) who received the following:	-	
• Outpatient services (Metric #8)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, WA, WV	
• Residential or inpatient services (Metric #10)	IL, MI, MN, NJ, OH, PA, RI	
• Medication-assisted treatment (Metric #12)	DC, IL, MN, NC, NJ, OH, PA, RI, WA, WV	
Beneficiaries who were pregnant		
Medicaid beneficiaries with a SUD diagnosis (Metric #3)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NH, NJ, OH, RI, VT, WV	Table B.5.a Table B.5.b
Percentage of Medicaid beneficiaries with a SUD diagnosis who used any treatment (Metric #6/Metric #3*100)	DE, IL, KS, KY, LA, MI, MN, NH, NJ, OH, RI, WV	-
Medicaid beneficiaries using any SUD treatment (Metric #6)	DE, IL, KS, KY, LA, MI, MN, NH, NJ, OH, RI, WA, WV	Table B.5.c Table B.5.d
Percentage of Medicaid beneficiaries using any SUD treatment (Metric #6) who received the following:	-	-
• Outpatient services (Metric #8)	DE, IL, KS, KY, LA, MI, MN, NH, NJ, OH, WV	-
• Medication-assisted treatment (Metric #12)	DE, KY, LA, MI, MN, NJ, OH, WV	-
Beneficiaries under age 18		
Medicaid beneficiaries with a SUD diagnosis (Metric #3)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, RI, VT, WV	Table B.6.a Table B.6.b

Table B.1 (*continued*)

Regression model(s)	Included states	Appendix tables with results
Percentage of Medicaid beneficiaries with a SUD diagnosis who used any treatment (Metric #6/Metric #3*100)	AK, IL, KS, KY, LA, MI, MN, NC, NJ, OH, RI, VT, WV	-
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)	IL, KY, LA, MI, MN, NC, NJ, NM, OH, PA, WA	Table B.6.c Table B.6.d
Medicaid beneficiaries using any SUD treatment (Metric #6)	AK, IL, KS, KY, LA, MI, MN, NC, NJ, OH, RI, VT, WA, WV	Table B.6.e Table B.6.f
Percentage of Medicaid beneficiaries using any SUD treatment (Metric #6) who received the following:	-	-
• Outpatient services (Metric #8)	AK, IL, KS, KY, LA, MI, MN, NC, NJ, OH, WA, WV	-
Beneficiaries 65 and older		
Medicaid beneficiaries with a SUD diagnosis (Metric #3)	AK, DC, DE, IL, KS, KY, LA, MI, MN, NC, NH, NJ, OH, PA, RI, WV	Table B.7.a Table B.7.b
Percentage of Medicaid beneficiaries with a SUD diagnosis who used any treatment (Metric #6/Metric #3*100)	AK, DC, DE, IL, KS, KY, MI, MN, NC, NH, NJ, OH, PA, RI, WV	-
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)	IL, MI, MN, NC, NJ, OH, PA	Table B.7.c Table B.7.d
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)	IL, KY, MI, MN, NC, NJ, NM, OH, WV	
Medicaid beneficiaries using any SUD treatment (Metric #6)	AK, DC, DE, IL, KS, KY, MI, MN, NC, NH, NJ, OH, PA, RI, WA, WV	Table B.7.e Table B.7.f
Percentage of Medicaid beneficiaries using any SUD treatment (Metric #6) who received the following:	-	-
• Outpatient services (Metric #8)	AK, DC, DE, IL, KY, MI, MN, NC, NJ, OH, PA, RI, WA, WV	-
• Medication-assisted treatment (Metric #12)	DC, IL, MN, NC, NJ, OH, PA, WA	-

Table B.2.a. Regression analysis results on the need for and use of SUD services: demonstration effects

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis as a percentage of beneficiaries with a SUD diagnosis in the first baseline month (Metric #3)				
Baseline	100.1	n.a.	n.a.	n.a.
Year 2	101.6	1.5	1.4	0.16
Year 3 and later	100.2	0.1	0.1	0.98
Percentage of Medicaid beneficiaries with a SUD diagnosis (Metric #3/Adult Medicaid enrollment)				
Baseline	11.3	n.a.	n.a.	n.a.
Year 2	11.7	0.4	3.3	0.03*
Year 3 and later	11.6	0.3	2.6	0.16
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Baseline	37.0	n.a.	n.a.	n.a.
Year 2	37.9	0.9	2.4	0.22
Year 3 and later	42.3	5.3	14.2	0.04*

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.2.b. Regression analysis results on the need for and use of SUD services: COVID-19 pandemic effects

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis as a percentage of beneficiaries with a SUD diagnosis in the first baseline month (Metric #3)				
Prior to the COVID-19 pandemic	101.2	n.a.	n.a.	n.a.
April 2020	98.7	-2.5	-2.5	0.01*
After the onset of the COVID-19 pandemic	102.0	0.9	0.8	0.58
Percentage of Medicaid beneficiaries with a SUD diagnosis (Metric #3/Adult Medicaid enrollment)				
Prior to the COVID-19 pandemic	11.9	n.a.	n.a.	n.a.
April 2020	11.5	–0.5	–3.9	<0.01*
After the onset of the COVID-19 pandemic	11.1	–0.8	–6.7	<0.01*
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Prior to the COVID-19 pandemic	40.3	n.a.	n.a.	n.a.
April 2020	37.2	–3.0	–7.6	<0.01*
After the onset of the COVID-19 pandemic	39.7	–0.6	–1.4	0.46

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.2.c. Regression analysis results for Goal #4: demonstration effects

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
Baseline	3.8	n.a.	n.a.	n.a.
Year 2	3.9	0.0	0.9	0.49
Year 3 and later	4.0	0.2	5.2	0.06
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)				
Baseline	2.3	n.a.	n.a.	n.a.
Year 2	2.4	0.1	5.2	0.20
Year 3 and later	2.4	0.1	5.9	0.07

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level. The SUD demonstration technical specifications manual version 4, which applies to calendar year 2020 or later, clarified that residential stays should be excluded from the numerator of Metric #24, which counts inpatient stays. Metric #24 may have been overstated in some states for calendar years prior to 2020 if the state included residential stays prior to receiving this clarification.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

ED = emergency department; SUD = substance use disorder.

n.a. = not applicable.

Table B.2.d. Regression analysis results for Goal #4: COVID-19 pandemic effects

Time period (relative to COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
Prior to the COVID-19 pandemic	4.4	n.a.	n.a.	n.a.
April 2020	3.2	–1.2	–27.0	<0.01*
After the onset of the COVID-19 pandemic	4.1	–0.3	–7.9	<0.01*
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)				
Prior to the COVID-19 pandemic	2.6	n.a.	n.a.	n.a.
April 2020	2.1	–0.5	–20.6	<0.01*
After the onset of the COVID-19 pandemic	2.5	-0.1	–4.6	0.14

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level. The SUD demonstration technical specifications manual version 4, which applies to calendar year 2020 or later, clarified that residential stays should be excluded from the numerator of Metric #24, which counts inpatient stays. Metric #24 may have been overstated in some states for calendar years prior to 2020 if the state included residential stays prior to receiving this clarification.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

ED = emergency department; SUD = substance use disorder.

n.a. = not applicable.

Table B.2.e. Regression analysis results for Milestone #1: demonstration effects

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries using SUD treatment as a percentage of beneficiaries using treatment in the first baseline month (Metric #6)				
Baseline	98.3	n.a.	n.a.	n.a.
Year 2	103.8	5.6	5.7	0.04*
Year 3 and later	115.0	16.8	17.1	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received early intervention services (Metric #7/ Metric #6)				
Baseline	2.4	n.a.	n.a.	n.a.
Year 2	2.2	-0.2	-8.1	0.32
Year 3 and later	2.3	0.0	-1.9	0.92
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Baseline	62.9	n.a.	n.a.	n.a.
Year 2	62.7	–0.1	–0.2	0.83
Year 3 and later	63.0	0.2	0.3	0.89
Percentage of Medicaid beneficiaries using any SUD treatment who received intensive outpatient or partial hospitalization services (Metric #9/Metric #6)				
Baseline	8.0	n.a.	n.a.	n.a.
Year 2	7.4	–0.6	–7.4	0.01*
Year 3 and later	7.6	–0.4	–5.1	0.52
Percentage of Medicaid beneficiaries using any SUD treatment who received residential or inpatient services (Metric #10/Metric #6)				
Baseline	5.6	n.a.	n.a.	n.a.
Year 2	5.8	0.2	3.5	0.40
Year 3 and later	5.9	0.3	5.9	0.45
Percentage of Medicaid beneficiaries using any SUD treatment who received withdrawal management (Metric #11/Metric #6)				
Baseline	2.3	n.a.	n.a.	n.a.
Year 2	2.3	0.0	0.5	0.94
Year 3 and later	2.3	0.0	-0.1	0.99
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
Baseline	52.5	n.a.	n.a.	n.a.
Year 2	52.3	-0.1	-0.3	0.87
Year 3 and later	55.3	2.8	5.4	0.06

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the

Table B.2.e. (*continued*)

predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.2.f. Regression analysis results for Milestone #1: COVID-19 pandemic effects

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries using any SUD treatment as a percentage of beneficiaries using treatment in the first baseline month (Metric #6)				
Prior to the COVID-19 pandemic	109.9	n.a.	n.a.	n.a.
April 2020	97.9	–12.0	–10.9	<0.01*
After the onset of the COVID-19 pandemic	109.3	–0.7	–0.6	0.80
Percentage of Medicaid beneficiaries using any SUD treatment who received early intervention services (Metric #7/ Metric #6)				
Prior to the COVID-19 pandemic	2.6	n.a.	n.a.	n.a.
April 2020	1.8	-0.8	-30.8	0.03*
After the onset of the COVID-19 pandemic	2.5	-0.1	-5.0	0.18
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Prior to the COVID-19 pandemic	64.3	n.a.	n.a.	n.a.
April 2020	60.6	–3.7	–5.8	<0.01*
After the onset of the COVID-19 pandemic	63.7	–0.7	–1.0	0.66
Percentage of Medicaid beneficiaries using any SUD treatment who received intensive outpatient or partial hospitalization services (Metric #9/Metric #6)				
Prior to the COVID-19 pandemic	8.8	n.a.	n.a.	n.a.
April 2020	6.9	–2.0	–22.3	<0.01*
After the onset of the COVID-19 pandemic	7.3	–1.6	–17.8	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received residential or inpatient services (Metric #10/Metric #6)				
Prior to the COVID-19 pandemic	6.4	n.a.	n.a.	n.a.
April 2020	5.2	–1.2	–19.4	<0.01*
After the onset of the COVID-19 pandemic	5.8	–0.6	–10.0	0.04*
Percentage of Medicaid beneficiaries using any SUD treatment who received withdrawal management (Metric #11/Metric #6)				
Prior to the COVID-19 pandemic	2.5	n.a.	n.a.	n.a.
April 2020	2.0	–0.5	–21.3	<0.01*
After the onset of the COVID-19 pandemic	2.4	–0.1	–5.0	0.39
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
Prior to the COVID-19 pandemic	50.3	n.a.	n.a.	n.a.
April 2020	56.2	5.9	11.7	<0.01*
After the onset of the COVID-19 pandemic	53.6	3.3	6.5	<0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19

Table B.2.f. (*continued*)

pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.3.a. Regression analysis results on the need for and use of SUD services: demonstration effects among beneficiaries with an OUD vs. beneficiaries with other SUD diagnoses

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
OUD				
Baseline	18,125	n.a.	n.a.	n.a.
Year 2	18,838	713	3.9	0.02*
Year 3 and later	20,013	1,888	10.4	0.06
Other SUD				
Baseline	43,498	n.a.	n.a.	n.a.
Year 2	44,986	1,488	3.4	0.18
Year 3 and later	41,870	-1,628	-3.7	0.37
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
OUD				
Baseline	49.1	n.a.	n.a.	n.a.
Year 2	48.4	–0.8	–1.5	0.06
Year 3 and later	50.3	1.2	2.4	0.30
Other SUD				
Baseline	24.0	n.a.	n.a.	n.a.
Year 2	23.1	-0.9	-3.8	0.01*
Year 3 and later	24.7	0.7	3.1	0.20
Relative risk				
Baseline	2.16	n.a.	n.a.	n.a.
Year 2	2.15	0.0	-0.2	0.92
Year 3 and later	2.17	0.0	0.5	0.88

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

OUD = opioid use disorder; SUD = substance use disorder.

n.a. = not applicable.

Table B.3.b. Regression analysis results on the need for and use of SUD services: COVID-19 pandemic effects among beneficiaries with an OUD vs. beneficiaries with other SUD diagnoses

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
OUD				
Prior to the COVID-19 pandemic	18,952	n.a.	n.a.	n.a
April 2020	18,468	-484	-2.6	0.29
After the onset of the COVID-19 pandemic	19,556	604	3.2	0.09
Other SUD				
Prior to the COVID-19 pandemic	43,598	n.a.	n.a.	n.a
April 2020	41,777	-1,821	-4.2	0.03*
After the onset of the COVID-19 pandemic	44,979	1,381	3.2	0.33
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
OUD				
Prior to the COVID-19 pandemic	50.0	n.a.	n.a.	n.a.
April 2020	47.7	-2.3	-4.6	0.02*
After the onset of the COVID-19 pandemic	50.1	0.1	0.2	0.95
Other SUD				
Prior to the COVID-19 pandemic	26.1	n.a.	n.a.	n.a.
April 2020	21.3	-4.8	-18.3	<0.01*
After the onset of the COVID-19 pandemic	24.3	-1.8	-6.9	0.07
Relative risk				
Prior to the COVID-19 pandemic	1.96	n.a.	n.a.	n.a.
April 2020	2.36	0.4	20.6	0.01*
After the onset of the COVID-19 pandemic	2.15	0.2	9.8	0.07

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

OUD = opioid use disorder; SUD = substance use disorder.

n.a. = not applicable.

Table B.3.c. Regression analysis results for Goal #4: demonstration effects on beneficiaries with an OUD vs. beneficiaries with other SUD diagnoses

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
OUD				
Baseline	59.6	n.a.	n.a.	n.a.
Year 2	55.0	-4.6	-7.6	0.20
Year 3 and later	46.0	-13.6	-22.8	0.05*
Other SUD				
Baseline	9.6	n.a.	n.a.	n.a.
Year 2	8.3	-1.3	-13.7	0.28
Year 3 and later	8.5	-1.1	-11.6	0.68
Relative risk				
Baseline	7.78	n.a.	n.a.	n.a.
Year 2	8.02	0.2	3.1	0.36
Year 3 and later	7.03	-0.8	-9.7	0.22
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)				
OUD				
Baseline	42.7	n.a.	n.a.	n.a.
Year 2	40.9	-1.8	-4.2	0.50
Year 3 and later	34.4	-8.2	-19.3	0.01*
Other SUD				
Baseline	3.5	n.a.	n.a.	n.a.
Year 2	3.3	-0.2	-6.1	0.59
Year 3 and later	3.8	0.2	6.2	0.82
Relative risk				
Baseline	14.23	n.a.	n.a.	n.a.
Year 2	14.73	0.5	3.5	0.67
Year 3 and later	11.89	-2.3	-16.5	<0.01*

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level. The SUD demonstration technical specifications manual version 4, which applies to calendar year 2020 or later, clarified that residential stays should be excluded from the numerator of Metric #24, which counts inpatient stays. Metric #24 may have been overstated in some states for calendar years prior to 2020 if the state included residential stays prior to receiving this clarification.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

ED = emergency department; OUD = opioid use disorder; SUD = substance use disorder.

n.a. = not applicable.

Table B.3.d. Regression analysis results for Goal #4: COVID-19 pandemic effects on beneficiaries with an OUD vs. beneficiaries with other SUD diagnoses

Demonstration year	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
OUD				
Prior to the COVID-19 pandemic	58.8	n.a.	n.a.	n.a.
April 2020	46.2	-12.6	-21.4	<0.01*
After the onset of the COVID-19 pandemic	55.6	-3.2	-5.5	0.11
Other SUD				
Prior to the COVID-19 pandemic	9.3	n.a.	n.a.	n.a.
April 2020	7.9	-1.4	-14.5	0.06
After the onset of the COVID-19 pandemic	9.3	0.0	-0.2	0.97
Relative risk				
Prior to the COVID-19 pandemic	7.88	n.a.	n.a.	n.a.
April 2020	7.45	-0.4	-5.4	0.02*
After the onset of the COVID-19 pandemic	7.49	-0.4	-4.9	0.20
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)				
OUD				
Prior to the COVID-19 pandemic	41.1	n.a.	n.a.	n.a.
April 2020	37.6	-3.5	-8.6	0.26
After the onset of the COVID-19 pandemic	39.4	-1.7	-4.1	0.39
Other SUD				
Prior to the COVID-19 pandemic	3.7	n.a.	n.a.	n.a.
April 2020	3.3	-0.4	-10.0	0.19
After the onset of the COVID-19 pandemic	3.7	0.0	0.0	1.00
Relative risk				
Prior to the COVID-19 pandemic	12.75	n.a.	n.a.	n.a.
April 2020	14.62	1.9	14.6	0.41
After the onset of the COVID-19 pandemic	13.48	0.7	5.7	0.54

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the

Table B.3.d. (*continued*)

COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level. The SUD demonstration technical specifications manual version 4, which applies to calendar year 2020 or later, clarified that residential stays should be excluded from the numerator of Metric #24, which counts inpatient stays. Metric #24 may have been overstated in some states for calendar years prior to 2020 if the state included residential stays prior to receiving this clarification.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

ED = emergency department; OUD = opioid use disorder; SUD = substance use disorder.

n.a. = not applicable.

Table B.3.e. Regression analysis results for Milestone #1: demonstration effects on beneficiaries with an OUD vs. beneficiaries with other SUD diagnoses

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Number of Medicaid beneficiaries using any SUD treatment (Metric #6)				
OUD				
Baseline	13,342	n.a.	n.a.	n.a.
Year 2	14,348	1,006	7.5	0.02*
Year 3 and later	16,184	2,842	21.3	0.02*
Other SUD				
Baseline	9,665	n.a.	n.a.	n.a.
Year 2	10,030	365	3.8	0.17
Year 3 and later	10,270	605	6.3	0.13
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
OUD				
Baseline	66.9	n.a.	n.a.	n.a.
Year 2	67.8	0.9	1.3	0.23
Year 3 and later	69.5	2.5	3.8	0.20
Other SUD				
Baseline	57.9	n.a.	n.a.	n.a.
Year 2	58.8	0.9	1.6	0.34
Year 3 and later	55.0	–2.9	–5.0	0.25
Relative risk				
Baseline	1.05	n.a.	n.a.	n.a.
Year 2	0.96	-0.1	-8.0	0.28
Year 3 and later	1.43	0.4	36.4	0.17
Percentage of Medicaid beneficiaries using any SUD treatment who received residential or inpatient services (Metric #10/Metric #6)				
OUD				
Baseline	6.5	n.a.	n.a.	n.a.
Year 2	6.4	0.1	-1.0	0.74
Year 3 and later	5.5	–1.1	–16.2	0.50
Other SUD				
Baseline	7.7	n.a.	n.a.	n.a.
Year 2	7.9	0.2	2.4	0.64
Year 3 and later	8.1	0.4	5.6	0.30
Relative risk				
Baseline	0.92	n.a.	n.a.	n.a.
Year 2	0.86	-0.1	-6.8	0.27
Year 3 and later	0.81	-0.1	-12.7	0.48

Table B.3.e. (*continued*)

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Percentage of Medicaid beneficiaries using any SUD treatment who received withdrawal management (Metric #11/Metric #6)				
OUD				
Baseline	4.0	n.a.	n.a.	n.a.
Year 2	3.7	-0.3	-6.9	0.14
Year 3 and later	3.3	-0.7	-18.5	0.01*
Other SUD				
Baseline	2.6	n.a.	n.a.	n.a.
Year 2	2.5	-0.1	-4.3	0.15
Year 3 and later	2.5	-0.1	-5.3	0.39
Relative risk				
Baseline	2.37	n.a.	n.a.	n.a.
Year 2	2.30	-0.1	-2.8	0.42
Year 3 and later	1.52	-0.9	-35.9	0.21
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
OUD				
Baseline	71.1	n.a.	n.a.	n.a.
Year 2	71.2	0.1	0.1	0.92
Year 3 and later	76.2	5.0	7.1	0.05*
Other SUD				
Baseline	23.4	n.a.	n.a.	n.a.
Year 2	24.3	0.8	3.6	0.22
Year 3 and later	26.4	3.0	12.9	0.14
Relative risk				
Baseline	4.19	n.a.	n.a.	n.a.
Year 2	4.12	-0.1	-1.8	0.72
Year 3 and later	4.86	0.7	16.0	0.34

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

OUD = opioid use disorder; SUD = substance use disorder.

n.a. = not applicable.

Table B.3.f. Regression analysis results for Milestone #1: COVID-19 pandemic effects on beneficiaries with an OUD vs. beneficiaries with other SUD diagnoses

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
OUD				
Prior to the COVID-19 pandemic	14,909	n.a.	n.a.	n.a.
April 2020	13,903	-1,006	-6.7	0.01*
After the onset of the COVID-19 pandemic	15,061	152	1.0	0.66
Other SUD				
Prior to the COVID-19 pandemic	10,628	n.a.	n.a.	n.a.
April 2020	8,785	-1,843	-17.3	<0.01*
After the onset of the COVID-19 pandemic	10,552	-76	-0.7	0.87
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
OUD				
Prior to the COVID-19 pandemic	70.1	n.a.	n.a.	n.a.
April 2020	66.6	-3.5	-5.0	0.03*
After the onset of the COVID-19 pandemic	67.5	-2.6	-3.8	0.05*
Other SUD				
Prior to the COVID-19 pandemic	59.4	n.a.	n.a.	n.a.
April 2020	55.3	-4.1	-6.9	0.03*
After the onset of the COVID-19 pandemic	56.9	-2.5	-4.3	0.08
Relative risk				
Prior to the COVID-19 pandemic	1.29	n.a.	n.a.	n.a.
April 2020	0.69	-0.6	-46.4	0.37
After the onset of the COVID-19 pandemic	1.47	0.2	14.2	0.30
Percentage of Medicaid beneficiaries using any SUD treatment who received residential or inpatient services (Metric #10/Metric #6)				
OUD				
Prior to the COVID-19 pandemic	6.9	n.a.	n.a.	n.a.
April 2020	5.1	-1.8	-25.7	0.03*
After the onset of the COVID-19 pandemic	6.4	-0.4	-6.3	0.34
Other SUD				
Prior to the COVID-19 pandemic	8.0	n.a.	n.a.	n.a.
April 2020	7.5	-0.5	-6.0	0.44
After the onset of the COVID-19 pandemic	8.1	0.1	1.3	0.87

Table B.3.f. (*continued*)

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Relative risk				
Prior to the COVID-19 pandemic	0.87	n.a.	n.a.	n.a.
April 2020	0.81	-0.1	-6.6	0.32
After the onset of the COVID-19 pandemic	0.91	0.0	4.5	0.52
Percentage of Medicaid beneficiaries using any SUD treatment who received withdrawal management (Metric #11/Metric #6)				
OUD				
Prior to the COVID-19 pandemic	3.9	n.a.	n.a.	n.a.
April 2020	3.3	-0.6	-15.2	<0.01*
After the onset of the COVID-19 pandemic	3.9	0.0	0.9	0.67
Other SUD				
Prior to the COVID-19 pandemic	2.6	n.a.	n.a.	n.a.
April 2020	2.4	-0.2	-8.2	0.06
After the onset of the COVID-19 pandemic	2.7	0.1	4.0	0.37
Relative risk				
Prior to the COVID-19 pandemic	2.11	n.a.	n.a.	n.a.
April 2020	2.12	0.0	0.4	0.97
After the onset of the COVID-19 pandemic	1.97	-0.1	-6.6	0.05*
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
OUD				
Prior to the COVID-19 pandemic	70.2	n.a.	n.a.	n.a.
April 2020	75.2	5.0	7.1	<0.01*
After the onset of the COVID-19 pandemic	73.2	3.0	4.2	0.03*
Other SUD				
Prior to the COVID-19 pandemic	21.2	n.a.	n.a.	n.a.
April 2020	27.7	6.6	31.1	<0.01*
After the onset of the COVID-19 pandemic	25.2	4.0	19.1	<0.01*
Relative risk				
Prior to the COVID-19 pandemic	4.84	n.a.	n.a.	n.a.
April 2020	4.03	-0.8	-16.7	<0.01*
After the onset of the COVID-19 pandemic	4.30	-0.5	-11.1	0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is

Table B.3.f. (*continued*)

calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

OUD = opioid use disorder; SUD = substance use disorder.

n.a. = not applicable

Table B.4.a. Regression analysis results on the need for and use of SUD services: demonstration effects among beneficiaries who were dually eligible vs. eligible for Medicaid only

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
Dually eligible				
Baseline	9,253	n.a.	n.a.	n.a.
Year 2	9,491	238	2.6	0.26
Year 3 and later	9,481	228	2.5	0.61
Medicaid only				
Baseline	71,455	n.a.	n.a.	n.a.
Year 2	74,067	2,612	3.7	0.02*
Year 3 and later	69,998	-1,457	-2.0	0.54
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Dually eligible				
Baseline	30.0	n.a.	n.a.	n.a.
Year 2	31.7	1.7	5.6	0.26
Year 3 and later	35.8	5.8	19.4	0.22
Medicaid only				
Baseline	37.4	n.a.	n.a.	n.a.
Year 2	38.9	1.4	3.8	0.09
Year 3 and later	43.9	6.5	17.3	0.05*
Relative risk				
Baseline	0.82	n.a.	n.a.	n.a.
Year 2	0.82	0.0	0.7	0.76
Year 3 and later	0.82	0.0	0.2	0.97

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.4.b. Regression analysis results on the need for and use of SUD services: COVID-19 pandemic effects among beneficiaries who were dually eligible vs. eligible for Medicaid only

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
Dually eligible				
Prior to the COVID-19 pandemic	9,532	n.a.	n.a.	n.a.
April 2020	9,377	-155	-1.6	0.33
After the onset of the COVID-19 pandemic	9,317	-215	-2.3	0.19
Medicaid only				
Prior to the COVID-19 pandemic	72,088	n.a.	n.a.	n.a.
April 2020	69,754	-2,334	-3.2	0.07
After the onset of the COVID-19 pandemic	73,678	1,590	2.2	0.34
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Dually eligible				
Prior to the COVID-19 pandemic	35.5	n.a.	n.a.	n.a.
April 2020	30.7	-4.8	-13.4	<0.01*
After the onset of the COVID-19 pandemic	31.3	-4.2	-11.8	<0.01*
Medicaid only				
Prior to the COVID-19 pandemic	41.3	n.a.	n.a.	n.a.
April 2020	38.6	-2.7	-6.6	<0.01*
After the onset of the COVID-19 pandemic	40.3	-1.1	-2.6	0.17
Relative risk				
Prior to the COVID-19 pandemic	0.87	n.a.	n.a.	n.a.
April 2020	0.80	-0.1	-7.2	<0.01*
After the onset of the COVID-19 pandemic	0.79	-0.1	-8.3	<0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.4.c. Regression analysis results for Milestone #1: demonstration effects among beneficiaries who were dually eligible vs. eligible for Medicaid only

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
Dually eligible				
Baseline	2,378	n.a.	n.a.	n.a.
Year 2	2,469	91	3.8	0.07
Year 3 and later	2,532	154	6.5	0.03*
Medicaid only				
Baseline	25,992	n.a.	n.a.	n.a.
Year 2	27,686	1,694	6.5	<0.01*
Year 3 and later	29,542	3,550	13.7	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Dually eligible				
Baseline	66.6	n.a.	n.a.	n.a.
Year 2	67.3	0.8	1.1	0.59
Year 3 and later	69.9	3.4	5.1	0.23
Medicaid only				
Baseline	63.7	n.a.	n.a.	n.a.
Year 2	63.3	-0.3	-0.5	0.69
Year 3 and later	63.6	-0.1	-0.1	0.97
Relative risk				
Baseline	1.08	n.a.	n.a.	n.a.
Year 2	1.08	0.0	0.2	0.94
Year 3 and later	1.13	0.0	4.6	0.27
Percentage of Medicaid beneficiaries using any SUD treatment who received residential or inpatient services (Metric #10/Metric #6)				
Dually eligible				
Baseline	5.0	n.a.	n.a.	n.a.
Year 2	5.5	0.5	10.1	0.02*
Year 3 and later	5.8	0.8	16.0	0.04*
Medicaid only				
Baseline	6.8	n.a.	n.a.	n.a.
Year 2	7.3	0.4	6.3	0.42
Year 3 and later	7.6	0.8	11.6	0.37
Relative risk				
Baseline	0.70	n.a.	n.a.	n.a.
Year 2	0.73	0.0	3.7	0.39
Year 3 and later	0.71	0.0	1.4	0.85

Table B.4.c. (*continued*)

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
Dually eligible				
Baseline	29.0	n.a.	n.a.	n.a.
Year 2	26.1	-2.9	-9.9	0.01*
Year 3 and later	24.1	-4.9	-17.0	<0.01*
Medicaid only				
Baseline	57.0	n.a.	n.a.	n.a.
Year 2	56.5	-0.5	-0.9	0.72
Year 3 and later	59.6	2.6	4.5	0.28
Relative risk				
Baseline	0.51	n.a.	n.a.	n.a.
Year 2	0.45	-0.1	-11.8	<0.01*
Year 3 and later	0.39	-0.1	-23.5	<0.01*

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.4.d. Regression analysis results for Milestone #1: COVID-19 pandemic effects among beneficiaries who were dually eligible vs. eligible for Medicaid only

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Number of Medicaid beneficiaries using SUD treatment (Metric #6)				
Dually eligible				
Prior to the COVID-19 pandemic	2,733	n.a.	n.a.	n.a.
April 2020	2,196	-536	-19.6	<0.01*
After the onset of the COVID-19 pandemic	2,451	-282	-10.3	<0.01*
Medicaid only				
Prior to the COVID-19 pandemic	28,421	n.a.	n.a.	n.a.
April 2020	25,522	-2,899	-10.2	<0.01*
After the onset of the COVID-19 pandemic	29,276	855	3.0	0.26
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Dually eligible				
Prior to the COVID-19 pandemic	68.1	n.a.	n.a.	n.a.
April 2020	66.7	-1.5	-2.1	0.13
After the onset of the COVID-19 pandemic	69.0	0.9	1.3	0.65
Medicaid only				
Prior to the COVID-19 pandemic	65.0	n.a.	n.a.	n.a.
April 2020	61.2	-3.8	-5.8	<0.01*
After the onset of the COVID-19 pandemic	64.4	-0.6	-0.9	0.73
Relative risk				
Prior to the COVID-19 pandemic	1.06	n.a.	n.a.	n.a.
April 2020	1.13	0.1	6.3	0.07
After the onset of the COVID-19 pandemic	1.09	0.0	3.0	0.12
Percentage of Medicaid beneficiaries using any SUD treatment who received residential or inpatient services (Metric #10/Metric #6)				
Dually eligible				
Prior to the COVID-19 pandemic	5.8	n.a.	n.a.	n.a.
April 2020	4.7	-1.1	-18.2	<0.01*
After the onset of the COVID-19 pandemic	5.8	0.0	-0.1	0.98
Medicaid only				
Prior to the COVID-19 pandemic	8.1	n.a.	n.a.	n.a.
April 2020	6.4	-1.7	-20.5	<0.01*
After the onset of the COVID-19 pandemic	7.2	-0.9	-11.0	0.04*
Relative risk				
Prior to the COVID-19 pandemic	0.68	n.a.	n.a.	n.a.

Table B.4.d. (*continued*)

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
April 2020	0.69	0.0	2.1	0.68
After the onset of the COVID-19 pandemic	0.77	0.1	13.9	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
Dually eligible				
Prior to the COVID-19 pandemic	27.4	n.a.	n.a.	n.a.
April 2020	28.4	1.0	3.6	0.48
After the onset of the COVID-19 pandemic	23.4	-4.0	-14.5	0.06
Medicaid only				
Prior to the COVID-19 pandemic	55.1	n.a.	n.a.	n.a.
April 2020	59.7	4.6	8.3	0.12
After the onset of the COVID-19 pandemic	58.4	3.3	6.0	0.05
Relative risk				
Prior to the COVID-19 pandemic	0.49	n.a.	n.a.	n.a.
April 2020	0.46	0.0	-5.4	0.15
After the onset of the COVID-19 pandemic	0.41	-0.1	-16.6	0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.5.a. Regression analysis results on the need for and use of SUD services: demonstration effects among beneficiaries who were pregnant vs. not pregnant

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries with a SUD Diagnosis (Metric #3)				
Pregnant				
Baseline	3,072	n.a.	n.a.	n.a.
Year 2	3,142	70	2.3	0.46
Year 3 and later	3,328	255	8.3	0.24
Not pregnant				
Baseline	63,848	n.a.	n.a.	n.a.
Year 2	66,111	2,263	3.5	0.04*
Year 3 and later	63,946	98	0.2	0.94
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Pregnant				
Baseline	37.6	n.a.	n.a.	n.a.
Year 2	37.8	0.3	0.7	0.77
Year 3 and later	39.3	1.7	4.5	0.64
Not pregnant				
Baseline	37.5	n.a.	n.a.	n.a.
Year 2	38.7	1.2	3.2	0.24
Year 3 and later	43.4	5.9	15.7	0.10
Relative risk				
Baseline	0.97	n.a.	n.a.	n.a.
Year 2	0.95	0.0	-2.5	0.21
Year 3 and later	0.86	-0.1	-11.7	0.01*

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

Table B.5.b. Regression analysis results on the need for and use of SUD services: COVID-19 pandemic effects among beneficiaries who were pregnant vs. not pregnant

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries with a SUD Diagnosis (Metric #3)				
Pregnant				
Prior to the COVID-19 pandemic	3,282	n.a.	n.a.	n.a.
April 2020	3,108	-175	-5.3	0.51
After the onset of the COVID-19 pandemic	3,152	-130	-4.0	0.57
Not pregnant				
Prior to the COVID-19 pandemic	64,317	n.a.	n.a.	n.a.
April 2020	62,424	-1,893	-2.9	0.03*
After the onset of the COVID-19 pandemic	67,163	2,846	4.4	0.06
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Pregnant				
Prior to the COVID-19 pandemic	39.8	n.a.	n.a.	n.a.
April 2020	36.5	-3.3	-8.3	0.01*
After the onset of the COVID-19 pandemic	38.5	-1.3	-3.2	0.25
Not pregnant				
Prior to the COVID-19 pandemic	41.1	n.a.	n.a.	n.a.
April 2020	38.2	-2.9	-7.1	<0.01*
After the onset of the COVID-19 pandemic	40.3	-0.8	-1.9	0.39
Relative risk				
Prior to the COVID-19 pandemic	0.94	n.a.	n.a.	n.a.
April 2020	0.91	0.0	-3.6	0.44
After the onset of the COVID-19 pandemic	0.92	0.0	-1.9	0.67

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.5.c. Regression analysis results for Milestone #1: demonstration effects among beneficiaries who were pregnant vs. not pregnant

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
Pregnant				
Baseline	1,317	n.a.	n.a.	n.a.
Year 2	1,376	59	4.5	0.31
Year 3 and later	1,375	57	4.3	0.38
Not pregnant				
Baseline	28,095	n.a.	n.a.	n.a.
Year 2	29,999	1,904	6.8	<0.01*
Year 3 and later	31,494	3,399	12.1	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Pregnant				
Baseline	66.6	n.a.	n.a.	n.a.
Year 2	67.3	0.7	1.1	0.58
Year 3 and later	69.0	2.4	3.6	0.33
Not pregnant				
Baseline	62.4	n.a.	n.a.	n.a.
Year 2	62.0	-0.4	-0.6	0.67
Year 3 and later	62.4	0.0	0.0	0.98
Relative risk				
Baseline	1.12	n.a.	n.a.	n.a.
Year 2	1.11	0.0	-0.6	0.76
Year 3 and later	1.14	0.0	1.7	0.56
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
Pregnant				
Baseline	50.2	n.a.	n.a.	n.a.
Year 2	50.7	0.5	1.0	0.47
Year 3 and later	52.7	2.5	5.0	0.06
Not pregnant				
Baseline	53.2	n.a.	n.a.	n.a.
Year 2	52.7	-0.6	-1.0	0.41
Year 3 and later	58.5	5.3	9.9	<.01*
Relative risk				
Baseline	0.93	n.a.	n.a.	n.a.
Year 2	0.95	0.0	2.1	0.11
Year 3 and later	0.90	0.0	-3.1	0.04*

Table B.5.c. (*continued*)

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.5.d. Regression analysis results for Milestone #1: COVID-19 pandemic effects among beneficiaries who were pregnant vs. not pregnant

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
Pregnant				
Prior to the COVID-19 pandemic	1,468	n.a.	n.a.	n.a.
April 2020	1,210	-258	-17.6	0.08
After the onset of the COVID-19 pandemic	1,390	-78	-5.3	0.13
Not pregnant				
Prior to the COVID-19 pandemic	30,677	n.a.	n.a.	n.a.
April 2020	27,211	-3,466	-11.3	<0.01*
After the onset of the COVID-19 pandemic	31,699	1,022	3.3	0.28
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Pregnant				
Prior to the COVID-19 pandemic	67.4	n.a.	n.a.	n.a.
April 2020	66.3	-1.1	-1.7	0.59
After the onset of the COVID-19 pandemic	69.1	1.6	2.4	0.42
Not pregnant				
Prior to the COVID-19 pandemic	63.3	n.a.	n.a.	n.a.
April 2020	59.6	-3.7	-5.8	0.01*
After the onset of the COVID-19 pandemic	63.9	0.7	1.1	0.74
Relative risk				
Prior to the COVID-19 pandemic	1.09	n.a.	n.a.	n.a.
April 2020	1.17	0.1	7.2	0.07
After the onset of the COVID-19 pandemic	1.12	0.0	2.5	0.31
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
Pregnant				
Prior to the COVID-19 pandemic	49.6	n.a.	n.a.	n.a.
April 2020	54.0	4.4	8.9	<0.01*
After the onset of the COVID-19 pandemic	50.0	0.4	0.8	0.74
Not pregnant				
Prior to the COVID-19 pandemic	50.6	n.a.	n.a.	n.a.
April 2020	58.9	8.4	16.6	<0.01*
After the onset of the COVID-19 pandemic	54.9	4.4	8.6	<0.01*

Table B.5.d. (*continued*)

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Relative risk				
Prior to the COVID-19 pandemic	0.98	n.a.	n.a.	n.a.
April 2020	0.91	-0.1	-7.4	<0.01*
After the onset of the COVID-19 pandemic	0.90	-0.1	-7.5	<0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable

Table B.6.a. Regression analysis results on the need for and use of SUD services: demonstration effects among beneficiaries under age 18 vs. those ages 18–64

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
Under 18				
Baseline	2,228	n.a.	n.a.	n.a.
Year 2	2,197	-30	-1.4	0.48
Year 3 and later	2,126	-102	-4.6	0.14
18–64				
Baseline	62,483	n.a.	n.a.	n.a.
Year 2	64,554	2,071	3.3	0.05*
Year 3 and later	63,155	672	1.1	0.60
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Under 18				
Baseline	18.8	n.a.	n.a.	n.a.
Year 2	18.8	0.0	0.0	1.00
Year 3 and later	22.7	3.9	20.5	0.40
18–64				
Baseline	37.7	n.a.	n.a.	n.a.
Year 2	38.4	0.7	1.8	0.41
Year 3 and later	43.5	5.8	15.3	0.06
Relative risk				
Baseline	0.51	n.a.	n.a.	n.a.
Year 2	0.50	0.0	-2.0	0.39
Year 3 and later	0.51	0.0	0.2	0.98

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.6.b. Regression analyses results on the need for and use of SUD services: COVID-19 pandemic effects among beneficiaries under age 18 vs. those ages 18–64

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries with a SUD Diagnosis (Metric #3)				
Under 18				
Prior to the COVID-19 pandemic	2,294	n.a.	n.a.	n.a.
April 2020	2,201	-94	-4.1	0.16
After the onset of the COVID-19 pandemic	2,056	-239	-10.4	<0.01*
18–64				
Prior to the COVID-19 pandemic	63,248	n.a.	n.a.	n.a.
April 2020	60,991	-2,257	-3.6	0.01*
After the onset of the COVID-19 pandemic	65,952	2,704	4.3	0.04*
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
Under 18				
Prior to the COVID-19 pandemic	24.4	n.a.	n.a.	n.a.
April 2020	17.2	-7.2	-29.6	<0.01*
After the onset of the COVID-19 pandemic	18.8	-5.5	-22.7	<0.01*
18–64				
Prior to the COVID-19 pandemic	41.0	n.a.	n.a.	n.a.
April 2020	38.3	-2.7	-6.6	<0.01*
After the onset of the COVID-19 pandemic	40.4	-0.6	-1.5	0.21
Relative risk				
Prior to the COVID-19 pandemic	0.60	n.a.	n.a.	n.a.
April 2020	0.45	-0.2	-25.8	<0.01*
After the onset of the COVID-19 pandemic	0.47	-0.1	-22.6	<0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

SUD = substance use disorder.

n.a. = not applicable.

Table B.6.c. Regression analysis results for Goal #4: demonstration effects among beneficiaries under age 18 vs. those ages 18–64

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
Under 18				
Baseline	0.1	n.a.	n.a.	n.a.
Year 2	0.1	0.0	6.1	0.24
Year 3 and later	0.2	0.1	68.5	0.29
18–64				
Baseline	7.0	n.a.	n.a.	n.a.
Year 2	7.0	0.0	-0.1	0.96
Year 3 and later	7.2	0.1	2.0	0.54
Relative risk				
Baseline	0.02	n.a.	n.a.	n.a.
Year 2	0.02	0.0	-3.5	0.61
Year 3 and later	0.03	0.0	42.0	0.35

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

ED = emergency department; SUD = substance use disorder.

n.a. = not applicable.

Table B.6.d. Regression analysis results for Goal #4: COVID-19 pandemic effects among beneficiaries under age 18 vs. those ages 18–64

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
Under 18				
Prior to the COVID-19 pandemic	0.2	n.a.	n.a.	n.a.
April 2020	0.1	-0.1	-62.9	0.03*
After the onset of the COVID-19 pandemic	0.2	0.0	-11.7	0.02*
18–64				
Prior to the COVID-19 pandemic	8.1	n.a.	n.a.	n.a.
April 2020	6.3	-1.8	-22.3	<0.01*
After the onset of the COVID-19 pandemic	7.0	-1.1	-13.8	<0.01*
Relative risk				
Prior to the COVID-19 pandemic	0.03	n.a.	n.a.	n.a.
April 2020	0.02	0.0	-33.6	0.07
After the onset of the COVID-19 pandemic	0.02	0.0	-29.1	0.27

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

ED = emergency department; SUD = substance use disorder.

n.a. = not applicable.

Table B.6.e. Regression analysis results for Milestone #1: demonstration effects among beneficiaries under age 18 vs. those ages 18–64

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
Under 18				
Baseline	532	n.a.	n.a.	n.a.
Year 2	523	-8	-1.6	0.57
Year 3 and later	507	-24	-4.5	0.61
18–64				
Baseline	27,482	n.a.	n.a.	n.a.
Year 2	29,151	1,669	6.1	0.01*
Year 3 and later	30,919	3,437	12.5	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Under 18				
Baseline	67.0	n.a.	n.a.	n.a.
Year 2	68.1	1.1	1.6	0.31
Year 3 and later	67.7	0.7	1.0	0.74
18–64				
Baseline	62.0	n.a.	n.a.	n.a.
Year 2	61.6	-0.4	-0.7	0.69
Year 3 and later	62.4	0.5	0.8	0.79
Relative risk				
Baseline	1.14	n.a.	n.a.	n.a.
Year 2	1.17	0.0	2.0	0.48
Year 3 and later	1.15	0.0	0.4	0.91

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.6.f. Regression analysis results for Milestone #1: COVID-19 pandemic effects among beneficiaries under age 18 vs. those ages 18–64

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
Under 18				
Prior to the COVID-19 pandemic	655	n.a.	n.a.	n.a.
April 2020	413	-242	-36.9	<0.01*
After the onset of the COVID-19 pandemic	493	-162	-24.8	<0.01*
18–64				
Prior to the COVID-19 pandemic	29,963	n.a.	n.a.	n.a.
April 2020	26,575	-3,388	-11.3	<0.01*
After the onset of the COVID-19 pandemic	31,013	1,050	3.5	0.23
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
Under 18				
Prior to the COVID-19 pandemic	71.0	n.a.	n.a.	n.a.
April 2020	64.7	-6.3	-8.8	<0.01*
After the onset of the COVID-19 pandemic	67.1	-3.9	-5.5	0.03*
18–64				
Prior to the COVID-19 pandemic	63.4	n.a.	n.a.	n.a.
April 2020	58.9	-4.5	-7.1	<0.01*
After the onset of the COVID-19 pandemic	63.6	0.1	0.2	0.95
Relative risk				
Prior to the COVID-19 pandemic	1.17	n.a.	n.a.	n.a.
April 2020	1.17	0.0	0.3	0.93
After the onset of the COVID-19 pandemic	1.12	-0.1	-4.5	0.33

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

SUD = substance use disorder.

n.a. = not applicable.

Table B.7.a. Regression analysis results on the need for and use of SUD services: demonstration effects among beneficiaries 65 and older vs. those ages 18–64

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
65 and older				
Baseline	2,617	n.a.	n.a.	n.a.
Year 2	2,920	303	11.6	0.01*
Year 3 and later	3,039	422	16.1	0.02*
18–64				
Baseline	74,546	n.a.	n.a.	n.a.
Year 2	77,144	2,598	3.5	0.02*
Year 3 and later	74,836	290	0.4	0.85
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
65 and older				
Baseline	26.8	n.a.	n.a.	n.a.
Year 2	28.0	1.2	4.5	0.35
Year 3 and later	33.0	6.2	23.3	0.16
18–64				
Baseline	37.4	n.a.	n.a.	n.a.
Year 2	39.0	1.6	4.2	0.07
Year 3 and later	43.8	6.4	17.0	0.06
Relative risk				
Baseline	0.74	n.a.	n.a.	n.a.
Year 2	0.74	0.0	-0.1	0.95
Year 3 and later	0.77	0.0	3.8	0.60

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.7.b. Regression analysis results on the need for and use of SUD services: COVID-19 pandemic effects among beneficiaries 65 and older vs. those ages 18–64

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries with a SUD diagnosis (Metric #3)				
65 and older				
Prior to the COVID-19 pandemic	2,857	n.a.	n.a.	n.a.
April 2020	2,918	60	2.1	0.41
After the onset of the COVID-19 pandemic	2,801	-56	-2.0	0.56
18–64				
Prior to the COVID-19 pandemic	76,080	n.a.	n.a.	n.a.
April 2020	72,793	-3,287	-4.3	0.01*
After the onset of the COVID-19 pandemic	77,653	1,573	2.1	0.36
Percentage of Medicaid beneficiaries with a SUD diagnosis using any treatment (Metric #6/Metric #3)				
65 and older				
Prior to the COVID-19 pandemic	32.4	n.a.	n.a.	n.a.
April 2020	27.1	-5.3	-16.3	<0.01*
After the onset of the COVID-19 pandemic	28.3	-4.1	-12.8	<0.01*
18–64				
Prior to the COVID-19 pandemic	41.3	n.a.	n.a.	n.a.
April 2020	38.6	-2.7	-6.5	<0.01*
After the onset of the COVID-19 pandemic	40.2	-1.1	-2.6	0.19
Relative risk				
Prior to the COVID-19 pandemic	0.81	n.a.	n.a.	n.a.
April 2020	0.73	-0.1	-9.5	<0.01*
After the onset of the COVID-19 pandemic	0.72	-0.1	-10.8	<0.01*

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

SUD = substance use disorder.

n.a. = not applicable.

Table B.7.c. Regression analysis results for Goal #4: demonstration effects among beneficiaries 65 and older vs. those ages 18–64

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
65 and older				
Baseline	1.7	n.a.	n.a.	n.a.
Year 2	1.9	0.2	12.7	0.03
Year 3 and later	2.1	0.4	23.8	<0.01*
18–64				
Baseline	7.1	n.a.	n.a.	n.a.
Year 2	7.1	0.0	-0.6	0.83
Year 3 and later	6.9	-0.2	-3.1	0.53
Relative risk				
Baseline	0.25	n.a.	n.a.	n.a.
Year 2	0.27	0.0	9.7	0.11
Year 3 and later	0.29	0.0	17.8	0.04*
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)				
65 and older				
Baseline	2.9	n.a.	n.a.	n.a.
Year 2	3.0	0.1	4.3	0.01*
Year 3 and later	2.8	-0.1	-4.7	0.72
18–64				
Baseline	4.3	n.a.	n.a.	n.a.
Year 2	4.4	0.2	3.8	0.10
Year 3 and later	4.4	0.1	2.1	0.58
Relative risk				
Baseline	0.76	n.a.	n.a.	n.a.
Year 2	0.76	0.0	0.6	0.84
Year 3 and later	0.68	-0.1	-10.7	0.41

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level. The SUD demonstration technical specifications manual version 4, which applies to calendar year 2020 or later, clarified that residential stays should be excluded from the numerator of Metric #24, which counts inpatient stays. Metric #24 may have been overstated in some states for calendar years prior to 2020 if the state included residential stays prior to receiving this clarification.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

ED = emergency department; SUD = substance use disorder.

n.a. = not applicable.

Table B.7.d. Regression analysis results for Goal #4: COVID-19 pandemic effects among beneficiaries 65 and older vs. those ages 18–64

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
ED visits for SUD per 1,000 Medicaid beneficiaries (Metric #23)				
65 and older				
Prior to the COVID-19 pandemic	2.2	n.a.	n.a.	n.a.
April 2020	1.5	-0.7	-30.5	<0.01*
After the onset of the COVID-19 pandemic	2.0	-0.2	-8.2	0.16
18–64				
Prior to the COVID-19 pandemic	8.1	n.a.	n.a.	n.a.
April 2020	6.1	-2.0	-25.0	<0.01*
After the onset of the COVID-19 pandemic	6.9	-1.2	-14.3	<0.01*
Relative risk				
Prior to the COVID-19 pandemic	0.27	n.a.	n.a.	n.a.
April 2020	0.26	0.0	-2.7	0.50
After the onset of the COVID-19 pandemic	0.27	0.0	0.0	1.00
Inpatient stays for SUD per 1,000 Medicaid beneficiaries (Metric #24)				
65 and older				
Prior to the COVID-19 pandemic	3.0	n.a.	n.a.	n.a.
April 2020	2.6	-0.4	-14.4	0.27
After the onset of the COVID-19 pandemic	3.2	0.2	5.2	0.55
18–64				
Prior to the COVID-19 pandemic	5.0	n.a.	n.a.	n.a.
April 2020	3.9	-1.1	-22.6	<0.01*
After the onset of the COVID-19 pandemic	4.3	-0.7	-14.2	<0.01*
Relative risk				
Prior to the COVID-19 pandemic	0.63	n.a.	n.a.	n.a.
April 2020	0.75	0.1	18.3	0.06
After the onset of the COVID-19 pandemic	0.82	0.2	29.5	0.19

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the

Table B.7.d. (*continued*)

difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level. The SUD demonstration technical specifications manual version 4, which applies to calendar year 2020 or later, clarified that residential stays should be excluded from the numerator of Metric #24, which counts inpatient stays. Metric #24 may have been overstated in some states for calendar years prior to 2020 if the state included residential stays prior to receiving this clarification.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

ED = emergency department; SUD = substance use disorder.

n.a. = not applicable.

Table B.7.e. Regression analysis results for Milestone #1: demonstration effects among beneficiaries 65 and older vs. those ages 18–64

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
65 and older				
Baseline	668	n.a.	n.a.	n.a.
Year 2	758	90	13.4	<0.01*
Year 3 and later	823	155	23.2	<0.01*
18–64				
Baseline	27,893	n.a.	n.a.	n.a.
Year 2	29,733	1,840	6.6	<0.01*
Year 3 and later	31,612	3,719	13.3	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
65 and older				
Baseline	57.5	n.a.	n.a.	n.a.
Year 2	58.9	1.5	2.5	0.42
Year 3 and later	63.9	6.4	11.2	0.05*
18–64				
Baseline	66.3	n.a.	n.a.	n.a.
Year 2	65.4	-0.8	-1.2	0.41
Year 3 and later	66.4	0.1	0.2	0.95
Relative risk				
Baseline	0.86	n.a.	n.a.	n.a.
Year 2	0.92	0.1	5.9	0.02*
Year 3 and later	0.99	0.1	14.0	<0.01*
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
65 and older				
Baseline	37.0	n.a.	n.a.	n.a.
Year 2	34.7	-2.2	-6.0	0.06
Year 3 and later	31.5	-5.4	-14.7	<0.01*
18–64				
Baseline	52.3	n.a.	n.a.	n.a.
Year 2	52.1	-0.2	-0.4	0.88
Year 3 and later	54.5	2.1	4.1	0.44
Relative risk				
Baseline	0.70	n.a.	n.a.	n.a.
Year 2	0.64	-0.1	-8.4	<0.01*

Table B.7.e. (*continued*)

Demonstration year	Predicted value	Marginal effect relative to baseline	Percent change relative to baseline	Pr > |t|
Year 3 and later	0.56	-0.1	-20.5	<0.01*

Notes: The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model (except the demonstration year). The regression models control for the COVID-19 pandemic period, seasonality (based on calendar month), and state. The *marginal effect relative to baseline* is the difference between the predicted value for the demonstration year and the predicted value for the baseline year. The *percent change relative to baseline* is calculated by dividing the marginal effect relative to baseline by the predicted value for baseline and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to baseline is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value and baseline year value is statistically significant ($p < 0.05$) based on regression results.

SUD = substance use disorder.

n.a. = not applicable.

Table B.7.f. Regression analysis results for Milestone #1: COVID-19 pandemic effects among beneficiaries 65 and older vs. those ages 18–64

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Medicaid beneficiaries using any SUD treatment (Metric #6)				
65 and older				
Prior to the COVID-19 pandemic	846	n.a.	n.a.	n.a.
April 2020	652	-194	-23.0	<0.01*
After the onset of the COVID-19 pandemic	751	-95	-11.3	0.01*
18–64				
Prior to the COVID-19 pandemic	30,610	n.a.	n.a.	n.a.
April 2020	27,423	-3,187	-10.4	<0.01*
After the onset of the COVID-19 pandemic	31,206	596	1.9	0.45
Percentage of Medicaid beneficiaries using any SUD treatment who received outpatient services (Metric #8/Metric #6)				
65 and older				
Prior to the COVID-19 pandemic	62.0	n.a.	n.a.	n.a.
April 2020	56.7	-5.3	-8.6	<0.01*
After the onset of the COVID-19 pandemic	61.6	-0.4	-0.6	0.90
18–64				
Prior to the COVID-19 pandemic	67.5	n.a.	n.a.	n.a.
April 2020	63.8	-3.7	-5.4	<0.01*
After the onset of the COVID-19 pandemic	66.8	-0.7	-1.0	0.72
Relative risk				
Prior to the COVID-19 pandemic	0.94	n.a.	n.a.	n.a.
April 2020	0.90	0.0	-3.9	0.06
After the onset of the COVID-19 pandemic	0.93	0.0	-1.2	0.64
Percentage of Medicaid beneficiaries using any SUD treatment who received medication-assisted treatment (Metric #12/Metric #6)				
65 and older				
Prior to the COVID-19 pandemic	35.0	n.a.	n.a.	n.a.
April 2020	35.8	0.9	2.4	0.76
After the onset of the COVID-19 pandemic	32.5	-2.5	-7.1	0.24
18–64				
Prior to the COVID-19 pandemic	51.5	n.a.	n.a.	n.a.
April 2020	54.3	2.8	5.4	0.41
After the onset of the COVID-19 pandemic	53.1	1.6	3.0	0.33

Table B.7.f. (*continued*)

Time period (relative to the COVID-19 pandemic)	Predicted value	Marginal effect relative to the period prior to the COVID-19 pandemic	Percent change relative to the period prior to the COVID-19 pandemic	Pr > |t|
Relative risk				
Prior to the COVID-19 pandemic	0.67	n.a.	n.a.	n.a.
April 2020	0.62	0.0	-6.5	0.20
After the onset of the COVID-19 pandemic	0.61	-0.1	-9.2	0.07

Notes: *Prior to the COVID-19 pandemic* is defined as calendar months before April 2020. *After the onset of the COVID-19 pandemic* is defined as calendar months after April 2020. The *predicted value* is the value predicted by the regression at the sample mean for all variables in the model except the COVID-19 pandemic period. The regression models control for demonstration year, seasonality (based on calendar month), and state. The *marginal effect relative to the period prior to the COVID-19 pandemic* is the difference between the predicted value for the period and the predicted value for the period prior to the COVID-19 pandemic. The *percent change relative to the period prior to the COVID-19 pandemic* is calculated by dividing the marginal effect relative to the period prior to the COVID-19 pandemic by the predicted value for the period prior to the COVID-19 pandemic and then multiplying by 100. Pr > |t| indicates the probability that the marginal effect relative to the period prior to the COVID-19 pandemic is not zero. Standard errors are adjusted for clustering at the state level.

* Difference between value prior to and after the onset of the COVID-19 pandemic is statistically significant ($p < 0.05$) based on regression results

SUD = substance use disorder.

n.a. = not applicable.

Appendix C

State-Identified Metrics Reported for Each Health IT Question

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Table C.1. State-identified metrics reported for each health IT question

Health IT questions	State-identified metrics
#1: How is health IT being used to slow down the rate of growth of individuals identified with a SUD?	• Fourteen states (DE, IL, IN, KS, KY, LA, MI, NC, NH, OH, PA, RI, VT, WV) reported on PDMP access and use. • Three states (AK, MN, UT) reported on the use of telementoring platforms. • One state reported on each of the following: – Number of Schedule II prescriptions dispensed to beneficiaries (AK) – Number of behavioral health care facilities utilizing data and HIE (DC) – Improvements to collection of pharmacy encounter information (NE) – Member and provider use of opioid utilization dashboard (VA) – Drug overdose deaths by type of opioid (WA)
#2: How is health IT being used to effectively treat individuals identified with SUD?	• Eight states (DC, IN, KY, MI, NJ, RI, UT, VT) reported on improvement measures in information sharing, including increased connection to an HIE and use of provider directories. • Three states (KS, NE, WV) reported on the total number of telehealth visits with a SUD diagnosis. • One state reported on each of the following: – Percent of Medicaid beneficiaries diagnosed with a SUD who received any treatment (WA) – Percent of SUD visits with a follow-up PCP visit (NC) – Number of opioid utilization dashboard members providing SUD telehealth services (VA) – Number of individuals for whom consent to disclose or access their SUD treatment information is available (MD) – Number of EDs providing admission, discharge, and transfer data to the state (LA) – Percent of *Prescriber Report Cards* opened by providers (NH)
#3: How is health IT being used to effectively monitor recovery supports and services for individuals identified with SUD?	• Five states (IL, KS, NC, UT, WV) reported on MAT adherence or MAT use concurrent with counseling and behavioral health therapies. • Four states (KY, LA, PA, RI) reported on improvements for beneficiaries involved with the CJ system; specifically, 3 states (KY, LA, RI) reported on connections to community-based SUD treatment for beneficiaries released from incarceration, and 1 state (PA) reported on connections between corrections facilities and the state's ADT data. • Two states (VA, WA) reported on the use of recovery support services. • One state reported on each of the following: – Number of health plans using the state's care coordination module (MI) – Number of HIE behavioral health users who performed a patient care snapshot in the last 30 days (DC) – Number of organizations connected to the division of behavioral health (AK) – Number of EDs connected to ADT data (PA) – Number of individuals enrolled in a corrective managed care program (MD)

Notes: This table summarizes findings from 23 states that submitted data for health IT metrics as of June 1, 2022.

ADT = admissions, discharges, and transfers; CJ = criminal justice; ED = emergency department; HIE = health information exchange; health IT = health information technology; MAT = medication-assisted treatment; PDMP = prescription drug monitoring program; PCP = primary care provider; SUD = substance use disorder.

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Appendix D

Monitoring Updates by Milestone

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Table D.1. Themes and common activities from states with recent monitoring data (by SUD demonstration milestone[a])

SMDL milestone	Findings
Milestone #1: Access to critical levels of care for an OUD and other SUDs	Twenty-eight states reported information related to Milestone #1 (CA, CO, DC, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, NC, NE, NH, NJ, NM, OH, OK, OR, PA, UT, VA, VT, WA, WV). Of these states: • Fourteen states reported implementing or making progress toward implementing new ASAM levels of care or other types of services (IL, IN, LA, MA, MD, MI, MN, NC, NE, NH, NM, OK, OR, VA). • Fourteen states reported COVID-19-related context in relation to fluctuations in Milestone #1 metrics (CA, DC, IL, KS, KY, LA, MI, MN, NC, NJ, OH, PA, VT, WA). • Twelve states reported expanding or continuing use of telehealth services for SUD (CA, CO, IN, LA, MI, NC, NE, NH, NJ, NM, VT, WV).
Milestone #2: Use of evidence-based, SUD-specific patient placement criteria	Twenty-four states reported information related to Milestone 2 (CA, CO, DC, ID, IL, IN, KS, KY, LA, ME, MI, MN, NC, NH, NM, OH, OK, OR, PA, RI, UT, VA, VT, WV). Of these states: • Fourteen states reported having or updating documentation (such as provider manuals, MCO contracts, or provider information) to align with the ASAM Criteria (CA, CO, ID, IN, KY, LA, ME, MN, NC, NH, PA, RI, VT, WV). • Ten states reported holding trainings for providers, contractors, and/or MCOs regarding placement criteria (CO, DC, KY, MI, MN, NC, NH, NM, OK, PA). • Four states reported revising, removing, or reinstating prior authorization policies (CO, IN, NJ, RI).
Milestone #3: Use of nationally recognized, SUD-specific program standards to set provider qualifications for residential treatment facilities	Fourteen states reported information related to Milestone 3 (CA, CO, KY, LA, ME, MI, MN, NC, NE, NH, NJ, OR, PA, VT). Of these states: • Thirteen states reported ensuring provider compliance with treatment standards and level of care criteria (for example, through licensing regulations, on-site audits, facility self-assessments, and/or compliance assessment tools) (CA, CO, KY, LA, ME, MI, MN, NC, NE, NH, NJ, PA, VT). • Four states reported implementing or strengthening requirements that residential providers increase access to MAT (for example, by providing MAT onsite or offering linkages and referrals to MAT offsite) (CO, NE, NH, PA).
Milestone #4: Sufficient provider capacity at critical levels of care including for MAT for OUD	Twenty-seven states reported information related to Milestone 4 (AK, CA, CO, DC, DE, ID, IL, IN, KS, KY, ME, MI, MN, NC, NE, NH, NJ, NM, OH, OR, PA, RI, UT, VA, VT, WA, WV). Of these states: • Twelve states reported on challenges with provider availability or capacity (AK, CA, CO, ID, KS, ME, MN, OR, RI, UT, WA, WV). • Seven states reported training and education, technical assistance, and outreach to providers (focusing on topics such as MAT, policy changes, and telehealth services) (AK, DC, DE, IN, NJ, RI, VA). • Seven states reported on activities related to provider reimbursement rates (such as proposing rate changes or increasing rates to improve provider recruitment and retention) (DE, ME, MN, NC, NM, RI, WV). • Six states reported on centralized resources to connect individuals with SUD treatment providers (for example, centralized call centers or service locators) (CO, ME, NH, NJ, RI, VT). • Three states reported on receiving a federal grant to address provider capacity (DC, DE, IN).

Table D.1 (*continued*)

SMDL milestone	Findings
Milestone #5: Implementation of comprehensive treatment and prevention strategies to address opioid abuse and OUD	Twenty-six states reported information related to Milestone 5 (CA, CO, DC, DE, IL, IN, KS, KY, LA, ME, MI, MN, NC, NE, NH, NJ, NM, OH, OR, PA, RI, UT, VA, VT, WA, WV). Of these states: • Twelve states reported activities for increasing access to naloxone (such as trainings and standing orders) (CO, KS, KY, ME, MI, NC, NH, NJ, NM, OR, RI, VT). • Eight states reported engaging with providers and community organizations to address a range of objectives (for example, providing education on addiction and MAT stigma and sharing opioid prescribing data with providers) (CO, DE, KS, LA, MI, NJ, NM, RI). • Five states reported activities related to new or updated opioid prescribing guidelines or other activities to prevent opioid abuse (CO, IN, KS, NM, RI). • Three states reported increased availability of fentanyl and its association with an increase in overdoses and/or laced drugs (MN, NM, VT). • Three states reported allowing take-home medications for MAT (IN, NC, NJ). • See the health IT row of this table for information about PDMP usage and functionality.
Milestone #6: Improved care coordination and transitions between levels of care	Twenty-six states reported information related to Milestone 6 (CA, CO, DC, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, NC, NE, NH, NJ, NM, OH, OR, PA, RI, UT, VA, VT, WV). Of these states: • Seven states reported activities for updating or enforcing MCO or provider requirements related to care coordination (CO, LA, MD, ME, NE, NH, PA). • Seven states reported care coordination training or outreach activities for providers or other stakeholders (DC, IN, KY, NJ, NM, VA, WV). • Four states reported activities that enhanced connections to SUD services for individuals who receive emergency or hospital-based services (for example, recovery coaches in emergency rooms or creating referral processes) (CO, IL, NM, VT).
SUD health IT	Twenty-four states reported information related to SUD health IT (AK, CO, DC, DE, IN, KS, KY, LA, MI, MN, NC, NE, NH, NJ, NM, OH, OK, OR, PA, RI, UT, VT, WA, WV). Of these states: • Nine states reported enhancing PDMP functionality or use (for example, developing PDMP connections with EHRs) (CO, DE, KS, KY, NC, NH, NJ, NM, VT). • Ten states reported supporting data sharing by increasing access to health information exchanges or sharing ADT information (CO, DC, KS, KY, NC, NJ, NM, OK, VT, WA). • Three states reported sharing periodic SUD-related data reports with providers (CO, NC, NM). • Three states reported activities to track service availability (for example, implementing bed registries) (CO, MI, RI).

Table D.1 (*continued*)

SMDL milestone	Findings
Additional SUD-related monitoring information	Thirty-two states reported on additional information related to SUD demonstrations (AK, CA, CO, DC, DE, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, NC, NE, NH, NJ, NM, OH, OK, OR, PA, RI, UT, VA, VT, WA, WI, WV). Of these states: • Many states reported on a range of delays and activities related to COVID-19 (see Table III.1 in the main body of this cross-state analysis). • Thirteen states reported on conducting public forums and stakeholder meetings that were not related to a specific to a milestone (CO, DC, KY, LA, ME, MN, NC, NH, NJ, OH, PA, UT, VA). • Seven states reported on delays in demonstration reporting, including monitoring reports, evaluation designs, and mid-point assessments (IL, KS, KY, MN, NC, OH, RI). • Seven states reported narrative data on grievances and appeals in their monitoring reports (CA, DC, IN, KS, LA, PA, RI).

Note: This table summarizes findings from monitoring reports submitted between December 2, 2021, and June 1, 2022 by 32 states with approved SUD demonstrations. Additional information on states' activities is available in states' implementation plans and mid-point assessments.

[a] States that used the monitoring report tools self-reported information classified by milestone. If a state reported information applicable to a theme under a different milestone, we reassigned this information and counted the state under the common theme. When applicable, a state's reported information may be listed under multiple milestones.

ADT = admissions, discharges, and transfers; ASAM = American Society of Addiction Medicine; COVID-19 = coronavirus disease 2019; EHR = electronic health record; IT = information technology; MAT = medication-assisted treatment; MCO = managed care organization; OUD = opioid use disorder; PDMP = prescription drug monitoring program; SMDL = State Medicaid Director Letter; SUD = substance use disorder.

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Appendix E

Summary of State Activities

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Table E.1. Summary of activities reported by states with approved section 1115 SUD demonstrations

State (Demonstration start date) As of [date][a]	Summary
Alaska (1/1/2019) As of December 2021	• Continued technical assistance to providers related to enrollment site, section 1115 demonstration service delivery criteria, and authorization and claim form requirements • Supported providers by monitoring all claim transactions throughout waiver implementation and the follow-up period • Increased the number of ancillary services being provided as COVID-19 subsides • Continues to work closely with the state's contracted ASO to develop and refine reports that accommodate claims reconciliation efforts, metric calculations, and other data analysis tasks • Continued testing and validating the automated financial interface to align data elements with reporting needs and audit policy • As a result of the COVID-19 pandemic: – Reported experiencing provider shortages that have mostly impacted rural communities – Implemented, as needed, critical services to communities to offset the implementation delays for all BH waiver services caused by the two-part waiver rollout and COVID-19 workforce shortages – Held virtual learning opportunities involving state leaders in public health for providers, educators, case managers, administrators, and families to better prepare them to respond to COVID-19

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
California (8/13/2015) As of December 2021	• Continued short-term residential treatment services for eligible individuals • Continued implementing continuum of care frameworks and developing provider networks • Implemented EHR systems and new drug delivery billing systems to prepare for the transition from a cost-based reimbursement method to a rate schedule that requires all counties to update their CPT and HCPCS codes for SUD providers, counselors, and staff • Incentivized counties to implement updated criteria for mental health and SUD treatment and, to allow youth to obtain prevention and early engagement services, permitted services prior to a diagnosis • Conducted various outreach activities, such as monthly calls with participating counties, status updates, and quarterly regional meetings to review technical assistance, compliance, and policy issues • Analyzed county compliance with adverse benefit determination notices to ensure beneficiaries were not adversely impacted • Improved efforts to increase care coordination and integration through case management systems, ancillary services, and enhanced communication within provider networks • Reported an increase in grievances and appeals due to provider grievances related to the implementation of a new utilization management process that verifies patient financial eligibility at the point of authorization • Conducted stakeholder interviews as part of a final demonstration evaluation to inform the next demonstration period regarding access to care and quality, integration, and coordination of care • As a result of the COVID-19 pandemic: – Proposed continuing the telehealth policy and related reimbursement after the COVID-19 public health emergency ends to support challenges such as pandemic-related staffing shortages and transportation barriers for beneficiaries

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Colorado (1/1/2021) As of March 2022	• Extended the state's MAT pilot program for 3 additional years, with plans to open SUD recovery campuses and a supportive residential community that will provide ASAM-informed treatment, temporary housing, and a vocational training program • Expanded access to MAT through residential and other providers • Standardized prior authorization times for each ASAM LOC in regional accountable entities' contracts and utilization management policies • Continued to offer trainings on the ASAM Criteria through pre-recorded trainings on the regional accountable entity's website with additional training available if necessary • Published SUD provider updates on the state website and completed quality assurance audits • Developed an initial authorization form that standardized the number of days approved for residential SUD services based on ASAM LOC • Formalized the inclusion of facility bed capacity in providers' Medicaid enrollment and renewal processes • Operationalized an opioid risk metric tool that will help Medicaid providers identify and reduce opioid misuse • Finalized an online BH capacity registry that tracks the availability of mental health and SUD treatment beds as well as OTPs accepting new clients • Provided funding for mobile health units that deliver MAT in EDs and areas of the state where it is not otherwise available. • Provided funding through the SOR grant for naloxone distribution to people discharged from hospitals • Drafted a guidebook to inform future data sharing and disseminate best practices for health IT statewide • Updated the state's health IT roadmap, which includes the goals of using health IT to share data, increase health care access, and improve equity • Increased health IT access, information exchange, and analytics for rural SUD providers and purchased equipment for telehealth appointments • Held a virtual post-award forum and provided an additional opportunity for public comment • As a result of the COVID-19 pandemic: – Continued to experience a shortage of healthcare workers – Required COVID-19 vaccination for employees working in 24-hour facilities
District of Columbia (1/1/2020) As of March 2022	• Held weekly support sessions for providers to improve workflows and the quality of patient-centered care plans • Disseminated weekly provider reports on the status and outcome of and response to each submitted authorization request, including language the state's quality improvement organization supplied to support providers' knowledge of the ASAM Criteria • Leveraged a SOR and a SOR 2 grant to: conduct a provider needs assessment, offer provider education and technical assistance in community settings, improve treatment access through mobile screenings and MAT, and improve care coordination though care managers and partnerships with jails • Reported an increase in BH providers due to a change in taxonomy codes • Held an annual post-award forum

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Delaware (8/1/2019) As of March 2022	• Operated 2 SUPPORT Act grant initiatives that (1) engaged stakeholders in the long-term SUD/OUD prevalence and workforce surveillance system and the SUD data dashboards, (2) discussed with stakeholders the reporting, evaluation, and SUD expenditure calculation and submission processes, (3) developed and submitted a methodology for calculating the SUD MCO capitation rate, (4) hosted SAMHSA's conference on clinical information for treating pregnant and parenting women with an OUD and their infants, (5) launched a telementoring project for OUD medications, and (6) presented at the SOR conference • Developed technical assistance and webinars for providers that emphasized pregnant and parenting women with an OUD and their infants; made progress on long-term technical assistance strategies that included the migration of office-based opioid treatment fellowship resources • Convened a stakeholder meeting to discuss ongoing studies, including the SUD provider rate study, the SUD prevalence study, and MCO procurement • Received a federal SOR grant focused on increasing provider capacity for SUD and recovery services • Met with the demonstration evaluation team to define new subgroups for the evaluation
Idaho (4/17/2020) As of December 2021	• Collaborated with data and contracts teams to identify reporting parameters to include in future reports (for example, identifying new codes) • Engaged stakeholders and used federal funding to open 2 rural clinics with the capacity to provide medications for OUD treatment • Published best practices standards for BH services online to provide information to providers serving individuals of all ages • Issued a strategic action plan to address the shortage of BH professionals statewide • Ended the crisis standards of care and reported typical levels of health care resources were sufficient to address the state's patients with COVID-19 • Requested proposals for a managed care contract intended to innovate the state's BH care by adding inpatient, ED, and SUD residential services to a previous contract that only included outpatient BH services
Illinois (7/1/2018) As of March 2022	• Implemented MAT in EDs (as of January 2022) • Provided Medicaid coverage for SBIRT (as of January 2022) • Developed a network of office-based MAT providers with OTPs • Established a program to connect SUD-related ED visits to community-based treatment • Continued use of a SUPPORT Act grant to increase access to SUD treatment and recovery support services • Reported delays in meeting the submission deadline for the mid-point assessment because of the need to build a user interface to analyze the data

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Indiana (2/1/2018) As of December 2021	• Continued developing data dashboards to help identify SUD providers and treatment facilities, ASAM LOC, and gaps in SUD treatment services (using funds from a SUD planning federal grant) • Expanded SUD treatment services and BH treatment by finalizing telehealth code sets and exploring audio-only telehealth options • Received and used federal funding to (1) assess provider capacity, agency infrastructure, and monitoring and evaluation programs and (2) design a plan to implement solutions for identified gaps in SUD provider capacity • Reviewed modifications to SUD prior authorization processes, such as reducing the number of intake forms required • Evaluated draft ASAM LOC instructions for providers to ensure clear expectations and quality control and held preliminary discussions related to level 3.7 ASAM designation with SUD residential providers • Implemented an SPA to expand access to Medicaid rehabilitation option services for ASAM level 3.1 facilities (as of January 2022) • Continued to offer combined ASAM 3.1 and 3.5 LOC facilities • Provided information to newly enrolled SUD providers on service billing when working under a practitioner or operating independently • Expanded the SUD work group to address access, reimbursement, telehealth delivery, and care coordination related policies • Regained management of demonstration monitoring and reporting from the previous independent evaluator • As a result of the COVID-19 pandemic: – Continued to permit take-home MAT and develop restructured reimbursement to incorporate take-home dispensing
Kansas (1/1/2019) As of March 2022	• Engaged with an ASO around utilization management milestones and the contract for their service locator tool and deployed a survey for youth and young adults related to gaps in accessing SUD treatment • Ordered 1,539 naloxone kits along with overdose pocket guides, treatment referral cards, and a handout on how to administer naloxone as a refresher from naloxone training • Created a public awareness campaign about the dangers of opioid use • Purchased an incinerator and placed it in a state community to avoid the costs of shipping medication to be destroyed • Continued to work on PDMP enhancements and registered 2,280 new prescribers and prescriber delegates • Developed an RFP for a state hospital EHR solution that will combine numerous mental health and SUD health IT solutions into a single system to implement prescriber guidelines into clinical workflows for increased access to real-time data for decision making • Implemented, through a SAMHSA grant, a compliance plan focused on pharmacies reporting prescription information and educating pharmacists and prescribers about clinical issues around controlled substances • Planned for and distributed additional federal funding to SUD programs across the state

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Kentucky (1/12/2018) As of March 2022	• Explored ways to improve access to early intervention services • Collaborated with stakeholders to improve provider implementation of both the ASAM Criteria and the LOC placement assessment tool; updated attestation information and instructions to align with ASAM guidelines • Updated residential and inpatient providers on best practices for service coordination (according to ASAM guidelines and state regulatory requirements) • Created a provisional certification process for adolescent SUD residential providers (to be used until ASAM offers certification of adolescent programs) • Increased the number of SUD treatment providers enrolled with Medicaid • Covered naloxone nasal spray without prior authorization and added it to the standing order; added generic naloxone and liquid tramadol to the non-preferred drug list • Enhanced PDMP functionality and use by establishing interstate data sharing and ease of use enhancements with 1 state • Increased provider awareness about risky opioid prescribing practices • Explored alternative ways to report opioid-related deaths, such as categorizing the specific type of opioid • As a result of the COVID-19 pandemic: – Continued to suspend prior authorization requirement – Experienced delays in qualitative research activities, including beneficiary interviews
Louisiana (2/1/2018) As of December 2021	• Changed the logic for extracting data from MMIS, which may affect reporting for some metrics • Released a request for application to identify 2 opioid treatment providers in areas with the highest overdose rates • Continued to offer providers virtual training and education about MAT, expanding access to MAT, and reducing stigma • Required MCOs to conduct quarterly monitoring reviews of SUD providers to assess adherence to standards and guidelines • Developed a reporting system designed to use claims data to monitor transitions of care from acute withdrawal management and residential treatment services at ASAM levels 4-WM and 3.7-WM to lower levels of care • Contracted 10 OTPs to treat people with severe OUD using methadone maintenance as part of the hub-and-spoke model[b] • Continued participating in the Shatterproof quality measurement system pilot program, which aims to improve accessibility and quality of care through a user-friendly assessment tool for identifying the appropriate types and levels of care • Held a virtual public forum; however, there were no public attendees • As a result of the COVID-19 pandemic: – Continued using mobile outreach teams to provide education on OUD medications, distribute naloxone, and provide referrals for OUD treatment

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Maine (1/1/2021) As of March 2021	• Identified funds to help increase the number of residential SUD beds • Advanced rules that (1) increased reimbursement for SUD residential treatment services and (2) removed stigmatizing language from policy • Developed a service locator tool that will help the public identify local BH providers with the capacity to provide SUD/OUD care • Provided low-barrier Medicaid coverage for naloxone • Incentivized and/or required co-prescribing naloxone with MAT • Considered implementing a standing order for naloxone • Hosted a post-award forum to discuss topics such as section 1115 demonstration and 4 community-based pilot programs in the demonstration • Conducted a comprehensive review of the benefits provider's manual and applicable licensing standards to identify and recommend future changes • Updated the provider manual to emphasize that residential treatment providers must coordinate with a member's treatment team • As a result of the COVID-19 pandemic: – Experienced workforce shortages; a recent initiative included recruitment and retention payments for HCBS providers
Maryland (1/1/2017) As of December 2021	• Modified coverage of ASAM Level 4.0 to include providers in contiguous states • Implemented the Maternal Opioid Misuse model to improve care coordination and address social determinants of health; incorporated finalized MCO contracts into the state's renewal application for the 1115 demonstration to ensure the model's long-term coverage • Renewed the state's section 1115 demonstration waiver for 5 more years on January 1, 2022
Massachusetts (7/1/2017) As of March 2022	• Established urgent care BH centers, expanding access to same or next day appointments by offering evening and weekend hours; issued a joint procurement effort to implement a 24/7 BH help line • Issued an RFP for a vendor to manage a network of community BH centers that coordinate and integrate MH and SUD treatment • Approved an SPA to provide MAT services under the SUPPORT Act grant • As a result of the COVID-19 pandemic: – Extended MCO coverage and reimbursements for 24-hour SUD services for enrollees who were not transitioned or discharged appropriately due to COVID-19-related challenges – Issued an SPA to authorize flexibilities

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Michigan (4/5/2019) As of March 2022	• Updated metrics for Medicaid beneficiaries with a SUD diagnosis (monthly, Metric #3), Any SUD Treatment (Metric #6), and Outpatient services (Metric #8) to the version 4 technical specifications, which include telehealth codes and place of service • Trained 1,000 professionals on the ASAM assessment tool, which providers are now implementing throughout the state • Continued to implement the hub-and-spoke model[b] for OUD beneficiaries to increase care coordination in specific regions of the state • Increased naloxone distribution in conjunction with OUD training and rapid response team activities • Revised an SPA to increase opioid health home eligibility in 3 additional regions in the state • Continued to offer 3 prepaid inpatient health plans to test and provide feedback on the eConsent management system. (eConsent is a requisite step when creating a SUD user role in the state's care management tool; it allows PIHPs to analyze SUD metrics, thereby facilitating better care coordination strategies between mental and physical health needs • Completed the state's health IT SUD user role initiative, which will assist in care coordination and allows authorized users to review beneficiary data • As a result of the COVID-19 pandemic: – Continued to experience delays in pilot testing for the SUD residential bed registry system

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Minnesota (7/1/2019) As of December 2021	• Implemented a new enrollment process aimed at reducing the administrative burden for providers; transitioned from a prior authorization process to direct access, which allows any qualified, eligible vendor of comprehensive assessments to assess beneficiaries and determine their placement • Updated and published new standards and information aligned with the ASAM Criteria for SUD treatment services, assessment and placement criteria, staffing requirements, MAT services, and demonstration billing • Hosted a billing overview webinar • Added a 10% rate enhancement to 2021 MCO contracts • Provided technical assistance to providers, including a series of training webinars on utilization management and weekly virtual office hours • Developed and initiated utilization management aligned with the ASAM Criteria • Created and filled multiple senior leadership and support positions to work on the SUD demonstration • Increased the number of providers participating in the PDMP • Mandated public posting of data and outcome measures • Established an integrated BH fund intended to diversify the BH workforce and improve access to and quality of SUD services • Gathered stakeholder feedback on demonstration implementation • Presented at a conference for rural providers and at county work groups • Responded to public forum comments by exploring adding partial hospitalization LOC to the state plan, aligning supportive housing resources and direct access models with the ASAM Criteria, and organizing a work group on reducing provider paperwork requirements • As a result of the COVID-19 pandemic: – Paused the Medicaid beneficiary reenrollment requirement – Observed increased barriers to care due to fluctuating COVID-19-related protocols and facility closures
Nebraska (7/1/2019) As of March 2022	• Expanded Medicaid eligibility and coverage to include WM and OTP services; offered providers training materials on enrollment and reimbursement • Updated MCO contract language to require MAT service facilitation and compliance reviews for residential treatment providers • Reallocated resources away from the COVID-19 response and toward activities that address implementation goals

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
New Hampshire (7/10/2018) As of March 2022	• Offered funding for medically monitored residential withdrawal management to expand treatment services to those without health insurance coverage and/or determined ineligible for Medicaid • Planned for the July 2022 launch of a 988 mental health hotline to help individuals who are suicidal or in crisis • Provided trainings on (1) addiction and recovery, (2) harm reduction, (3) the 12 core functions of a substance use counselor, (4) planning treatment and care for people with complex conditions, and (5) the ASAM Criteria • Conducted audits and worked with providers to ensure compliance with the ASAM Criteria and referral processes for MAT; provided real-time technical assistance to providers to ensure they met standards • Reported that a residential facility closed in October 2021 due to budget limitations; however, it might reopen as a residential facility for people with dual diagnoses • Planned to use a federal grant to expand MAT access through residential treatment and Medicaid providers • Distributed approximately 4,000 naloxone kits • Planned to contract a third-party vendor to maintain a service referral and care coordination network for substance use and/or MH crises that includes many stakeholders as points of entry for people seeking treatment • Continued to offer telehealth services for SUD treatment; they have helped reach people in rural areas • Developed a motivational incentive program using mobile technology to treat those diagnosed with a stimulant disorder • Held a post-award forum in October 2021; however, the public did not raise any questions or concerns
New Jersey (10/31/2017) As of December 2021	• Performed clinical reviews to assess treatment admissions and services based on LOC and clinical necessity • Assisted providers through education and technical assistance on the ASAM Criteria in conference calls with utilization management staff • Eliminated prior authorization and pharmacy lock-in for MAT to increase access to services; began tracking MAT referrals at provider offices • Implemented reimbursement for office-based addiction treatment • Allowed providers to dispense opioid antidotes without a prescription and distributed naloxone to law enforcement agencies, pharmacies, and community organizations • Continued demonstration implementation activities, including hosting stakeholder meetings, leading a summit on OUD medication access, organizing a learning collaborative for hospital quality improvement, and extending funding for a SUD interoperability program • Established a 24-hour call center and a managing entity to respond to care coordination requests • As a result of the COVID-19 pandemic: – Increased telemedicine access and offered take-home doses of MAT

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
New Mexico (1/1/2019) As of December 2021	• Expanded the eligibility criteria for health homes to include individuals with a SUD • Approved SUD treatment services in an IMD for some populations • Introduced certified peer support workers in 5 EDs after providing them with accelerated training and certification • Established crisis treatment centers, intensive outpatient services, and comprehensive community support services • Continued SBIRT training for physical health settings and worked on developing a youth-specific screening tool • Explored new contracts for SBIRT training and implementation • Provided training and technical assistance for health home staff on a variety of topics, including stigma, data collection, naloxone use, and use of ASAM assessments • Continued to provide trainings to physical health providers that focused on naloxone use and screening for SUD, suicidality, anxiety, and depression • Facilitated a bridge program that taught providers in hospital EDs how to administer buprenorphine and other MAT • Implemented a 24/7 call-in service at a poison control center to help answer provider questions during treatment of beneficiaries with a SUD • Developed a monitoring program for controlled substance use in partnership with MCOs; trained providers on the way to review an individual's controlled substance prescription history in the PDMP • Submitted an amendment to waive IMD restrictions for individuals with an SMI, SED, and SUD to expand services to youth • Created cost-based rates for providers at crisis treatment centers • Completed implementation of an ED information exchange for its health homes and trained providers to use the system. • Established a work group to review the health IT plan • Updated its MMIS to allow smartphone capabilities as a public interface to support the retention of OUD and SUD providers • As a result of the COVID-19 pandemic: – Continued to provide telehealth services – Reported provider challenges with telehealth burnout from video calls and difficulty engaging some clients virtually – Conducted fewer ECHO training sessions on pain management, which may have affected the state's ability to track how many providers received that training – Experienced staff turnover and workforce shortages at state agencies and SUD treatment facilities

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
North Carolina (1/1/2019) As of January 2022	• Continued to transition to Medicaid managed care • Established an opioid misuse prevention program • Removed the SUD diagnosis requirement for suboxone claims • Worked on policy changes related to ASAM LOC criteria, including: – Submitted SPA to cover outpatient services for ASAM levels 1 and 3.2-WM – Revised ASAM level 3.5 to include all beneficiaries, not just pregnant and parenting women; revised level 3.7-WM to improve staffing and MAT access – Drafted policy changes that align with the ASAM Criteria by separating MH and SUD criteria to expand access to services for adolescents and adults – Drafted and sought stakeholder feedback on clinical coverage policies for newly covered services to complete the ASAM continuum of care, including levels 3.1, 3.3, 2-WM and 3-WM. • Updated ASAM training requirements on SBIRT and held virtual ASAM trainings for professionals • Trained providers on treating beneficiaries with co-occurring SUD and MHD, using the audit reporting system, and applying best practices to PDMP use • Continued to distribute naloxone to over 170 agencies, including OTPs, law enforcement, opioid response teams, and community coalitions • Integrated EHRs with controlled substance reporting systems • Delivered 2 prescriber reports to prescribers • Updated IMD metric specifications, adding 3 psychiatric hospitals to the 10 residential treatment providers already designated as IMDs beginning in the DY4Q1 report • Held a post-award public forum on December 10, 2021
Ohio (10/1/2019) As of March 2022	• Increased the number of SUD providers (partially due to the state having access to a more complete list of buprenorphine-waivered providers) • Attended a presentation of the mid-point assessment results, conducted by the evaluation contractor, that included qualitative analysis of key informant interviews and provider survey results • Held a post-award forum on August 9, 2021
Oklahoma (12/22/2020) As of December 2021	• Developing a statewide crisis response system that includes the 988 number; expanding the services provided in urgent recovery clinics to include crisis services • Planned to submit an SPA to include partial hospitalization for adults as a covered benefit beginning in October 2022 • Worked with tribal consultants in December 2021 • Continued to offer providers technical assistance focused on billing, enrollment, service coordination, the ASAM LOC determination tool, and best practices for providing MAT • Continued working on the HIE system • Ended the BH home program on September 30, 2021; however, participants continue to receive services through other programs • Certified community mental health centers as BH clinics, allowing a focus on care coordination and integrated care for MH and SUD

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Oregon (4/8/2021) As of December 2021	• Partnered with the Health Evidence Review Commission to incorporate new services into the prioritized list of covered services • Planned to update administration rules, contracts, and licensing requirements for the ASAM Criteria pending the state's contractual relationship with ASAM • Developed internal quality improvement reports • Gathered stakeholder feedback on implementation of the ASAM Criteria • Analyzed results from the provider capacity study • Distributed naloxone to high-need areas • Began the hiring process for a SUD waiver policy analyst • Held bimonthly meetings with an advisory committee • As a result of the COVID-19 pandemic: – Continued to fund programs and providers that experienced fiscal challenges to help them remain open
Pennsylvania (7/1/2018) As of December 2021	• Continued to deliver ASAM Criteria placement training to providers and trained 13,000 professionals • Created a website for ASAM transition documents, webinar and training information, historical documents, frequently asked questions, and ASAM instructional materials • Outlined the differences between care coordination and clinical services in case management and clinical services in MCO manuals to ensure they are treated as separate and distinct services • Closed 1 hospital with an ED, resulting in a decrease in the number of EDs joining the HIE • Experienced a decrease in the number of MH and SUD complaints filed • Continued to experience political challenges regarding transition support and the number of providers relative to the state's size • Held a post-award forum on February 16, 2021, focusing on topics such as licensing, MAT, withdrawal management, MCOs and outpatient facilities, and the ASAM Criteria

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Rhode Island (1/1/2019) As of March 2022	• Required through contracts that all MCO providers assess the need for SUD services and recommend the appropriate ASAM level and type • Developed and piloted a screening tool based on the ASAM Criteria • Lifted a pause on prior authorization requests for BH services for MCOs in January 2022 • Underwent a Medicaid payment rate review; held trainings on best practices for SUD and AUD treatment and for treatment of people experiencing homelessness • Continued to provide a 24/7 hotline and multiple websites to connect beneficiaries to treatment • Increased funding for naloxone distribution through an SOR grant • Built responsive linkages between communities and clinics to improve health and social outcomes • Established an ED diversion program to reduce ED use for BH treatment • Increased peer and recovery support services for warm handoffs • Launched a bed tracker and began posting updated information for beneficiaries on inpatient residential access • Launched a health workforce development program aimed at several areas of care, including BH • As a result of the COVID-19 pandemic: – Reported workforce shortages and challenges maintaining full capacity in congruent care settings – Considered changes to implementation and monitoring protocols to offset the impacts of COVID-19-related staff shortages and challenges with access to care
Utah (11/1/2017) As of March 2022	• Increased Medicaid enrollment of individuals who are survivors of domestic violence, court ordered to receive treatment, or on parole • Continued to provide dental services to beneficiaries with a SUD diagnosis • Implemented managed care plans to provide integrated medical, dental, and BH services to the Medicaid population • Maintained a prior authorization process that uses the ASAM Criteria to ensure that beneficiaries receive medically necessary services • Began offering clinically managed residential withdrawal services statewide • Continued efforts to initiate and implement billing for intensive stabilization services in the southwest, western, and northern regions of the state • Reviewed the state's online provider directories for PDMP; all are active, and the state is on track to complete its dashboard by the end of FY 2022 • Received approval for an SPA that allows clinically managed residential withdrawal management to be a covered service; began working with providers on a formal quality improvement process for the implementation of intensive stabilization services under the demonstration • Continued to evaluate the state's SUD treatment plan • Revised the evaluation design for intensive stabilization services • Held annual public forums in January 2021 and January 2022

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Vermont (7/1/2018) As of December 2021	• Reported an increase in fentanyl involvement in opioid overdose fatalities • Continued to provide (1) recovery coaches in 12 hospital EDs and (2) virtual recovery services • Expanded PDMP access to VA providers in states without a Vermont license • Delivered naloxone treatment to motels to reach people experiencing homelessness • Activated interstate PDMP collaboration and required PDMP contract to connect to national RxCheck. • Used an updated ASAM compliance assessment tool for all SUD treatment provider locations • Ended automatic Medicaid enrollment and revalidated beneficiary eligibility • Reported delays in implementing telehealth services due to a lack of broadband infrastructure in the state's rural areas • Submitted an annual report on SUD services to the state legislature and began drafting a letter on policy recommendations to the state legislature • As a result of the COVID-19 pandemic: – Continued to encourage beneficiaries to seek treatment; worked with SUD providers and the statewide public resource for finding SUD treatment and recovery services to provide education on safe and available treatment options – Resumed provider site review for compliance assessments – Suspended development of criteria for a value-based payment model for residential programs – Delayed the integration of RxCheck with EHRs and state health systems

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
Virginia (12/15/2016) As of December 2021	• Continued expanding the office-based addiction treatment services model to include provider reimbursement for services for OUD and other primary SUDs • Revised the review process forms for the office-based addiction treatment program to ensure program fidelity • Began revising the state's manual policies for opioid treatment services focused on initiation of medication for OUD • Conducted trainings for providers focused on SUD treatment services • Reviewed MCO contract language in preparation for merging 2 MCO contracts into 1 • Participated in a national advisory group to develop an ASAM Criteria best practices toolkit • Addressed suboxone prescription and supply limits by (1) meeting with the DEA, (2) providing pharmacies with additional resources for negotiating supply with wholesalers, and (3) working with MCOs to ensure payment rates align with requirements • Secured an interagency agreement to match Medicaid-enrolled, buprenorphine-waivered prescribers with buprenorphine prescribers in the prescription monitoring program • Participated in a SAMHSA summit to learn how best to use and integrate crisis and peer recovery services • Engaged local and regional jails and prisons to increase access to SUD treatment for justice-involved individuals upon their release • Provided technical assistance to increase the number of ED bridge clinic models
Washington (7/17/2018) As of March 2022	• Implemented a crisis call center and referral system for SUD treatment referrals • Presented to state agencies about state and federal privacy requirements related to health information access and exchanges for people with co-occurring MH and SUD • Requested funding for an electronic consent management system • Continued implementing a new EHR system to improve care coordination among BH agencies, rural providers, and tribal providers • As a result of the COVID-19 pandemic: – Reported barriers to SBIRT billing due to staffing shortages

Table E.1 (*continued*)

State (Demonstration start date) As of [date][a]	Summary
West Virginia (1/1/2018) As of December 2021	• Working on the release of tools that help providers evaluate ASAM LOC and help the state monitor bed availability • Received from the evaluation contractor a qualitative analysis related to emerging themes year 4 focus groups identified; focus group topics included (1) increasing rates of HIV and hepatitis C at the time of waiver implementation, (2) peer recovery support, and (3) clinical and administrative staff in residential adult facilities • As a result of the COVID-19 pandemic: – Allowed individuals who were eligible for Medicaid in March 2020 to remain covered throughout the COVID-19 public health emergency, even if ineligible – Continued to allow telehealth and telephonic services – Continued to help providers and beneficiaries identify appropriate bed placement alternatives when treatment facilities were closed or quarantined – Increased reimbursement rates to better support providers' efforts to serve beneficiaries; used the helpline to monitor reports of facility disruptions – Advised on discharge decisions for patients with COVID-19, communicated with MCOs regarding medical necessity, and promoted safe transitions into the community – Removed counseling requirements for MAT services – Worked with SUD providers to create and implement internal protocols for admission and discharges – Developed policy changes to shift to peer recovery certification and expanded peer services
Wisconsin (10/31/2018) As of March 2021	• Expanded SUD treatment reimbursement for certain facility-based services • Continued supporting provider enrollment, ASAM training and support, prior authorization processes, and access to treatment • Implemented a SUD health home program, starting in July 2021, that links individuals in some parts of the state to necessary SUD services • As a result of the COVID-19 pandemic: – Continued to expand eligibility to individuals determined ineligible – Reported challenges in waiver implementation and data collection

Note: This table summarizes findings from monitoring reports submitted between December 2, 2021, and June 1, 2022 by 32 states with approved SUD demonstrations. Additional information on states' activities is available in states' implementation plans and mid-point assessments.

[a] This summary table contains the state's last month of reported information from the most recent monitoring report.

[b] In the hub-and-spoke model, individuals with complex needs receive care through regional specialty treatment centers, or hubs, that offer SUD expertise; individuals with less complex needs receive care through networks, or spokes, of MAT-prescribing physicians and collaborating professionals who provide supportive services.

[c] Initially, Maryland's SUD demonstration was approved on December 12, 2016, with a SUD demonstration start date of January 1, 2017, through December 31, 2021. The current demonstration approval period is January 1, 2022, through December 31, 2026.

ASAM = American Society of Addiction Medicine; ASO = administrative service organization; AUD = alcohol use disorder; BH = behavioral health; CPT = current procedural terminology; COVID-19 = coronavirus disease 2019; DEA = Drug Enforcement Administration; ECHO = Extension for Community Healthcare Outcomes; ED = emergency department; EHR = electronic health record; FY = fiscal year; HCBS = home and community based services; HCPCS = healthcare common procedure coding system; health IT = health information technology; HIE = heath information exchange; HIV = human immunodeficiency virus; IMD = institutions for mental diseases; LOC = level of care; MAT = medication-assisted treatment; MCO = managed care organization; MH = mental health;

Table E.1 (*continued*)

MMIS = Medicaid Management Information System; OTP = opioid treatment program; OUD = opioid use disorder; PDMP = prescription drug monitoring program; PIHP = prepaid inpatient health plan; RFP = request for proposal; SAMHSA = Substance Abuse and Mental Health Services Administration; SBIRT = screening, brief intervention, and referral to treatment; SMI = serious mental illness; SOR = State Opioid Response; SPA = state plan amendment; SUD = substance use disorder; SUPPORT = Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act; VA = Veteran's Administration; WM = withdrawal management.

Appendix F

Spotlight on State Innovation

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This appendix outlines information that states reported on innovative activities related to each of the 6 SUD demonstration milestones and health IT (Table F.1). Many states have implemented innovative and effective demonstration elements, and Table F.1 includes only a subset of these activities. Prior cross-state analyses presented innovations from all states with active demonstrations that reported metric data. As many demonstrations move into later demonstration periods or post-demonstration periods, the state spotlight section will shift to highlight select innovative activities under each milestone (rather than an activity for every state).

Table F.1. Spotlight on state innovation

Milestone[a]	State (start date)	State innovation
1. Access to critical levels of care for OUD and other SUDs	Louisiana (2/1/2018)	Continued outreach during the COVID-19 pandemic and offered 24-hour access to opioid treatment: The state suspended in-person mobile outreach services due to the COVID-19 pandemic but pivoted to virtual service provision. The state is also in contract negotiations with 2 opioid treatment program providers to offer 24-hour access to in-person services at 2 locations in the state.
	Indiana (2/1/2018)	Expanding coverage of mental health and SUD treatment via telehealth: The state is finalizing a reimbursement code set for behavioral health (BH) services, including counseling, psychotherapy, MAT adherence and management, and intensive outpatient therapy via telehealth.
2. Use of evidence-based, SUD-specific patient placement criteria	Minnesota (7/1/2019)	Conducted systematic utilization reviews to ensure appropriate ASAM assessment and placement: Contracted with an independent organization to conduct post-payment reviews of participating providers to ensure appropriate ASAM assessment and placement and medical necessity of treatment. If a provider's documentation was not sufficient or ASAM-compliant, the contractor provided technical assistance and requests for more information. Recently, in response to feedback from participating providers, the state has scaled back the number of post-payment reviews.
3. Use of nationally recognized, SUD-specific program standards to set provider qualifications for residential treatment facilities	Minnesota (7/1/2019)	Hired a manager responsible for upholding standards of care: The state filled a full-time position responsible for managing the demonstration's provider enrollment process, providing technical assistance and training on the ASAM Criteria, and reviewing residential level of care standards.
4. Sufficient provider capacity at critical levels of care including for MAT for OUD	New Mexico (1/1/2019)	Supporting the initiation of buprenorphine in EDs: The state has provided hospitals with support and guidelines for initiating buprenorphine treatment in EDs. These guidelines include steps for follow-up visits and referrals to certified peer support workers.[b]
	Maine (1/1/2021)	Launching an online SUD service locator tool: The state developed an online tool to help both beneficiaries and health care providers connect individuals to behavioral health providers that offer SUD/OUD care. The tool is expected to launch in September 2022 (Health IT).

Milestone[a]	State (start date)	State innovation
5. Implementation of comprehensive treatment and prevention strategies to address opioid abuse and OUD	New Jersey (10/31/2017)	Removed barriers to naloxone access: The state eliminated the prescription requirement for naloxone and allowed non-pharmacist entities to distribute the drug. For example, emergency medical technicians can give out naloxone doses after responding to an overdose. The state has made free naloxone doses available through law enforcement agencies and pharmacies and at a variety of locations, including public libraries and homeless shelters.
	Colorado (1/1/2021)	Expanding the reach of a public health media campaign that encourages SUD treatment: To reach a more diverse audience, the state has revamped its *Lift the Label* campaign, which aims to reduce the stigma around SUD and encourage SUD treatment. The campaign features stories about real SUD patients, and a new set of stories featuring individuals with more diverse characteristics has been released.[c]
6. Improved care coordination and transitions between levels of care	Michigan (4/5/2019)	Created a new user role in a HIE to facilitate care coordination: The state created a SUD user role in a statewide HIE to assist with care coordination among its prepaid, inpatient health plans. Users with this new role can access beneficiary SUD information that was previously hidden. The state believes that providing relevant and vetted individuals with access to this information will bridge barriers to both care coordination and access to resources (Health IT).
Health information technology (Health IT)	Colorado (1/1/2021)	Added an opioid risk module to an EHR-based prescriber tool: In January 2021, the state launched an EHR-based opioid risk metric tool for Medicaid providers. The tool helps providers identify and reduce the risk of opioid misuse in patients[d] (Milestone 5).

[a] The milestone classifications assigned to activities listed in this table may differ from the milestone classification a state reported. In some cases, to categorize activity types consistently, we reassigned a state's reported information to a different milestone than what the state indicated.

[b] New Mexico Bridge. "Medical Center ED Buprenorphine Initiation Flow." n.d. Available at http://nmbridge.com/wp-content/uploads/2022/10/Buprenorphine-Initiation-Guideline-1.pdf

[c] Daniel, S., "Colorado revamps opioid anti-stigma campaign to reach more diverse audience," KUNC (NPR for Colorado), Nov. 22, 2021. Available at https://www.kunc.org/health/2021-11-22/colorado-revamps-opioid-anti-stigma-campaign-to-reach-more-diverse-audience

[d] Colorado Department of Health Care Policy & Financing. "Prescriber Tool Project." 2022. Available at https://hcpf.colorado.gov/prescriber-tool-project

ASAM = American Society of Addiction Medicine; COVID-19 = coronavirus disease 2019; ED = emergency department; IT = information technology; HIE = health information exchange; MAT = medication-assisted treatment; OUD = opioid use disorder; SUD = substance use disorder.

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