Medicaid Behavioral Health Transformation Demonstration

Draft Initial Interim Evaluation Report

District of Columbia

Department of Health Care Finance

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Exhibits

Table of Abbreviations

ACT	Assertive community treatment
AOD	Alcohol or other drug
ARC	Assessment and Referral Center
ASAM	American Society of Addiction Medicine
ASURS	Adult substance use rehabilitative services
BH	Behavioral health
CHIP	Children's Health Insurance Program
CMS	Centers for Medicare & Medicaid Services
CPEP	Comprehensive psychiatric emergency program
CRISP	Chesapeake Regional Information System for our Patients
DBH	Department of Behavioral Health
DCHA	DC Hospital Association
DCMR	District of Columbia Municipal Regulations
Demonstration	Behavioral Health Transformation Demonstration
DHCF	Department of Health Care Finance
District	District of Columbia
DY	Demonstration year
EA	Expenditure authority
ED	Emergency department
EHR	Electronic health record
FDA	Food and Drug Administration
FFP	Federal financial participation
FFS	Fee-for-service
FSMHC	Free standing mental health clinics
FY	Fiscal year
FQHC	Federally qualified health center
GLM	Generalized linear model
HCBS	Home and community-based services
HEDIS	Healthcare Effectiveness Data and Information Set
HIE	Health Information Exchange
IPF	Inpatient psychiatric facility
IMD	Institutions for mental diseases
IT	Information technology
ITS	Interrupted time series
KII	Key informant interviews
LICSW	Licensed Independent Clinical Social Worker
LOC	Level of care
LOCUS	Level of Care Utilization System

LOS	Length of stay
MAT	Medication-assisted treatment
MCO	Managed care organization
MHRS	Mental health rehabilitation services
MMIS	Medicaid management information system
OUD	Opioid use disorder
PBPM	Per beneficiary per month
PDMP	Prescription drug monitoring program
PHE	Public health emergency
QIO	Quality improvement organization
RSS	Recovery support services
SED	Serious emotional disturbance
SES	Supported employment services
SMI	Serious mental illness
SOR	State Opioid Response
STCs	Special Terms and Conditions
SUD	Substance use disorder
TAP	Treatment assignment protocol
TREM	Trauma recovery and empowerment model
TST	Trauma systems therapy

A. Executive Summary

KEY TAKEAWAYS FROM THE INTERIM EVALUATION

AWARENESS

- Providers, provider associations, and health plans are aware of the Demonstration components.
  - Degrees of awareness and influence on service delivery vary by Demonstration service.

INFLUENTIAL SERVICES

- Evaluation participants (providers, provider associations, and health plans) deemed the following Demonstration services as having the largest positive influence on provider behavior and beneficiary outcomes:
  - Eligibility to enroll in Medicaid for independent licensed behavioral health clinicians
  - Decentralized intake and assessment
  - Expanded crisis stabilization services
- According to evaluation participants, the following Demonstration services had slow and low uptake:
  - Transition planning services
  - Recovery support services
  - Clubhouse services
  - Supported employment services

COVID-19

- The COVID-19 public health emergency (PHE), which coincided with the beginning of the Demonstration, disrupted Demonstration operationalization, particularly on the provider side, and strained the District's healthcare system.
  - Beneficiaries faced increased behavioral healthcare needs and suppressed utilization.
  - Impact on service utilization patterns was more severe for SUD beneficiaries than for SMI/SED beneficiaries, with SUD service utilization levels yet to rebound to pre-PHE levels.
  - Telehealth flexibilities under the PHE and increased utilization of telemedicine helped mitigate, to some extent, the disruption to utilization, particularly on the mental health side.
  - Given the simultaneous start of the Demonstration and the PHE, the regression analysis may not have entirely removed the effects of the Demonstration from that of the PHE, despite the use of a PHE-related control variable.

ACHIEVEMENT OF DEMONSTRATION GOALS

- The Demonstration was more successful in achieving serious mental illness and/or serious emotional disturbance (SMI/SED) goals than substance use disorder (SUD) goals.
  - Three of five SMI/SED Demonstration goals were achieved:
    - » Decreased emergency department (ED) use
    - » Improved access to crisis stabilization services
    - » Improved access to community-based services
  - Results were mixed for two of the six SUD Demonstration goals, and the remaining goals are yet to be achieved. Beneficial outcomes observed:
    - » Increased rate of initiation of SUD treatment
    - » Decreased ED use

EFFECT ON COSTS

The average total costs per beneficiary per month (PBPM) increased under the Demonstration for both SMI/SED and SUD beneficiaries. The likelihood of beneficiaries incurring healthcare costs also increased for both SMI/SED and SUD populations. An overall increase in cost was not unexpected based on COVID-19 PHE-related actions (e.g., SUD reimbursement rate increase) and the Demonstration.

Demonstration

The Centers for Medicare & Medicaid Services (CMS) approved the District of Columbia's (District's) Section 1115(a) demonstration titled Behavioral Health Transformation (Demonstration) on November 6, 2019. The 5-year Demonstration became operational on January 1, 2020. The District has three overarching objectives for the Demonstration:

- Expand the continuum of Medicaid behavioral health services and supports in the District;
- Advance the District's goals to improve outcomes for individuals with opioid use disorder (OUD) and other substance use disorders (SUDs); and
- Support a more person-centered, integrated, and coordinated system of physical and behavioral healthcare for Medicaid beneficiaries.

The District aims to achieve these objectives by (1) expanding treatment options for serious mental illness (SMI), serious emotional disturbance (SED), and SUD; (2) improving the quality of behavioral health treatment; (3) improving beneficiary experiences and outcomes through better care transition, coordination, and employment support services; (4) preventing emergent and acute hospitalizations by scaling up crisis treatment programs; and (5) supporting improved data collection, reporting and sharing in the District's behavioral health system.

The District conceived the Demonstration, to a large extent, as a response to the opioid use and abuse crisis the District was facing. The Demonstration is also part of a larger behavioral healthcare redesign effort to strengthen the behavioral health services continuum of care and move the District's Medicaid program toward a more integrated model of behavioral healthcare delivery.

The Special Terms and Conditions (STCs) of the Demonstration are effective from January 1, 2020, through December 31, 2024, unless otherwise specified. The STCs authorized federal financial participation (FFP) for Medicaid State Plan services furnished to eligible individuals primarily receiving short-term treatment and withdrawal management services for SUD, SMI, and/or SED in facilities that meet the definition of an institution for mental disease (IMD) for the full 5-year period of the Demonstration. The STCs granted temporary expenditure authorities, from January 1, 2020, through December 31, 2021, for SMI/SED and SUD non–State Plan services furnished during a stay in or outside an IMD setting to eligible individuals receiving treatment or assessed as needing treatment or recovery support services (RSS) for approved conditions.

The non–State Plan services granted expenditure authority (EA) under the Demonstration include the following:

- Comprehensive psychiatric emergency program (CPEP) services
- Mobile crisis intervention and outreach services
- Psychiatric residential crisis stabilization services
- Transition planning services for individuals leaving a hospital, IMD, or other facility
- RSS
- Services of licensed behavioral health clinicians
- Psychosocial rehabilitative services (also known as "Clubhouse" services)
- Trauma-targeted behavioral health services
- Supported employment services (SES)

The waiver authority under the Demonstration also exempted beneficiaries receiving SUD treatment from $1 pharmacy co-payments for prescriptions associated with medication-assisted therapy (MAT).

Evaluation

An independent evaluation of the Demonstration is a requirement of the STCs. CMS requires the evaluation to assess progress in the achievement of Demonstration goals according to the approved evaluation design. The evaluation design identified key research questions, associated hypotheses, and metrics to assess effectiveness. The research questions cover Demonstration implementation progress and the Demonstration's effects on healthcare utilization and health outcomes for target populations. The evaluation assesses the challenges and successes in Demonstration implementation and estimates the Demonstration's effects on healthcare utilization and health outcomes for target populations. It also estimates changes to Medicaid costs and the drivers of those changes occurring because of the Demonstration. The District selected the American Institutes for Research® (AIR®) to conduct the independent evaluation.

The Behavioral Health Transformation Demonstration is the first demonstration addressing both SUD and SMI/SED populations approved since the Secretary of Health and Human Services announced the SMI/SED opportunity via State Medicaid Directors Letter #18-011 on November 13, 2018.

Evaluation Methods

The AIR team (AIR and its subcontractor, L&M Policy Research, LLC) implemented a mixed-methods evaluation design for the interim evaluation. The interim evaluation uses data from the first 2.5 years of the

Demonstration to address the evaluation research questions. The AIR team synthesized data from multiple sources to develop an accurate and comprehensive description and analysis of the Demonstration. The AIR team collected primary data through document reviews, interviews with key informants from the implementing District agencies and their vendors (Department of Health Care Finance [DHCF], Department of Behavioral Health [(DBH)], Department of Health [DC Health], and Chesapeake Regional Information System for our Patients [CRISP]), and interviews and listening sessions with providers, local provider associations, and managed care organizations (MCOs). The AIR team also fielded a Medicaid beneficiary survey by the end of the first year of the Demonstration. Secondary data sources included various DHCF and DBH administrative data, including Medicaid fee-for-service (FFS) claims and Medicaid managed care encounter data. The AIR team also used ED length of stay (LOS) data from the DC Hospital Association.

The primary data the AIR team collected for the evaluation were analyzed using qualitative data analytic techniques. The qualitative data were systematically coded using a codebook that was developed and refined to align with Demonstration drivers, goals, and important co-occurring initiatives. The primary focus of the analysis was to identify themes related to whether the Demonstration was implemented as intended; successes, challenges, and lessons learned regarding implementation; and perceived outcomes.

The secondary data were analyzed using quantitative analytic techniques. The quantitative analysis, which focused on outcome measures (e.g., SUD treatment utilization) reflective of Demonstration goals, had two main components. The first component graphically described the trends in the outcome measures comparing the Demonstration period with a baseline period of calendar year (CY) 2017–2019. The second component assessed the effectiveness of the Demonstration in achieving its goals using multivariate regression analysis. The AIR team used the interrupted time series (ITS) regression methodology to assess Demonstration impacts. ITS is a robust quasi-experimental research design to evaluate a population-level intervention or policy change where a comparison group is not feasible, as is the case with this evaluation. The AIR team implemented District-level and individual beneficiary–level regression models for the impact estimation of utilization-based outcome measures. We used ordinary least squares regression model specification for the District-level ITS analysis. For the individual-level analysis, where the outcome measures were counts (e.g., number of SUD services), we used count model specifications.

Despite the use of control variables to account for the COVID-19 public health emergency (PHE) that coincided with the launch of the Demonstration and some of the influence of concurrent programs targeting similar populations and outcomes, the impact estimates may capture some of these effects in addition to the Demonstration's effect. Since the COVID-19 PHE occurred

within 2 months of the Demonstration's start and continued through the entire period of this report's analysis, the analysis may not fully isolate the Demonstration's effects from that of the large impacts the PHE had on behavioral healthcare utilization and the healthcare system overall. Therefore, caution is warranted in interpreting the quantitative analysis results as precise causal impacts.

In addition to the Demonstration goals-based quantitative analyses, the AIR team conducted a cost analysis to assess changes in healthcare expenditures for SMI/SED and SUD beneficiaries and the drivers of these expenditures. For the cost analysis, which was at the individual beneficiary-month level, the ITS design was implemented with a two-part model specification, which is a preferred method for analyzing healthcare expenditures. The above-mentioned limitation that the regression analysis may not have fully removed the influence of the COVID-19 PHE from the Demonstration effect estimates also applies to the cost analysis. The COVID-19 PHE induced increases in the federal medical assistance percentage (FMAP) and behavioral healthcare rates, and changes in care utilization were influential on costs in addition to the Demonstration. Additionally, reimbursement rates for certain services, such as for hospital-based care, are indexed to inflation in the District; hence, inflation also contributed to an increase in reimbursements rates.

Evaluation Findings

Implementation Progress

IMPLEMENTATION TAKEAWAYS

Despite the challenges associated with the onset of the Demonstration coinciding with the onset of the COVID-19 PHE, the District was able to enact the planned payment, benefit, service redesign, and health information technology (IT) interventions as intended with minimal delay. Providers are generally aware of the changes that are currently or potentially relevant to them, have put these changes into practice in the way they deliver and/or bill for services, and report that most of these changes are likely to contribute to an improved behavioral healthcare delivery system for beneficiaries. Interventions that evaluation participants describe as challenging or having limited impact, such as transition planning, peer support services, and SES, are so because of the eligibility, billing, and certification requirements associated with the services.

Overall, the District has implemented all key Demonstration interventions as intended and there is broad awareness among providers of these changes. The following Demonstration changes have had a widespread positive influence:

- *Independent licensed behavioral health clinicians' ability to enroll in Medicaid,* which has expanded beneficiaries' access to clinicians who are in settings outside of federally qualified health centers (FQHCs), free standing mental health clinics (FSMHCs), and mental health rehabilitative services (MHRS) and adult substance use rehabilitative services (ASURS) providers;
- *Revising and clarifying reimbursement methodology for telemedicine,* which may have mitigated some of the impact of the PHE;
- *Reimbursement methodology for crisis stabilization services,* which has increased referrals to crisis stabilization providers and financially stabilized these providers;
- *Decentralizing the intake and assessment functions of the Assessment and Referral Center (ARC),* which has eased beneficiaries' access to intake and assessment services and improved their experience with these services; and
- *Expanded adoption of health IT,* which has been difficult to implement but widely praised for improving providers' ability to track beneficiaries' care use.

Evaluation data suggest that certain Demonstration changes have not influenced outcomes as much as intended. The following changes have been challenging and have had low uptake:

- *Transition planning services,* because few beneficiaries are eligible for these services and the service delivery requirements are rigid;
- *Reimbursement for SES for SMI/SED and SUD,* because of the administrative burden associated with processes intended to preserve beneficiary choice and reduce conflict of interest; and
- *Clubhouse and RSS,* because of challenges related to certification requirements, billing, and restrictions on settings where peer recovery specialists are reimbursable.

In addition, evaluation participants uniformly lamented lack of care coordination as a persistent and significant weak point in the District's behavioral health delivery system despite the Demonstration's efforts to address this issue. Evaluation data suggest that the following are core challenges:

- Overall shortage of workers, in both clinical and non-clinical roles, which is common for organizations that rely on Medicaid funding and has been exacerbated by the COVID-19 PHE;

- Limited capacity at certain points in the care continuum, such as stepdown care following an ED visit, inpatient stay, or residential stay; and
- Lack of timely and efficient collaboration between providers to communicate beneficiaries' health status and care needs as the beneficiary is transitioning along the care continuum.

Achievement of SMI/SED Goals

KEY TAKEAWAYS ON THE SMI/SED GOALS

After 2 Demonstration years, the District has achieved three of five goals. The Demonstration goals related to reduced utilization of ED, improved availability of crisis stabilization services, and improved access to community-based services have been achieved. Results are mixed for the goal related to improved care coordination. The goal of reduced preventable readmissions has not yet been achieved.

Evidence from the ITS analysis indicates that, at the time of this interim evaluation, the District has been largely successful in achieving the SMI/SED Demonstration goals.

- **Goal 1:** Reduced utilization and LOSs in hospital emergency departments (EDs) among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings.
  - The Demonstration **has achieved the goal** of reducing utilization of ED, but not of reducing LOS in the ED.
- **Goal 2:** Reduced preventable readmissions to acute care and specialty hospitals and residential settings.
  - The Demonstration **has not yet achieved the goal** of reducing preventable readmissions.
    - Instead of a decrease, the metric showed a statistically significant increase. However, SMI Monitoring Metric #4, which was used to assess the goal, was not limited to preventable readmissions.[1]
- **Goal 3:** Improved availability of crisis stabilization services, including services made available through call centers and mobile crisis units, intensive outpatient services, as

[1] SMI Monitoring Metric #4 is the rate of unplanned 30-day readmissions for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease.

well as services provided during acute short-term stays in residential crisis stabilization programs and psychiatric hospitals and residential treatment settings throughout the District.

  - The Demonstration **has achieved the goal** of improving the availability of crisis stabilization services.
  - The number of beneficiaries with SMI/SED accessing crisis stabilization services increased.

- **Goal 4:** Improved access to community-based services to address the chronic mental healthcare needs of beneficiaries with SMI or SED, including through increased integration of primary and behavioral health care.
  - The Demonstration **has achieved this goal**.
  - The number of beneficiaries with SMI/SED who used any mental health services increased.
  - The number of episodes of care where IMD providers billed for assessments or treatment of physical conditions increased.
- **Goal 5:** Improved care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities.
  - **Results related to this goal are mixed**.
  - There was no increase in the percentage of SMI/SED beneficiaries receiving a mental illness–related follow-up within 7 and 30 days after a hospitalization for mental illness or intentional self-harm.
  - The percentage of SMI/SED beneficiaries receiving a mental illness–related follow-up within 7 and 30 days after an ED visit for mental illness or intentional self-harm decreased over time after an initial increase.

Achievement of SUD Goals

KEY TAKEAWAYS ON THE SUD GOALS

At the end of 2 Demonstration years, three out of six goals are yet to be achieved. These goals are related to increased adherence to and retention in SUD treatment, reduction in readmissions, and access to care for physical health conditions. Results are mixed for the goal of increased identification of, initiation of, and engagement in

treatment for SUD and for the goal of reduced utilization of EDs and inpatient settings. The goal related to a reduction in overdose deaths could not be assessed because data were not yet available.[2]

In interpreting these results, note that SUD care utilization, which decreased due to the COVID-19 PHE, has not yet returned to pre-PHE levels.[3] Though the regression analysis attempts to control for the influence of the COVID-19 PHE on the outcomes of interest, not all of that effect may have been removed from the Demonstration's impact estimates.

At the time of this interim evaluation, two of the six SUD Demonstration goals show mixed results.

- **Goal 1:** Increased rates of identification of, initiation of, and engagement in treatment for SUD.
  - **Results related to this goal are mixed**.
  - There was an increase in the number of beneficiaries initiating SUD treatment, but not in the percentage of beneficiaries.
  - There was no increase in the number/percentage of beneficiaries receiving any SUD treatment service, facility claim, or pharmacy claim during the Demonstration period.
- **Goal 2:** Increased adherence to and retention in treatment.
  - The Demonstration **has not yet achieved this goal**.
  - There was no increase in the percentage of beneficiaries who were engaged in ongoing alcohol or other drug (AOD) treatment within 34 days of the initiation visit.
  - There was no change in the percentage of beneficiaries who had at least 180 days of continuous pharmacotherapy for OUD, while the number of beneficiaries who had at least 180 days of continuous pharmacotherapy for OUD decreased instead of increasing.

[2] Fatal opioid overdose deaths in the District tracked by DBH showed a 46% increase in 2020 after the COVID-19 PHE began compared to the year prior. The number of deaths has remained high since then.
[3] The COVID-19 PHE had a larger effect on SUD care than on SMI/SED care. Unlike SUD care utilization, mental health care utilization has returned to pre-PHE levels. The growth in telemedicine during the PHE for SUD care was also much smaller than the growth for SMI/SED care.

- **Goal 3:** Reductions in overdose deaths, particularly those due to opioids.
  - **This goal was not assessed** because data were not yet available.
- **Goal 4:** Reduced utilization of hospital emergency departments and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum-of-care services.
  - **Results related to this goal are mixed**.
  - There was no reduction in the number of SUD-related ED visits and inpatient stays.
    - However, these metrics did not assess whether the utilization was preventable or medically inappropriate but assumed SUD-related ED visits and inpatient stays are preventable.
- **Goal 5:** Fewer readmissions to the same or higher level of care (LOC) where the readmission is preventable or medically inappropriate.
  - The Demonstration **has not yet achieved the goal** of reducing readmissions.
    - There was no change in the metric.
    - However, SUD Monitoring Metric #25, which was used to assess this goal, was not limited to preventable or medically inappropriate readmissions.[4]
- **Goal 6:** Improved access to care for physical health conditions among beneficiaries with SUD.
  - The Demonstration **has not yet achieved this goal**.
  - There was a decrease in the percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period.

[4] SUD Monitoring Metric #25 is the rate of 30-day all-cause readmissions.

Cost Analysis

KEY TAKEWAYS FROM THE COST ANALYSIS

Under the Demonstration, total healthcare costs per beneficiary per month (PBPM) increased by

- $115.94 for SMI/SED beneficiaries
- $134.91 for SUD beneficiaries

This increase in total cost PBPM is not unexpected due to various actions taken during the COVID-19 PHE, in addition to the Demonstration's hypothesized increase in healthcare utilization.

The analysis of changes in costs to Medicaid indicate that total costs increased during the Demonstration period for both the SMI/SED and SUD populations. This increase was both because more Medicaid beneficiaries with SMI/SED/SUD were incurring healthcare costs in the Demonstration period and because average costs incurred increased for beneficiaries who had positive costs during the period. In response to the COVID-19 PHE, CMS increased the FMAP, and the District increased SUD provider payments. Reimbursement rates also increased for certain services (e.g., hospital-based care) due to inflation indexing. Furthermore, the Demonstration hypothesized increased utilization of SMI/SED and SUD treatment services and more integrated physical and behavioral health care. For these reasons the increase in total costs and the increases in some of the cost components are not unexpected.

Exhibit ES.1 shows the direction of change in various types of costs for beneficiaries with SMI/SED. An exploration of the cost drivers showed that SMI/SED treatment-related costs increased in the Demonstration period, but not costs that are not SMI/SED related. IMD SMI/SED costs increased, as did non-IMD SMI/SED treatment costs. The only cost that showed a reduction was ED costs. Though the reduction is small, it is a positive finding as decreased utilization of costly ED care is a Demonstration goal. Inpatient costs increased, some of which could be because of the increased IMD costs, which is an expected outcome under the Demonstration.

Exhibit ES.1. Direction of Change in Costs for Beneficiaries With SMI/SED

		Direction of change
Total costs	Total costs	↑
	Total federal costs	↑
SMI/SED cost drivers	Non-SMI/SED costs	–

		Direction of change
	SMI/SED costs	↑
	IMD SMI/SED costs	↑
	Non-IMD SMI/SED costs	↑
Type or source of care cost drivers	Non-ED outpatient costs	↑
	Outpatient ED costs	↓
	Inpatient costs	↑
	Pharmacy costs	–
	Long-term care costs	↑

ED = emergency department; IMD = institution for mental diseases; SED = serious emotional disturbance; SMI = serious mental illness.

Note. Direction is indicated by arrows for effects that are statistically significant. – indicates no statistically significant change.

Exhibit ES.2 shows the direction of cost changes for beneficiaries with SUD. Both SUD-related costs and non-SUD-related costs increased in the Demonstration period for beneficiaries with SUD. While IMD SUD costs increased, non-IMD SUD treatment costs didn't change. ED costs showed a small decrease for SUD beneficiaries also, while inpatient costs increased.

Exhibit ES.2. Direction of Change in Costs for Beneficiaries With SUD

		Direction of change
Total costs	Total costs	↑
	Total federal costs	↑
SUD cost drivers	Non-SUD costs	↑
	SUD costs	↑
	IMD SUD costs	↑
	Non-IMD SUD costs	–
Type or source of care cost drivers	Non-ED outpatient costs	↑
	Outpatient ED costs	↓
	Inpatient costs	↑
	Pharmacy costs	–
	Long-term care costs	–

ED = emergency department; IMD = institution for mental diseases; SUD = substance use disorder.

Note. Direction is indicated by arrows for effects that are statistically significant. – indicates no statistically significant change.

Summary Discussion

In fiscal year (FY) 2021, one quarter of the District's 286,000 total Medicaid beneficiaries had a behavioral health diagnosis, and an estimated 16% of all beneficiaries (or 65% of those with any

behavioral health diagnosis) had an SMI/SED or SUD diagnosis. To better serve these beneficiaries with SMI/SED and/or SUD, the District is using a multipronged strategy to move the behavioral healthcare delivery system in the District to a more patient-centered and integrated model with better access, care coordination, and quality across the continuum of SMI/SED/SUD services. The Demonstration is a major component of this effort.

There is broad support for the Demonstration strategies and services among the District's providers, provider associations, and managed care plans. Providers were aware of the Demonstration components that were applicable to them. They considered the expansion of eligibility for FFS Medicaid reimbursement to community-based independent licensed behavioral health clinicians as contributing to increased beneficiary access. However, workforce shortages (partly due to low reimbursement rates) were a continuing concern of evaluation participants. Impact analysis did not indicate a significant increase in the number of mental health and SUD providers under the Demonstration.

Evaluation participants considered the requirement that all SUD providers conduct intake, assessment, and referral processes and the changes to crisis stabilization services to be the most impactful Demonstration components. The intake, assessment, and referral requirement may have contributed to the increase in the number of beneficiaries with SUD identified and initiating treatment. In addition to increased utilization of these services, evaluation participants described other potential outcomes of this requirement, such as beneficiaries' improved experiences of care due to being able to reconnect with care via providers they were familiar and comfortable with.

Regarding crisis stabilization services, results of the claims analyses are consistent with participants' perspectives, which showed an overall increase in the utilization of these services. However, utilization of CPEP services decreased, there has been little utilization of the newly introduced residential psychiatric crisis stabilization benefit, and there was an increase in mobile crisis and outreach services under the Demonstration that was not statistically significant. Transition planning services, RSS, and SES are three main areas where providers reported facing implementation challenges, which explains the low utilization of these services. Increased connectivity and use of the Health Information Exchange (HIE) was considered a positive development under the Demonstration, though bidirectional data sharing is still not widely prevalent among evaluation participants.

The COVID-19 PHE, which started in the third month of the Demonstration, posed challenges for implementing agencies, providers, and beneficiaries. Implementing agencies and providers needed to divert resources away from Demonstration implementation to modify service delivery requirements and approaches so that beneficiaries could continue to safely access the care they

needed. These modifications were not possible for all services, and in general beneficiaries sought less care. The telehealth flexibilities granted under the PHE helped to reduce the adverse effects of the pandemic on behavioral health services delivery and utilization because they created a method of access that kept beneficiaries connected to providers.

The ITS impact estimation model assessing the achievement of Demonstration goals and changes in costs controlled for the COVID-19 PHE. However, the confounding effect of the PHE on the impact estimates may not be entirely removed. The confounding of impact estimates is considered a bigger problem for SUD goals than SMI/SED goals because SUD care was more adversely affected by the PHE than SMI/SED care in the District. While utilization rates have bounced back to pre-COVID levels for mental health care, that is not yet the case for SUD care. Furthermore, the growth in telemedicine during the PHE for SUD care was much smaller than the growth for SMI/SED care.

Analysis of claims data showed that at the interim evaluation point the District has achieved success in meeting most of the SMI/SED goals. Utilization-related goals such as access to community-based mental health services, including integrated physical healthcare and crisis stabilization services, are being achieved under the Demonstration for SMI/SED beneficiaries. However, follow-up and care coordination after hospitalization/ED visits showed mixed results. The low take-up of care coordination and transition services indicated by DHCF and DBH stakeholders and evaluation participating providers could explain the limited progress on this goal. Among health outcome–related goals, ED utilization by SMI/SED beneficiaries decreased, which is a positive development that could be attributed to increased utilization of crisis stabilization services, while readmission rates did not change.

The SUD component of the Demonstration showed less success in achieving its goals in the first 2 years of the Demonstration compared to the SMI/SED component of the Demonstration. As far as utilization-related goals are concerned, initiation of SUD treatment improved, but not adherence to or retention in SUD treatment. However, there was no significant reduction in SUD-related ED visits and inpatient admissions as well as readmissions for SUD beneficiaries.

The total costs increased for both SMI/SED beneficiaries and SUD beneficiaries in the post-Demonstration period. While the Demonstration did not have any hypotheses related to changes in costs, since the Demonstration aimed for increased utilization of SMI/SED/SUD services and increased integration of physical and behavioral health services, the cost increases are not unexpected. SMI/SED treatment costs increased for SMI/SED beneficiaries and SUD treatment costs increased for SUD beneficiaries. Non-SMI/SED costs did not increase for SMI/SED beneficiaries, while non-SUD costs increased for SUD beneficiaries. The costly ED costs

showed small reductions for both populations. The expected increase in IMD costs, which was observed for both populations, contributed to an increase in inpatient costs.

Based on interim evaluation findings, recommendations for the District's consideration follow:

1. Focus more on promoting the SUD Demonstration goals of improved identification of, adherence to, and retention in SUD treatment in the second half of the Demonstration. In future rounds of evaluation data collection, further probe access and delivery challenges associated with SUD care.
2. Explore opportunities to clarify utilization management and service delivery requirements in ways that ease provider burden and provide accurate information that providers can use to make decisions about service offerings. For services such as trauma recovery and empowerment model and crisis stabilization services, perceived certification requirements deter providers from adopting or increasing their delivery of these services.
3. Continue to build the policy, payment, and delivery system infrastructure for telemedicine.
4. Expand access to peer supports, which have wide support among providers. The District could expand the settings within which peer services may receive Medicaid reimbursements beyond providers that are certified by DBH.
5. Review care coordination services provided by MCOs to assess whether they are likely to meet the needs of beneficiaries with SUD, SMI, and SED.
6. Request an extension of the Demonstration. This would allow estimation of effects of services that have had low uptake thus far (e.g., transition planning services). More precise impact estimates that are less biased by the effects of the PHE can also be generated.

B. General Background Information

On November 6, 2019, the Centers for Medicare & Medicaid Services (CMS) approved the District of Columbia's (District's) Section 1115(a) demonstration titled Behavioral Health Transformation (Demonstration).[5]

The Demonstration has three overarching aims:

- Expand the continuum of Medicaid behavioral health services and supports in the District;
- Advance the District's goal to improve outcomes for individuals with opioid use disorder (OUD) and other SUDs; and
- Support a more person-centered, integrated, and coordinated system of physical and behavioral healthcare for Medicaid beneficiaries.

The Demonstration's STCs require the District to contract with an independent third party to evaluate the Demonstration. The District's DHCF contracted with American Institutes for Research (AIR) to conduct the independent evaluation of the Demonstration. The AIR team includes AIR and its subcontractor, L&M Policy Research, LLC.

According to the STCs, the District must submit an Interim Evaluation Report for each evaluation design, as applicable, for the completed years of the Demonstration and for each subsequent renewal or extension of the Demonstration, as outlined in 42 CFR 431.412(c)(2)(vi). The Interim Evaluation Report will discuss evaluation progress and present findings to date based on the methodology in the approved evaluation design (Attachment J). For Demonstration authority that expires prior to the overall Demonstration's expiration date, the Interim Evaluation Report must include an evaluation of the authority as approved by CMS.

This Interim Evaluation Report follows CMS's recommended structure for the Report.[6]

[5] Verma, S. (2019, November 5). [Letter to Melisa Byrd]. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/DC%20SMI-SUD_STCs%20for%201115%20Waiver%20110619.pdf

[6] Centers for Medicare & Medicaid Services. (n.d.). *1115 Demonstration State Monitoring & Evaluation Resources.* https://www.medicaid.gov/medicaid/section-1115-demonstrations/1115-demonstration-monitoring-evaluation/1115-demonstration-state-monitoring-evaluation-resources/index.html

Report Organization

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Appendices A–D include additional detail on these sections. Appendix A provides the list of SMI/SED diagnoses codes used to identify the target population for the SMI/SED evaluation metrics. Appendix B provides Demonstration goals and research questions and associated evaluation measure specifications. Appendix C provides the results of the SMI/SED Demonstration subgroup analyses, and Appendix D provides the results of the SUD Demonstration subgroup analyses.

B.1 Demonstration Context

In this section, we describe a few of the key characteristics of the District's Medicaid population and delivery system that influenced the District's decision to apply for the Demonstration and the design of the Demonstration. These key characteristics include:

- beneficiaries' SUD needs related primarily to opioid use by older African American men who are long-term heroin users,
- policy- and capacity-related barriers to access, and
- a complex delivery system characterized by multiple agencies with authority for provider oversight and payment.

Beneficiary SUD needs. In FY 2022, one-quarter of the District's 302,724 total Medicaid beneficiaries had a behavioral health diagnosis, and an estimated 16% percent of all beneficiaries (or 63% percent of those with any behavioral health diagnosis) had an SMI/SED or SUD diagnosis. Forty four percent of beneficiaries with a behavioral health diagnosis had an SMI

diagnosis only, 6% had an SUD diagnosis only, and 11% had both an SMI and an SUD diagnosis. Like most states across the country, the District experienced an increased need for SUD treatment, and OUD treatment in particular, in the years preceding the Demonstration. The number of opioid overdose deaths increased 239% between 2014 and 2017 (from 81 to 281), mirroring trends in other states. After a dip in 2018, the opioid overdose death counts increased again and reached an all-time high of 455 in 2022. Additionally, the demographic profile of OUD-related deaths in the District differs from that in some other states. Opioid-related deaths in the District were initially concentrated among older African American men who are long-term heroin users, rather than among younger White adults who first became addicted to opioids through prescription drug use.[7] Approximately 74% of all fatal opioid overdoses in the District have been among adults ages 40 to 69. Overall, 8 in 10 (84%) of all fatal opioid overdoses were among African Americans (which is consistent with the fact that 80% of all beneficiaries in the District are African American), and nearly three quarters (72%) of all individuals with a fatal opioid overdose were men. The racial characteristics of opioid users in the District suggest that culturally competent care, an important facilitator to effective behavioral health treatment, is especially important to addressing the opioid overdose crisis in the District.[8]

Addressing co-occurring SMI and SUD may also be important to addressing the opioid overdose crisis in the District. As noted above, a significant portion of the District's Medicaid beneficiaries with behavioral health diagnoses have both SMI and SUD diagnoses. In general, co-occurring SMI and SUD is associated with difficulties engaging in and adhering to treatment. In addition, older heroin users, who are prevalent in the District, tend to have co-occurring mental health co-morbidities and face issues of marginalization that impact treatment seeking and treatment retention.[9]

Barriers to access. The federal IMD exclusion limited the Medicaid supports available for individuals needing services in facilities that specialize in the treatment of psychiatric disorders and SUDs. Historically, Medicaid did not allow FFP for care provided to individuals ages 21–64 during stays in IMDs—hospitals, nursing facilities, or other institutions with more than 16 beds. Federal Medicaid managed care requirements allow capitation payments to be made on behalf of an individual who spends part of the calendar month (up to 15 days) in an IMD as part of the

[7] Department of Behavioral Health. (2021, August). *LIVE. LONG. DC. Strategic Plan 2.0: The District's plan to reduce opioid use, misuse and related deaths.* https://livelong.dc.gov/sites/default/files/dc/sites/opioid/page_content/attachments/DC_Opioid_Strategic_Plan_2.0_FINAL.pdf

[8] Substance Abuse and Mental Health Services Administration. (2014). *Tip 59: Improving cultural competence.* https://store.samhsa.gov/system/files/sma14-4849.pdf

[9] Rosen, D., Hunsaker, A., Albert, S. M., Cornelius, J. R., Reynolds, C. F., 3rd. (2011). Characteristics and consequences of heroin use among older adults in the United States: A review of the literature, treatment implications, and recommendations for further research. *Addictive Behaviors*, 36(4), 279–285. https://doi.org/10.1016/j.addbeh.2010.12.012

"in lieu of" services policy. Therefore, managed care beneficiaries ages 21–64 have had access to medically necessary treatment in IMD settings for stays less than 15 days, but not for longer term stays. FFS beneficiaries had some access to IMD services as well, via local payment. For example, prior to waiver implementation, residential treatment for SUDs and short-term, medically monitored withdrawal management (WM) services delivered in IMDs were provided with local funding through DBH. However, local funding available for these and other FFS IMD services was limited.

In addition to the access challenges beneficiaries face related to the federal IMD exclusion, research commissioned by District agencies suggests that beneficiaries also experience reduced access due to insufficient provider capacity for appropriate levels of SUD care. DHCF leveraged the complementary efforts of its SUPPORT Act Section 1003 Planning Grant to conduct stakeholder engagement to assess SUD provider capacity and need.[10] More than 150 individuals participated in the contractor-convened interviews, focus groups, steering committee meetings, and community meetings. These participants included representatives from health and social service organizations, DHCF, DBH, DC Health, advocacy and professional groups, and community businesses, as well as individuals from the community at large. The assessment showed that the District's SUD provider network is strong and well supported compared to SUD service networks in similar urban markets. Services are well-distributed throughout the District and provide a full breadth of services across the SUD service continuum. However, this does not mean that District residents with SUD are always able to access the person-centered services they need when and where they want them. The assessment identified several significant gaps across the American Society of Addiction Medicine (ASAM) levels of care and a range of service delivery challenges that limit engagement in care, hinder care coordination, interfere with care transitions, and ultimately reduce the effectiveness of the existing service network.

Many stakeholders cited gaps in the availability, variety, and quality of intensive outpatient programs and recommended expanding:

- availability of intensive outpatient services that target specific segments of the SUD population (e.g., veterans, men only, women only, women with children),
- availability of intensive outpatient services that have different requirements and philosophies (e.g., sober and nonsober living, 12 step, SMART Recovery, faith-based or secular), and

[10] JSI Research & Training. (2021, February). *Substance use disorder community health and service capacity assessment.* https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/release_content/attachments/DC%20SUD%20NA%20-%20Final%20Report%20for%20Distribution%20Feb%202021.pdf

- training and technical assistance on evidence-based best practices for delivering high-quality intensive outpatient services.

Delivery system complexity. The District's Medicaid behavioral health delivery system is complex. Nearly 90% of Medicaid beneficiaries in the District are enrolled in managed care, thus the challenges associated with managed care arrangements affect a majority of beneficiaries in the District.[11] MCOs are contractually obligated to provide low-acuity behavioral health services (e.g., counseling) to their enrolled beneficiaries as part of the capitated payments MCOs receive from DHCF. The District's three MCOs contract with both private and public sector providers to deliver these services. With the exception of IMD services, community-based higher acuity and specialized behavioral health services are carved out of MCO contracts and paid for either by Medicaid via FFS arrangements or by DBH (this payment mechanism is hereafter referred to as "local dollars"). These FFS or local funding payments are made on behalf of beneficiaries using these services regardless of the beneficiaries' FFS or managed care enrollment status. Community-based higher acuity and specialized behavioral health services are typically delivered by providers who are contracted with and certified by DBH, whether those services are reimbursed by Medicaid or local dollars. These services are defined by DBH regulations as mental health rehabilitation services (MHRS) and adult substance use and rehabilitation services (ASURS).

Another delivery system challenge is that FFS beneficiaries have been unable to take advantage of the care management services offered by MCOs. This makes it difficult to provide integrated, whole-person care to FFS beneficiaries.

These multiple overlapping delivery systems as well as differing administrative and financing roles of DHCF and DBH result in coordination challenges, confusion about entry points to care, and gaps in services. In addition, Medicaid providers and beneficiaries often lack complete information about available benefits and reimbursement requirements.

[11] Department of Health Care Finance. (n.d.). *Monthly Medicaid and alliance enrollment reports.* https://dhcf.dc.gov/node/1180991

B.2 Demonstration Overview

Demonstration and Evaluation Periods

The approval period for the District's Demonstration is January 1, 2020–December 31, 2024.[12] The STCs under which the District operates the Demonstration are effective during this same period, unless otherwise specified. The STCs authorized the following:

- FFP for Medicaid state plan services in IMD settings such as residential and inpatient treatment for individuals with SUD and SMI/SED (Expenditure Authority [EA] #1) for the Demonstration's full 5-year period,
- FFP for nonstate plan services in IMD settings furnished during a stay in an IMD for individuals with SUD and SMI/SED (EA #2) for the first 2 years of the Demonstration (January 1, 2020–December 31, 2021), and
- Expenditure and waiver authority for SMI/SED and SUD non-IMD and nonstate plan services (EA #3) for the first 2 years of the Demonstration (January 1, 2020–December 31, 2021).

The STCs also authorized expenditure and waiver authority for the removal of the $1 pharmacy copayments for beneficiaries who receive prescriptions associated with medication-assisted therapy (MAT) for the full 5-year period of the Demonstration.

While the Medicaid waiver authority was effective immediately for all Demonstration services, several of the services were implemented in a phased manner. Exhibit B.1 shows the implementation schedule of the various Demonstration services and the number of unique Medicaid beneficiaries who utilized those services as of September 8, 2022.[13]

Exhibit B.1. Phased Implementation of Waiver Services and Their Utilization

Service	Demonstration go-live date	State plan authority effective date	Number of unique Medicaid beneficiaries			
			CY2020	CY2021	CY2022 to 9/8	Total
IMD services for individuals ages 21–64	January 2020	N/A	1,759	1,842	651	3,411
Hospital	January 2020	N/A	949	630	347	1,691

[12] The District received 24-month approval for certain additional waiver authorities. Verma, S. (2019, November 5). [Letter to Melisa Byrd]. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/DC%20SMI-SUD_STCs%20for%201115%20Waiver%20110619.pdf

[13] Department of Behavioral Health & Department of Health Care Finance. (2022, October 28). *Behavioral Health Transformation Demonstration Post-Award Stakeholder Forum.* https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/Post%20Award%20Forum%20October%202022%20Demonstration%20102822.pdf

Service	Demonstration go-live date	State plan authority effective date	Number of unique Medicaid beneficiaries			
			CY2020	CY2021	CY2022 to 9/8	Total
Psychiatric	January 2020	N/A	472	426	213	970
Detox (withdrawal management)	January 2020	N/A	535	220	93	777
Adult substance use rehabilitation service (ASURS) providers	January 2020	N/A	1,083	1,330	423	2,262
Residential	January 2020	N/A	1,064	1,323	381	2,215
Detox (withdrawal management)	January 2020	N/A	133	391	80	548
Clubhouse (psychosocial rehabilitative services)	January 2020	January 2022	3	11	12	17
Recovery support services (RSS)	January 2020	January 2022	1,228	1,191	672	2,316
Independent licensed behavioral health clinicians	January 2020	January 2022	290	314	269	556
Eliminate $1 copay for MAT	January 2020	N/A	964	191	135	1,119
Supported employment–SMI (vocational)	February 2020	July 2022	412	462	224	870
Supported employment–SUD (therapeutic and vocational)	March 2020	July 2022	0	10	4	14
Trauma-targeted care (trauma recovery empowerment model [TREM] and trauma systems therapy [TST])	March 2020	January 2022	10	7	2	11
Behavioral health crisis stabilization services	June 2020	January 2020	1,572	2,846	2,251	5,193
Adult mobile crisis and behavioral health outreach	June 2020	January 2020	1,275	1,836	1,547	3,756
Youth mobile crisis	June 2020	January 2020	236	1,109	739	1,891
Comprehensive psychiatric emergency program (CPEP)	June 2020	January 2020	301	1,296	963	2,128
Psychiatric residential crisis stabilization	June 2020	January 2020	41	187	118	294
Transition planning services	October 2020	January 2020	N/A	N/A	N/A	N/A

The first State Plan Amendment (SPA) associated with the Demonstration was approved September 24, 2021.[14] It transitioned Medicaid enrollment of independent licensed behavioral health clinicians to state plan authority effective January 1, 2022. On April 26, 2022, CMS approved the second Demonstration-related SPA, which included all the community-based non-SPA Demonstration services with the exception of SES.[15] CMS granted a retroactive effective date of January 1, 2022, for these services' inclusion under state plan authority. To allow additional time to develop an approvable SPA for SES, the District requested and was granted an extension (on June 8, 2022) of the Demonstration's EA #2 and EA #3. State plan authority over SES became effective July 1, 2022.[16]

On March 21, 2022, CMS provided time-limited approval to the Managed Care Risk Mitigation COVID-19 Public Health Emergency (PHE) section 1115 demonstration application the District submitted. This allows the District to enter into or modify a risk mitigation arrangement with a Medicaid managed care plan after the applicable rating period has begun. The application was approved as an amendment under the District's Demonstration; however, it is associated with separate monitoring and evaluation requirements, so it is not discussed in this Interim Evaluation Report.[17]

The evaluation period for the Demonstration is from January 1, 2020, to December 31, 2024. The Interim Evaluation Report covers Demonstration activities between January 1, 2020, and June 30, 2022 (Demonstration year [DY] 1–2.5). The impact analysis covers claims data up to December 31, 2021, in order to assess the effectiveness of the Demonstration's first phase (January 1, 2020–December 31, 2021), as approved in the original STCs, where all services approved under the demonstration were waiver services. The implementation analysis includes implementation activities and perspectives from January 1, 2020, to June 30, 2022.

Goals and Activities of the Demonstration

The Demonstration aims to improve care for Medicaid beneficiaries with SMI, SED, and/or SUD. The primary objectives are for the District to maintain and enhance access to behavioral health treatment services and to continue delivery system improvements to provide more coordinated and comprehensive treatment for Medicaid beneficiaries with SMI, SED, and/or SUD. The

[14] Centers for Medicare & Medicaid Services. (2021, September). *State plan amendment 21-0009.* https://www.medicaid.gov/Medicaid/spa/downloads/DC-21-0009.pdf
[15] Centers for Medicare & Medicaid Services. (2022, April). *State plan amendment 21-0010.* https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/DC%2021-0010%20APPROVAL.pdf
[16] Centers for Medicare & Medicaid Services. (2022, June). *Transmittal Number 21-0011.* https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/dc/dc-behavioral-health-transformation-ca.pdf
[17] Centers for Medicare & Medicaid Services. (2022, March). *Managed Care Risk Mitigation COVID-19 PHE Section 1115 Demonstration approval.* https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/dc-behavioral-health-transformation-risk-miti-appvl-03212022.pdf

District's approach to achieving Demonstration objectives is a comprehensive strategy involving multiple payment, benefit, service redesign, and health information technology (IT) interventions that each address specific challenges the District faced prior to the Demonstration and work collectively to improve the behavioral healthcare delivery system. The Demonstration complements ongoing District efforts under the Medicaid State Plan and administration operations to enhance ASURS and MHRS and identify opportunities for system improvements. The Demonstration also complements the District's efforts to implement models of care that are focused on increasing supports for individuals outside of institutions, in home- and community-based settings (HCBS), to improve their access to SUD/SMI/SED services at varied levels of intensity, and to combat OUD and other SUDs among District residents.

During the Demonstration period, the District seeks to achieve 11 goals as approved in the STCs.[18] Exhibit B.2 lists the five SMI/SED goals and the six SUD goals.

Exhibit B.2. Goals of the Behavioral Health Transformation Demonstration

SMI/SED GOALS

1. Reduced utilization and lengths of stay in hospital EDs among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings.
2. Reduced preventable readmissions to acute care and specialty hospitals and residential settings.
3. Improved availability of crisis stabilization services, including services made available through call centers and mobile crisis units, intensive outpatient services, and services provided during acute short-term stays in residential crisis stabilization programs and psychiatric hospitals and residential treatment settings throughout the District.
4. Improved access to community-based services to address the chronic mental healthcare needs of beneficiaries with SMI or SED, including through increased integration of primary and behavioral healthcare.
5. Improved care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities.

[18] Verma, S. (2019, November 5). [Letter to Melisa Byrd]. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/DC%20SMI-SUD_STCs%20for%201115%20Waiver%20110619.pdf

SUD GOALS

1. Increased rates of identification of, initiation of, and engagement in treatment for SUD.
2. Increased adherence to and retention in treatment.
3. Reductions in overdose deaths, particularly those due to opioids.
4. Reduced utilization of hospital EDs and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum-of-care services.
5. Fewer readmissions to the same or higher LOC where the readmission is preventable or medically inappropriate.
6. Improved access to care for physical health conditions among beneficiaries with SUD.

In addition to the services listed in Exhibit B.1 that fall under the Demonstration's expenditure and waiver authorities, the Demonstration includes the following initiatives:

- Increasing entry points and access to SUD and dual SUD/mental health treatment via decentralizing the assessment and referral functions of the Assessment Referral Center (ARC);
- Implementing requirements related to evidence-based assessment tools and practices;
- Revising and clarifying reimbursement methodologies for telemedicine;
- Implementing requirements and technical assistance related to clinical care coordination;
- Implementing prescription drug monitoring program (PDMP) participation requirements alongside technical assistance for opioid-prescribing practices;
- Ensuring all residential treatment facilities provide or facilitate access to MAT for beneficiaries for whom MAT is an appropriate treatment option;
- Updating the District's ability to assess provider capacity; and
- Collaborating with stakeholders to improve health IT adoption, use, and interoperability.

Throughout all of these initiatives, the District developed, maintained, and/or enforced licensing, certification, and accreditation requirements and utilization review policies and procedures for applicable providers and services.

Population Groups Impacted by the Demonstration

The populations targeted and likely to be most impacted by the Demonstration are beneficiaries with SUD and/or SMI/SED who are in need of acute levels of care, such as short-term residential or inpatient behavioral health stabilization, and/or beneficiaries for whom crisis stabilization services are appropriate treatment alternatives to acute levels of care. Beneficiaries with OUD and other SUDs who could be stabilized and/or undergo detox with the follow-up use of MAT could also benefit from expanded access to and utilization of MAT and the increased provision of care coordination services, particularly at care transitions. These populations are often particularly vulnerable, and if the Demonstration is successfully implemented, many of the District's SUD and/or SMI/SED beneficiaries could be helped with increased support for care transitions and linkages to social support services. As opioid-overdose mortality has disproportionately impacted older African American heroin users in the District, this population may benefit from increased access to treatment.

C. Evaluation Questions and Hypotheses

This section includes driver diagrams that link the aims of the Demonstration to primary and secondary Demonstration interventions and policy changes that will drive expected outcomes.[19] The section also articulates the hypotheses behind each Demonstration goal and provides research questions that we use to test the hypotheses.

C.1. Driver Diagram

The waiver goals and initiatives in Section B.2 articulate DHCF's vision for the Demonstration. The driver diagrams (Exhibits C.1–C.5) illustrate how the goals, implementation milestones, and initiatives from the District's SUD and SMI/SED Implementation Plans work together to drive change and advance the three overarching aims of the Demonstration. The District's interventions under the waiver are presented as secondary drivers. These secondary drivers are grouped into four domains (Expand Reimbursement/Benefits, Increase Capacity, Improve Quality, and Enhance IT Infrastructure) and map to the goals of the Demonstration (summarized here as primary drivers). Exhibits C.2–C.5 break down the overall driver diagram (Exhibit C.1) to show how the interventions in each domain map to the goals of the Demonstration. For example, one of the Demonstration's key interventions—reimbursement of intensive services delivered in an IMD setting—supports the District's goal of expanding access to the full range of SUD and SMI/SED services. Similarly, within the Improve Quality domain, the District's provision of technical assistance on care coordination supports the goal of improving care transitions and behavioral and physical health coordination.

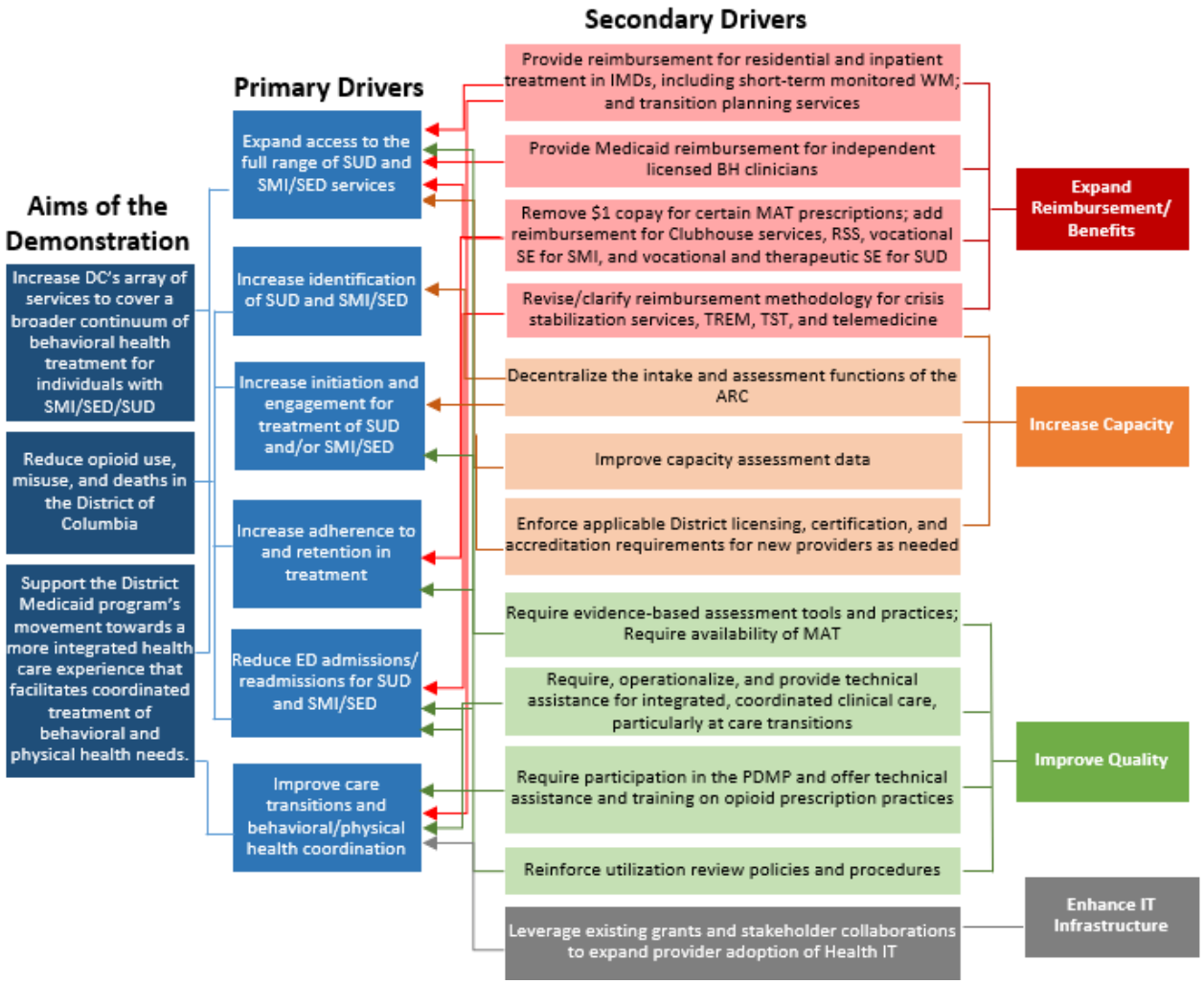
As these driver diagrams show, the District will achieve the Demonstration aims through expanded reimbursement, increased capacity, quality improvements, and enhanced IT infrastructure in SUD and SMI/SED services. The expansion of coverage for intensive inpatient and outpatient treatment, crisis care, MAT, and recovery supports will increase access to the full continuum of care, improve retention and completion of treatment, and reduce reliance on emergency departments (EDs) and avoidable hospitalizations. The Demonstration also increases provider capacity, which supports access to services, improves identification of care needs and engagement in treatment, and seeks to decrease preventable or medically inappropriate ED/hospital service use. Quality improvements such as care transition services, evidence-based assessment, care coordination, technical assistance, and utilization review will further improve

[19] A driver diagram depicts the relationship between the aim, the primary drivers that contribute directly to achieving the aim, and the secondary drivers that are necessary to achieve the primary drivers for the demonstration. Centers for Medicare & Medicaid Services. (2013, January). *Defining and using aims and drivers for improvement: A how-to guide.* https://innovation.cms.gov/files/x/hciatwoaimsdrvrs.pdf

identification of SUD and SMI/SED, increase access to treatment and adherence, and align beneficiaries' physical and behavioral healthcare. Finally, the District will use existing grants and stakeholder collaborations to expand the use of health IT among SUD and mental health providers to improve care coordination and transitions between levels of care.

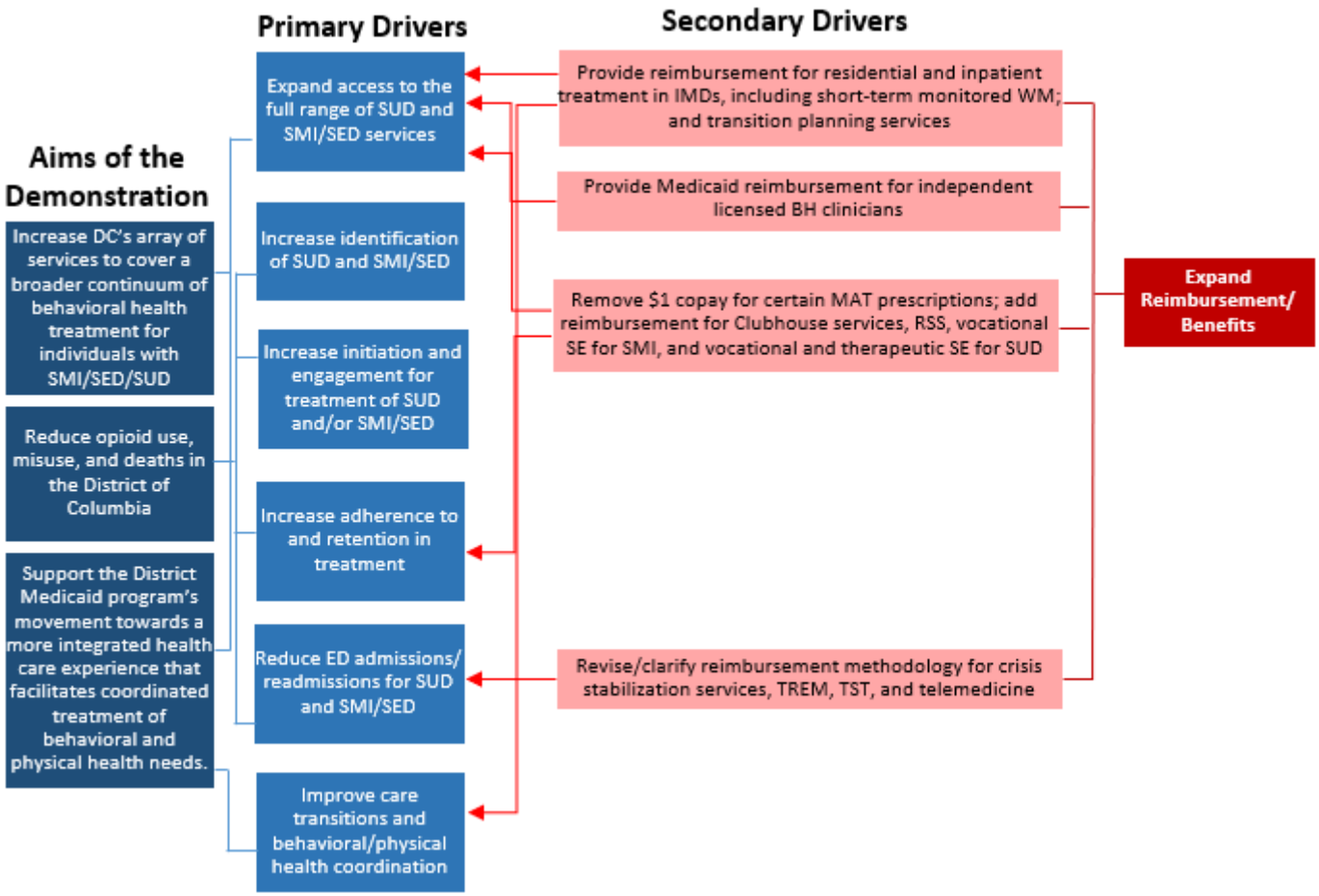
The primary and secondary drivers in Exhibits C.1–C.5 are reflected in the hypotheses and research questions (Section C.2) and the proposed evaluation measures (Appendix B).

Exhibit C.1. Behavioral Health Transformation Demonstration Driver Diagram



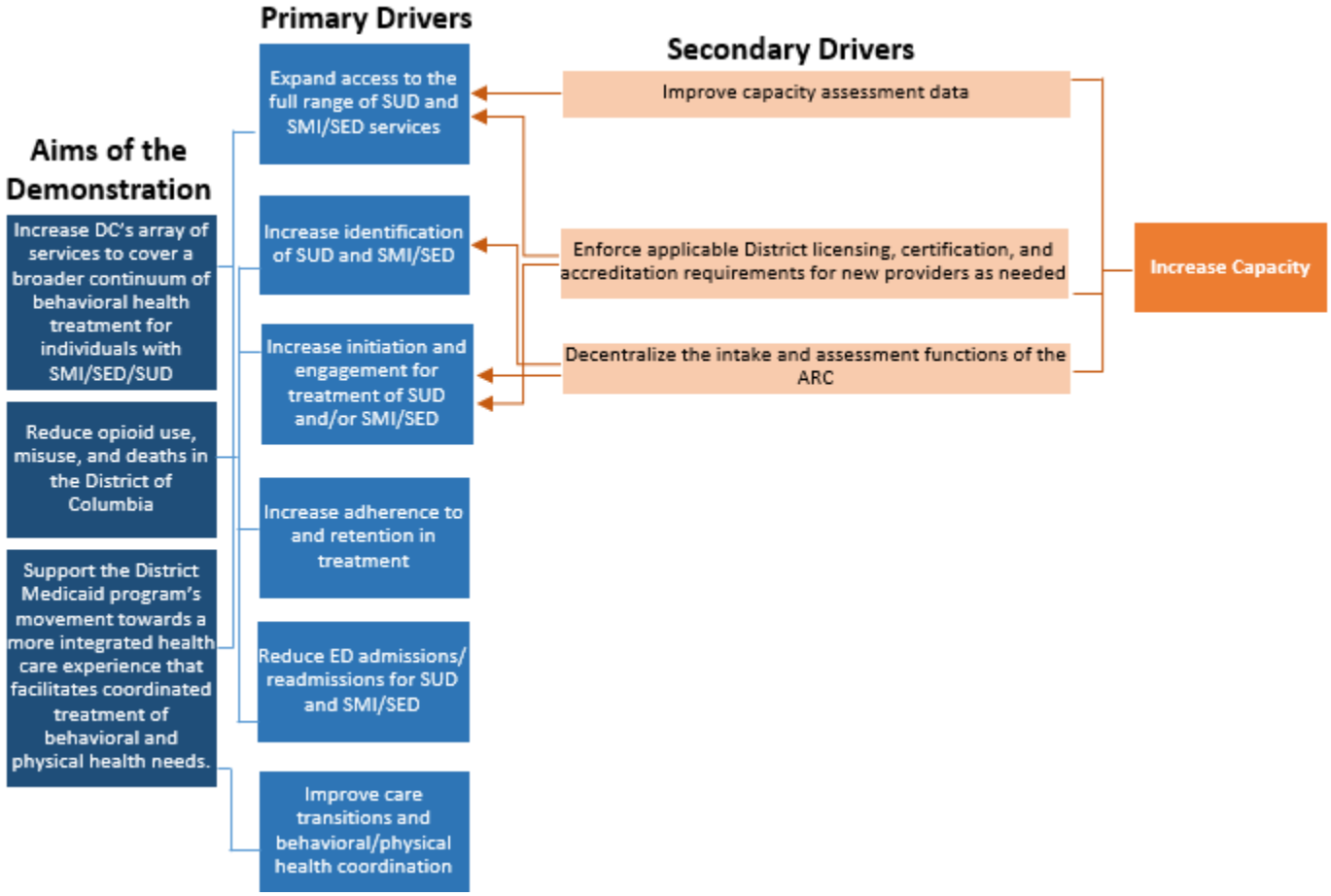
ARC = Assessment and Referral Center; BH = behavioral health; ED = emergency department; IMD = institution of mental disease; IT = information technology; MAT = medication-assisted treatment; PDMP = prescription drug monitoring program; RSS = recovery support services; SE = supported employment; SED = serious emotional disturbance; SMI = serious mental illness; SUD = substance use disorder; TREM = trauma recovery and empowerment model; TST = trauma systems therapy; WM = withdrawal management.

Exhibit C.2. Behavioral Health Transformation Demonstration Driver Diagram—*Expand Reimbursement/Benefits Domain*



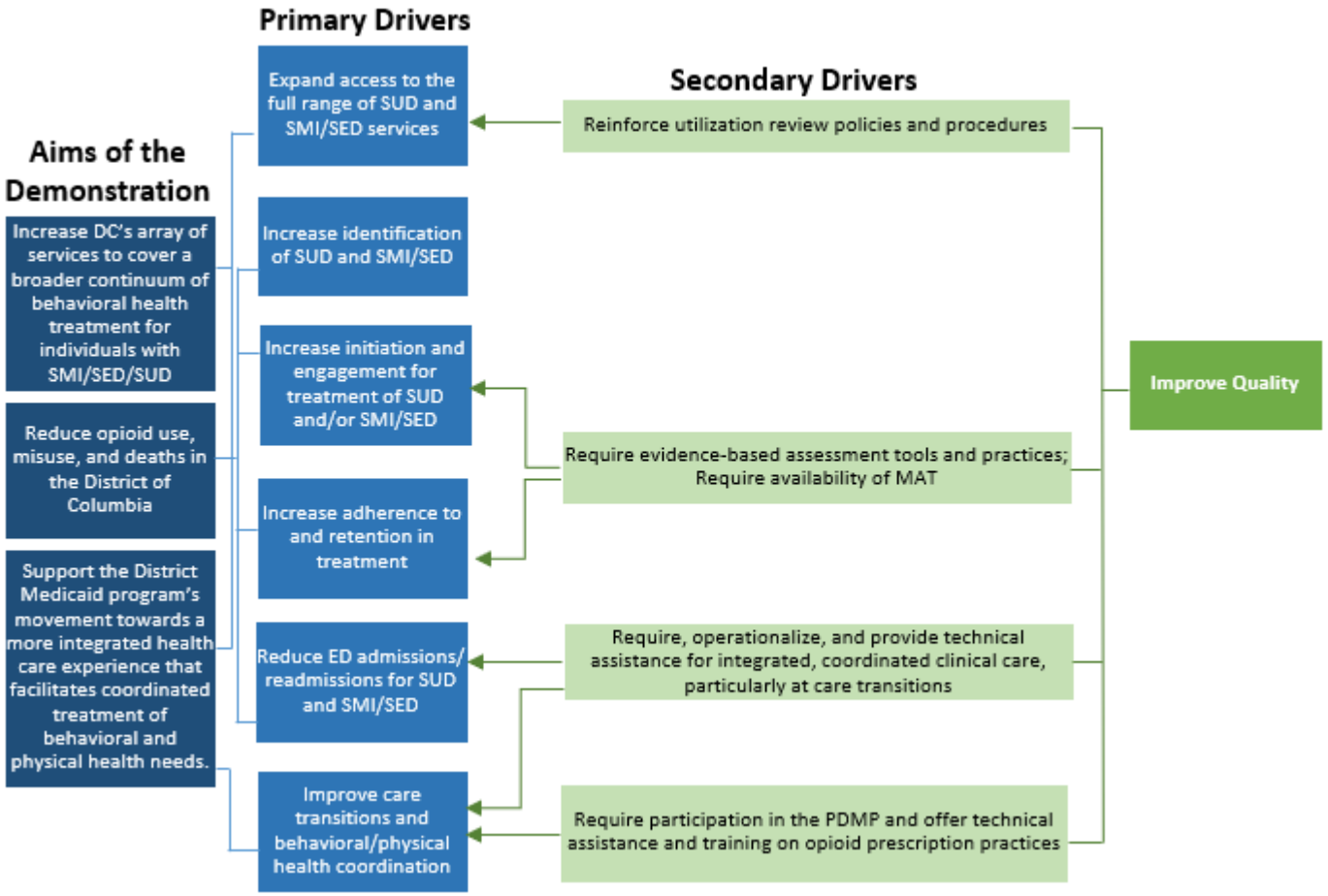
BH = behavioral health; ED = emergency department; IMD = institution of mental disease; MAT = medication-assisted treatment; RSS = recovery support services; SE = supported employment; SED = serious emotional disturbance; SMI = serious mental illness; SUD = substance use disorder; TREM = trauma recovery and empowerment model; TST = trauma systems therapy; WM = withdrawal management.

Exhibit C.3. Behavioral Health Transformation Demonstration Driver Diagram—*Increase Capacity Domain*



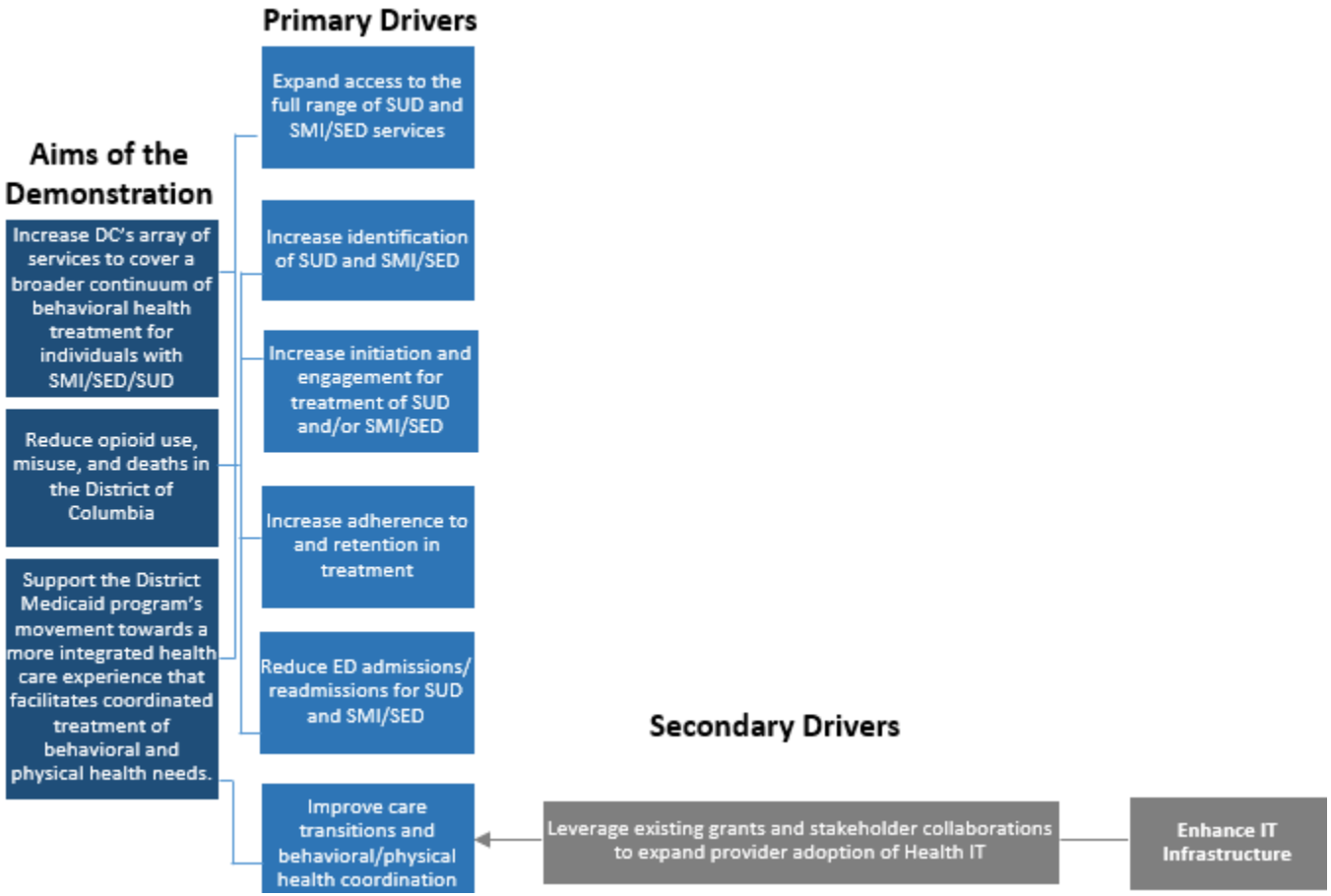
ARC = Assessment and Referral Center; ED = emergency department; SED = serious emotional disturbance; SMI = serious mental illness; SUD = substance use disorder.

Exhibit C.4. Behavioral Health Transformation Demonstration Driver Diagram—*Improve Quality Domain*



ED = emergency department; MAT = medication-assisted treatment; PDMP = prescription drug monitoring program; SED = serious emotional disturbance; SMI = serious mental illness; SUD = substance use disorder.

Exhibit C.5. Behavioral Health Transformation Demonstration Driver Diagram—*Enhance IT Infrastructure Domain*



ED = emergency department; IT = information technology; SED = serious emotional disturbance; SMI = serious mental illness; SUD = substance use disorder.

C.2. Hypotheses and Research Questions

C.2.1. SMI/SED Goal-Based Hypotheses and Research Questions

Goal 1: Reduced utilization and lengths of stay in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings.

Hypothesis 1.1. The Demonstration will decrease the utilization of ED services by beneficiaries with SMI/SED.

> **Research Question 1.1a.** Was there a decrease in ED service utilization by beneficiaries with SMI/SED?
>
> **Research Question 1.1b.** How does the Demonstration influence the ED service utilization by beneficiaries with SMI/SED (e.g., through improved access to other continuum of care services)?

Hypothesis 1.2. The Demonstration will decrease the length of stay (LOS) in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings.

> **Research Question 1.2a.** Was there a decrease in the LOS in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings?
>
> **Research Question 1.2b.** How does the Demonstration influence the LOS in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings (e.g., through improved access to other continuum of care services)?

Goal 2: Reduced preventable readmissions to acute care and specialty hospitals and residential settings.

Hypothesis 2.1. The Demonstration will reduce preventable readmissions to acute care and specialty hospitals and residential settings for beneficiaries with SMI/SED.

> **Research Question 2.1.** Was there a decrease in preventable readmissions to acute care, specialty hospitals, and residential settings for beneficiaries with SMI/SED?

Goal 3: Improved availability of crisis stabilization services, including services made available through call centers and mobile crisis units, intensive outpatient services, and services provided during acute short-term stays in residential crisis stabilization programs and psychiatric hospitals and residential treatment settings throughout the District.

Hypothesis 3.1. The Demonstration will increase the availability of crisis stabilization services.

Research Question 3.1a. Was there an increase in the availability of crisis stabilization services?

Research Question 3.1b. Was there an increase in awareness of the availability of crisis stabilization services?

Research Question 3.1c. How does the Demonstration influence the availability of crisis stabilization services (i.e., CPEP, psychiatric crisis stabilization program, youth mobile crisis intervention, and adult mobile crisis and behavioral health outreach)?

Goal 4: Improved access to community-based services to address the chronic mental healthcare needs of beneficiaries with SMI/SED including through increased integration of primary and behavioral healthcare.

Hypothesis 4.1. The Demonstration will increase access to specific community-based SMI/SED treatment services.

Research Question 4.1a. Was there an increase in access to community-based SMI/SED treatment services?

Research Question 4.1b. Was there an increase in community knowledge of available community-based SMI/SED treatment and services?

Research Question 4.1c. How does the implementation of changes to the reimbursement methodology for trauma systems therapy (TST) and trauma recovery and empowerment model (TREM) influence access to TST and TREM?

Research Question 4.1d. How does the implementation of reimbursement for independent licensed behavioral health clinicians for SMI/SED services influence access to independent licensed behavioral health clinicians?

Research Question 4.1e. How does creating separate service definitions for TREM and TST influence access to TREM and TST services?

Research Question 4.1f. How does the implementation of FFP for short-term stays for acute care in IMD settings influence access to short-term stays for acute care in IMD settings?

Hypothesis 4.2. The Demonstration will increase utilization of specific community-based SMI/SED treatment services.

Research Question 4.2a. Was there an increase in utilization of community-based SMI/SED treatment services?

Research Question 4.2b. How does the Demonstration influence utilization of TST and TREM services?

Research Question 4.2c. How does the availability of the Clubhouse influence utilization of SMI/SED treatment services?

Research Question 4.2d. How does the Demonstration influence utilization of independent licensed behavioral health clinicians by beneficiaries with SMI or SED?

Hypothesis 4.3. The Demonstration will increase integration of primary and behavioral healthcare.

Research Question 4.3a. Did beneficiaries being treated in an IMD setting receive treatment for physical health conditions experienced by beneficiaries with SMI/SED?

Research Question 4.3b. Did the Demonstration increase integration of primary and behavioral healthcare for beneficiaries with SMI/ED?

Goal 5: Improved care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities.

Hypothesis 5.1. The Demonstration will improve follow-up for beneficiaries with SMI/SED after episodes of acute care in hospitals.

Research Question 5.1a. Was there an increase in utilization of follow-up services for beneficiaries with SMI/SED after episodes of acute care in hospitals?

Research Question 5.1b. How does the implementation of the requirement that psychiatric hospitals initiate contact with the beneficiary and community-based providers within 72 hours of discharge influence care coordination?

Research Question 5.1c. How does the implementation of reimbursement for transition planning services influence care coordination?

Research Question 5.1d. How did changes in care coordination infrastructure influence experiences of care coordination for beneficiaries with SMI/SED?

Research Question 5.1e. How does the implementation of requirements for IMDs to conduct psychiatric and medical screenings influence assessment and treatment of physical health conditions for beneficiaries with SMI/SED?

Research Question 5.1f. Did care coordination improve for beneficiaries with SMI/SED?

C.2.2. SUD Goal-Based Hypotheses and Research Questions

Goal 1: Increased rates of identification of, initiation of, and engagement in treatment for SUD.

Hypothesis 1.1. The Demonstration will increase rates of identification and initiation of treatment for SUD.

Research Question 1.1. Was there an increase in the identification and initiation of treatment for beneficiaries with SUD?

Hypothesis 1.2. The Demonstration will increase access to specific SUD treatment services.

Research Question 1.2a. Did the number of providers who were enrolled in Medicaid and qualified to deliver SUD services increase during the Demonstration period?

Research Question 1.2b. How does the implementation of reimbursement for services provided in IMD settings influence access to specific SUD treatment services?

Research Question 1.2c. How does the implementation of reimbursement for withdrawal management in IMD settings influence access to these SUD treatment services?

Research Question 1.2d. How does the implementation of requirements to offer or facilitate access to all Food and Drug Administration (FDA)-approved medications for use in SUD influence access to these SUD treatment services?

Research Question 1.2e. How does the implementation of reimbursement for independent licensed behavioral health clinicians providing SUD services influence access to specific SUD treatment services?

Hypothesis 1.3. The Demonstration will increase utilization of specific SUD treatment services.

Research Question 1.3a. Was there an increase in community knowledge of available SUD treatment and services?

Research Question 1.3b. Was there an increase in the utilization of specific SUD treatment services?

Research Question 1.3c. How does the implementation of the removal of the $1 copay for certain MAT prescriptions influence utilization of SUD services?

Goal 2: Increased adherence to and retention in treatment.

Hypothesis 2.1. The Demonstration will increase adherence to and retention in SUD treatment.

Research Question 2.1a. Did the Demonstration increase adherence to SUD treatment?

Research Question 2.1b. Did the Demonstration increase retention in SUD treatment?

Research Question 2.1c. How does the implementation of the removal of the $1 copay for certain MAT prescriptions influence adherence to and retention in SUD treatment?

Research Question 2.1d. How does the availability of supported employment influence adherence to and retention in SUD treatment?

Research Question 2.1e. How does the availability of recovery support services influence initiation of, adherence to, and retention in SUD treatment?

Research Question 2.1f. How does the availability of transition planning services influence adherence to and retention in SUD treatment?

Research Question 2.1g. How does the availability of independent licensed behavioral health clinician services influence adherence to and retention in SUD treatment?

Goal 3: Reductions in overdose deaths, particularly those due to opioids.

Hypothesis 3.1. The Demonstration will reduce the rate of overdose deaths.

Research Question 3.1. Was there a decrease in the rate of overdose deaths?

Goal 4: Reduced utilization of hospital EDs and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum-of-care services.

Hypothesis 4.1. The Demonstration will reduce utilization of hospital EDs and inpatient hospital settings.

> **Research Question 4.1a.** Was there a reduction in ED or inpatient utilization for beneficiaries with SUD?
>
> **Research Question 4.1b.** How does the Demonstration influence preventable utilization of ED or inpatient care through improved access to other continuum-of-care services?
>
> **Research Question 4.1c.** How does the Demonstration influence medically inappropriate utilization of ED or inpatient care through improved access to other continuum-of-care services?

Goal 5: Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate.

Hypothesis 5.1. The Demonstration will decrease preventable or medically inappropriate readmissions to the same or higher LOC for beneficiaries with SUD.

> **Research Question 5.1.** Was there a decrease in preventable or medically inappropriate readmissions to the same or higher LOC for beneficiaries with SUD?

Goal 6: Improved access to care for physical health conditions among beneficiaries with SUD.

Hypothesis 6.1. The Demonstration will increase access to care for physical health conditions among beneficiaries with SUD.

> **Research Question 6.1a.** Was there an increase in access to care for physical health conditions among beneficiaries with SUD?
>
> **Research Question 6.1b.** Did care coordination improve for beneficiaries with SUD?
>
> **Research Question 6.1c.** How did changes in care coordination infrastructure influence experiences of care coordination for beneficiaries with SUD?
>
> **Research Question 6.1d.** How does the implementation of requirements for IMDs to conduct psychiatric and medical screenings influence assessment and treatment of physical health conditions for beneficiaries with SUD?

C.2.3. Research Questions for SMI/SED Cost Analysis

Research Question 1. Have the total costs per beneficiary per month (PBPM) for the target population of SMI/SED beneficiaries increased, decreased, or stayed the same in the Demonstration period?

Research Question 2. Have the costs related to the diagnosis and treatment of SMI/SED increased, decreased, or stayed the same during the Demonstration period?

Research Question 3. What are the sources of the treatment cost drivers for the target population of SMI/SED beneficiaries in the Demonstration period?

C.2.4. Research Questions for SUD Cost Analysis

Research Question 1. Have the total costs PBPM for the target population of SUD beneficiaries increased, decreased, or stayed the same in the Demonstration period?

Research Question 2. Have the costs related to the diagnosis and treatment of SUD increased, decreased, or stayed the same during the Demonstration period?

Research Question 3. What are the sources of the treatment cost drivers for the target population of SUD beneficiaries in the Demonstration period?

D. Methodology

This section describes the mixed-methods evaluation design methodology the AIR team implemented following the CMS-approved evaluation design included in Attachment J. The subsections below follow CMS's recommended structure for the methodology section of the Interim Evaluation Report.

- Evaluation design
- Target and comparison populations
- Evaluation period
- Evaluation measures
- Data sources
- Analytic methods

D.1. Evaluation Design

The AIR team employed a mixed-methods approach to this interim evaluation that used multiple quantitative and qualitative analyses to assess the implementation and impact of the Demonstration. A mixed-methods approach accounts for the complexity and variety of the Demonstration activities shown in the driver diagrams (Exhibit C.1–C.5). This section gives an overview of our evaluation design. Sections D.2–D.6 describe our methods in detail.

Implementation evaluation. To assess whether the Demonstration was implemented as intended, we collected Demonstration documents, such as regulations and subregulatory guidance; conducted interviews and listening sessions with representatives of the implementing agencies, MCOs, healthcare providers, and local provider associations; and administered a survey of Medicaid beneficiaries. We employed thematic coding, descriptive statistics, and triangulation to analyze these primary data sources. Based on these analyses, we identified themes related to implementation progress, successes, and challenges, including whether providers were aware of and adopting the Demonstration policy changes and believed that these changes would influence Demonstration goals. We also identified themes related to whether beneficiaries were aware of new and modified benefits available under the Demonstration.

Impact evaluation. To assess the Demonstration's effects on quantifiable measures, such as utilization of SMI/SED and SUD treatment services and health outcomes, we analyzed Medicaid claims and other administrative data. The quantitative analytic methods include visual representation of observed and adjusted data and regression-based effect estimates. We used

an interrupted time series (ITS) design, which is CMS's preferred methodology for impact analysis when there is no appropriate comparison group—as is the case with this Demonstration—for estimating effects. The unit of observation for the ITS analysis was the District for most metrics, while for a subset of metrics we conducted beneficiary-level analysis. For the cost analysis, we used a two-part model specification. We also conducted descriptive analyses of the beneficiary survey data and thematic analyses from the interviews and listening sessions to assess the perceived impacts of the Demonstration. Sections D.5.2 and D.6.2 describe the quantitative data sources and analytic methods.

Integrated mixed-methods analysis. We integrated findings from the various quantitative and qualitative analyses using methods such as sequential exploratory design (e.g., designing interview guides to explore trends in monitoring reports) and concurrent triangulation (e.g., using the results of both regression and thematic analyses to answer the same research question, as applicable) to draw conclusions.[20, 21] The mixed-methods evaluation approach provides summative insights into how successful the Demonstration is in achieving its objectives. In addition, it provides more formative insights into how and why the various components of the Demonstration work or could be improved.

D.2 Target and Comparison Populations

Target population. The target population for the impact evaluation was determined based on the Demonstration goals and corresponding evaluation metrics. For the claims-based SMI/SED metrics used to evaluate the Demonstration's effectiveness in achieving the SMI/SED goals, the target population is Medicaid beneficiaries with SMI/SED enrolled in Medicaid for any amount of time during the measurement period of the metric.[22] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI.[23] Appendix A contains the list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition of SMI. For the claims-based SUD metrics used to evaluate the Demonstration's effectiveness in achieving the SUD goals, generally,[24] the target population is all Medicaid beneficiaries enrolled in Medicaid

[20] Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods, 18*(1), 3–20. https://doi.org/10.1177/1525822X05282260

[21] Castro, F. G., Kellison, J. G., Boyd, S. J., & Kopak, A. A. (2010). Methodology for conducting integrative mixed methods research and data analyses. *Journal of Mixed Methods Research*, *4*(4), 342–360. https://doi.org/10.1177/1558689810382916

[22] One exception is the length of stay (LOS) in the ED metric where the SMI/SED target population is defined based on psychiatric codes used by the District of Columbia Hospital Association, which provided LOS data for this measure.

[23] These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications.

[24] Some exceptions include the rate of all-cause readmissions among beneficiaries with SUD and the percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period, where the target population is specific to Medicaid beneficiaries with an SUD diagnosis. These exceptions are discussed when presenting findings by measure in Section F.

for any amount of time during the measurement period of the metric. The target population for the Medicaid beneficiary survey is Medicaid beneficiaries with an SMI/SED or SUD diagnosis who are 21 years or older.

Comparison population. According to CMS's SUD Demonstration Evaluation Guidance, the ideal comparison groups are comparable states without the Demonstration waiver flexibilities or similar programs affecting the same population occurring concurrently with the Demonstration, comparison populations that are not able to receive services due to geographic or demographic limitations, or late-Demonstration participants that can act as a comparison group for early-Demonstration participants. However, such comparison groups were not available for this evaluation because all eligible beneficiaries in the District are participating in the Demonstration, their participation begins at the same time, and obtaining access to administrative claims data or performing data collection for other states was outside the scope of this project (as discussed further in Section D.6.2). Therefore, we used the ITS design as the main method for estimating the effects of the Demonstration. The ITS design compares the trend of the outcome after Demonstration implementation with the outcome trend that would have occurred if the preexisting trend had continued after implementation.

D.3 Evaluation Period

The Interim Evaluation covers the period from January 1, 2020, to June 30, 2022 (Demonstration year [DY] 1–2.5). The pre-Demonstration period serves as the baseline, and the period after the Demonstration begins is considered the post-Demonstration period for the quantitative analysis. The baseline is the 3-year period prior to the Demonstration start date of January 1, 2020 (i.e., from January 1, 2017, to December 31, 2019), for the ITS analysis. The baseline for the cost analysis is the 2-year period from January 1, 2018, to December 31, 2019.[25] The qualitative data analyzed for the Interim Evaluation Report covers Demonstration activities during the entire period of DY 1–2.5. The claims-based quantitative data analysis covers data until December 31, 2021 (DY 1–2). The regression analysis data are limited to the first two DYs to ensure that the estimates cleanly capture the effects of the Demonstration when all the originally approved Demonstration services were funded under the waiver (termed Phase I here for ease of reference). All Demonstration services except for the IMD services and the removal of the $1 MAT copay transitioned from waiver services to the state plan authority starting January 1, 2022. While this change in funding sources is not expected to result in significant changes to provider and beneficiary behavior, from an evaluation

[25] The use of a 3-year baseline for the Demonstration goals analysis and a 2-year baseline for the cost analysis are according to CMS evaluation guidance. Centers for Medicare & Medicaid Services. (n.d.). *1115 Demonstration State Monitoring & Evaluation Resources.* https://www.medicaid.gov/medicaid/section-1115-demonstrations/1115-demonstration-monitoring-evaluation/1115-demonstration-state-monitoring-evaluation-resources/index.html

standpoint it is useful to get a separate estimate of the effects of the Demonstration when all the SMI/SED/SUD services were in effect.[26] Furthermore, starting in January 2022, DHCF began the soft launch of a new prior authorization process for all SUD residential services' claim submissions, which introduced providers to the new process but did not have a direct impact on payment. Until the hard launch, the date of which is to be determined, the new process does not directly affect Medicaid payment. However, claims submission delays by some SUD residential treatment providers while navigating the new process reduced measurable Medicaid utilization for FY 2022. Excluding data from calendar year (CY) 2022 in the interim evaluation is also useful for this reason as it could otherwise result in an underestimation of the Demonstration effects on outcomes related to SUD treatment utilization.

D.4 Evaluation Measures

CMS suggests the use of nationally recognized sources and national measures sets, where possible, to assess the impact of 1115(a) waivers.[27] Therefore, we used five SMI/SED monitoring metrics and nine SUD monitoring metrics that DHCF regularly reports to CMS under the Demonstration (Exhibit D.1) to answer evaluation research questions. These measures are drawn from the Healthcare Effectiveness Data and Information Set (HEDIS), Medicaid Core Set, or other standardized measure sets.

Exhibit D.1. SMI/SED and SUD Monitoring Metrics Used for the Evaluation

SMI/SED MONITORING METRICS

1. Metric #4: 30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (IPF)
2. Metric #8: Follow-Up After Hospitalization for Mental Illness: Age 18 and Older (FUH-AD)
3. Metric #10: Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD)
4. Metric #16: Mental Health Services Utilization—ED
5. Metric #18: Mental Health Services Utilization—Any Services

SUD MONITORING METRICS

1. Metric #2: Medicaid Beneficiaries With Newly Initiated SUD Treatment/Diagnosis
2. Metric #6: Any SUD Treatment

[26] On the other hand, the Summative Evaluation Report will estimate the combined effect of the Demonstration including both Phase I, when all the services were waiver funded, and Phase II, when only the IMD services and the $1 MAT copay removal were waiver funded.

[27] The use of nationally recognized measures to the extent possible meant that for some of the Demonstration goals the measures used to assess goal achievement are not perfectly aligned with the goals to be assessed.

3. Metric #13: SUD Provider Availability
4. Metric #15: Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)
5. Metric #22: Continuity of Pharmacotherapy for Opioid Use Disorder
6. Metric #23: Emergency Department Utilization for SUD per 1,000 Medicaid Beneficiaries
7. Metric #24: Inpatient Stays for SUD per 1,000 Medicaid Beneficiaries
8. Metric #25: Readmissions Among Beneficiaries With SUD
9. Metric #32: Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries With SUD

We also created four de novo quantitative measures that address specific dimensions of the Demonstration that are not captured in the monitoring metrics or established measures: ED LOS, assessment of physical health during IMD stay, crisis stabilization services, and number of mental health providers. There are also several quantitative questions from the beneficiary survey that cover beneficiary needs and experience with mental healthcare.

In Appendix B, Exhibit B.1 (SMI/SED goals) and Exhibit B.2 (SUD goals) describe these measures and the qualitative research domains, along with the data sources and analytic methods that we used to evaluate changes in access to SMI/SED and SUD services and patient outcomes associated with the Demonstration. These exhibits align the goals, hypotheses, research questions, and proposed measures/research domains. The measure names, descriptions, numerators, and denominators/populations of interest are drawn from CMS's specifications for monitoring metrics where available. In addition to the measures in Appendix Exhibits B.1 and B.2 that we used to assess the Demonstration research questions, we used cost measures listed in Exhibit D.2 under the cost analysis.

D.5. Data Sources

For the interim evaluation, the AIR team used a combination of primary and secondary data sources. Primary data collected for the evaluation by the AIR team included interviews of providers, provider associations, and Medicaid managed care plans as well as DHCF and DBH officials and a Medicaid beneficiary survey. The secondary data the AIR team analyzed included Medicaid claims and encounter data and other administrative data as well as external data from the DC Hospital Association (DCHA). The AIR team also conducted program document review to assess implementation plans and progress.

D.5.1. Primary Data

Document Reviews

The AIR Team reviewed six types of key documents to assess systems changes that were occurring under the Demonstration and the overlapping initiatives that may complicate or provide synergy to the Demonstration activities:

- Briefing materials about the Demonstration,
- District policy (e.g., rules, legislation),
- Demonstration monitoring reports,
- Provider guidance documents (e.g., bulletins),
- DHCF's and DBH's self-assessment of progress toward Demonstration milestones, and
- Materials that describe relevant co-occurring initiatives (e.g., grant narratives, reports).

Key Informant Interviews With Implementation Staff

Between January 2021 and January 2023, AIR conducted 17 key informant interviews (KIIs) with the core Demonstration implementation teams at DHCF and DBH; one with DC Health, the agency that administers the District's PDMP; and two with CRISP, the District's designated HIE entity. These interviews supplemented the information gathered in the document reviews regarding implementation progress, including changes or delays to implementation, and provided information about barriers and facilitators to implementation, including lessons learned.

Stakeholder Interviews and Listening Sessions

AIR solicited feedback on the Demonstration from providers, provider associations, and Medicaid managed care plans in the District. At two time points, March–April 2021 and November 2022, we conducted the following:

- Five interviews and five listening sessions representing 23 provider organizations,
- Two interviews representing two District behavioral health and primary care provider associations, and
- Two interviews representing two Medicaid managed care plans.

The goals of the interviews and listening sessions were to assess:

- stakeholders' awareness of changes made under the Demonstration,
- whether and how these changes have influenced how providers deliver care, and
- perceptions of the Demonstration's impact on the 11 SMI/SED and SUD goals.

We also solicited information on stakeholders' recommendations for how the District might overcome any Demonstration challenges.

Beneficiary Survey

Between February 12, 2021, and April 30, 2021, AIR conducted a survey of Medicaid beneficiaries with an SMI/SED or SUD diagnosis who were 21 years or older. The survey explored beneficiaries' awareness of and experiences with new or expanded services available under the Demonstration—particularly utilization of services undetectable in claims data at baseline (e.g., new care transition and crisis stabilization services) and barriers to accessing behavioral health services from the perspective of beneficiaries. The survey included questions on six major topics:

- Awareness of, access to, and barriers to services;
- Care coordination and integration;
- Adherence to, and retention in, treatment;
- Perceptions of care;
- COVID-19–related changes to health and healthcare; and
- Perceived health status.

The AIR team selected a stratified random sample of 2,158 Medicaid beneficiaries for survey participation. The sample contained proportions of beneficiaries with SMI/SED only, SUD only, and both SMI/SED and SUD (three strata) that reflected the proportions of sample frame Medicaid beneficiaries with SMI/SED only, SUD only, and both SMI/SED and SUD. Beneficiaries could complete the survey via phone or web. A subset of beneficiaries whose preferred language was Spanish or Amharic also received the option to complete a mailed survey questionnaire.

Survey responses were received from 358 beneficiaries for a survey response rate of 17% (the response rate is 27% when the denominator is limited to the "contacted sample").[28] The interviewer-administered phone survey option accounted for 94% (337) of responses received. Of the survey respondents, 242 (68%) were African American, 32 (9%) were American Indian or Alaska Native, 24 (6%) were White, and 16 (5%) were of Hispanic origin. Two hundred twenty-seven (62%) respondents were women. Fifty-one (15%) respondents were 65 or older.[29]

[28] Contacted sample is defined as the full sample minus the number of cases with disposition of "no contact with a live person at any point."

[29] Percentages are weighted. We weighted the survey responses to account for differential selection probabilities and unit nonresponse.

D.5.2 Secondary Data

The AIR team independently calculated evaluation measures using Medicaid FFS claims and Medicaid managed care program (Medicaid MCO) encounter data as well as other administrative data such as lists of Medicaid providers certified to provide Demonstration-relevant services. The Medicaid claims and encounter data, along with Medicaid beneficiary enrollment data and other DHCF data, come from the District's Medicaid Management Information System (MMIS) accessed through the Medicaid Data Warehouse. Additional administrative data needed for the evaluation were extracted from data sources such as the provider directories of DBH.

The DC MCO encounter data on claims paid by managed care plans have a similar level of quality and completeness as the FFS claims data. The MCO encounter claims include information on the actual payments to providers. No further imputation of costs is necessary, and the MCO encounter data can be used in the same fashion as the FFS claims data for the cost analysis.

A limitation of the secondary data sources is that DHCF may not have complete crossover claims data on dual-eligibles (particularly for those in Medicare Advantage plans), and thus analyses on the dual subpopulation might not capture all of their utilization and the full effect of the Demonstration.

Because Medicaid claims data do not include information on the length of visits in EDs, the data used for this metric were provided by DCHA. The universe consists of all ED visits that had DC Medicaid as either primary or secondary payer in the District's acute care hospitals that participated in the claims data sharing program with DCHA. The length of ED stay is calculated separately for those with SUD and SMI/SED diagnoses.

D.6. Analytic Methods

D.6.1 Qualitative Data Analysis

To analyze the interview and listening session data, we began by developing a code list to capture key concepts related to the Demonstration goals, evaluation driver diagram and research questions, and data collection protocols. Evaluation team members coded a small number of data sources to test this code list and refined the code list based on this test. For example, team members read the data and consulted the start list of codes to determine if the text response fits within the existing code list. If it did, then it was assigned to the relevant code. If it did not, the coder would create a new "emergent code" to capture the content of the text. After all team members coded the test data sources, we held a series of team meetings to discuss how well the start list of codes captured the intended information and potential new

codes to add. We refined the codebook based on these team meetings. Once we reached consensus on the code list, we systematically applied this refined code list to all of the interview and listening sessions using Dedoose software. We conducted quality assurance checks throughout the coding process to ensure consistent, accurate, and complete coding across team members.

To analyze the Demonstration documents, we developed analytic memos that described the key information included in each document. Examples of information we captured in these analytic memos include:

- the effective date of new or modified policies,
- how the changes were implemented (e.g., through regulation, subregulatory guidance, or technical assistance),
- features of Demonstration services,
- beneficiary eligibility requirements associated with Demonstration services, and
- providers eligible to deliver Demonstration services and any applicable certification requirements.

After completing the analysis and memo process, we identified themes within and across data sources using several techniques. For example, we identified and summarized frequent codes, explored patterns in coding such as codes that were more common by provider type, and developed analytic memos integrating document summaries with interview and listening session themes. We also identified novel findings that could be informative, such as successes and challenges that are unique to particular services or provider types.

D.6.2 Quantitative Data Analysis

The quantitative analysis had five components: (1) We descriptively analyzed the Medicaid beneficiary survey questions and presented the results in a graphic format. To estimate the effectiveness of the Demonstration on outcome measures that are claims based or based on other data administrative data sources, we deployed multiple regression models. (2) We evaluated changes in all administrative data-based (e.g., claims-based) evaluation metrics pre- and post-Demonstration at the District level using an interrupted time series (ITS) design. (3) For a subset of the evaluation metrics, we created individual-level datasets and estimated the impact of the Demonstration using count and logistic regression models. (4) We conducted subgroup analyses for various beneficiary characteristics using the same ITS methodology as the main District-level analysis. (5) For the cost analysis, we implemented the ITS model with a two-part model specification.

Survey Data Analysis

The AIR team drew a stratified random sample of 1,377 (64%) SMI/SED-only beneficiaries, 330 (15%) SUD-only beneficiaries, and 451 (21%) SMI/SED and SUD beneficiaries, for a total of 2,158 Medicaid beneficiaries. This sample reflected the proportions of a sample frame of the District's Medicaid beneficiaries who were 21 or older with SMI/SED only, SUD only, and SMI/SED and SUD. We received survey responses from 358 beneficiaries. We weighted the survey responses to account for differential selection probabilities and unit nonresponse.[30,31] The weighted survey responses were produced using probability weights, or the inverse of the probability that each respondent was selected from the sampling frame, to make the results representative of the District's adult Medicaid beneficiaries with SMI/SED and/or SUD. We tabulated the survey responses and produced bar charts to visually represent the results. We report unweighted frequencies and weighted percentages in this report.

Impact Analysis—District-Level Analysis Using an ITS Design

The main impact analysis used an ITS design, which is a robust research design when a quasi-experimental approach requiring a comparison group is not feasible.[32,33,34,35] A comparison group was not feasible because all eligible Medicaid beneficiaries in the District are considered to be participating in the Demonstration, their participation begins at the same time, and obtaining access to claims and administrative data for other states was out of scope for this project. The ITS design is particularly suitable for interventions introduced at the population level that have a clearly defined time period and targeted health outcomes.

The ITS design compares the trend of each outcome of interest after Demonstration implementation with the outcome trend that would have occurred if the pre-Demonstration trend had continued after implementation. The difference between an ITS and a pre-post design is that the ITS design compares the actual outcome trend in the post period to the baseline outcome trend projected into the post period. Alternatively, the pre-post design compares the mean of the outcome in the post period to the mean of the outcome in the baseline period. As a

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[30] Lavallée, P., & Beaumont, J.-F. (2015). Why we should put some weight on weights. *Survey Insights: Methods From the Field,* https://surveyinsights.org/?p=6255

[31] We assumed that nonresponse was not selective in terms of beneficiary characteristics and weighting by the response rate within strata was sufficient.

[32] Soumerai, S. B., Starr, D., & Majumdar, S. R. (2015). How do you know which health care effectiveness research you can trust? A guide to study design for the perplexed. *Preventing Chronic Disease*, *12,* Article E101.

[33] Wagner, A. K., Soumerai, S. B., Zhang, F., & Ross-Degnan, D. (2002). Segmented regression analysis of interrupted time series studies in medication use research. *Journal of Clinical Pharmacy and Therapeutics*, *27*(4), 299–309.

[34] Bernal, J. L., Cummins, S., & Gasparrini, A. (2017). Interrupted time series regression for the evaluation of public health interventions: A tutorial. *International Journal of Epidemiology*, *46*(1), 348–355.

[35] Ewusie, J. E., Soobiah, C., Blondal, E., Beyene, J., Thabane, L., & Hamid, J. S. (2020). Methods, applications and challenges in the analysis of interrupted time series data: A scoping review. *Journal of Multidisciplinary Healthcare*, *13*, 411–423. https://doi.org/10.2147/JMDH.S241085

result, the ITS design will provide a more accurate estimate than the pre-post design if there was a trend in the outcome of interest in the baseline period and if that trend would have continued in the post-Demonstration period in the absence of the Demonstration.

The disadvantage of both the pre-post and ITS designs is that programs or events occurring at the same time as the Demonstration could confound the impact estimates they produce.

While the ITS design is relatively unaffected by changes that happen slowly (e.g., change in the population age distribution) and could be accounted for by the long-term trend variable included in the regression, that is not the case with changes that happen more rapidly. If there are District-level factors that change quickly or unpredictably during the sample period, they should be included in the model as covariates. The prime example would be characteristics from other programs happening concurrently with the Demonstration. There are several concurrent programs targeting a similar population and similar outcomes as the Demonstration (e.g., LIVE.LONG.DC). Exhibit H.2 lists the programs outside of the Demonstration that coincide with the Demonstration as well as the start and end dates of these programs. However, we did not control for these concurrent programs given the relatively short Demonstration period and the small sample size.[36] Therefore, the ITS design estimates the combined impact of the services of the Demonstration as well as that of concurrent programs. However, the continuous time variable included in the ITS could capture some of the effects of the concurrent programs that started before the Demonstration.

Another contemporaneous event that could potentially confound the impact estimate is the COVID-19 pandemic, the onset of which coincided with the beginning of the Demonstration. The pandemic affected both the demand and supply of behavioral health services in the District. On the demand side, District residents reported increased mental health problems.[37] Notable declines were observed in in-person service utilization and ED visits, whereas behavioral health diagnoses and telehealth service utilization increased. There was also a decline in the availability of services—for instance, the supply of psychiatric beds decreased due to COVID-19 quarantine and distancing requirements. [38] Considering the potential effects

[36] With an ITS design, estimating the level and slope parameters requires a minimum number of observations (usually at least eight; see table note below for citation) before and after the intervention to have sufficient statistical power to estimate the regression coefficients. This interim evaluation meets that requirement. However, there aren't many data points (degrees of freedom) to add several more control variables.

[37] The Household Pulse Survey data from the District indicate that 50% of respondents reported symptoms of an anxiety or depressive disorder in 2020 compared to 31% at the end of 2022. National Center for Health Statistics. U.S. Census Bureau, Household Pulse Survey, 2020–2023. Anxiety and Depression. Generated interactively: from https://www.cdc.gov/nchs/covid19/pulse/mental-health.htm

[38] Georgetown University Center for Global Health Science and Security. (2023). *COVID-19 & behavioral health in the District of Columbia.* https://dcauditor.wpenginepowered.com/wp-content/uploads/2023/04/COVID19.Behavioral.Health.D.C.4.20.23.Web_.pdf

of the COVID-19 pandemic on the evaluation, the ITS design may be a more flexible approach compared to most standard methods that would require stricter structural assumptions about the data as well as a comparison group. Furthermore, we explicitly control for the potential effects of the COVID-19 PHE using the number of COVID-19 deaths in a month or quarter depending on the particular unit of analysis. Consistent data on COVID-19 deaths were available throughout the time period of analysis covered by this report. Hence, this variable was used as a control to capture changes in the severity of the disease, proxying for the effects of the pandemic on behavioral health service utilization, over the time period of analysis.[39] Given the policy context, where there are only 2 months without COVID-19 PHE in the Demonstration period and no months with COVID-19 PHE in the pre-Demonstration period, the use of this control variable may not be enough to fully isolate the effect of the Demonstration by removing the confounding effect of the pandemic. (See Section E for a detailed discussion of this methodological limitation.)

The unit of analysis for the primary specification of the claims-based impact analysis implemented using the ITS design is District-time. Estimating the model at the District level allows us to obtain the impact of the Demonstration and concurrent programs on outcomes for the entire District. The estimates from this model are also more directly interpretable from a policy perspective as they give a single effect estimate at the District level and don't require extrapolating estimates from a more granular level, such as the beneficiary level, to get the big picture.

The time component of the unit of observation is metric specific. For monitoring metrics that are valid at the monthly level (e.g., the number of beneficiaries in the demonstration with SMI/SED who used any services related to mental health during the measurement period), the unit of analysis is District-month. For the annual monitoring metrics, where feasible, the unit of analysis is District-quarter (e.g., the number of beneficiaries who have at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days). If the metrics can be meaningfully defined only on an annual basis, we did not conduct an ITS analysis and just presented their trend figures (one metric, SUD Monitoring Metric 13: the number of providers who were enrolled in Medicaid and qualified to deliver SUD services during the measurement period).

We tested and included in the main model control variables to account for seasonality in the receipt of behavioral health services. To capture seasonality, we included indicator variables for

[39] In this report, due to a small number of observations in the District-level regressions (N = 60 for monthly level regressions and N = 20 for quarterly level regressions) it was not desirable to include multiple control variables capturing different dimensions of the pandemic, as doing so could affect statistical power of the regression model. Hence, the COVID-19 deaths variable was included as a single summary measure to control for the effects of the pandemic.

quarters.[40] Controlling for seasonality is important because the literature documents seasonal patterns in mental health disorders (including seasonal affective disorder, symptoms of major depressive disorder, mood disorders, and hospital admissions for mania and depression) as well as in alcohol and other substance use.[41,42]

While the waiver authority was effective immediately, not all the services under the Demonstration were implemented immediately. Exhibit B.2 shows the phased implementation of Demonstration services. This variation in program implementation in the Demonstration could mean lags in the effectiveness of the Demonstration. The particular specification of the ITS we implemented addresses this by including level and slope variables; the former captures the immediate effect of the Demonstration, while the latter captures the effects over time.

We implemented the ITS design using an ordinary least squares (OLS) regression model. The District-time level ITS model is specified as follows:

Equation 1: $$Y_t = \alpha + \beta_1 time_t + \beta_2 demo_t + \beta_3 time \times demo_t + X_t + \varepsilon_t$$

Where:

- Y_t is the outcome in month *t.* An example of the outcome could be the number of beneficiaries in the Demonstration with SMI/SED who used any services related to mental health during month *t.*[43]
- $time_t$ is a count variable that starts with the first quarter of 2017 and ends with the fourth quarter of 2021 using a base quarter of 2019 Q4.
- $demo_t$ is an indicator variable taking the value of 0 in the baseline period (January 1, 2017–December 31, 2019) and 1 in the post period (January 1, 2020–December 31, 2021).
- X_t represents District-level characteristics that change over time. X_t includes indicators for seasonality (indicators for the second, third, and fourth quarter of a year), and the number of COVID-19 deaths in each quarter.
- α is the constant term.

[40] The variables indicated whether a data point was from the second, third, or fourth quarter of a year using quarter 1 as the base.
[41] Kovalenko, P. A., Hoven, C. W., Wicks, J., Moore, R. E., Mandell, D. J., & Liu, H. (2000). Seasonal variations in internalizing, externalizing, and substance use disorders in youth. *Psychiatry Research, 94*(2), 103–119.
[42] Danilenko, K. V., Putilov, A. A., Russkikh, G. S., Duffy, L. K., & Ebbesson, S. O. (1994). Diurnal and seasonal variations of melatonin and serotonin in women with seasonal affective disorder. Arctic *Medical Research, 53*(3), 137–145.
[43] Some of the outcome metrics are at the quarter level, and for those metrics *t* denotes a quarter rather than a month. The outcome metrics that are specified in quarterly units are annual monitoring metrics.

- β_1 estimates the baseline trend. It is the change in the outcome in the baseline period or the slope of the trend in the baseline period. An extrapolation of this baseline period trend into the post-Demonstration period, controlling for changes in X_t, provides the counterfactual trend.
- β_2 estimates the change in level of the outcome from the baseline period to the post period or the change in the intercept after the post-Demonstration period started. This is one of the policy parameters of interest. It captures the immediate effect of the Demonstration.[44]
- β_3 estimates the rate of change in the post-Demonstration period outcome trend. It is the slope of the trend in the post-Demonstration period minus the slope of the trend in the pre-Demonstration period. This is one of the policy parameters of interest. It captures the additional effects over time of the Demonstration and measures the rate of change in a quarter. The variable $time_t$ assumes that the slope is linear and the change in slope remains the same from quarter to quarter.[45]
- ε_t is the error term.

The above specification with X_t, or District-level characteristics that change over time, is the main ITS model. We conducted robustness checks by implementing ITS specification without including X_t. The results from the former specification are reported in the body of the report, and the results from the robustness check are reported in Appendices B (SMI/SED goals) and C (SUD goals).

Impact Analysis—Beneficiary-Level Analysis using Count and Logistic Regression Models

The District time-level analysis using an ITS design is our primary model. However, there is supplementary knowledge to be gained from beneficiary-level analysis, which can describe how individual behavior changed in terms of the frequency of treatment. The District-level analyses assess the difference in overall rates of outcomes in various components of healthcare provision that could be affected by the Demonstration. A question of further interest is the extent to which beneficiaries utilized these services, which we explore in individual beneficiary-level analyses.

The individual beneficiary-level analyses are useful robustness checks of the District-level analyses because they have more observations, which results in more accurate estimates, and

[44] Given that the effective date of the District's implementation of the Medicaid reimbursement for residential and inpatient treatment services in IMDs in the first Demonstration rule was November 19, 2019, it is possible that the effects of the Demonstration started before January 1, 2020 (the start date of the post-Demonstration period). Therefore, the possibility that the immediate effect of the Demonstration, captured by the level changes, happens by the first month or quarter of the Demonstration (i.e., the existence of potential "anticipation effects") is not unreasonable.

[45] For both the monthly and quarterly metrics, the slope is measured as a quarterly change as *time* is a quarterly indicator.

can control for individual beneficiary-level differences. The use of individual-level control variables reduces potential biases in the District-level estimates that are driven by individual-level characteristics such as demographics. The individual beneficiary level control variables include age categories, female, dual eligible status, race categories, MCO vs FFS coverage, DC ward (geographic variable), monthly COVID-19 deaths in the District, and co-occurring physical condition status.

As a supplement to the District-level analysis, the individual-level analysis focused on measures of utilization that were particularly targeted by the Demonstration: monthly number of SMI/SED mental health services claims (adapted from SMI/SED Monitoring Metric #18), monthly number of SUD treatment claims (adapted from SUD Monitoring Metric #6), and the continuity of pharmacotherapy for opioid use disorder (adapted from SUD Monitoring Metric #22).

Maximum-Likelihood based count models are the most appropriate category of models for analyzing outcomes such as number of healthcare visits, because the outcome is always a whole number, limited in range, and unequally distributed with higher frequencies of lower numbers. For example, the number of monthly visits by an individual to a mental health provider cannot include a fraction of a visit, is limited in the number of times a person can feasibly visit a provider in a month, and is highly likely to be zero in a month with most positive values being relatively small.

For the individual-level analyses, we use an approach similar to the individual-month-level cost analysis, with the same control variables and coefficients of interest as described in Equation 2 (page 61). The difference is that instead of using two-part models that are suitable for modelling continuous variables such as cost with a high proportion of zeroes, we use count models.

For the count models, we compare the model fit of several distributions: Poisson, Negative Binomial with dispersion as a function of the mean, and Negative Binomial with dispersion as a function of the constant.[46] After choosing the best fit for the model based on Akaike information criterion and the Bayesian information criterion, we visually confirm the model's goodness of fit by plotting the distribution of the actual vs. the predicted values. The Negative Binomial with dispersion as a function of the constant was chosen for both the monthly number of SMI/SED mental health services claims and the monthly number of SUD treatment claims.

We calculate the marginal effects of the Demonstration using the Stata "margins, dydx" command. In the same vein as the cost analysis that follows, the *post2020* variable of Equation 2 affects the outcome both directly (through β2 immediately) and indirectly (through β3 over time). The marginal effect approach combines the main and interaction effects of *post2020* to

[46] These beneficiary-level analyses are supplementary robustness checks to the District-level analyses, so we chose to test the three models that we predicted would be most likely to provide information in our context. Other count models can include zero-inflated Poisson, zero-inflated negative binomial, and hurdle models.

estimate the total effect of the Demonstration. Consequently, the results can be interpreted as the change in the monthly number of mental health/SUD treatment services associated with the Demonstration during the Demonstration period.

The third outcome that we perform individual-level analysis on is the continuity of pharmacotherapy for opioid use disorder. This measure is a zero/one indicator for whether the individual has at least 180 days of continuous pharmacotherapy with an OUD medication without a gap of more than 7 days. Since the measure is an individual-level indicator variable, we used a logistic regression model on Equation 2. We then use the same marginal effect analysis on the logistic regression. The results of this analysis serve as a robustness check on whether the district-level analysis could be biased by changes in beneficiary-level characteristics.

Subgroup Analysis

To evaluate whether the Demonstration is associated with differential effects for beneficiaries with various characteristics, we defined each measure for various subpopulations and separately estimated the impact of the Demonstration for each of these subpopulations.

The beneficiary subgroups of interest are as follows:

- FFS vs. MCO
- Dually eligible for Medicare and Medicaid vs. not
- Pregnant vs. not
- Justice Involved vs. not
- Disability vs. no disability
- SMI with vs. without co-occurring SUD
- SUD with vs. without co-occurring SMI
- With vs. without co-occurring physical condition
- OUD vs. not
- Age < 21, 21–44, 45–64, and >= 65
- DC ward number (01, 02, …, 08, and missing)

For the subgroup analyses, we estimated Equation 1 separately for each subgroup and report the estimated coefficients. The covariates for the subgroup analyses are the same as those for the main analyses. The findings from the subgroup analyses are reported in Appendices B (SMI/SED goals) and C (SUD goals).

Cost Analysis

For the cost analysis, the AIR team assessed the change in total costs and costs related to the diagnosis and treatment of SMI/SED and SUD PBPM in the demonstration period. We also explored the treatment cost drivers for the target population of SMI/SED (or SUD) beneficiaries in the Demonstration period.

Exhibit D.2 describes the various cost measures related to the changes in the healthcare costs of the targeted beneficiaries in the Demonstration period along with the level of analysis and data sources. The three levels indicate the research question addressed. We estimated the measures below separately for beneficiaries with SMI/SED and SUD. The MMIS data source includes FFS claims and MCO encounters.

Exhibit D.2. Types of Costs and Data Sources

Level of analysis	Type of beneficiaries	Type of costs	Description/data source
Level 1: Total costs	SMI/SED	Total costs	Sum of benefits for beneficiaries with SMI/SED. [a] Data source for benefits costs is MMIS.
		Total federal costs	Total Medicaid costs for beneficiaries with SMI/SED * federal medical assistance percentage (FMAP).[b]
	SUD	Total costs	Sum of benefits for beneficiaries with SUD. [a] Data source for benefits costs is MMIS.
		Total federal costs	Total Medicaid costs for beneficiaries with SUD * FMAP.
Level 2: Cost related to diagnosis and treatment	SMI/SED	IMD costs	IMD costs for beneficiaries with SMI/SED. Data source is MMIS.
		Non-IMD SMI/SED costs	Benefit costs for SMI/SED care other than IMD stays. Data source is MMIS.
		SMI/SED costs	Benefit costs for SMI/SED care. Data source is MMIS.
		Non-SMI/SED costs	Benefit costs for non-SMI/SED care. Data source is MMIS.
	SUD	IMD costs	IMD costs for beneficiaries with SUD. Data source is MMIS.
		Non-IMD SUD costs	Benefit costs for SUD care other than IMD stays. Data source is MMIS.
		SUD costs	Benefit costs for SUD care. Data source is MMIS.
		Non-SUD costs	Benefit costs for non-SUD care. Data source is MMIS.

Level of analysis	Type of beneficiaries	Type of costs	Description/data source
Level 3: Source of treatment cost drivers for beneficiaries in the target population	SMI/SED	Outpatient costs, non-ED	Types of costs are defined using HEDIS, CMS, or DHCF standards and utilize claim type, procedure code, revenue code, place of service, provider type, and other data elements as applicable. Data source is MMIS.
		Outpatient costs, ED	
		Inpatient costs	
		Pharmacy costs	
		Long-term care costs	
	SUD	Outpatient costs, non-ED	Types of costs are defined using HEDIS, CMS, or DHCF standards and utilize claim type, procedure code, revenue code, place of service, provider type, and other data elements as applicable. Data source is MMIS.
		Outpatient costs, ED	
		Inpatient costs	
		Pharmacy costs	
		Long-term care costs	

CMS = Centers for Medicare & Medicaid Services; DHCF = Department of Health Care Finance; ED = emergency department; HEDIS = Healthcare Effectiveness Data and Information Set; MMIS = Medicaid Management Information System; SED = serious emotional disturbance; SMI = serious mental illness; SUD = substance use disorder.

[a] Benefit costs are defined as payments made by DHCF, or on behalf of DHCF by MCOs, to healthcare providers for services delivered to Medicaid beneficiaries. While the CMS guidance refers to inpatient [IP], outpatient [OT], pharmacy [RX], long-term care [LT] file types in the Transformed Medicaid Statistical Information System (T-MSIS) as an example, equivalent data from DHCF's MMIS are used in the cost analysis.

[b] The FMAP varies by subgroups and increased under the public health emergency (PHE FMAP): (1) For childless adults, we use FMAP of 0.9; (2) for Children's Health Insurance Program (CHIP) children, we use the applicable FMAP for the year (this will account for PHE FMAP increase); and (3) for all others, we use 0.7 and add the PHE FMAP bump. For CHIP children, the FMAP we applied for each fiscal year is as follows: FY 2022: 83.34%; FY 2021: 83.34%; FY 2020: October–-December 2019 = 90.50%, January–September 2020 = 94.84%; FY 2019: 100.00%; FY 2018: 100.00%; FY 2017: 100.00%. For all others, the FMAP we applied is as follows: 1/1/2017–12/31/2019: 70.00%; 1/1/2020–12/31/2021: 76.20%.

Exhibit D.3 shows the administrative costs of the Demonstration. The total administrative cost up to June 2022 is about $2.88 million. Because the administrative costs are not separately available for the SMI/SED and SUD components of the Demonstration, are available only at the quarterly level, and the number of beneficiaries in the cost analysis varies each month, there is no clear-cut way to create a PBPM administrative cost from the District-level quarterly administrative costs. Therefore, we calculated a Demonstration-level PBPM administrative cost by distributing the total administrative costs for the entire period equally across the SMI/SED and SUD beneficiary-months in the cost analysis data sample.[47] We then compared this PBPM administrative cost with the total PBPM additional costs in the post-Demonstration period

[47] Note that this means an individual beneficiary-month can be counted twice if the beneficiary is in both the SMI/SED and SUD samples.

(marginal effects from the total cost regressions) for SMI/SED and SUD to assess how much of an additional effect the administrative costs have on the Demonstration's effects.[48]

Exhibit D.3. Administrative Costs of the Demonstration

Fiscal year quarter	Calendar year quarter	Behavioral health waiver administrative cost
FY2020 Q2	Q1 2020	$357,034.05
FY2020 Q3	Q2 2020	$232,106.46
FY2020 Q4	Q3 2020	$423,915.65
FY2021 Q1	Q4 2020	$220,425.68
FY2021 Q2	Q1 2021	$349,948.91
FY2021 Q3	Q2 2021	$335,687.25
FY2021 Q4	Q3 2021	$288,723.75
FY2022 Q1	Q4 2021	$273,435.54
FY2022 Q2	Q1 2022	$223,333.89
FY2022 Q3	Q2 2022	$179,890.40

Note. Reflects total computable (federal and local share) of behavioral health waiver administrative costs in quarterly CMS-64 reports to CMS.
Source. Data compiled by the DC Department of Health Care Finance's Office of the Chief Financial Officer as of 11/7/2022.

To compute total federal costs, we multiply the total costs by the federal medical assistance percentage (FMAP), which varies in each fiscal year by type of enrollee. FMAP increased under the COVID-19 PHE. (See Exhibit D.2 note for detail.)

The cost analysis uses a different inclusion criterion of beneficiaries for the analytic sample compared to that for the evaluation metrics. Based on CMS guidance, we used beneficiary month as the unit of analysis.[49] The target population for the SMI/SED cost analysis is Medicaid beneficiaries with an SMI/SED diagnosis or treatment, and the target population for the SUD cost analysis is Medicaid beneficiaries with an SUD diagnosis or treatment. We used a repeated cross-sectional approach that does not require minimum enrollment durations for beneficiaries to be included in the analysis. Beneficiaries were included in the analysis during the first month in which a relevant SMI/SED or SUD diagnosis or treatment claim was observed and for up to 11 additional months that did not include a relevant diagnosis or treatment claim. Once an

[48] The administrative costs cannot be incorporated directly into the PBPM total costs and included in the regression analysis because the two-part model methodology we implemented is designed to account for the large number of zero-cost observations common in healthcare expenditure data. Allocating the administrative costs to all beneficiaries in the post period will change all zero-cost observations to positive costs and the two-part model cannot be implemented in that scenario.
[49] Centers for Medicare & Medicaid Services. (n.d.). *Appendix C: Approaches to analyzing costs associated with section 1115 demonstrations for beneficiaries with serious mental illness/serious emotional disturbance or substance use disorders.* https://www.medicaid.gov/sites/default/files/2020-02/smi-sed-sud-cost-appendix-c.pdf

individual has a period of 1 year with no relevant diagnosis or treatment claim, that beneficiary is excluded from further analyses, unless and until they have a subsequent, relevant diagnosis or treatment claim. Setting the inclusion criteria this way results in an analysis that represents the costs of serving individuals in the target population with active treatment needs.

During the analysis time period, multiple COVID-19 PHE-related changes to costs occurred. First, the Families First Coronavirus Response Act authorized a 6.2 percentage-point increase in the FMAP.[50] This enhanced FMAP was applied retroactively to start on January 1, 2020, and is applicable until the end of the quarter in which the PHE ends (i.e., second quarter of 2023). While these enhanced FMAP rates are primarily reflected in higher federal costs, total costs also may have increased as the enhanced FMAP provides room to states to pay a higher rate for services. Second, DHCF increased reimbursement rates for Adult Substance Abuse Rehabilitation Services (ASARS) providers to support additional costs related to the delivery of services during the COVID-19 PHE, effective March 1, 2020, through the end of the federal PHE.[51] Last, another source of increase in both federal and total costs is inflation, which was high during the period of analysis, especially in 2021. Reimbursement rates for certain services, such as for hospital-based care, are indexed to inflation in the District. These increases in reimbursement rates are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases, in addition to the effects of the Demonstration.

Following CMS guidance, we implemented the following ITS model using a two-part model specification to estimate the impact of the Demonstration on costs.[52] The Demonstration was launched January 1, 2020; hence we consider that the intervention happened in January 2020 for all beneficiaries. So, we are checking for a level change at that point in time and a slope change thereafter to identify changes in costs occurring in the Demonstration period. We use 2 years (January 1, 2018–December 31, 2019) as the baseline.

A two-part model is a flexible statistical model specifically designed to deal with limited dependent variables. It is useful in the case where there is a high frequency of zeros in an outcome because it allows separate modeling of whether the outcome is zero and subsequently the magnitude of that outcome. This makes it particularly well suited for

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[50] Kaiser Family Foundation. (2021). *Federal Medicaid outlays during the COVID-19 pandemic*. https://www.kff.org/coronavirus-covid-19/issue-brief/federal-medicaid-outlays-during-the-covid-19-pandemic/

[51] Government of the District of Columbia, Department of Healthcare Finance. (2020). Temporary enhanced reimbursement rates for Adult Substance Abuse Rehabilitation Services (ASARS) due to COVID-19. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/publication/attachments/Transmittal%2020-36%20Temporary%20Enhanced%20Reimbursement%20Rates%20for%20Adult%20Substance%20Abuse%20Rehabilitation%20Services%20%28ASARS%29%20Due%20to%20COVID-19.pdf

[52] Deb, P., Manning, W G., & Norton, E. C. (2014, June). *Modeling health care costs and counts*. Fifth biennial conference of the American Society of Health Economists. http://econ.hunter.cuny.edu/parthadeb/wp-content/uploads/sites/4/2014/05/ASHEcon_LosAngeles_minicourse.pdf

modeling health costs, which will have many zeros and then some distribution of the positive costs. With the two-part model we can choose to use one method for estimating the probability of having any heath care cost in a particular month and then another more appropriate method for modeling the distribution of the nonzero costs.

Estimating a two-part model consists of two stages. In the first stage, the threshold for observing nonzero outcomes is typically modeled using a regression model for binary outcomes such as the probit or logit. We used a logit model, which assumes the error term follows a logistic distribution. In the second stage, the positive outcomes are typically modeled using an OLS regression or a generalized linear model (GLM). We used a GLM model, given the skewed distribution of the cost variables. Instead of using a log link function for all cost outcomes, we conducted tests for each outcome separately to ensure we use the appropriate link function for each cost outcome. Additionally, we selected the distribution family for each cost outcome using the Modified Park test. For example, for the total costs we used a log link function and Gamma distribution for both SMI/SED and SUD.

Equation 2:

Model first stage:

$$Logistic(p_{im}) = \gamma_0 + \gamma_1 \times Time_q + \gamma_2 \times Post_m + \gamma_3 \times Time_q \times Post_m + X_{im} + \theta_s + e_{im}$$

Model second stage:

$$y_{im} = g(\beta_0 + \beta_1 \times Time_q + \beta_2 \times Post_m + \beta_3 \times Time_q \times Post_m + X_{im} + \theta_s + \epsilon_{im})$$

where

- *i* denotes beneficiary.
- *m* denotes month-year (January 2018, February 2018, …, December 2021).
- y_{im} denotes the outcomes of interest, or various types of Medicaid costs PBPM.
- *s* denotes month of year (January, February, …, December).
- *q* denotes quarter-year (e.g., January–March 2018).
- p_{im} is the probability of having nonzero costs for beneficiary *i* in month *m*.
- y_{im} denotes the outcome measure of PBPM, with the main outcome of interest as total cost PBPM.
- $Time_q$ is a count variable that starts with the first quarter of 2018 and ends with the fourth quarter of 2021 using a base quarter of 2019 Q4.
- $Post_m$ is the indicator variable that equals 1 if the month occurred on or after January 2020 and 0 if the month occurred during January 2018 to December 2019.

- X_{im} includes all controls we deemed necessary from theory: age categories, female, dual-eligible status, race categories, MCO vs. FFS coverage, DC ward (geographic variable), monthly COVID-19 deaths in the District, and co-occurring physical condition status.[53]
- θ_s is the seasonal fixed effects at the month level (i.e., an indicator for January that is 1 for Jan 2018, 2019, 2020, and 2021).
- ϵ_{im} is the error term.

We estimate the total effect of the Demonstration through the marginal effect of $Post_m$, the indicator for the post-Demonstration months. $Post_m$ affects the costs both directly (through β_2 immediately) and indirectly (through β_3 over time). The marginal effect approach combines the main and interaction effects of $Post_m$ to estimate the total effect of the Demonstration.

[53] These beneficiary-level control variables are not included in the District-level ITS analyses because the unit of observation for those were District-month (or quarter), unlike the cost analysis which has beneficiary-month as the unit of observation.

E. Methodological Limitations

Exhibit E.1 summarizes the methodological challenges the AIR team faced with the quantitative and qualitative analyses and the solutions we applied for mitigating these limitations to the extent feasible.

Exhibit E.1. Methodological Limitations and Solutions Applied

Challenge/limitation	Solution
Quantitative methods	
Because all eligible Medicaid beneficiaries are considered to be participating in the Demonstration, their participation begins at the same time, and obtaining access to administrative claims data or performing data collection for other states was not feasible for this project, there is no appropriate comparison group that is not affected by the Demonstration to compare to the Demonstration group.	Following CMS evaluation guidance, we used an ITS design to evaluate the effects of the Demonstration, which is the preferred methodology when there is no appropriate comparison group.
Because several concurrent programs targeting similar populations and outcomes exist, it can be difficult to rule out alternative explanations and disentangle the precise estimates of the impact of the Demonstration using the ITS design. This is a limitation of the ITS design. Examples of concurrent programs include State Opioid Response grant, LIVE.LONG.DC, the District's opioid strategic plan, and funding from the Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities (SUPPORT) Act.	AIR's ITS evaluation design approach estimated the combined impact of both the Demonstration and elements of other concurrent programs. However, the programs that started before the Demonstration and continued concurrently are accounted for by the continuous time variable included in the ITS if the effect of those programs remained steady over time. Furthermore, our qualitative data on the nature of these concurrent programs provides insights into the relative contributions of Demonstration-specific versus preexisting or new concurrent services to outcomes.
The Demonstration's target population of beneficiaries with SMI/SED and/or SUD vary in other characteristics, and the effect of the Demonstration may vary according to these characteristics.	AIR evaluated the heterogeneous effects of the Demonstration by conducting ITS in different subsamples in addition to assessing the average effect across the whole target population. The subsamples are defined using categorical variables of characteristics of program, provider, and beneficiaries.
17,000 adult beneficiaries with complex healthcare needs (beneficiaries with disabilities) who are not dual-eligible transitioned to managed care in October 2020. For this transitioned population, payment of some care shifted from waiver to MCOs. Furthermore, behavioral health services currently carved out of managed care will be carved in by October 2023.	AIR conducted subgroup ITS analysis by FFS and managed care status of beneficiaries to assess whether there are any differences in Demonstration outcomes by program status.

Challenge/limitation	Solution
The COVID-19 PHE poses challenges to the ITS design because the timing of the pandemic coincides with the beginning of the Demonstration and confounds the ITS estimates. Several evaluation outcomes examine the utilization and availability of behavioral health services, which were affected by the pandemic. The pandemic depressed the demand for in-person behavioral health services, increased the utilization of telehealth services, and affected the availability of services as a result of quarantine/distancing requirements and exacerbated workforce shortages.[54,55]	AIR controlled for the number of COVID-19 deaths in each month/quarter to mitigate the confounding effects of the pandemic on the Demonstration's impact estimates. Death count was chosen as the severity measure because it is recorded consistently for the whole time period of this report and can be identified for the time period that will be covered in the Summative Evaluation Report. A prevalence measure based on COVID-19 testing was not used because it was considered less reliable with the lack of adequate testing at the beginning of the pandemic and the rise of rapid testing. Similarly, COVID-19 hospitalizations were not used as a control variable because they were recorded consistently starting only in the fall of 2020 (Couture et al., 2022).[56] There are limitations to this solution given the policy context, where there are only 2 months without COVID-19 PHE in the Demonstration period and no months with COVID-19 PHE in the pre-Demonstration period. Controlling for COVID-19 deaths does help to the extent that COVID-19 deaths represent the variation in severity of the pandemic. However, there were many changes in the policy and medical environments surrounding the PHE that will not be perfectly correlated with the deaths measure, so there could still be omitted variable bias. Relevant changes to the policy/medical environment include quarantine/distancing requirements, changes to Medicaid eligibility policies (e.g., Continuous Coverage[57]), and changes to Medicaid reimbursement policies and rates (e.g., payment for telehealth delivered in a beneficiary's home,[58] enhanced reimbursement for ASARS services[59]).

[54] Georgetown University Center for Global Health Science and Security. (2023). *COVID-19 & behavioral health in the District of Columbia.* https://dcauditor.wpenginepowered.com/wp-content/uploads/2023/04/COVID19.Behavioral.Health.D.C.4.20.23.Web_.pdf

[55] Kaiser Family Foundation. (2023). *A look at strategies to address behavioral health workforce shortages: Findings from a survey of state Medicaid programs*. https://www.kff.org/medicaid/issue-brief/a-look-at-strategies-to-address-behavioral-health-workforce-shortages-findings-from-a-survey-of-state-medicaid-programs/

[56] Couture, A., Iuliano, A. D., Chang, H. H., Patel, N. N., Gilmer, M., Steele, M., Havers, F. P., Whitaker, M., & Reed, C. (2022). Estimating COVID-19 hospitalizations in the United States with surveillance data using a Bayesian hierarchical model: Modeling Study. *JMIR Public Health and Surveillance, 8*(6), e34296.

[57] Department of Health Care Finance - DHCF. (2023). *Medicaid restart*. https://dhcf.dc.gov/medicaid-restart

[58] Department of Health Care Finance - DHCF. (2020). *DC Medicaid telemedicine guide*. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/Telemedicine%20Guide%20for%20Medicaid%20Providers%203.25.2020.pdf

Challenge/limitation	Solution
With an ITS design, estimating the level and slope parameters requires a minimum number of observations (usually at least eight; see table note below for citation) before and after the intervention to have sufficient statistical power to estimate the regression coefficients. While level changes due to the intervention can be estimated sooner, about eight quarters of data after the Demonstration start are needed to obtain an accurate estimate of the changes in post-Demonstration trends.	For the District-level ITS estimation, we have 12 quarters (3 years) of data prior to the beginning of the Demonstration and eight quarters of data in the post-Demonstration period. This meets the minimum required number of observations to obtain reasonable impact estimates.
Payment amounts for prescription drugs on FFS claims and MCO encounters in DHCF's MMIS data do not reflect rebates.	This is a limitation that would apply to any claims-based analysis, but it does not create any systematic difference in the cost outcome measures pre- and post-Demonstration and thus will not introduce biases in the regression estimates.
Some of the monitoring metrics (e.g., SUD Monitoring Metric 22: Continuity of Pharmacotherapy for Opioid Use Disorder) are specified as annual measures, which does not allow for regression analysis using an ITS design covering only 5 years of data.	We adapted annual measures to be quarterly measures as this increases the number of data points available during the period of analysis and allows the ITS model. However, the resulting measures may not be directly comparable to the monitoring measures.
All but the IMD services and the $1 copay for MAT transitioned to the state plan authority with effect from January 1, 2022. The District does not expect that the change in funding source will lead to large behavior change on the part of providers and beneficiaries. However, from an impact evaluation's clarity perspective it will be useful to estimate Demonstration impact when the full range of services were under the Demonstration.	For the ITS analysis of the interim evaluation, we limited the data to December 31, 2021, to estimate the effect of the Demonstration when the full range of services were waiver funded. The summative evaluation will estimate the combined impact of the Demonstration.
CMS suggests the selection of evaluation measures from nationally recognized sources and national measures sets where possible. Therefore, the evaluation uses SMI/SED and SUD monitoring metrics where available. Because of that the metrics used to assess goal achievement are not well aligned for certain goals. For example, the readmission metric used to assess progress on the SUD goal "Fewer readmissions to the same or higher level of care (LOC) where the readmission is preventable or medically inappropriate" looked at all-cause readmissions using SUD Monitoring Metric #25 and was not limited to those readmissions that were preventable or medically inappropriate.	Where there is substantial misalignment between goals and underlying metrics, we added notes to clarify under the respective metric.
Under the authority of a Disaster Relief State Plan Amendment, DHCF increased reimbursements to Adult Substance Abuse Rehabilitation Services (ASARS)	CMS guidance for the cost analysis only requires an analysis of costs expressed in current dollars. It does not require adjusting for changes in reimbursement

[59] Government of the District of Columbia, Department of Healthcare Finance. (2020). *Temporary enhanced reimbursement rates for Adult Substance Abuse Rehabilitation Services (ASARS) due to COVID-19*. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/publication/attachments/Transmittal%2020-36%20Temporary%20Enhanced%20Reimbursement%20Rates%20for%20Adult%20Substance%20Abuse%20Rehabilitation%20Services%20%28ASARS%29%20Due%20to%20COVID-19.pdf

Challenge/limitation	Solution
providers to support additional costs related to the delivery of services during the COVID-19 PHE, effective March 1, 2020, through the end of the federal PHE.[60] Any increases in costs reflected in the cost analysis are inclusive of this rate increase, as well as other factors that may have influenced increases in costs, such as increases in the FMAP[61] and inflation.	rates or inflation, or unpacking the sources of changes in reimbursement rates within a regression framework. Therefore, to contextualize the observed cost increases, we note the factors driving increases in costs such as higher reimbursement rates related to COVID-19 PHE.
Qualitative methods	
Interviews and listening sessions obtain information from a relatively small number of individuals. This poses the risk of inadvertently missing important individuals and/or perspectives.	AIR's approach to qualitative data collection used the evidence-based standard that saturation is commonly reached after five to seven interviewees as a baseline for the number of interviews and listening sessions we conducted with District providers. With a final sample size of 23 organizations, we are confident that we have diversity in providers' perspectives. In addition, we invited all key informants from implementing agencies (DHCF, DBH, DOH, HIE) and applicable MCOs to participate in interviews. Thus, there is little risk of sampling bias related to key informant interviews (KIIs).
Evaluation participants may be reluctant to share negative information about the Demonstration. For example, key informants may worry that it will affect their ability to maintain the waiver and institutionalized Demonstration activities. Providers may worry that it would jeopardize their relationship with agencies that certify them and provide their service reimbursement.	To mitigate potential response bias, we ensured confidentiality for providers and informed all evaluation participants that the goals of the interim qualitative research are to identify emerging challenges with the Demonstration that can inform the District's (and potentially other states') future efforts. The richness of the interview and listening session data suggests that evaluation participants felt comfortable sharing both successes and challenges related to implementation progress and impact.

[60] Government of the District of Columbia, Department of Healthcare Finance. (2020). *Temporary enhanced reimbursement rates for Adult Substance Abuse Rehabilitation Services (ASARS) due to COVID-19*. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/publication/attachments/Transmittal%2020-36%20Temporary%20Enhanced%20Reimbursement%20Rates%20for%20Adult%20Substance%20Abuse%20Rehabilitation%20Services%20%28ASARS%29%20Due%20to%20COVID-19.pdf

[61] Kaiser Family Foundation. (2023). *Federal Medical Assistance Percentage (FMAP) for Medicaid and multiplier*. https://www.kff.org/medicaid/state-indicator/federal-matching-rate-and-multiplier/?activeTab=graph&currentTimeframe=0&startTimeframe=4&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D

Challenge/limitation	Solution
Beneficiary data collection	
Medicaid beneficiaries are a hard-to-reach population group, and this is even more true for the subset who have SMI/SED or SUD issues.	To increase response rates, AIR employed several strategies to recruit beneficiaries, including mail and telephone (voice and text) outreach and using contact information from enrollment databases as well as the DC HIE. In addition, beneficiaries were able to complete the survey via phone (voice), web, or hard copy (hard copy survey was available in English, Spanish, and Amharic).
The survey addressed sensitive topics related to the treatment experiences as well as mental health and substance use of respondents.	AIR survey interviewers were well trained and experienced in working with populations with SMI, SED, and SUD. They understood the importance of cultural competency, cultural humility, and trauma-informed care. Interviewers made efforts to build rapport and trust at the start of the interview, emphasized confidentiality, and explained the purpose of the survey. Respondents were given the opportunity to pause as well as to skip questions they were not comfortable answering. AIR also developed a protocol for transferring beneficiaries to the District's behavioral health triage line if they showed signs of distress during the survey interviews.
Due to co-occurring SMI and trauma, some respondents may need additional support and time to answer questions, explanation of questions in easy-to-understand language, and flexibility in timing and breaks.	AIR interviewers were experienced in working with people with SMI, SED, and SUD. Interviewers took their time, built rapport, provided breaks, offered flexibility, and reframed questions as needed.
The COVID-19 public health restrictions pose challenges in conducting in-person data collection at beneficiary residences or provider sites.	AIR administered the survey by telephone or online and, for a subset, via mail.
The beneficiary survey sample was selected using a stratified random sample, and the majority of invitees did not participate in the survey. This could affect the representativeness of the survey findings.	The stratified random sample reflected the proportions of sample frame of the District's Medicaid beneficiaries who were 21 or older with SMI/SED only, SUD only, and SMI/SED and SUD. AIR weighted the survey responses to account for differential selection probabilities and unit nonresponse. This weighting makes the survey results representative of the District's SMI/SED, SUD and SMI and SUD populations.

Note. Penfold, R. B., & Zhang, F. (2013). Use of interrupted time series analysis in evaluating healthcare quality improvements. *Academic Pediatrics, 13*(6), S38–S44.

F. Results

This section presents findings from the qualitative and quantitative data analysis conducted to evaluate the effectiveness of the Demonstration in achieving its objectives. We explore the evidence available at the time of the interim evaluation to identify answers to the evaluation research questions and the extent to which the hypotheses underlying the research questions were confirmed. The section is divided into three subsections. Section F.1 describes the successes and challenges in Demonstration implementation, as reported by key stakeholders such as healthcare providers of various types, provider associations, and Medicaid managed care plans in the District interviewed by the evaluation team, as well as Medicaid beneficiaries who participated in the baseline survey (evaluation participants). The discussions are also informed by the team's interviews of DHCF and DBH representatives (stakeholders) and program document review. Section F.2 shows observed trends in outcome measures of interest, such as the change in SUD and SMI/SED service utilization during the pre- and post-Demonstration period reports and estimates from the regression analysis implemented to assess the Demonstration's effectiveness. Section F.2.1 presents findings on the achievement of the SMI/SED goals, and Section F.2.2 presents findings on the achievement of the SUD goals. In addition to findings from the claims-based outcome measures, discussions on perceived outcomes reported by healthcare providers and Medicaid beneficiaries are also included in these two subsections. Section F.3 presents cost analysis findings separately for the SMI/SED (Section F.3.1) and SUD (Section F.3.2) components of the Demonstration.

F.1 Implementation Successes and Challenges

The goal of Section F.1 is to provide context for the results of the impact analyses (Section F.2). After describing how the COVID-19 Public Health Emergency (PHE) influenced implementation of the Demonstration, we describe the implementation of the secondary drivers hypothesized to promote the Demonstration's goals. We have organized the secondary drivers, which are the interventions implemented under the Demonstration, according to those that we hypothesized would influence Demonstration goals related to both the SMI/SED and SUD components of the Demonstration (Section F.1.1); those we hypothesized would primarily influence Demonstration goals related to the SMI/SED components of the Demonstration (Section F.1.2); and those we hypothesized would primarily influence Demonstration goals related to the SUD components of

the Demonstration (Section F.1.3).[62] For each driver, we list the applicable research questions[63] and describe:

- implementation successes and challenges such as whether the District implemented the change as intended, and whether there was provider—and, as applicable, beneficiary—awareness of the change;
- whether and how the change influenced providers' delivery of care; and
- the perceived impact of the driver on the Demonstration's goals.

These results reflect conclusions we derived from thematic analyses of Demonstration documents; KIIs with DHCF, DBH, and DC Health staff, along with their HIE vendor; interviews and listening sessions with District providers and their professional associations; interviews with managed care plans in the District; and the beneficiary survey.

F.1.1 Impact of the COVID-19 Public Health Emergency

The COVID-19 PHE had a substantial impact on the Demonstration. Implementing agencies (DHCF and DBH) were forced to divert resources from Demonstration implementation to address pressing public health concerns—for example, issuing policy flexibilities regarding telemedicine and temporarily adjusting payment rates for SUD providers. In addition, most providers experienced significant disruption from COVID-19, including the following:

- Fewer patients seeking care;
- Fewer inpatient beds available due to COVID-19 public health restrictions;
- A difference in or discontinuation of visitation in inpatient facilities;
- Suspended transportation services from inpatient to community settings;
- Confusion about which provider was responsible for COVID-19 testing when beneficiaries were transitioning care (e.g., on discharge or admission);
- Disruption to established or preferred methods of follow-up;
- Longer lengths of stay due to delays in care transition planning; and
- Increased expenditures on cleaning services, transportation (e.g., for individual taxis rather than facility-based shuttles), and personal protective equipment.

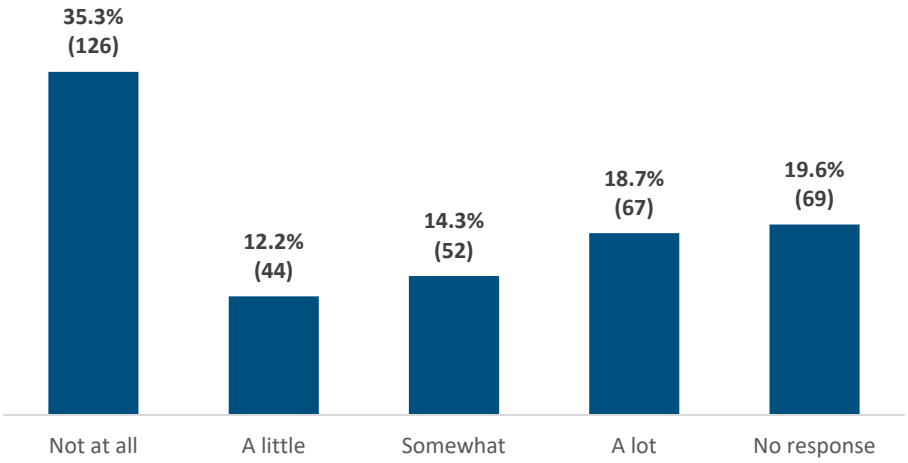
[62] Several of the secondary drivers that are grouped together in the driver diagrams in Section C are discussed in separate subsections here.
[63] Drivers likely to have less direct influence on demonstration goals are not associated with research questions but are still included in Section F.1 to provide a comprehensive description of demonstration activities.

These disruptions likely contributed to some of the results of the impact analyses presented in Sections F.2 and F.3, particularly trends that demonstrated a decrease in the utilization of services that must be delivered in person (such as inpatient, partial hospitalization, and residential treatment services). Providers did take advantage of telemedicine, but as discussed in more detail in Section F.1.2, they did so selectively based on their perspective of whether the treatment modality was appropriate for the type of service.

Beneficiary survey data suggest that the COVID-19 PHE also had a sizable impact on beneficiaries. The most commonly reported reason for an inability to get the treatment services they needed was COVID-19. In addition, when asked whether COVID-19 had affected them:

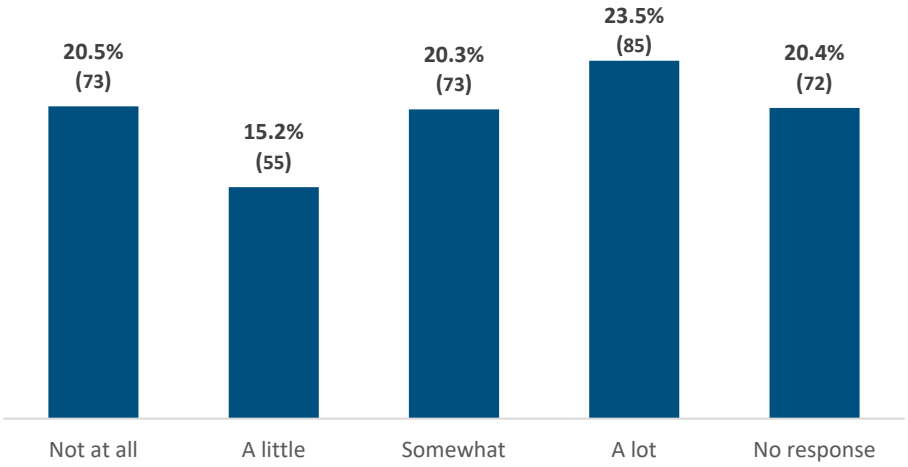
- Nineteen percent (*n* = 67) of survey respondents reported that it had affected their physical health a lot (Exhibit F.1).
- Twenty-four percent (*n* = 85) of survey respondents reported that it had affected their mental health a lot (Exhibit F.2).
- A few survey respondents (*n* = 21, 6%) reported that COVID-19 had affected their ability to stay off drugs and alcohol a lot (Exhibit F.3).

Exhibit F.1. How much has your physical health been affected by COVID-19?



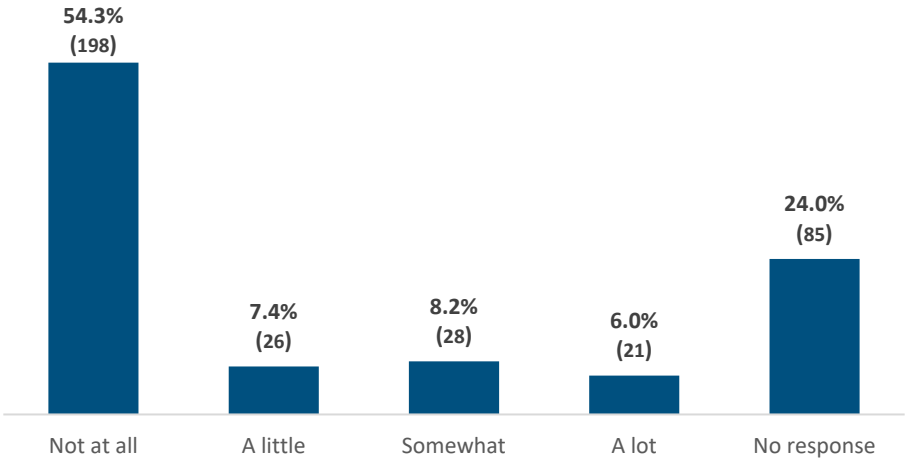
Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.2. How much has your mental health been affected by COVID-19?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.3. How much has your ability to keep from using drugs or alcohol been affected by COVID-19?



Note. Percentages are weighted and may not add up to 100% due to rounding.

F.1.2 Implementation of Drivers Related to Expanding Reimbursement and Benefits

In this section, we describe the successes, challenges, and perceived impact of implementing the secondary drivers related to expanding reimbursement and benefits. As depicted in Exhibit F.4, these drivers were intended to contribute to almost all of the Demonstration goals. Our findings indicate that the District has implemented all reimbursement and benefit changes as intended. Evaluation participants spoke positively overall about the availability of Medicaid reimbursement for short-term IMD and residential treatment stays, although there is some administrative complexity with appropriately billing for IMD stays given length of stay and prior

authorization requirements that dictate reimbursement vehicle. Other reimbursement and benefit changes that evaluation participants described as having a positive influence on Demonstration goals include:

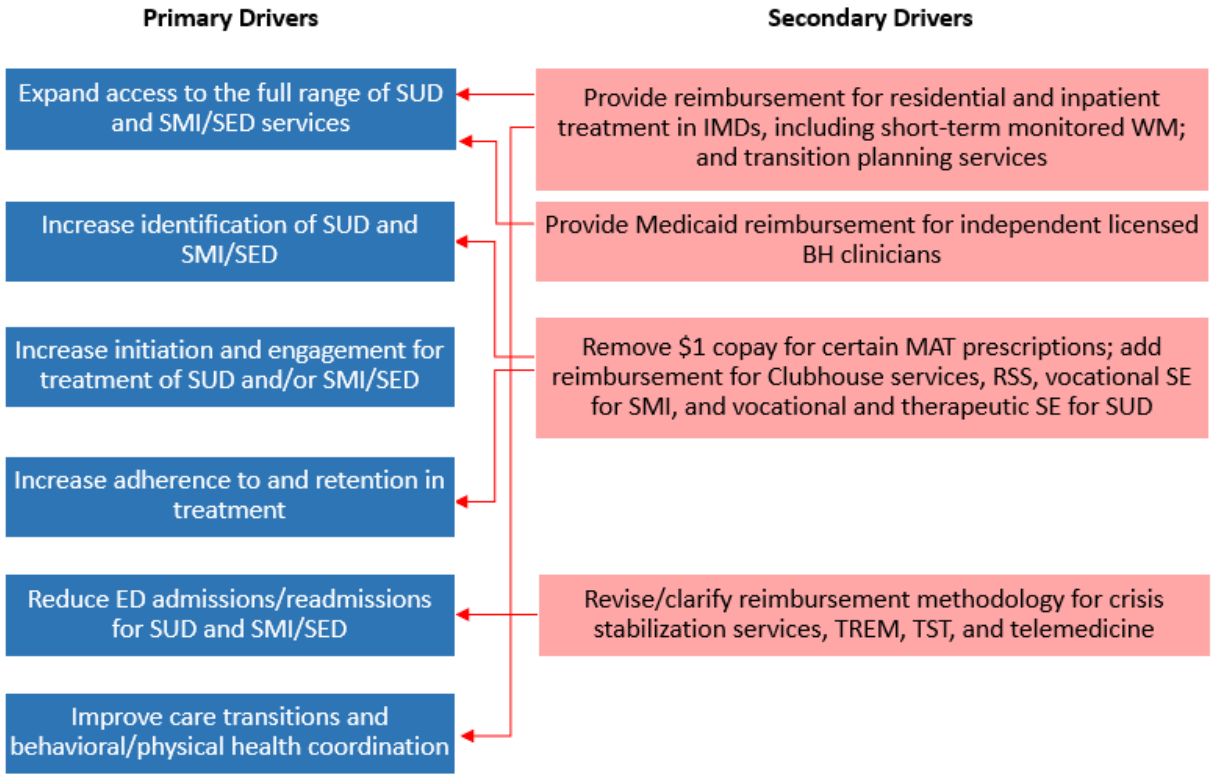
- The ability of independent licensed behavioral health clinicians to enroll in Medicaid that has expanded beneficiaries' access to clinicians who are in settings outside of FQHCs, FSMHCs, and MHRS and ASURS providers;
- Removal of the $1 copay for MAT that has reduced barriers to MAT;
- Changes to the reimbursement methodology for crisis stabilization services that have increased referrals to and financially stabilized crisis stabilization providers; and
- Revisions to and clarifications of reimbursement methodology for telemedicine that have increased access to care and may have mitigated some of the impact of the COVID-19 PHE.

The changes that have not yet had the intended influence on Demonstration goals include:

- The transition planning services, because of narrowly defined beneficiary eligibility and service delivery requirements;
- Reimbursement for Supported employment services for SUD, because of federal requirements associated with consumer choice protections;
- Clubhouse and RSS, because providers experience challenges with billing for these services;
- Reimbursement methodology for TREM and TST, because providers believe that these services require a level of clinical licensure that is cost-prohibitive; and

In the sections that follow, we present these results in more detail.

Exhibit F.4. Driver Diagram Excerpt Depicting Secondary Drivers Related to Expanding Reimbursement and Benefits



Reimbursement for Residential and Inpatient Treatment in IMDs, Including Short-Term, Monitored Withdrawal Management

> **SMI/SED Research Question 4.1f.** How does the implementation of FFP for short-term stays for acute care in IMD settings influence access to short-term stays for acute care in IMD settings?
>
> **SUD Research Question 1.2b.** How does the implementation of reimbursement for services provided in IMD settings influence access to specific SUD treatment services?
>
> **SUD Research Question 1.2c.** How does the implementation of reimbursement for withdrawal management in IMD settings influence access to these SUD treatment services?

DHCF implemented the Medicaid reimbursement for residential and inpatient treatment services in IMDs in the first Demonstration rule (effective November 19, 2019), which instituted Chapter 86 of Title 29 of the District of Columbia Municipal Regulations (DCMR). IMDs may receive reimbursement for an array of SMI and SUD services, including medically monitored withdrawal management. Reimbursement for these services was effective as of January 1, 2020. Prior authorization is required to receive reimbursement, which occurs as FFS payment.

This reimbursement expands access to IMD services for FFS beneficiaries and for MCO beneficiaries with IMD stays longer than what is covered by the "in lieu of" benefit (which covers stays of up to 15 days). Previously, local funds stewarded by DBH were available for these beneficiaries' IMD stays, but on a limited basis. In addition, the District intended expanded access to these IMD services to serve as an anchor for increased transition and care coordination support for beneficiaries' community-based care.

Expanded coverage for IMD stays was less applicable to one psychiatric IMD in the District whose patients typically exceeded the 60-day limit or otherwise did not qualify for Medicaid reimbursement (e.g., beneficiaries who are involuntarily committed to the IMD). However, interviewees expressed positive feedback about shifting the funding for shorter IMD stays from local to Medicaid dollars. These interviewees noted that Medicaid reimbursement stabilized providers' ability to offer these services, particularly SUD residential services.

> "It was helpful for changing how we think about IMD services. Part of it is we got Medicaid to reimburse some things that weren't easy to get reimbursed before…It's changing the conversation around helping people return to community-based care and making those services more financially sustainable. I think the District struggled historically to make some services—particularly private hospital IMD and SUD residential stays—financially viable. It was good to see that change."

The core challenge associated with the new IMD coverage, according to providers, was the administrative complexity of receiving authorization and billing for these services. Although not an issue for withdrawal management services (because those clinical episodes typically required stays of fewer than 15 days), the need for providers to switch from managed care to FFS billing if a beneficiary's IMD stay exceeds 15 days poses an administrative burden. Providers must receive preauthorization for the extended IMD stay; this is in addition to any preauthorizations that MCOs require for beneficiaries' entry into the IMD, such as the preauthorization requirements associated with SUD residential services delivered in an IMD. The administrative burden associated with LOS requirements and preauthorization processes was further complicated in circumstances in which the beneficiary exceeded the 15-day in-lieu-of coverage over the course of multiple IMD stays within a calendar month, particularly if those stays were with different IMDs.

Reimbursement for Transition Planning Services

SMI/SED Research Question 5.1c. How does the implementation of reimbursement for transition planning services influence care coordination?

SUD Research Question 2.1f. How does the availability of transition planning services influence adherence to and retention in SUD treatment?

The third Demonstration rule (effective October 23, 2020) created transition planning services, and the addition of Chapter 65 to DCMR 22A implemented provider certification requirements and service and eligibility standards for these services. The transition planning services connect individuals experiencing a behavioral health-related hospitalization or SUD residential treatment stay to continued treatment and support services ahead of their discharge, to promote recovery and prevent avoidable readmissions. The new transition planning services created under the Demonstration went into effect September 1, 2020. The transition planning service consists of activities related to developing a discharge plan, including assessing the client's/consumer's needs after discharge, and care coordination and case management related to implementation of the identified needs. Under the Demonstration, these services were to be conducted within 30 days of beneficiaries' discharge from an inpatient, residential, or other institutional setting. The time frame within which these services can be provided was expanded to include the 30 days following beneficiaries' discharge when these services were transitioned to the state plan. To avoid duplication of services, only beneficiaries who are not enrolled in managed care, a health home program, or a home and community-based services waiver program are eligible to receive these services.

Evaluation participants (interviewees) appreciated that the Demonstration recognized that it was critical to add and reimburse for care-connecting supports and believed that increased access to transition planning could be a positive change. They noted, for example, that linking case management to community-based and outpatient services as well as social workers and discharge planning teams could lead to success and increased engagement among patients seeking services. Discharging someone without planning for their reentry into the community was generally seen as a poor practice that led to worse outcomes than those of patients who had the added support of transition planning.

> "If we're really looking at a well-rounded system, where patients are going to be adequately linked up to aftercare, that kind of stepdown has to happen. You can't just have someone going from an inpatient setting and then straight back into the community. That doesn't work."

However, evaluation participants commonly expressed concerns about and challenges with the new benefit. Several providers interviewed were unaware of the new transition planning service, as noted, and called for more education on this benefit. Similarly, one outpatient provider expressed confusion about how and whether it could be reimbursed for transition- and discharge-related services it provided for its patients during an inpatient stay, particularly if a patient was admitted for an extended period. One provider certified to provide transition planning services described delaying implementation of the service, in part due to referral challenges and COVID-19 restrictions that made the monitoring of individuals eligible for the transition planning service difficult.

Another commonly reported concern was that the eligibility requirements excluding beneficiaries enrolled in managed care greatly limited the number of beneficiaries eligible for these services. Evaluation participants expected the transition planning benefit to be broader in scope and that a larger group of Medicaid beneficiaries would be eligible for the service.

> "The transition planning services model does not make much sense as it is very restrictive on which clientele is eligible for service. Nobody's eligible for it because it excludes anyone who has MCO coverage. Such a small number of patients are eligible."

Providers also noted that the certification requirements were unnecessarily restrictive, particularly in relation to the reimbursement available for the services. This acted as a deterrent to pursuing certification for the services.

> "The staffing that's required and who's eligible, it wasn't even worth trying to get certified to do that. We looked at it but didn't have the staff."

Reimbursement for Independent Licensed Behavioral Health Clinicians

SMI/SED Research Question 4.1d. How does the implementation of reimbursement for independent licensed behavioral health clinicians for SMI/SED services influence access to independent licensed behavioral health clinicians?

SMI/SED Research Question 4.2d. How does the Demonstration influence utilization of independent licensed behavioral health clinicians by beneficiaries with SMI or SED?[64]

SUD Research Question 1.2e. How does the implementation of reimbursement for independent licensed behavioral health clinicians providing SUD services influence access to specific SUD treatment services?

SUD Research Question 2.1g. How does the availability of independent licensed behavioral health clinician services influence adherence to and retention in SUD treatment?[65]

SUD Research Question 1.3a. Was there an increase in community knowledge of available SUD treatment and services?

Before the Demonstration, licensed behavioral health clinicians were able to deliver Medicaid-reimbursable services only through freestanding mental health clinics, core service agencies,

[64] This research question will be addressed in the summative evaluation report.
[65] This research question will be addressed in the summative evaluation report.

and FQHCs. Under the Demonstration, clinicians who were practicing independently could enroll in Medicaid and receive reimbursement. The behavioral health clinicians who are now eligible to enroll in Medicaid (as of January 1, 2020) are psychologists, licensed independent clinical social workers (LICSW), licensed professional counselors, and licensed marriage and family therapists. These clinicians can be reimbursed for relatively low-acuity outpatient services (e.g., assessment and screening, counseling and psychotherapy, and treatment planning and care coordination). When these clinicians were included in the state plan, effective January 1, 2022, services related to autism spectrum disorder were also included (these had been prohibited under the Demonstration).

Several evaluation participants spoke positively about independent licensed behavioral health providers being newly eligible to bill Medicaid for their community-based services. The new reimbursement mechanism has led to some organizations adding behavioral health clinicians to their staff. For example, one behavioral health clinic reported adding an LICSW and a clinical psychologist now that these providers could be reimbursed. Although they have not seen revenue from this yet, they anticipate that having these clinicians will help them expand services because social workers and psychologists can provide some evaluation and treatment services at a lower cost than psychiatrists. Evaluation participants also noted that they have observed a rise in primary care providers including behavioral health clinicians on their team.

> "I know that psychologists and licensed clinical social workers are now getting reimbursed, and the rates—I have a rough idea of rates in relation to psychiatry rates. So we have been shifting our own model, and we now have a licensed credentialed social worker and a clinical psychologist. I don't know that we have seen any revenue yet from it. But I know that is available. That will expand it."

Some interviewees were unaware of the expanded reimbursement opportunities for independent licensed behavioral health clinicians. Those who were aware generally perceived the reimbursement rates to be insufficient; specifically, they noted that reimbursement rates were still behind inflation and much lower than what clinicians were able to make in private practice. The low reimbursement rates made it challenging to provide sufficient care, because it was difficult to find licensed clinicians who would work for such low rates.

> "The financial disparity for the licensed clinician is so profound, even people that are mission-driven are going to choose [to move into private practice]."

Removal of the $1 Copay for Certain Medication Assisted Treatment Prescriptions

> **SUD Research Question 1.3c.** How does the implementation of the removal of the $1 copay for certain MAT prescriptions influence the utilization of appropriate SUD services?

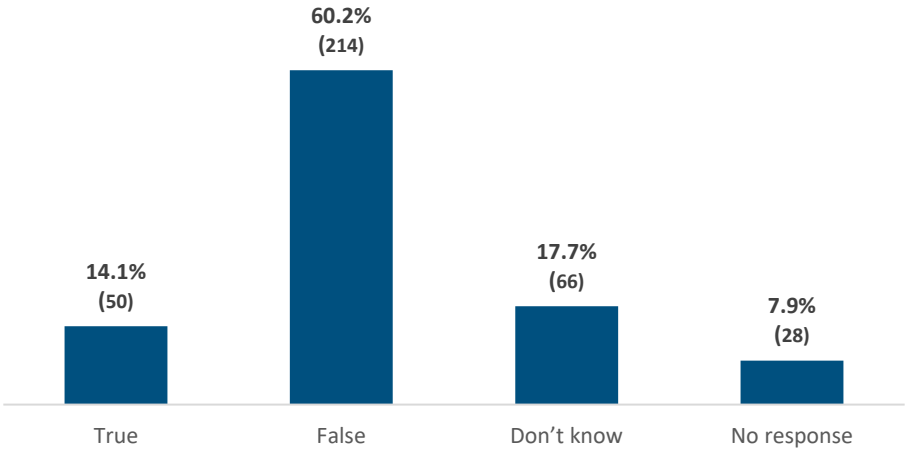
SUD Research Question 2.1c. How does the implementation of the removal of the $1 copay for certain MAT prescriptions influence adherence to and retention in SUD treatment?

The District implemented the removal of the $1 copay for prescriptions associated with MAT by releasing transmittal #19–27 (December 19, 2019). The decision to request waiver authority for this benefit change stemmed from stakeholder feedback that indicated that prescription copays served as a barrier to treatment for opioid use disorder (OUD). The copay removal is applicable to prescriptions other than methadone (which is dispensed during a clinic service within an opioid treatment program and thus was not subject to a copay prior to the Demonstration).

> "The $1 copay's [removal] has been really useful. I think it's worth saying, particularly since it's one of the things that actually required a waiver…I think it's great. There's no reason to create barriers for people participating in MAT…I think it's been really helpful."

Providers were aware of the elimination of the copay for MAT and believed it was very helpful in reducing barriers for beneficiaries. However, beneficiary survey responses showed that some beneficiaries were not aware that the copay had been removed (Exhibit F.5). Fourteen percent (*n* = 50) of beneficiary survey respondents reported that the following statement was true: "If my doctor prescribes medicine to help me stay off alcohol or drugs, I will have to pay for the medicine." An additional 18% (*n* = 66) indicated that they did not know whether the statement was true or false. Of the 50 beneficiaries who said "true," 10 reported that they would have to pay between $2 and $10, five that they would have to pay between $11 and $50, and five that they would have to pay between $51 and $100.

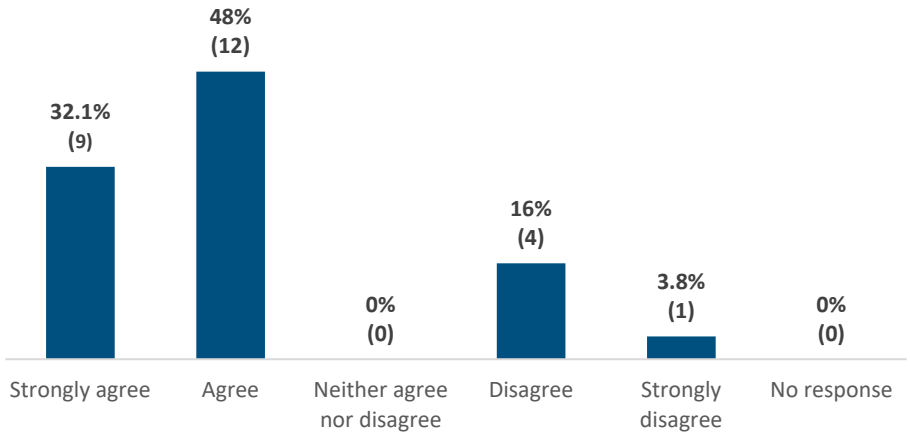
Exhibit F.5. If my doctor prescribes medicine to help me stay off alcohol or drugs, I will have to pay for the medicine.



Note. Percentages are weighted and may not add up to 100% due to rounding.

However, costs did not appear to be a major barrier to survey respondents' ability to access SUD-related prescriptions. Beneficiary survey respondents reported high access to prescription medicines for SUD. Of the 8% (*n* = 26) of survey respondents who said "yes" when asked whether they felt they wanted/needed prescription medicine to help them detox or stay off drugs or alcohol in the past 12 months, 80% (*n* = 21) agreed or strongly agreed that they were able to get the wanted/needed services (Exhibit F.6).

Exhibit F.6. Were you able to get all the services you wanted or needed for prescription medicine to help you detox or stay off drugs or alcohol?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Reimbursement for Clubhouse Services

> **SMI/SED Research Question 4.2c.** How does the availability of the Clubhouse influence utilization of SMI/SED treatment services?

Before the Demonstration, Clubhouses were restricted from operating in the District. The first Demonstration-related rulemaking for Chapters 34 and 39 of Subtitle A of 22 DCMR rescinded this restriction. The psychosocial rehabilitation services delivered at the Clubhouse became available to the District's Medicaid beneficiaries on January 1, 2020, as specified in the first Demonstration rule. Beneficiaries with SMI or co-occurring SMI and SUD are eligible to participate in the Clubhouse. The Clubhouse provides social networking, coping, and wellness strategies aimed at building competence and confidence in functioning in the community, particularly as it relates to seeking and retaining employment. Clubhouse staff and members work side by side to make decisions about how it runs and what community projects they take on. The District views these services as a potential alternative to day treatment. Clubhouse is a national model with established standards that has proven to be effective. The certification that DBH requires of Clubhouses includes accreditation by the organization that developed the

standards, International Center for Clubhouse Development, or its successor Clubhouse International.

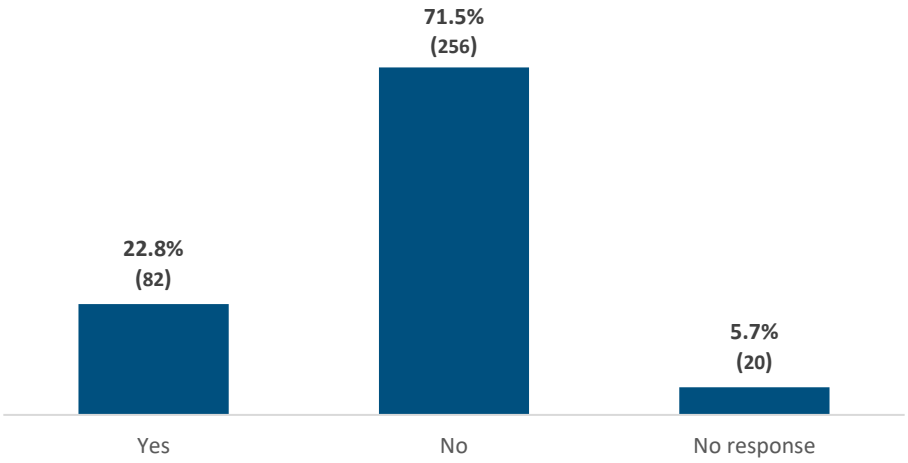
Uptake of the Clubhouse services has been slower and lower than expected for two reasons. First, it took an extended period of time for organizations to receive the necessary licensure and certification required to operate a Clubhouse. Second, COVID-19 precautions made it difficult to deliver Clubhouse services. The 3 hours per day of services required to receive reimbursement were difficult to provide with social distancing and mask requirements or via a virtual environment.

Most of the non-Clubhouse providers that participated in evaluation data collection have been educated on its services. These providers were very supportive of the Clubhouse because of its inclusion of peer supports. However, these providers also noted that they had not referred their clients to the Clubhouse and did not believe that many beneficiaries were participating in it.

> "I'm aware of Clubhouse but I don't know if we have anyone who is currently using their services. I think it's a great and beneficial service, we worked closely with the one the District had years ago…Since the beginning of COVID, we have all new clinical directors and clinical managers. And then we were providing most services by telemedicine, so people were more likely to refer to a day program."

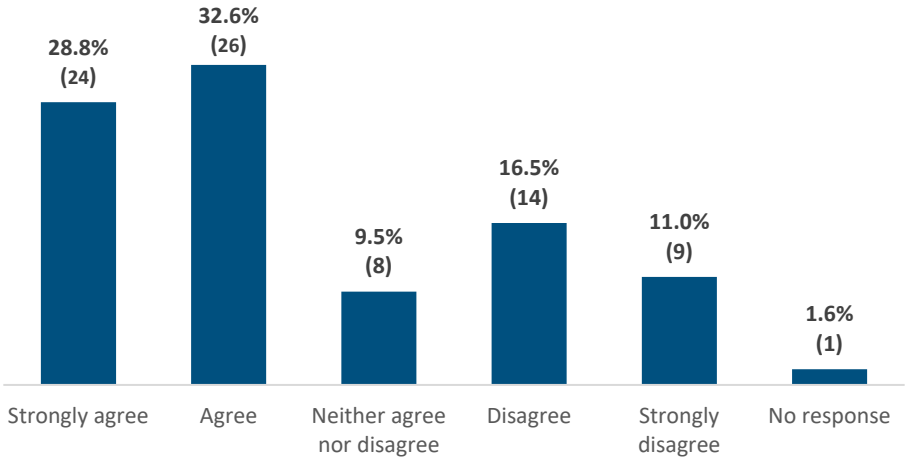
Beneficiary survey data suggest that beneficiaries are interested in Clubhouse-like services but may not be aware of them. When asked, "In the past 12 months, have you felt you wanted or needed some place to go during the day to be with people, meet people who also want help with their drug or alcohol use or mental health, or connect with people for social support?" 23% (*n* = 82) of survey respondents selected "Yes" (Exhibit F.7). However, 66% (*n* = 15) of the 23 survey respondents who reported that they were unable to receive these needed services (Exhibit F.8) said that they had not received these services because they did not know where to go (Exhibit F.9).

Exhibit F.7. In the last 12 months, have you felt you wanted or needed some place to go during the day to be with people, meet people who also want help with their drug or alcohol use or mental health, or connect with people for social support?



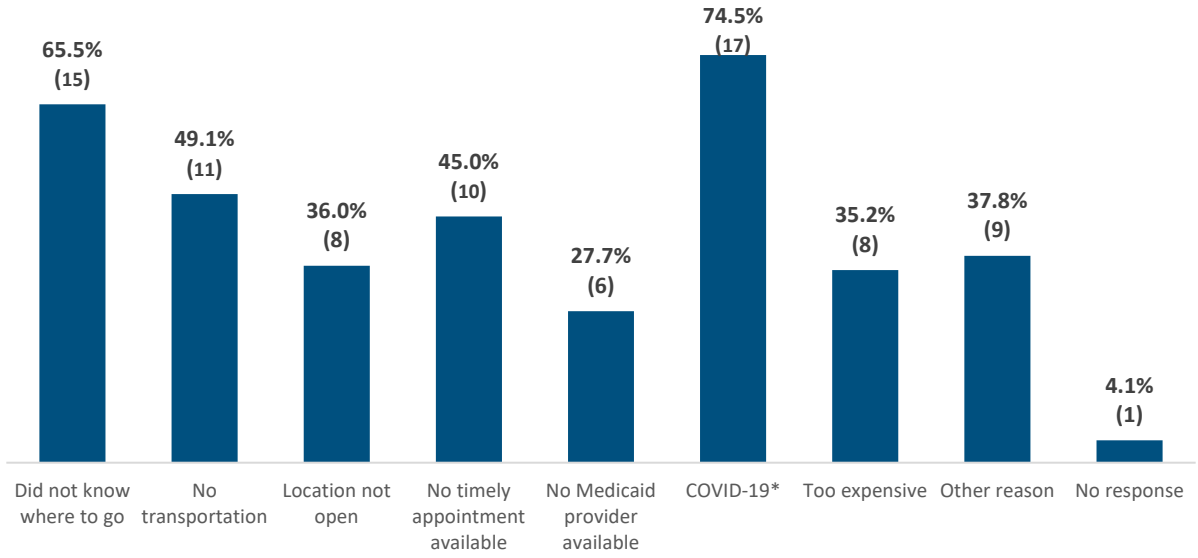
Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.8. Were you able to get all the services you wanted or needed for some place to go during the day to be with people, meet people who also want help with their drug or alcohol use or mental health, or connect with people for social support?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.9. Which of the following, if any, was a reason that you did not get the services you needed for some place to go during the day to be with people, meet people who also want help with their drug or alcohol use or mental health, or connect with people for social support?



Note. Percentages are weighted and may not add up to 100% because respondents could choose multiple options.

Reimbursement for Recovery Support Services

> **SUD Research Question 2.1e.** How does the availability of recovery support services influence initiation of, adherence to, and retention in SUD treatment?

Recovery support services (RSS) are a new benefit the District introduced under the Demonstration. These services became available to beneficiaries on January 1, 2020, via the Demonstration's first Chapter 86 rule. In addition, DBH implemented requirements via Chapter 63 that all core service agencies provide these services as a core service. Beneficiaries who have a diagnosis or have self-identified as having an SUD are eligible for RSS. These services are nonclinical strength-based supports designed to help beneficiaries maintain ongoing recovery and include services delivered by peer support specialists.

> "We are happy that recovery support services are Medicaid reimbursable now. This opens up the opportunity for more people to access services and reduces interdependency. We have been certified to bill but hadn't been allowed, and now we can finally get paid for these services we've been providing for years."

Evaluation participants expressed positive views of the newly available RSS benefit but noted that there was limited use. Several challenges driving the limited use of RSS emerged in interview and listening session discussions. These challenges included:

- limited understanding of how peer RSS are organized under the waiver;
- RSS providers' older billing systems and limited administrative staff may make it difficult to adopt new billing practices; and
- restrictions on providers who are able to bill, the scope of billable services, and the locations where they can bill.

> "We felt that peers should have a broader range of locations that they can work out of. For example, there are some [inaudible] in the city that have allowed them to work out of emergency rooms, programs for substance abuse, [and/or] psychiatric units. It was a good benefit to bring online, but the scope of the services was too limiting."
>
> "It was disappointing that we didn't see some further unbundling to offer recovery support services, by organizations that are primarily peer operated. It's still very much tied to organizations that are certified rehabilitation providers and largely clinically driven. We had hoped there would be more opportunity to see community recovery support services made available in a way that didn't rely on connection to some other part of the treatment continuum."

Billing for RSS may increase over time as District staff are actively encouraging providers to bill for RSS because the SOR grant funding that has historically supported peer recovery coaches is coming to an end.

Reimbursement for Supported Employment Services for SMI and SUD

> **SUD Research Question 2.1d.** How does the availability of supported employment services influence adherence to and retention in SUD treatment?

SES for beneficiaries with SMI has been a longstanding service of DBH MHRS providers. Historically, these services were partially funded by local dollars and partially funded under the State Opioid Response (SOR) grant. Under the waiver, SES for SMI became eligible for Medicaid reimbursement. Medicaid reimbursement for SES for SMI became effective as of February 1, 2020, as specified in the Demonstration's first Chapter 86 rulemaking. SES for beneficiaries with SUD is a new benefit under the Demonstration. The District considered the waiver period a pilot for SES for SUD because the evidence base for SES is specific to mental health. The availability of SES for beneficiaries with SUD became available March 27, 2020, as specified in the Demonstration's second Chapter 86 rulemaking (effective April 24, 2020). SES service providers offer ongoing vocational and therapeutic supports to help beneficiaries prepare for, obtain, and

maintain a part-time or full-time job that is permanent and garners at least minimum wage. These supports are provided to both beneficiaries and employers.

One positive outcome that evaluation participants reported relative to SES is that delivering the services virtually provided an opportunity to help clients improve the technological skills that may be needed during job interviews. However, evaluation participants primarily described significant barriers to delivering SES. These barriers included the following:

- The assessment process was burdensome and lengthy, so much so that clients who were interested in receiving the supports often did not complete it. As SES transitioned to a Medicaid-reimbursable benefit, additional requirements were implemented related to the assessment and referral process. It now includes an extensive assessment by the referring provider and DBH, which often takes a long time to conduct.
- The COVID-19 PHE made it difficult to sustain the services financially. Although some evaluation participants noted that they were able to successfully deliver SES virtually later in the PHE, early in the PHE it was difficult for providers to fund the employment specialist staff position, given that there were fewer clients interested in SES services, and job prospects were few during the early stages of the COVID-19 PHE.
- Low reimbursement rates made it difficult to sustain the services financially. Evaluation participants noted that the reimbursement rates for SES were insufficient for covering the costs associated with delivering the services. For example, one participant noted that every job they had supported a beneficiary in securing required $9,000 in donated funds.

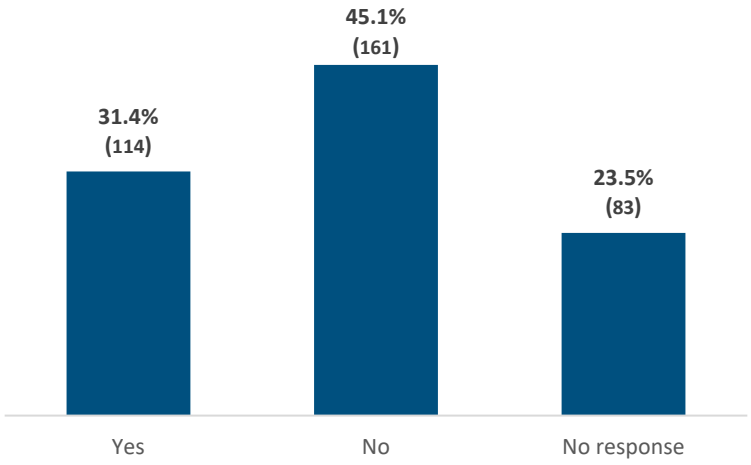
"[Telemedicine] works well for supported employment. We mostly do phone calls, but I'm trying to encourage more Zoom. We are getting more consumers now that [we] are engaging in-person, but we still have a lot of telemedicine. Sometimes the video part is hard for people, but we've been able to keep up. Interviews with employers can also use video calls. We also teach people how to use video features. It's an ongoing process."

"There are significant challenges with the new authorization process. DBH hired more people to assist, but communication breakdown and inability to get answers are very difficult and we have had very few referrals done in a timely manner. Having the right thing is also difficult; confusion about what was accepted as a submission to DBH was a holdup at first but now they will take psych evaluations and other things…Previously we did a quick 3- to 5-question tool, but now they want our diagnostic assessment and seem to do their own as well."

Beneficiary survey results suggest a need for SES, but there is mixed awareness of the availability of SES. Thirty-one percent (*n* = 114) of all survey respondents reported difficulty working at a job or business due to a physical, mental, or emotional condition lasting at least 6 months (Exhibit F.10). In addition, 33% (*n* = 115) of all survey respondents reported they were

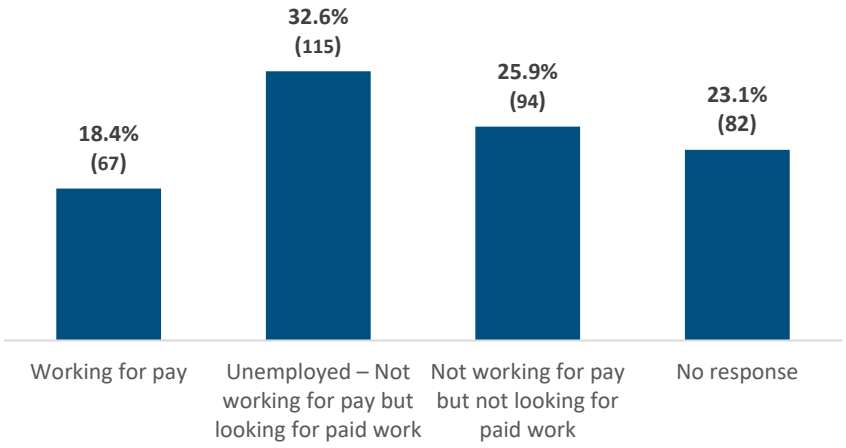
unemployed but looking for paid work (Exhibit F.11). However, only 45% of all survey respondents (*n* = 163) were aware they could get help finding a job through their healthcare providers. Forty-six percent (*n* = 164) of survey respondents reported they either could not or were unaware that they could get help finding a job through their healthcare providers (Exhibit F.12).

Exhibit F.10. Because of a physical, mental, or emotional condition lasting 6 months or more, do you have any difficulty working at a job or business?



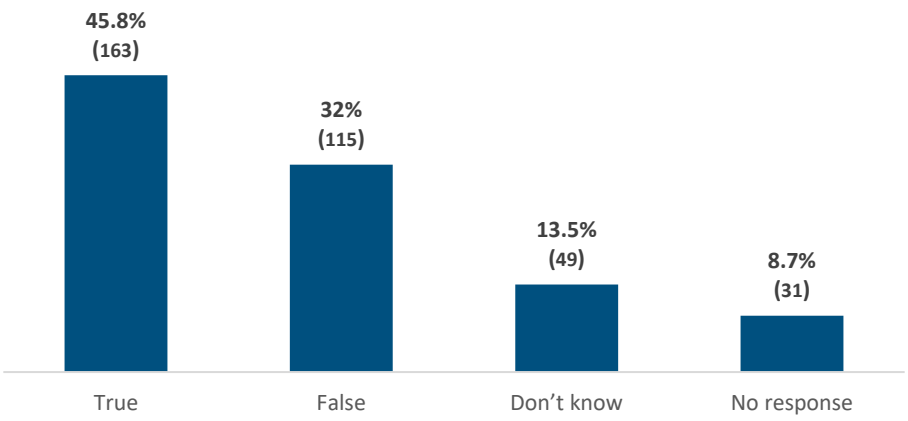
Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.11. What is your current employment status?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.12. I can get help finding a job through my healthcare providers.



Note. Percentages are weighted and may not add up to 100% due to rounding.

Reimbursement Methodology for Crisis Stabilization Services

> **SMI/SED Research Question 3.1b.** Was there an increase in awareness of the availability of crisis stabilization services?
>
> **SMI/SED Research Question 3.1c.** How does the Demonstration influence the availability of crisis stabilization services (i.e., CPEP, Psychiatric Crisis Stabilization Program, Youth Mobile Crisis Intervention, and Adult Mobile Crisis and Behavioral Health Outreach)?

Crisis stabilization services are 24 hours per day, 7 days per week, year-round services that address an unplanned event requiring a response when an individual struggles to manage their psychiatric or substance use–related symptoms without de-escalation or other intervention. The Demonstration implemented several changes to the crisis stabilization services available to beneficiaries with SMI/SED and SUD in the District. These changes included:

- more appropriately accounting for and valuing crisis stabilization services by revising the billing methodology for CPEP (from 15-minute increments to an hourly rate for brief crisis emergency visits and per diem for 23-hour crisis and extended observation visits) and adding mobile crisis and outreach services as separate from CPEP services with distinct billing structures, and
- providing a treatment alternative to psychiatric inpatient hospitalization by adding coverage for psychiatric residential crisis stabilization services that were previously funded through local dollars.

These reimbursement changes were effective as of June 1, 2020, as specified in the Second Chapter 86 Rulemaking. The newly created Chapter 80 of Title 22-A Rulemaking describes the provider certification requirements associated with crisis stabilization services.

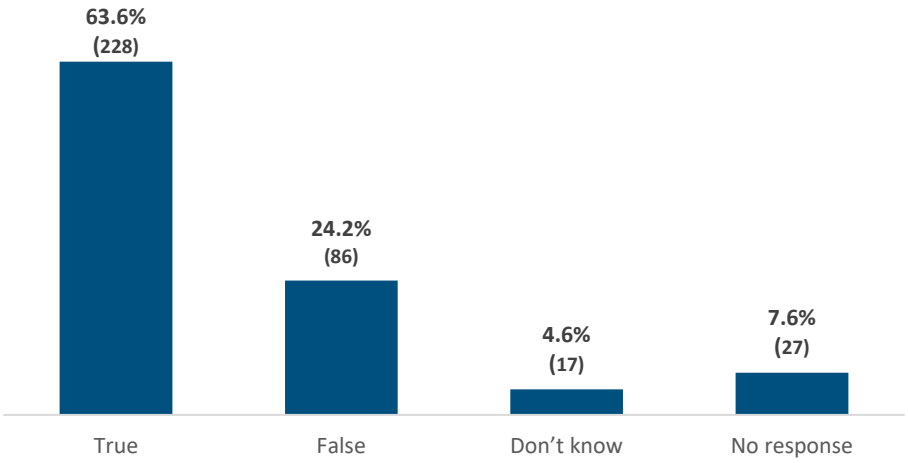
Changes to crisis stabilization services have had a positive impact on providers in the District. Of note, several evaluation participants considered the changes to funding for crisis services to be the main impact of the Demonstration. The successes that evaluation participants reported include the following:

- *Improved beneficiary access to crisis stabilization services due to better understanding among providers of what is reimbursable*. Prior to the Demonstration, the interpretation of which crisis services were reimbursable varied across providers, and some patients were turned away from services because of perceived lack of reimbursement eligibility. Evaluation participants noted that the Demonstration helped clarify the rules and reimbursement rates for crisis services, making it easier for patients to access these services because more providers began referring patients to crisis stabilization providers. For example, one stakeholder noted that the policy clarifications widened the range of crisis stabilization providers who referred patients to their organization.

> "We are a crisis service provider—we have been billing under chapter 80 now since March, we have noticed a change, more ways in which we can bill. I think, the city wants to increase the revenue coming into those programs and that's helpful, overall positive."

- *Increased willingness to deliver crisis stabilization services.* Evaluation participants reported that the reimbursement changes have stabilized the budgets of providers who were already delivering crisis stabilization services and incentivized new providers to pursue certification to deliver residential crisis stabilization services. For example, one stakeholder noted that they had opened up crisis stabilization services in their residential facility because of the Demonstration's added coverage for these services. Evaluation participants were optimistic that additional providers would begin offering crisis stabilization services, making it easier for a beneficiary to receive a full continuum of care by their "home" provider.
- *Broad awareness among beneficiaries of the availability of crisis stabilization services and receipt of nonhospital emergency care.* Almost two-thirds of survey respondents (64%) said they would know how to get help for a crisis or urgent problem related to their drug or alcohol use or mental health without going to the emergency department (ED) or hospital (*n* = 228) (Exhibit F.13).

Exhibit F.13. If I were having a crisis or urgent problem related to my drug or alcohol use or mental health, I would know how to get help without having to go to the emergency room or the hospital.



Note. Percentages are weighted and may not add up to 100% due to rounding.

The few challenges that evaluation participants reported related to ongoing billing challenges for child crisis providers associated with the unique requirements for the child population and a lack of availability of crisis stabilization services in Wards 7 and 8 of the District.

Reimbursement Methodology for Trauma Recovery and Empowerment Model and Trauma Systems Therapy

> **SMI/SED Research Question 4.1c.** How does the implementation of changes to the reimbursement methodology for TST and TREM influence access to TST and TREM services?
>
> **SMI/SED Research Question 4.1e.** How does creating separate service definitions for TREM and TST influence access to TREM and TST services?
>
> **SMI/SED Research Question 4.2b.** How does the Demonstration influence utilization of TST and TREM services?

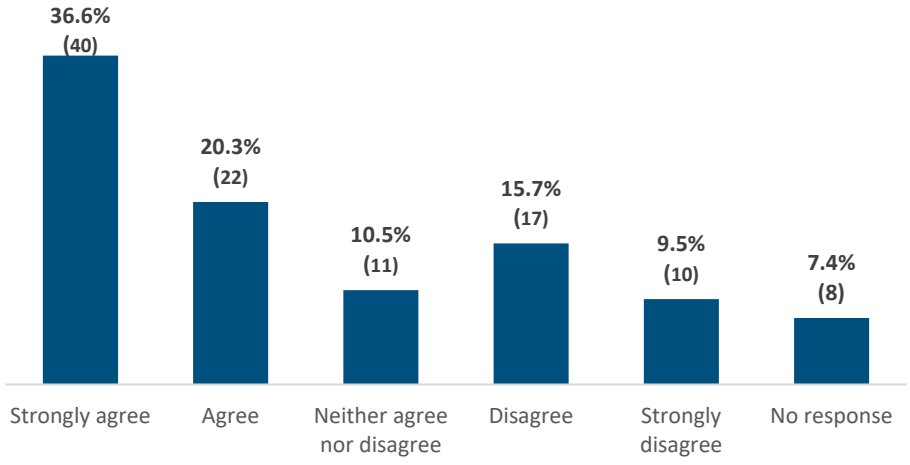
TREM counseling (for adult beneficiaries with SUD and/or SMI who have survived trauma) and TST (for youth and adolescent beneficiaries who have experienced traumatic events) were available to District beneficiaries before the Demonstration. The Demonstration made these specialty services distinct from the core counseling services that MHRS providers are required to deliver. This change was intended to improve tracking the utilization of these services, promote fidelity to the treatment models, and incentivize greater availability of these services via higher reimbursement rates. The new reimbursement rates were effective as of March 1, 2020, per the Demonstration's first Chapter 86 rulemaking.

DBH rulemaking related to Chapters 34 and 63 of Title 22-A implement the certification criteria associated with being able to bill for these services. Evaluation participants described TREM services as cost-prohibitive to deliver because of the certification requirements. The specific challenges participants reported were that the TREM training required to certify providers was expensive and that clinicians with the licensure required to facilitate TREM groups did not want to deliver the model.

> "A genuine TREM group requires a high level of licensure which we cannot afford. This is where DBH shoots itself in the foot. It states you can do TREM but need independently licensed clinicians. We have trouble hanging on to independently licensed clinicians for providing direct service…Although, we know TREM and we like it but it is a work-in-progress in terms of implementation because of DBH's requirement for the providers."
>
> "Getting [Independent licensed providers] to do the work such as a TREM group or day-to-day psychotherapy with our consumers is challenging. As well as the rate of licensure of independent clinicians is such that the DBH rate does not support it. So, the cost to do TREM is not supported by the rate for TREM."

Beneficiary survey data suggest that there is opportunity to improve the availability of trauma-related services. Of the 108 survey respondents (30%) who wanted or needed counseling or treatment for a traumatic event, slightly over half (57%) agreed they were able to get all the services they wanted or needed (Exhibit F.14). Twenty-five percent (*n* = 7) disagreed that they had gotten all the services they wanted or needed. These 27 survey respondents most commonly reported COVID-19 as the reason for not getting the services they wanted or needed (*n* = 17), followed by not getting an appointment as soon as they needed (*n* = 15).

Exhibit F.14. Were you able to get all the services you wanted or needed for counseling or treatment for a traumatic event?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Reimbursement Methodology for Telemedicine[66]

Before the Demonstration, the District was providing FFS telemedicine reimbursement for behavioral health services based on an emergency rule. Under the Demonstration, the District finalized this rule and issued updated guidance on telemedicine. This additional guidance was developed, in part, based on the need to deliver services virtually during the pandemic. Specifically, audio-only telemedicine allowed beneficiaries to receive telemedicine services at home as opposed to only in a clinical setting. In addition, via the SOR grant, several behavioral health providers in the District were piloting a TeleMAT program, which builds on the phone-based medication assisted treatment (MAT) induction that occurred during the PHE. Early findings suggest that the volume of demand for TeleMAT is low; two pilot program grantees are exploring ways to combine their services to achieve feasible economies of scale.

Telemedicine—particularly for mental health services—increased substantially during the PHE and has maintained a high level of use. Evaluation participants' feedback on telemedicine was mixed. They noted that it was difficult or inappropriate to deliver some services via telemedicine. For example, participants reported that in addition to inpatient and residential services, assertive community treatment (ACT) services and nonclinical support services such as filling out housing or social services forms were difficult to provide via telemedicine. In addition, certain populations, such as people who are experiencing homelessness, cannot be served via telemedicine. Thus, these providers and their patients were unable to take advantage of the telemedicine policy and payment flexibilities.

Evaluation participants also noted that beneficiaries and some providers had difficulty with the technologies. For example, some beneficiaries lacked familiarity with how to use the software tools. In addition, cell phone data limits and the limited internet bandwidth of home computers made using video difficult. Further, telemedicine fatigue was an issue among some clinicians, exacerbating challenges with workforce retention. Providers implemented strategies to address these challenges, such as:

- setting up spaces at the providers' facility where beneficiaries could come in and use laptops set up with Zoom for telemedicine appointments with providers who were working from home so that they could have someone available to help them with the technology, and
- issuing laptops to clinicians and increasing their at-home IT supports.

[66] There are no research questions related to telemedicine because this was not originally a part of the District's Demonstration design. However, it emerged as an important component of the care delivery system under the COVID-19 PHE, so the evaluation team chose to incorporate the District's telemedicine payment efforts as a secondary driver under the Demonstration.

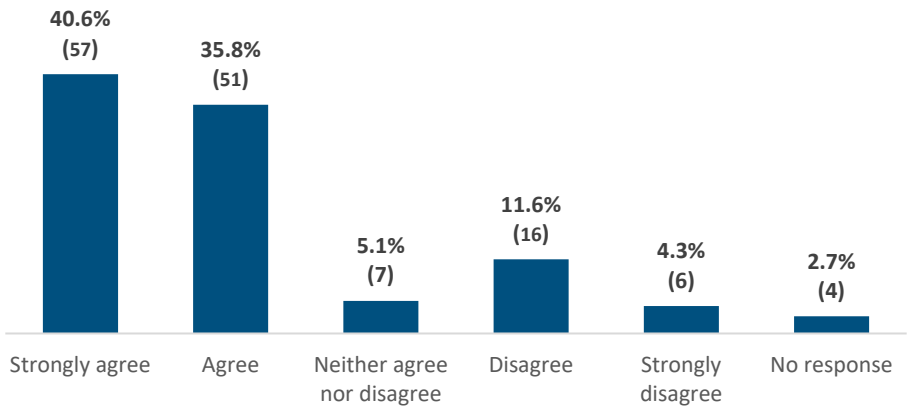
Despite these challenges, the consensus was that in circumstances where telemedicine is appropriate, working to overcome technological barriers was valuable, given that providers and beneficiaries appreciate the flexibility that telemedicine affords.

> "Telemedicine has really been successful for us. We use it with our prescribers, our psychiatrists, our APRNs—now we're hybrid, but we generally have prescribers in the office sometimes; a lot can be hidden over the phone in a psych assessment. People on both sides like it, though, especially in the medication clinic and for individual counseling. Folks who have trouble doing video can come into our office and have people in the clinic help connect if the doctor is remote. Phone calls and audio only are useful for community support, but it tends to be more useful in person—filling out documents, tasks that are easier in person. But it's great to have it as an option either way."

Beneficiary survey results suggest that they have had positive experiences with telemedicine. Thirty-nine percent of all survey respondents (*n* = 141) had used telemedicine to get help with their drug or alcohol use or mental health, including a healthcare visit over video or phone, within the past 12 months. The majority of survey respondents' experiences with their telemedicine visits had been positive. Of the respondents who had had a telemedicine visit in the last 12 months:

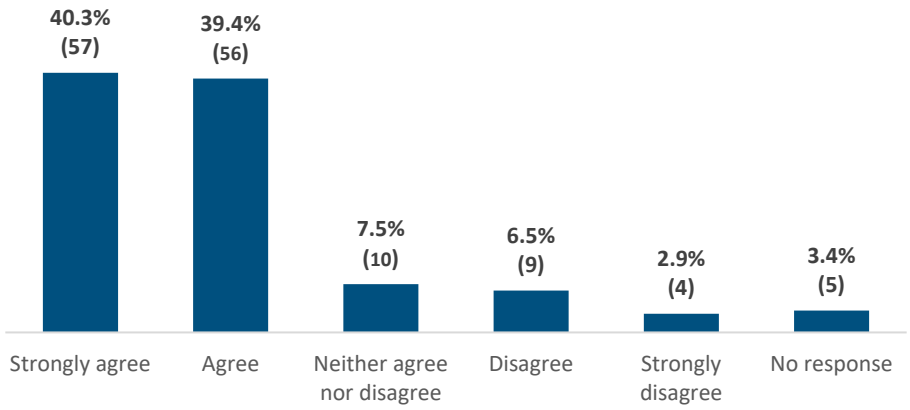
- seventy-six percent (*n* = 108) reported that the telemedicine visit had been as good as an in-person visit (Exhibit F.15),
- eighty percent (*n* = 113) reported that the telemedicine visit had made it easier for them to see a healthcare provider (Exhibit F.16),
- seventy-five percent (*n* = 105) reported that they had found telemedicine to be an acceptable way to receive services (Exhibit F.17), and
- eighty-one percent (*n* = 115) reported that they had felt comfortable talking about their healthcare issues using telemedicine services (Exhibit F.18).

Exhibit F.15. The telemedicine visit was as good as an in-person visit.



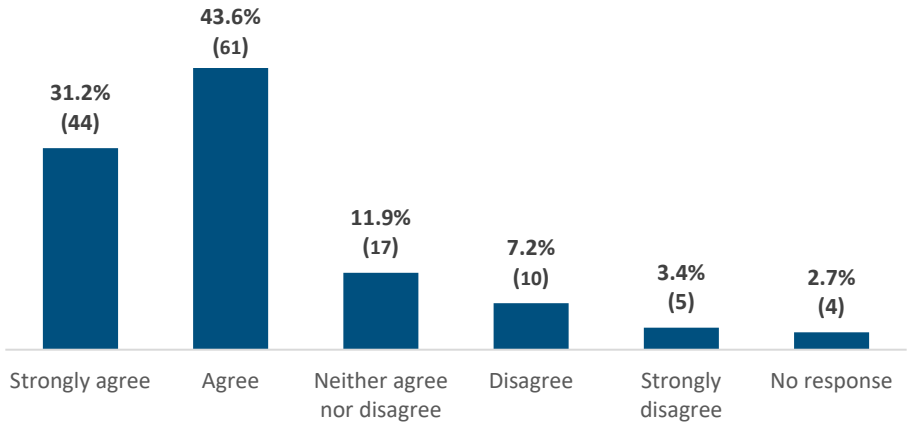
Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.16. Telemedicine made it easier for me to see a healthcare provider.



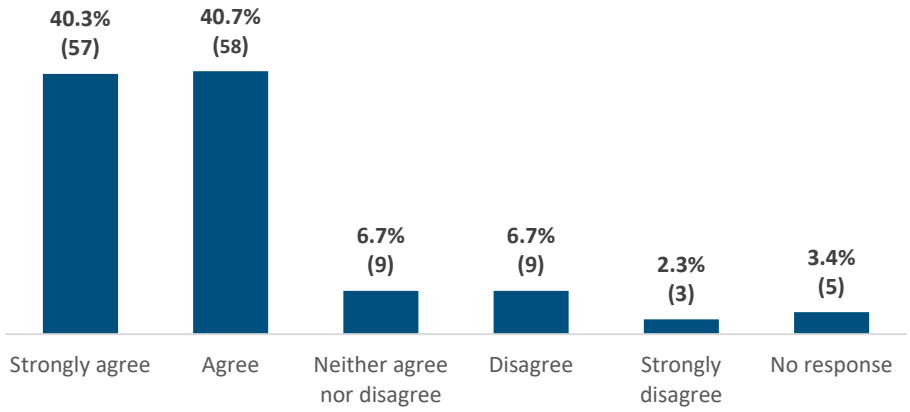
Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.17. I find telemedicine an acceptable way of receiving care.



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.18. I felt comfortable talking about my healthcare issues using telemedicine services.

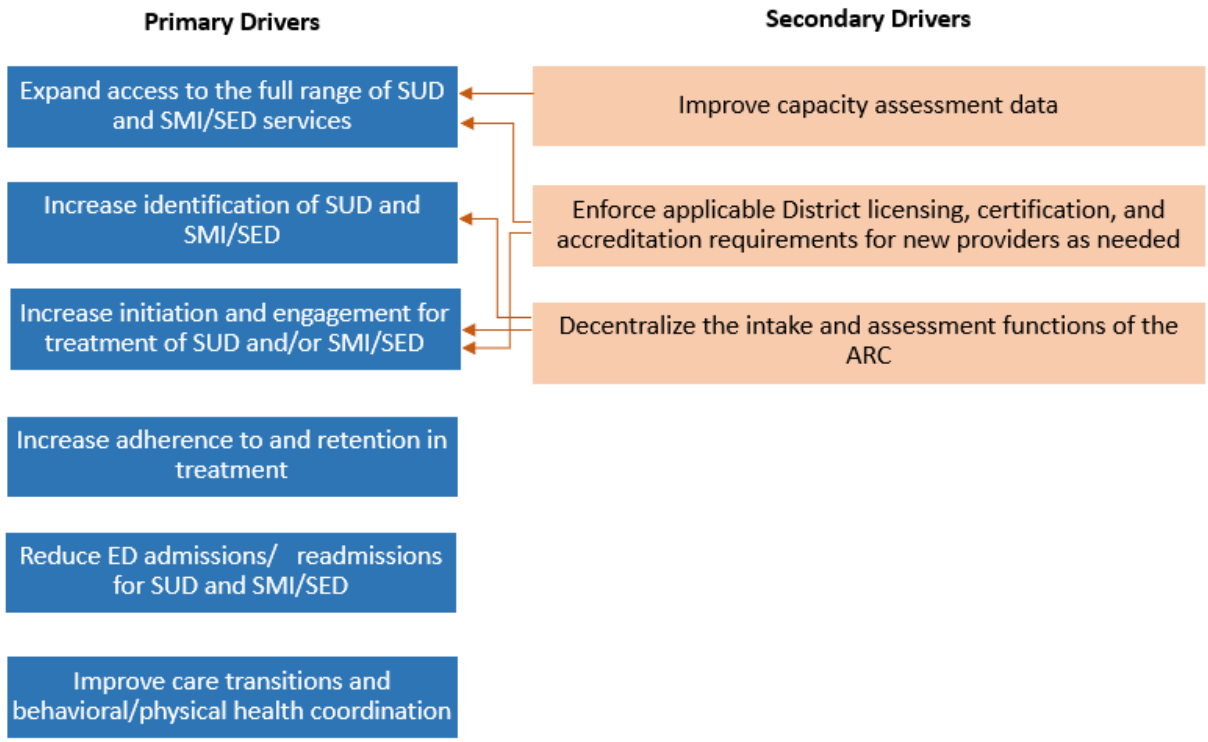


Note. Percentages are weighted and may not add up to 100% due to rounding.

F.1.3 Implementation of Drivers Related to Increasing Capacity

In this section, we describe the successes, challenges, and perceived impact of implementing the secondary drivers related to increasing capacity. As depicted in Exhibit F.19, these drivers were intended to contribute primarily to Demonstration goals related to expanding access to the full range of SUD and SMI/SED services, increasing identification of SUD and SMI/SED, and increasing initiation and engagement for treatment of SUD and/or SMI/SED. Our findings indicate that the District has made good progress on increasing capacity. The District commissioned AIR to conduct a review of available data and commonly used metrics for assessing provider capacity to inform their efforts to improve capacity assessment data. DHCF has collaborated closely with DBH to ensure that certification requirements for newly defined or reimbursable services promote quality service delivery. Last, evaluation participants indicated that the decentralization of the intake and assessment functions of the ARC was one of the most impactful changes that occurred during the Demonstration. The following sections describe these results in detail.

Exhibit F.19. Driver Diagram Excerpt Depicting Secondary Drivers Related to Increasing Capacity



Improvements to Capacity Assessment Data[67]

Gaining an accurate understanding of the District's capacity to meet the behavioral health needs of Medicaid beneficiaries has proven challenging. Data sources available to identify the number of providers that are available have significant limitations. For example, providers may be contracted under MCOs but not directly with DHCF; in such cases, DHCF will have encounters from MCOs for the services that were paid but may have limited information on the characteristics of the providers delivering the care. In addition, while DHCF has comprehensive data on paid MCO encounters, claims denied by MCOs are generally excluded from analyses (e.g., those related to 1115 waiver monitoring and evaluation) due to limitations that include varying file formats and processes for obtaining the information from plans. DBH-certified providers bill Medicaid at the facility level; these claims often do not include individual-level rendering clinicians, thus obscuring the capacity an organization has to deliver services. In addition, as part of reporting requirements for several federal programs, DHCF currently computes metrics that identify the number of behavioral health providers available in the District. However, the specifications for categorizing provider types and the data sources used to categorize and count providers vary across these reporting metrics. Differing specifications for provider availability metrics under various programs make it difficult for the District to interpret the different counts of providers reported by these programs. Finally, measures of capacity without accompanying measures of demand make it difficult to determine whether capacity is sufficient to meet beneficiaries' needs.

The best available data on provider capacity are inconsistent. The overall availability of mental health providers increased in the District between 2019 and 2021. However, there was a slight decline in the availability of certain provider types, such as Medicaid-enrolled psychiatrists and other practitioners authorized to prescribe psychiatric medications. In addition, providers noted that provider shortages were a significant problem in the District, particularly in Wards 7 and 8.

> "Now's the time to make an incremental improvement in supply and capacity in Ward 7 and 8, where demand is highest and patients are going to need it for the foreseeable future. If that makes sense. They are evaluating service mix now, and now's the time to weigh in, if you have the opportunity, on capacity; Ward 7 and 8, in-patient acute services; outpatient care and treatment; as well as perhaps a CPEP service related to the opening of the new hospital. Link to it in some way."

Providers indicated that the District lacked sufficient provider capacity across the continuum of care for SUD services, especially for partial hospitalization and intensive outpatient services that

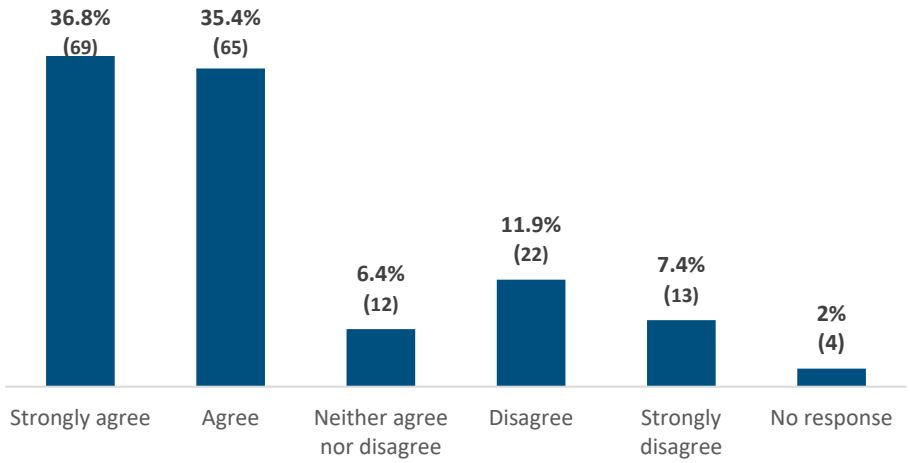
[67] There are no research questions for this driver because it is a delivery infrastructure requirement imposed by CMS. The evaluation team chose to prioritize waiver authority activities and other District-proposed delivery system changes for assessment under the evaluation. However, we included a summary of progress related to this driver to provide a comprehensive characterization of the District's efforts under the Demonstration.

bridge the transition between inpatient rehabilitation services and outpatient services. According to providers, there was a general shortage of SUD providers; and low salaries (driven by low reimbursement rates for SUD services) put them at a competitive disadvantage for attracting and retaining qualified personnel who had better paid opportunities elsewhere. These workforce recruitment and retention issues were exacerbated by the pandemic. Similar to perspectives on SUD provider availability, many evaluation participants spoke of the limited availability of mental health providers and services as a significant challenge in the District. Areas where the availability of mental health providers and services continued to be a challenge, according to evaluation participants, included partial hospitalization, intensive outpatient, crisis stabilization, and inpatient psychiatric services.

Beneficiary survey data suggested that most beneficiaries are receiving the mental health and SUD care they need. However, when they were unable to receive the care they needed, a sizable proportion of survey respondents reported that the reason was because they could not get an appointment as soon as they wanted or they could not find a provider who accepted their Medicaid. For example:

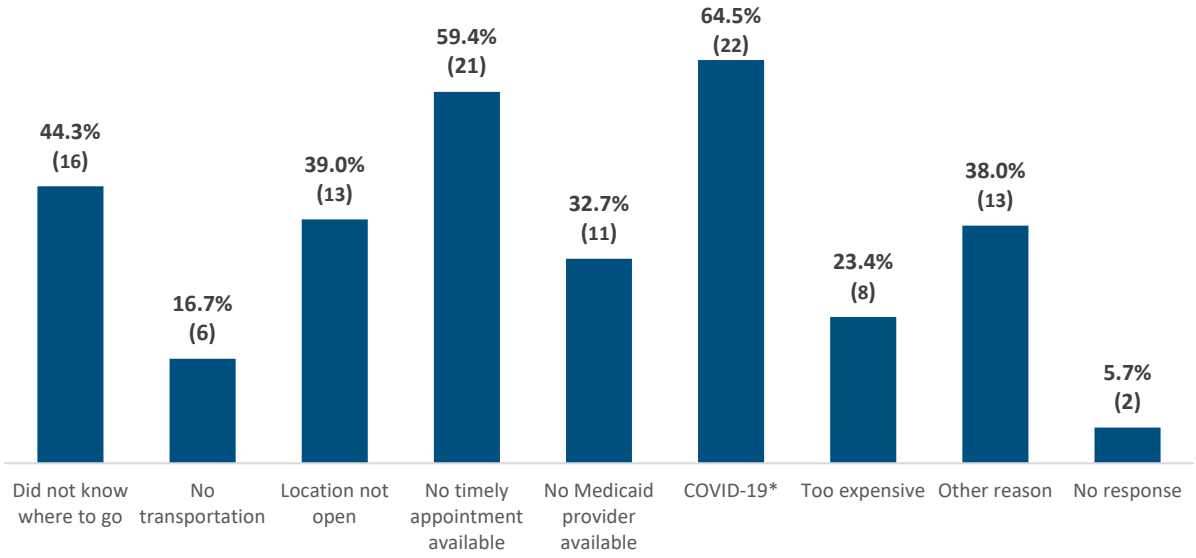
- Seventy-two percent (*n* = 134) of survey respondents who wanted or needed counseling or treatment for emotional or mental health agreed they had been able to get all the services they wanted or needed (Exhibit F.20). Of those who disagreed, 59% and 33% cited not getting an appointment as soon as needed and an inability to find a provider who would take their Medicaid, respectively, as reasons for not getting all the services they wanted or needed (Exhibit F.21).
- Eighty-one percent (*n* = 38) of survey respondents who wanted or needed counseling or treatment for drug or alcohol use agreed that they had received all the services they wanted or needed (Exhibit F.22). Of those who disagreed, 64% and 52% cited not getting an appointment as soon as needed and an inability to find a provider who would take their Medicaid, respectively, as reasons for not getting all the services they wanted or needed (Exhibit F.23).

Exhibit F.20. Were you able to get all the services you wanted or needed for counseling or treatment for emotional or mental health?



Note. Percentages are weighted and may not add up to 100% due to rounding.

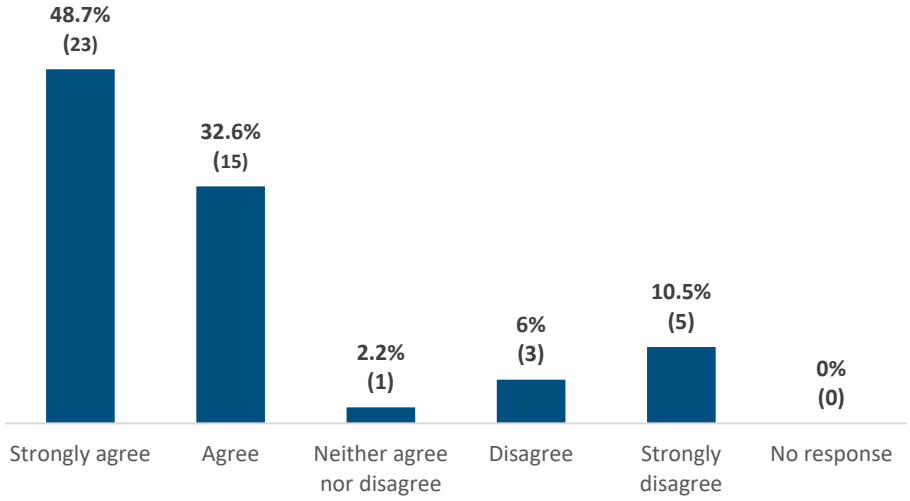
Exhibit F.21. Which of the following, if any, was a reason that you did not get the services you needed for counseling or treatment for emotional or mental health?



* For example, you felt COVID-19 risk too great or location closed.

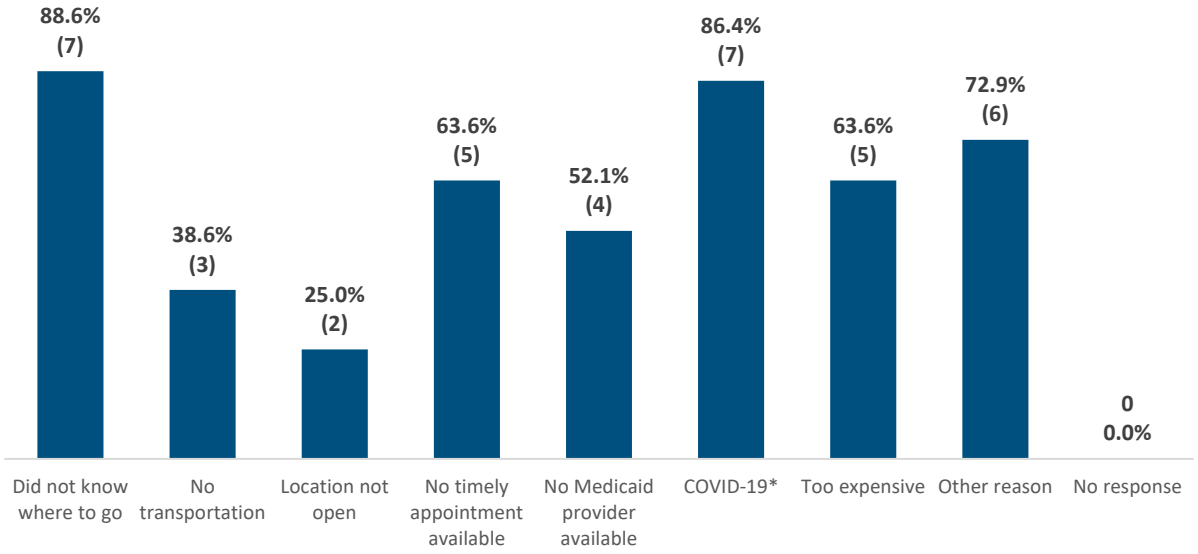
Note. Percentages are weighted and may not add up to 100% because respondents could choose multiple options.

Exhibit F.22. Were you able to get all the services you wanted or needed for counseling or treatment for drug or alcohol use?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.23. Which of the following, if any, was a reason that you did not get the services you needed for counseling or treatment for drug or alcohol use?



Note. Percentages are weighted and may not add up to 100% because respondents could choose multiple options.

To gain clearer insight into the District's capacity to meet beneficiaries' behavioral healthcare needs, DHCF has contracted with AIR to develop a comprehensive framework for assessing behavioral healthcare capacity and demand. The framework is informed by a systematic review of state, federal, and private approaches to these assessments, as well as the specific data

sources and delivery system model in the District. The framework will inform future DHCF efforts to conduct accurate, consistent analyses of behavioral healthcare capacity and demand in the District.

In addition, the Demonstration's efforts to implement standardized assessment and placement tools may enable these analyses. Documentation of the results of evidence-based standardized assessments would provide an accurate and precise description of demand for the LOC acuity that is indicated. Combined with utilization data related to these levels of care, estimates of limited or excess capacity could be identified.

Enforcement of Applicable District Licensing, Certification, and Accreditation Requirements for New Providers, as Needed [68]

Under the Demonstration, CMS requires the District to enforce applicable licensing, certification, and accreditation requirements for new providers, as needed. In addition, DBH has collaborated with DHCF to implement Demonstration policies by issuing new or revised certification requirements associated with Demonstration services. These changes to certification requirements include:

- requiring all treatment providers to provide intake and assessment services and become certified to deliver these services (Chapter 63 of Subtitle A of Title 22 of the DCMR; final rule effective date June 17, 2020);
- updating Chapter 34 (effective date January 14, 2020) to designate specific certification for the Trauma Recovery and Empowerment Model (TREM) and Trauma Systems Therapy (TST) to enable higher reimbursement rates for these services;
- adding Chapter 37 (effective date February 7, 2020), which describes certification standards for SES for SMI;
- adding Chapter 65 (effective date September 28, 2020), which establishes certification requirements and service and eligibility standards for transition planning services for SUD and SMI/SED services during or following an inpatient or residential SUD treatment stay; and
- adding Chapter 80 (effective date October 7, 2020), which establishes certification requirements for crisis service providers.

[68] There are no research questions for this driver because it is a delivery infrastructure requirement imposed by CMS. The evaluation team chose to prioritize waiver authority activities and other District-proposed delivery system changes for assessment under the evaluation. However, we included a summary of progress related to this driver to provide a comprehensive characterization of the District's efforts under the Demonstration.

Evaluation participants commonly noted that certification requirements acted as a deterrent to providers offering certain services. For example, providers described reluctance to become certified to deliver residential SUD services and crisis stabilization services. In addition, the consensus among evaluation participants was that there are no providers of intensive outpatient services in the District because it is difficult to adhere to the operating rules associated with those services. Intensive outpatient services must be available 6 hours a day; providers indicated that this certification requirement was not financially viable at current reimbursement rates for this LOC. Key informants recognized that the lack of intensive day treatment services was the result of operating rules that are difficult to adhere to (e.g., open 7 days a week), but they believed the partial hospitalization programs helped to address this service gap.

> "The certification process seemed pretty onerous when we first looked at it and continues to look onerous."

Decentralization of the Intake and Assessment Functions of the ARC[69]

As part of the Demonstration, DBH implemented a requirement that all SUD treatment providers provide intake and assessment services to beneficiaries (Chapter 63 of Subtitle A of Title 22 of the DCMR; final rule effective date June 17, 2020). Prior to the Demonstration, these services were primarily delivered by a few Assessment and Referral Centers (ARC). This complicated beneficiaries' entry into treatment.

Evaluation participants' feedback on this change was largely positive. Providers uniformly indicated that decentralization of the intake, assessment, and referral process improved patient access to services, noting that it avoided having to send patients who presented at their provider of choice to the ARC before starting treatment. In fact, one provider said that decentralized intake had had the largest impact of all waiver changes and that the change has been "dramatic"—enabling providers to reach patients in the community, offering patients more choice, and supporting the integration of SUD and SMI/SED.

> "Because to be honest, before with the single site, we got more people turned away with SMI and treated really disrespectfully. So it was really hard to talk with someone about getting into treatment because they had often been treated so horribly and rudely before. So having that embedded at providers who are doing the work and are welcoming and trauma-informed has been a pretty significant and positive difference."

[69] There is no research question for this driver because DBH's efforts to expand sites that could perform intake, assessment, and referral services were under way prior to the Demonstration. However, the evaluation team chose to include a summary of the District's efforts to continue to expand access points for intake, assessment, and referral because it emerged as a key contributor to positive Demonstration outcomes.

The challenges of expanded intake and assessment evaluation that participants identified related to certification requirements. For example, one evaluation participant indicated that the process for being certified as an intake and referral center was onerous enough to prevent them from benefiting from the change, although they were developing the relevant services and strongly supported the policy. Other evaluation participants reported that they did not have the capacity to conduct the assessments as specified in the certification requirements. For example, one evaluation participant described an increased administrative burden associated with intake functions due to shifting from conducting those services twice a week to daily, and prior authorization requirements from MCOs. Another evaluation participant reported that they did not have the capacity to perform the medical assessments required, such as pregnancy testing and HIV screening.

> "Doing intake has expanded to affect billing and administration since the system changed, and now we have to do more than just verify DC residency and Medicaid before we can bill for service. Now we also have to get preauthorization for MCO—and that only lasts for so many days—then it goes somewhere else, and then it needs approval every 14 days. Intake never stops now."

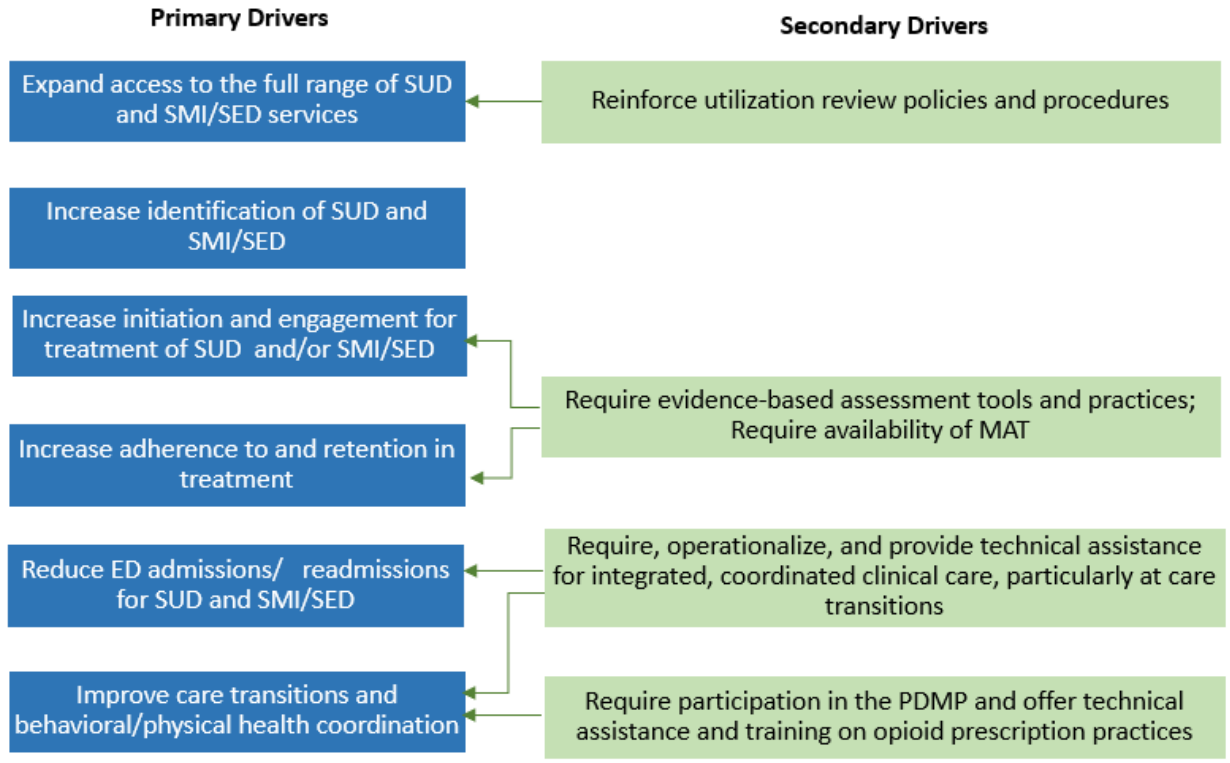
F.1.4 Implementation of Drivers Related to Increasing Quality

In this section, we describe the successes, challenges, and perceived impact of implementing the secondary drivers related to increasing quality. As depicted in Exhibit F.24, these drivers were intended to contribute to almost all of the Demonstration goals. In summary, the District has implemented requirements that promote quality as intended. However, evaluation participants varied in their perspectives on the value and impact of these requirements. For example, evaluation participants:

- reported both positive and negative perspectives of changes to utilization review policies and procedures,
- described themselves as compliant with new MAT availability policies but admitted that they prefer non-MAT interventions for SUD, and
- prefer alternatives to the evidence-based assessment tools the District requires.

In addition, the consensus across evaluation participants was that lack of coordinated care continues to be a significant weakness in the District's behavioral health delivery system. The sections that follow discuss these findings in detail.

Exhibit F.24. Driver Diagram Excerpt Depicting Secondary Drivers Related to Increasing Quality



Reinforcement of Utilization Review Policies and Procedures[70]

Utilization review policies and procedures relevant to the Demonstration relate primarily to IMD stays. To facilitate appropriate utilization, the District issued several transmittals educating providers about:

- which Demonstration services qualify for IMD reimbursement (psychiatric hospitalization, SUD residential treatment, and withdrawal management),
- prior authorization requirements for receiving reimbursement for IMD stays associated with Demonstration services,
- procedures for requesting these prior authorizations, and
- LOS requirements (less than 60 days) for receiving reimbursement for SMI-related IMD stays associated with Demonstration services.

[70] There are no research questions for this driver because it is a delivery infrastructure requirement imposed by CMS. The evaluation team chose to prioritize waiver authority activities and other District-proposed delivery system changes for assessment under the evaluation. However, we included a summary of progress related to this driver to provide a comprehensive characterization of the District's efforts under the Demonstration.

FFS Medicaid utilization review is currently conducted through a contract with DHCF's Quality Improvement Organization (QIO). The current QIO, Comagine Health, uses the InterQual criteria for IMD authorizations and concurrent reviews.

As mentioned above, evaluation participants expressed concern about the administrative burden associated with the utilization review processes for patients admitted to IMDs, given the different payment mechanisms associated with different lengths of stay. In addition, key informants acknowledged that prior authorization requirements for residential IMD stays for SUD was new for these providers and therefore required both a cultural shift and significant changes to clinical workflows. Evaluation participants had differing views of the impact of IMD utilization review processes on beneficiaries. For example, one stakeholder noted treatment delays due to prior authorization and the criteria for determining who will cover services in the IMD setting and for how long. However, two stakeholders reported a positive result of the utilization review policy changes. One health plan said that the utilization review policy changes for IMD admissions necessitated the health plan to enter into a contract with the District's public mental health hospital, which in turn gave the health plan access to previously unavailable data on its members who had been admitted to this hospital during their stay. This health plan noted that access to these data supports its care coordination efforts. Other evaluation participants reacted positively to the introduction of a standardized patient assessment tool as a way to focus the residential stay as one time-limited step for patients, with the goal of returning patients to the community.

Requirements Related to Evidence-Based Assessment Tools and Practices[71]

Under the Demonstration, the District has incorporated requirements to use District-selected evidence-based tools and practices as part of the intake and assessment process. For example, DBH included the following language in the final rulemaking for 22A DCMR Chapter 63 (6328.1): "All individuals seeking SUD services must be assessed and referred to a particular LOC [level of care] in accordance with the Department-approved assessment tool(s) and ASAM criteria." The assessment tool that SUD providers must use is called the Treatment Assignment Protocol (TAP). Other providers are required to use the Level of Care Utilization System (LOCUS) tool. Providers confirmed that they routinely used these tools; however, they noted that there were other evidence-based tools they preferred (e.g., the DLA-20 Functional Assessment Tool[72] and GAIN-SS[73]). In some instances, providers opted not to use these tools because they were unable

[71] There are no research questions for this driver because it is a delivery system infrastructure requirement imposed by CMS. The evaluation team chose to prioritize waiver authority activities and other District-proposed delivery system changes for assessment under the evaluation. However, we included a summary of progress related to this driver to provide a comprehensive characterization of the District's efforts under the Demonstration.

[72] More information about the DL-20 Functional Assessment Tool can be found at https://www.thenationalcouncil.org/product/dla-20-functional-assessment-guide

[73] More information about the GAIN-SS can be found at https://gaincc.org/instruments/

to align the use of the tools with the reporting requirements driven by the TAP structure. In other instances, providers opted to use multiple tools.

> "We're still required to use the TAP…There are much better tools that can be completed by the patient, reviewed with the patient by the clinician, or a clinic-administered assessment."

Requirements Related to the Availability of MAT

> **SUD Research Question 1.2d.** How does the implementation of requirements to offer or facilitate access to all FDA-approved medications for use in SUD influence access to these SUD treatment services?

The Demonstration has implemented a requirement that providers offer MAT. DBH included the following language in the final rulemaking for 22A DCMR Chapter 63 (6328.8): "All [residential treatment] providers shall offer all Food and Drug Administration ("FDA")-approved forms of MAT to any client who meets the criteria for and selects MAT as part of their Plan of Care, in accordance with certification under this chapter or other Federal and District laws and regulations. If a provider is not certified to offer the client's choice of medication in accordance with this chapter or under any other Federal and District laws and regulations, then the provider shall refer the client to another provider able to offer MAT that meets the client's needs."

It is unclear whether access to MAT has improved under the Demonstration. The residential treatment providers that participated in stakeholder interviews indicated they were in compliance with MAT requirements. For example, one provider noted that they were in the process of becoming certified as an opioid treatment provider; in the meantime, they were referring beneficiaries in need of methadone to other providers. In addition, as discussed above, a large majority of beneficiary survey respondents reported that they had been able to get the SUD medications they needed.

However, there could be an opportunity to further increase the availability of MAT. The requirements apply only to residential SUD treatment providers and some providers participating in the stakeholder interviews who expressed reluctance to offer MAT.

> "If you're interested in MAT we will work with you…If you come in with MAT, we welcome it. If you request one, we will educate and work with you—but we work long term at no [maintenance] substances."

Requirements and Technical Assistance for Integrated, Coordinated Clinical Care, Particularly at Care Transitions

> **SMI/SED Research Question 5.1b.** How does the implementation of the requirement that psychiatric hospitals initiate contact with the beneficiary and community-based providers within 72 hours of discharge influence care coordination?
>
> **SMI/SED Research Question 5.1e.** How does the implementation of requirements for IMDs to conduct psychiatric and medical screenings influence assessment and treatment of physical health conditions for beneficiaries with SMI/SED?
>
> **SUD Research Question 6.1d**. How does the implementation of requirements for IMDs to conduct psychiatric and medical screenings influence assessment and treatment of physical health conditions for beneficiaries with SUD?

The Demonstration has implemented several strategies aimed at improving integrated, coordinated clinical care. As described above, the new transition planning services benefit was intended to provide care transition support for beneficiaries who did not otherwise have access to these services via health home, MCO, or HCBS program services. Notably, transition planning services include assessments of beneficiaries' physical healthcare needs and connecting beneficiaries to nonclinical supports such as housing or other social service benefits, as applicable. Similarly, the new certification requirements for SUD providers to conduct intake and assessment include assessments related to physical healthcare needs and employment and housing status.

Another area in which the Demonstration has implemented changes related to integrated, coordinated care is IMD follow-up requirements. Per Transmittal 19-31 (June 23, 2022), IMDs must deliver the following services for SMI stays:

- Assess beneficiaries' housing situations and coordinate with housing services providers, when needed and available.
- Contact beneficiaries and community-based providers within 72 hours after discharge.

To support the transition to whole-person care, including an increased capacity for care coordination, DHCF in partnership with DBH manages a 5-year program, the Integrated Care DC Program. This technical assistance program, funded in part by the 1003 SUPPORT Act Provider Capacity Planning Grant, is designed to enhance capabilities for delivering person-centered care across the care continuum; use population health analytics to address complex medical, behavioral health, and social needs; and engage leadership to support value-based care. The multiple mechanisms through which the Integrated Care DC Program delivers technical assistance include individual practice coaching, webinar sessions, learning collaboratives, and a

virtual learning community. Behavioral health providers affected by the Demonstration, such as DBH providers, FQHCs, FSMH providers, and MAT providers, are among the program's priority groups. Several providers who participated in evaluation data collection noted that they had taken advantage of the technical assistance available to them related to improving their care coordination efforts.

> "There was an opportunity as part of the funding to apply for individualized agency technical assistance to do that integration. Largely, the majority of folks participating are medical providers looking to integrate SUD and mental health services. We're doing a reverse integration. We were accepted into the technical assistance project. So far, we've only had one individual session and that was to go over the results of our survey. I'm very excited about it. I've wanted us to do the FQHC route for some time, but it's been a long time coming….Why would I ask one of my patients to go to the other side of Ward Five for a medical appointment, when I can do it here?"

Finally, while not specific to the Demonstration, a notable overlapping initiative to improve care coordination and transitions in the District was the Improving Transitions of Care to Reduce Hospital Readmissions project. This project:

- provided hospital transition of care and discharge data and workflow analysis, and an interactive dashboard for monitoring transitions of care and readmissions within the DC HIE and
- conducted a set of pilot interventions to improve transitions of care upon discharge as well as best-practice strategies to reduce 30-day all-cause hospital readmissions in the District.

The contractor's transition-of-care pilots were focusing in-depth on managing hospital discharges for individuals with multiple chronic conditions, particularly those with behavioral health conditions, to identify scalable best practices that can be successfully implemented in the District to reduce avoidable readmissions. At least one of the pilot sites had to offer inpatient behavioral health services, and all pilots had to engage at least one community-based behavioral health provider, as certified by DBH and/or as an FSMHC.

Despite the multiple strategies the District has implemented, evaluation participants uniformly noted that integrated, coordinated care continues to be a significant weak point in the District's behavioral health service delivery system. The scenarios that most likely resulted in beneficiaries' inability to receive the appropriate care included transitions from inpatient and residential settings to outpatient care and nonclinical social supports. The drivers of these gaps appear to be multiple and complex. For example, the District's health home programs facilitate care coordination, as do MCOs. However, evaluation participants noted that these programs

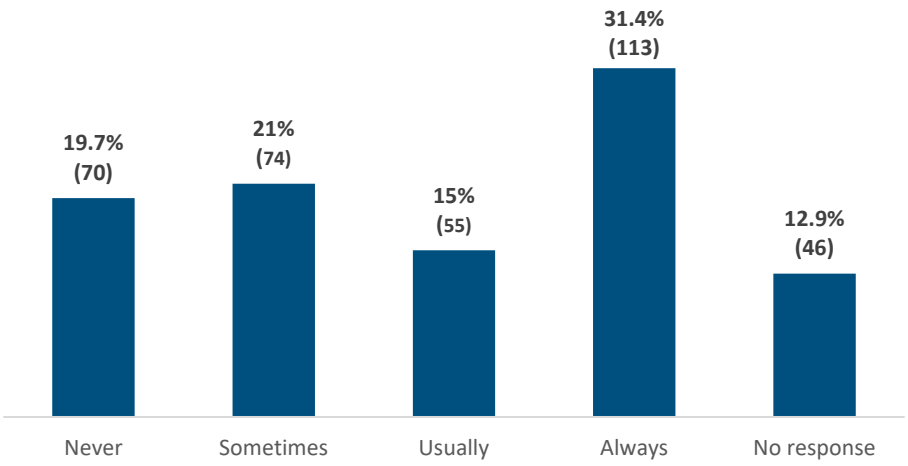
may be better suited for meeting the physical healthcare coordination needs of beneficiaries than their behavioral healthcare coordination needs.

In addition, evaluation participants representing different levels of acuity across the care continuum noted that they routinely engaged in care coordination and transition efforts, whether or not they were able to receive reimbursement specific to those efforts. However, these participants reported that referring inpatient providers were often unresponsive to requests for information about beneficiaries' health history and current status (e.g., diagnosis and medications). Participants also reported challenges making contact with outpatient providers to determine their availability to provide services to beneficiaries in their care. Last, it appears that "cold handoffs," particularly to providers the beneficiary was not familiar with or did not have a trusting relationship with, increased the likelihood that beneficiaries never connected with the service provider to which they had been referred. Beneficiaries who were homeless, according to participants, were most negatively impacted by cold handoffs.

> "To be so intertwined with the system and still have so much difficulty getting information is frustrating…Trying to get everyone on the same page and to support each other would help our clients."

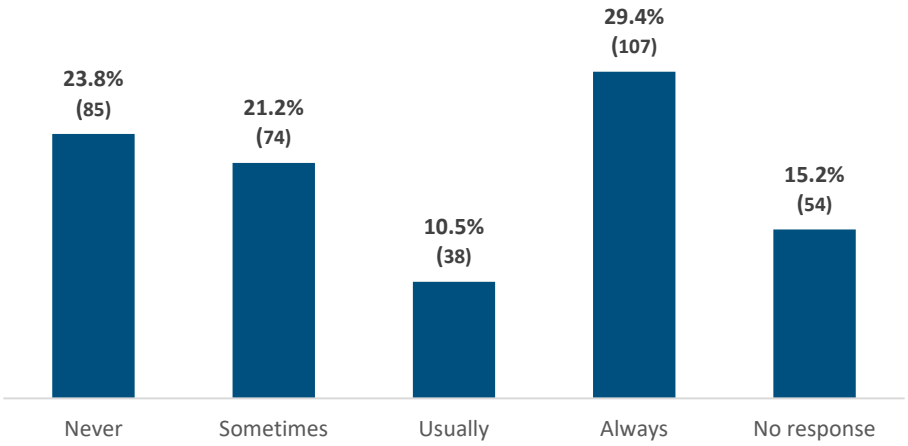
Beneficiary survey data were consistent with the challenges identified by providers and MCOs. A substantial proportion of survey respondents were unclear about whom they should go to when they had questions about their counseling or treatment and what the next steps in their care would be. Forty-one percent (*n* = 144) never or sometimes knew whom they could ask when they had questions about counseling or treatment for drug or alcohol use or mental health (Exhibit F.25), and 45% (*n* = 159) never or sometimes knew the next step in their counseling or treatment for drug or alcohol use or mental health (Exhibit F.26).

Exhibit F.25. How often did you know whom to ask when you had questions about your counseling or treatment for drug or alcohol use or mental health?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.26. How often did you know what the next step in your care would be for your counseling or treatment for drug or alcohol use or mental health?



Note. Percentages are weighted and may not add up to 100% due to rounding.

There was limited discussion of integration or coordination of physical and behavioral healthcare in talks with providers. Of note, one provider expressed a willingness to integrate care but reported that they were reluctant to pursue integrated care because the documentation and billing systems were different for SUD care and mental healthcare.

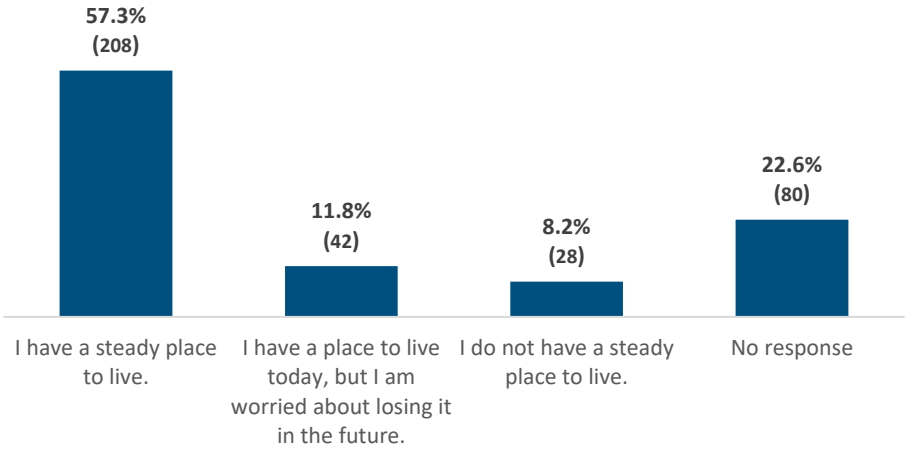
> "It's always been a goal for us to provide some SUD services—not all of them, but MAT, outpatient. . . . but it's another system for documentation, billing, certifications, and all that. They need to make it easier for providers who would be interested in doing some of this without having to use multiple systems for different services—being able to share information to get the information you need to be able to provide services to people."

More commonly, providers discussed the need to better coordinate healthcare and social supports. Specifically, providers noted that housing was a critical component of whether a beneficiary would be able to get and stay well. Yet the current health and housing initiatives in the District remain distinct efforts that rely on individual providers to coordinate across sectors.

> "Housing is health, and the rest won't fall into place without it."
>
> "The only thing I would add is that this group [of people/patients] is 2 minutes from being evicted because the rent is so high… If you're going to do housing, you have to do ACT team. Basic case management doesn't cut it; it needs people who are fully invested since they will be on the hook and need to garner community approval. They keep announcing in pieces things that should be working together."

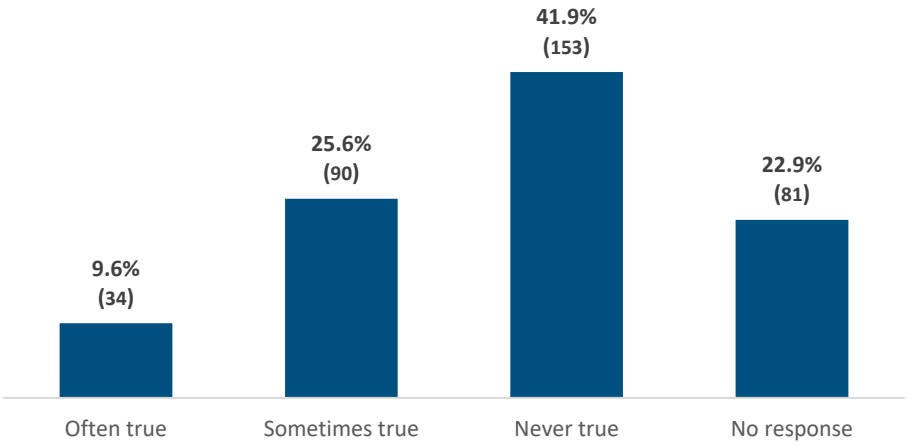
Beneficiary survey data suggest that support for housing stability may in fact be an area of need. Twenty percent (*n* = 70) of survey respondents reported that they either had a place to live but were worried about losing it or did not have a steady place to live at all (Exhibit F.27). Another area of social service coordination that may be helpful to integrate into behavioral healthcare is support for food security. Within the past 12 months, 35% of survey respondents (*n* = 124) reported that the food they bought did not last and they did not have money to get more, at least some of the time (Exhibit F.28).

Exhibit F.27. What is your living situation today?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.28. Please select whether this statement is often true, sometimes true, or never true for you and your household. Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.



Note. Percentages are weighted and may not add up to 100% due to rounding.

Requirements Related to Participation in the Prescription Drug Monitoring Program (PDMP) and Technical Assistance and Training on Opioid Prescription Practices [74]

PDMP registration was required of all prescribers in the District before the Demonstration. However, not all prescribers were in fact registered. Thus, DC Health issued reminder notices related to this requirement to providers who were not registered for the PDMP. According to DHCF staff, prescriptions for Medicaid beneficiaries that exceeded morphine milligram equivalent limits decreased after the law was enacted. In addition, as of March 16, 2021, DC law (23–251) requires all District prescribers and dispensers to query the PDMP before prescribing or dispensing an opioid or benzodiazepine for more than 7 consecutive days and every 90 days thereafter, either while the course of treatment or therapy continues, or before dispensing another refill after 90 days. Other changes that occurred under the Demonstration include the following:

- Integrating the DC PDMP platform, District EHRs, and the District's HIE via a service called the PMP Gateway. The District provides financial support for licensing fees associated with EHR integration with the PMP Gateway. Many EHR vendors have completed the PMP Gateway integration development work.

[74] There are no research questions for this driver because it is a delivery infrastructure requirement imposed by CMS. The evaluation team chose to prioritize waiver authority activities and other District-proposed delivery system changes for assessment under the evaluation. However, we included a summary of progress related to this driver to provide a comprehensive characterization of the District's efforts under the Demonstration.

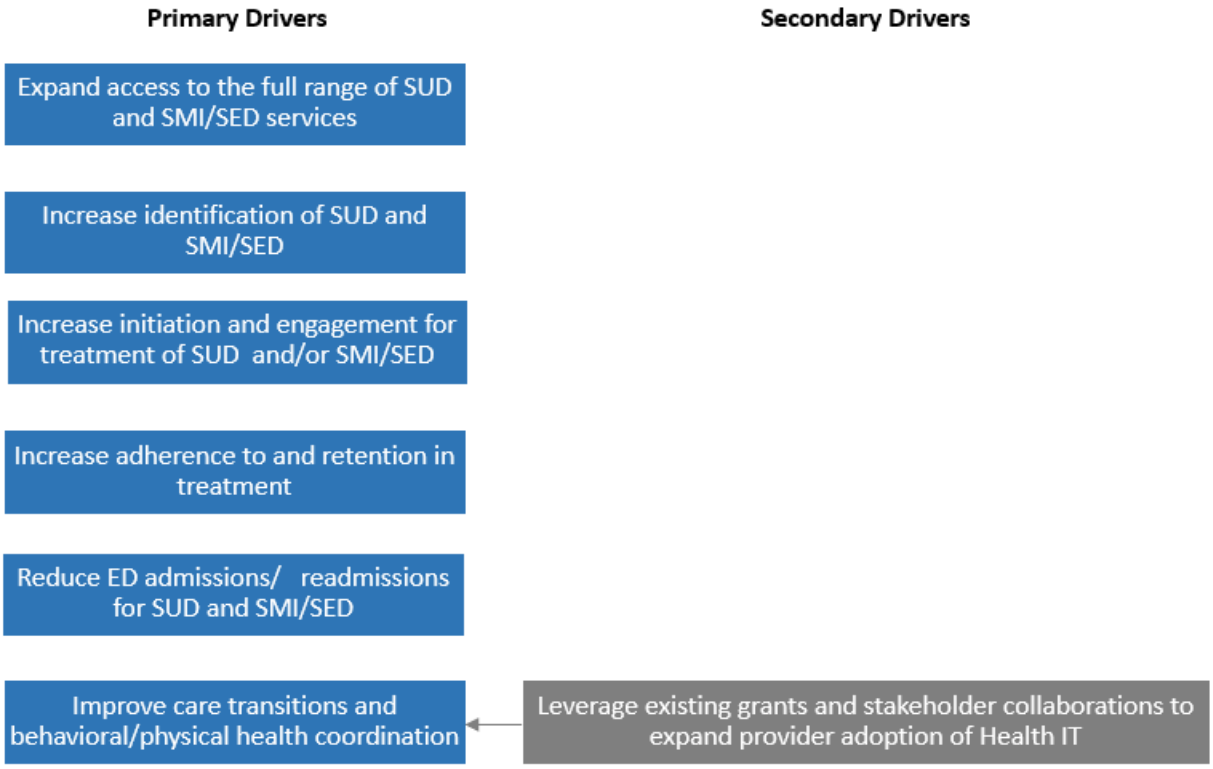
- DC Health conducted approximately 15 educational webinars on safe prescribing practices with provider organizations and medical boards in 2021.

Collectively, these changes promote safe prescribing practices. They also enable providers to determine whether patients have been filling the prescriptions they receive and are thereby following through with recommended care.

F.1.5 Implementation of Drivers Related to Enhancing IT Infrastructure

In this section, we describe the successes, challenges, and perceived impact of implementing the secondary drivers related to enhancing IT infrastructure. As depicted in Exhibit F.29, these drivers were hypothesized to influence primarily those Demonstration goals related to improved care transitions and behavioral/physical health coordination. The District has made substantial progress in promoting adoption of health IT by implementing requirements to participate in the health information exchange (HIE) and by offering technical assistance to support this participation. In addition, the District created technological solutions for challenges associated with the ability of non-certified EHRs to interface seamlessly with the HIE. As a result, provider participation in the HIE has steadily increased. In addition, evaluation participants reported benefits to participating in the HIE, although they admitted that these benefits relate primarily to receiving information and that they typically do not send information to the HIE. Recent requirements related to bidirectional participation in the HIE alongside learnings from a pilot project to promote acquisition of consent to share SUD-related information may increase bidirectional participation in the HIE. The sections that follow discuss these findings in detail.

Exhibit F.29. Driver Diagram Excerpt Depicting Secondary Drivers Related to Enhancing IT Infrastructure



Efforts to Expand Provider Adoption of Health IT

> **SMI/SED Research Question 5.1d.** How did changes in care coordination infrastructure influence experiences of care coordination for beneficiaries with SMI/SED?
>
> **SUD Research Question 6.1c.** How did changes in care coordination infrastructure influence experiences of care coordination for beneficiaries with SUD?

To support increased and effective care coordination among the District's behavioral health providers, the Demonstration has sought to:

- expand the number of behavioral health providers connected to the District's HIE, which is CRISP DC; and
- expand the number of behavioral health providers actively using, in a bidirectional manner, CRISP DC.

"The District has been aggressive in investing in HIE through Medicaid, making sure the HIE is configured in a way that is useful for Medicaid providers and really helps the agencies have a good understanding of healthcare for Medicaid beneficiaries."

The District has made substantial progress toward these goals. The number of behavioral health providers who are connected to, and are active users of, the HIE has steadily increased. A critical driver of this progress is the implementation of policy changes that require providers to participate in the HIE. These policy changes are as follows:

- DHCF issued a requirement that IMDs, as a condition of their reimbursement, connect to the HIE (effective as of July 1, 2020 per Transmittal 20-12). All IMDs are now connected to the HIE.
- DBH issued a requirement that all transition planning service providers connect to the HIE. The one provider certified to offer this benefit is in compliance.
- DBH issued a requirement that all DBH-certified providers have a bidirectional relationship with CRISP DC.

> "I think that the policy requirement—the conditional payment for the IMDs to participate in the HIE—was absolutely essential. That is part and parcel to the 1115 waiver and it has made a huge difference in terms of patients by IMD in the HIE."

To support providers' adherence to these requirements as well as voluntary participation in the HIE, the District has sponsored outreach and technical assistance conducted by a third-party vendor as well as HIE staff. In addition to promoting comprehensive awareness and describing the benefits of participation, the technical assistance vendor and HIE staff also provided tactical support for implementing the necessary technologies and integrating them into clinical workflows.

Another critical driver of increased participation in the HIE was the development of tools that allowed noncertified electronic health record (EHR) systems, which many behavioral health providers in the District have, to interface with the HIE. The District also continues to promote providers' adoption of certified-EHR platforms to streamline these connections.

Providers noted that the transition to participating in the HIE was difficult. It requires different workflows and expertise, which take time to get in place. In addition, making full use of the HIE can be challenging for providers, requiring multiple types of positions/skills to extract and interpret data and then use it to make clinical improvements (e.g., follow up with patients admitted to the hospital). However, providers' feedback on the HIE was largely positive. For example, one provider noted that their clinicians found the HIE more useful and easier to navigate for obtaining patient data than DBH's Web Infrastructure for Treatment Services EHR system, which they found difficult to use. In addition, several providers described the HIE as "amazing" and "game changing."

"CRISP is extremely helpful when a client goes missing, then I check immediately on CRISP to see if they've been admitted."

"My clinical team loves being able to get the CRISP data."

"We actively use it. We most recently were able to get our on-call specialist access. In the evenings and on the weekend when we get alerts, we can immediately call and follow up with the hospital or follow up with the individual directly to see how care is going. So those are the benefits."

Adoption is the first step along the continuum of leveraging health IT to support care coordination. It is also important that the tools have the information and functionality needed to facilitate coordination, preferably at the point of care, and that the appropriate data sharing protections are in place. These are areas that providers cited as ongoing gaps and that the District plans to continue to work on with their health IT vendors to advance progress. Providers acknowledged that they were primarily using the HIE to receive data rather than send data because of their limited capacity. The District continues to encourage providers to send data to the HIE in a routine and timely manner. In addition, the HIE is working on functionality to enable clinical referrals (right now the tool only enables referrals to social supports) and is piloting a process for consenting to sharing SUD-related health information.

"The whole point is not about just having an electronic medical record. It's having an electronic medical record that will have sufficiently standard data fields for the information we as a system care about, clinically. The care management. And then, to set the incentives in the right way and make sure that we have complete information for folks across the system."

"Even when we review CRISP, the information is not always there."

"Some of the cons are that sometimes we want to see the discharge or lab paperwork and it gets uploaded maybe like a month later."

"Yes, we can see into CRISP. Right now we are not providing information."

"It's amazing one directional, not bidirectional…We just don't have the capacity to integrate bidirectionally, us entering information because we are entering it in everywhere else."

Evaluation participants viewed the consent management program as key to being able to leverage the HIE in support of care coordination goals. The pilot program helps providers develop workflows for obtaining consent from beneficiaries to share their EHR data via the HIE. In the first phase of the pilot program, the HIE would share provider attribution information, such as whether the beneficiary had been in an SUD program. In the second phase of the pilot program, the HIE would support the exchange of additional clinical information related to the beneficiaries' care. Approximately a dozen providers signed up to participate in the pilot. However, implementation has been slow as providers diverted resources to address the PHE

and engaged in fewer face-to-face interactions with beneficiaries. The HIE is in the process of developing a workflow to support consent capture that occurs during telemedicine encounters.

> "That doesn't change the fact that until we get this consent piece resolved and got more providers connected, the data was going to be so spotty."

F.2 Effect on Demonstration Goals

Section F.2.1 and Section F.2.2 present the effectiveness of the Demonstration in achieving the SMI/SED and SUD Demonstration goals, respectively. These findings are based on regression-based analysis of claims and other quantitative data, such as ED LOS data from the DC Hospital Association and Medicaid beneficiary survey data. Perceived outcomes reported by interviewed healthcare providers are also reported, where available.

Interpretation of the regression-based effect estimates. Under each Demonstration goal, the various research questions and outcome metrics used to address that research question are discussed. At the beginning of the subsection, we provide a text box with key takeaways, hypotheses under the goal, and the main impact evaluation findings. The direction of the arrow icon next to each hypothesis indicates the hypothesized direction of potential impact.

For each metric, we first provide a visual representation of unadjusted data and predicted post-Demonstration period and counterfactual trend lines. A scatter plot depicts the observed, unadjusted value of the outcome at different points in time during the pre- and post-Demonstration periods. We generated the predicted outcomes in the post-Demonstration period, depicted by the predicted trend line (solid trend line), by fitting an ITS regression model that controlled for seasonality (indicators for quarters with one quarter omitted) and the number of COVID-19 deaths. Then, using the fitted ITS model, we predicted the counterfactual trend (dotted line) in the outcome metric that would have occurred during the post-Demonstration period in the absence of the Demonstration. The counterfactual trend line is not just a continuation of the pre-Demonstration period trend, because it is a prediction from the fitted model controlling for seasonality and COVID-19 deaths. These figures show whether there was an increasing or decreasing trend in the outcome of interest during the first 2 years of the Demonstration compared to the baseline pre-Demonstration 3-year period, and also compared to what would have happened during the post-Demonstration period in the absence of the Demonstration. However, the visual representation of actual data points and trends may not be interpreted as indicating statistically significant impacts. The key parameters of interest (regression coefficients and standard errors) from the regression model may be used to assess impacts.

After the graph, we provide a table of the key parameters that capture impact estimates from the regression model for each outcome of interest. This table also includes the baseline unadjusted mean of the outcome metric for interpreting effect estimates. It should be noted that the regression analysis, based on pre- and post-Demonstration trends, estimates associations and not the precise causal impact of the Demonstration in the absence of a comparison group.

The ITS regression describes two main effects:

- Level change post-Demonstration: This parameter tells us how much the outcome changed immediately upon Demonstration implementation. If the intercept of the predicted line post-Demonstration is above or below the predicted line at the beginning of the Demonstration, and the ITS regression coefficient on the variable called "Level Change Post-Demonstration" in the table shows a statistically significant change, the finding should be interpreted as the Demonstration being associated with a level change in the outcome, after controlling for the pre-Demonstration trend.
- Slope change or additional quarterly change post-Demonstration: This parameter tells us about the long-term or sustained effect of the Demonstration on the outcome. If the slope of the predicted line increased or decreased post-Demonstration and the ITS regression coefficient on the variable called "Additional Quarterly Change Post-Demonstration" in the table (slope change) showed a statistically significant change, the finding should be interpreted as the Demonstration being associated with a change in the rate of change of the outcome over time, post-Demonstration. It represents the average additional effect of the Demonstration in each quarter of the post-Demonstration period.

Any regression coefficient that was statistically significant at the 10% level or lower was considered to be showing a statistically significant effect. In cases where the level change and slope change were both statistically significant and in opposite directions, we generated an estimate of the combined effect of the Demonstration at the end of 2 Demonstration years and tested its statistical significance.

The results reported in the body of the report are from the preferred ITS model, which captures changes in outcome trends after controlling for seasonality and the number of COVID-19 deaths.

As a robustness check, results from the most parsimonious regression specification without covariates are reported in Appendix B (SMI/SED goals) and Appendix C (SUD goals) for each outcome metric. These appendices also present regression estimates from the preferred ITS model for the various subgroups of interest.

In addition to the ITS conducted using District-level aggregate data, we conducted beneficiary-level regression analysis for a subset of the outcomes. These results are reported in graphs and tables. The graph shows the histogram of the individual monthly outcome data, during both pre-Demonstration and post-Demonstration periods, to facilitate a comparison of the distributions of number of monthly treatment services. The table shows the results of the marginal effect from the relevant regression model, either the count model for the number of mental health/SUD treatment services measures or the logistic regression model for the indicator (0 or 1) of continuity of OUD pharmacotherapy. For the count models, the findings can be interpreted as the number of additional treatment services PBPM associated with the Demonstration, controlling for individual characteristics. For the logistic regression model, the marginal effect can be interpreted as the change in likelihood, i.e., the change in probability expressed as a percentage, that a beneficiary receives continuous pharmacotherapy, controlling for individual characteristics.

Impact of the COVID-19 Public Health Emergency. The COVID-19 pandemic saw increases in mental health diagnoses and substance use disorders, indicating an increased need for behavioral health services. According to a recent report on COVID-19 and behavioral health in the District, Medicaid data during the COVID-19 pandemic in the District showed a 15% increase above baseline in mental health diagnoses. The report also documented more than a 200% increase in crisis/suicide calls to the DBH Access Helpline in the first year of the pandemic compared to the prior year and a peaking of fatal opioid-related overdoses during the pandemic at 45% above the expected baseline.[75] Nationally, the pandemic coincided with an increase in substance use and increased death rates due to substances. In 2021, drug overdose deaths increased by 51% from before the pandemic.[76,77] Several factors, including layoffs, fewer available jobs, exacerbated housing, and food insecurity, may have contributed to increases in the incidence of anxiety, depression, and loneliness. Furthermore, changes in drug use behaviors, such as an increase in use of drugs during isolation, may have contributed to an increase in deaths.[78] Even though the pandemic saw a greater need for behavioral health services, the availability of several services was more limited, especially early in the pandemic. For instance, public health departments needed to redirect resources to address COVID-19

[75] Georgetown University Center for Global Health Science and Security. (2023). *COVID-19 & behavioral health in the District of Columbia.* https://dcauditor.wpenginepowered.com/wp-content/uploads/2023/04/COVID19.Behavioral.Health.D.C.4.20.23.Web .pdf

[76] Roberts, A., Rogers, J., Mason, R., Siriwardena, A. N., Hogue, T., Whitley, G. A., & Law, G. R. (2021). Alcohol and other substance use during the COVID-19 pandemic: A systematic review. *Drug and Alcohol Dependence, 229*, 109150.

[77] Kaiser Family Foundation. (2023). *Opioid overdose deaths and opioid overdose deaths as a percent of all drug overdose deaths*. https://www.kff.org/other/state-indicator/opioid-overdose-deaths/?currentTimeframe=2&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D

[78] New York University. (2022, April 25). *The impact of COVID-19 on drug use—and how it contributes to overdose risk* [News release]. https://www.nyu.edu/about/news-publications/news/2022/april/covid-19-drug-use.html

infections, thereby limiting their capacity to implement key harm-reduction interventions, including syringe exchange and naloxone distribution programs, and hospital administrators needed to close psychiatric units to accommodate surges in COVID-19 patients.[79] The supply of psychiatric beds also decreased due to COVID-19 quarantine and distancing requirements.[80] Additionally, existing workforce shortages made it difficult to accommodate the increased need.[81]

Several evaluation outcomes examining the utilization and availability of behavioral health services were directly affected by the pandemic, which confounds the ITS estimates. Moreover, other PHE-related policy changes, such as Continuous Coverage,[82] payment for telehealth delivered in a beneficiary's home,[83] and enhanced reimbursement for ASARS services[84] enacted in the District to help increase access to behavioral access overlap with Demonstration activities.

The COVID-19 PHE poses challenges to the ITS design because the timing of the pandemic coincides with the beginning of the Demonstration. As previously discussed, AIR controlled for the number of COVID-19 deaths in each month/quarter in the regression analyses to mitigate the confounding effects of the pandemic on the Demonstration's impact estimates. However, there are limitations to this solution because there were only 2 months without COVID-19 PHE in the Demonstration period and no months with COVID-19 PHE in the pre-Demonstration period. Controlling for COVID-19 deaths does help to the extent that COVID-19 deaths represent variation in the severity of the pandemic. Other factors, however, such as overlapping policy changes, may not perfectly correlate with the deaths measure, indicating that there still could be omitted variable bias in the reported estimates of the Demonstration's impacts.

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[79] Ghose, R., Forati, A. M., & Mantsch, J. R. (2022). Impact of the COVID-19 pandemic on opioid overdose deaths: A spatiotemporal analysis. *Journal of Urban Health, 99*(2), 316–327.

[80] Georgetown University Center for Global Health Science and Security. (2023). *COVID-19 & behavioral health in the District of Columbia.* https://dcauditor.wpenginepowered.com/wp-content/uploads/2023/04/COVID19.Behavioral.Health.D.C.4.20.23.Web .pdf

[81] Saunders, H., Guth, M., & Eckart, G. (2023). *A look at strategies to address behavioral health workforce shortages: Findings from a survey of state Medicaid programs*. Kaiser Family Foundation. https://www.kff.org/medicaid/issue-brief/a-look-at-strategies-to-address-behavioral-health-workforce-shortages-findings-from-a-survey-of-state-medicaid-programs/

[82] Department of Health Care Finance - DHCF. (2023). *Medicaid restart*. https://dhcf.dc.gov/medicaid-restart

[83] Department of Health Care Finance - DHCF. (2020). *DC Medicaid telemedicine guide*. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/Telemedicine%20Guide%20for%20Medicaid%20Providers%203.25.2020.pdf

[84] Government of the District of Columbia, Department of Healthcare Finance. (2020). *Temporary enhanced reimbursement rates for Adult Substance Abuse Rehabilitation Services (ASARS) due to COVID-19*. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/publication/attachments/Transmittal%2020-36%20Temporary%20Enhanced%20Reimbursement%20Rates%20for%20Adult%20Substance%20Abuse%20Rehabilitation%20Services%20%28ASARS%29%20Due%20to%20COVID-19.pdf

Target population counts. Exhibit F.30 provides the annual counts of the target populations for the SMI/SED and SUD evaluation metrics. In general, the target population for the SMI/SED metrics is Medicaid beneficiaries with an SMI/SED diagnosis during the measurement period, and the target population for the SUD metrics is Medicaid beneficiaries enrolled in Medicaid for any amount of time during the measurement period. As described in Section D.2, there are a few exceptions where the population is defined according to the specifications of a particular metric. For example, for the denominator for the SUD metric "percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period," which is adapted from SUD Monitoring Metric #32, the target population is Medicaid beneficiaries with an SUD diagnosis rather than any Medicaid beneficiary. Note that for the SMI/SED metrics, we restrict the target population to Medicaid beneficiaries with an SMI/SED diagnosis, per the set of SMI/SED diagnosis codes adopted by DHCF when reporting under the State-specific definition of SMI in the monitoring reports.[85] Also note that the number of beneficiaries included in the target population (denominator) for a metric will vary from period to period according to the type of metric. For example, for a monthly SMI/SED metric, the monthly denominator for a particular month includes beneficiaries enrolled in Medicaid with SMI/SED diagnoses during that month.

Exhibit F.30. Annual Counts of SMI/SED and SUD Target Populations

Type of Evaluation Metric	Target Population	Year				
		2017	2018	2019	2020	2021
SMI/SED	Number of beneficiaries ages 18+ who are Medicaid enrolled and have a state-defined SMI/SED diagnosis in any month of the year	34,235	35,057	36,713	36,932	40,204
SUD	Number of beneficiaries ages 18+ who are Medicaid enrolled in any month of the year	190,031	193,466	187,655	190,797	196,343

[85] SMI/SED codes in the State-specific definition are a subset of the diagnosis codes used in the Standardized Definition of SMI in the CMS Technical Specifications for Monitoring Metrics.

F.2.1 SMI/SED Goals

Section F.2.1 discusses the achievement of the five SMI/SED goals based on the effects of the Demonstration on related outcome measures.

F.2.1.1 Goal 1. Reduced utilization and LOS in hospital EDs among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings

Takeaway: The Demonstration has achieved the goal of reducing ED utilization, but not of reducing LOS in the ED.

Hypothesis 1.1: The Demonstration will decrease the utilization of emergency department (ED) services by beneficiaries with SMI/SED.

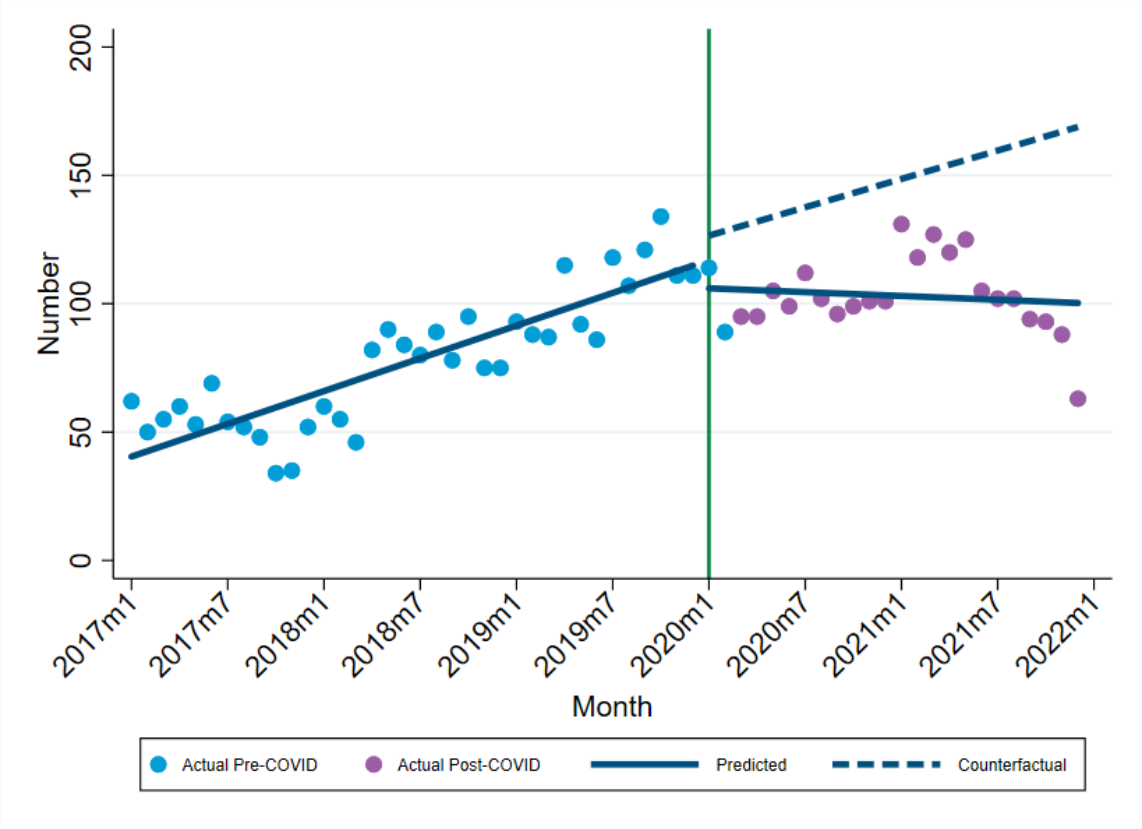
1. The number of beneficiaries with SMI/SED who used ED services for mental health during the measurement period had a statistically significant decrease in level and slope.
2. The percentage of beneficiaries with SMI/SED who used ED services for mental health during the measurement period had a statistically significant decrease in level and slope.

Hypothesis 1.2: The Demonstration will decrease the length of stay (LOS) in hospital EDs among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings.

1. ED LOS (in hours) for Medicaid beneficiaries had no change in level and a statistically significant increase in slope.

Research Question 1.1a. Was there a decrease in ED service utilization by beneficiaries with SMI/SED?

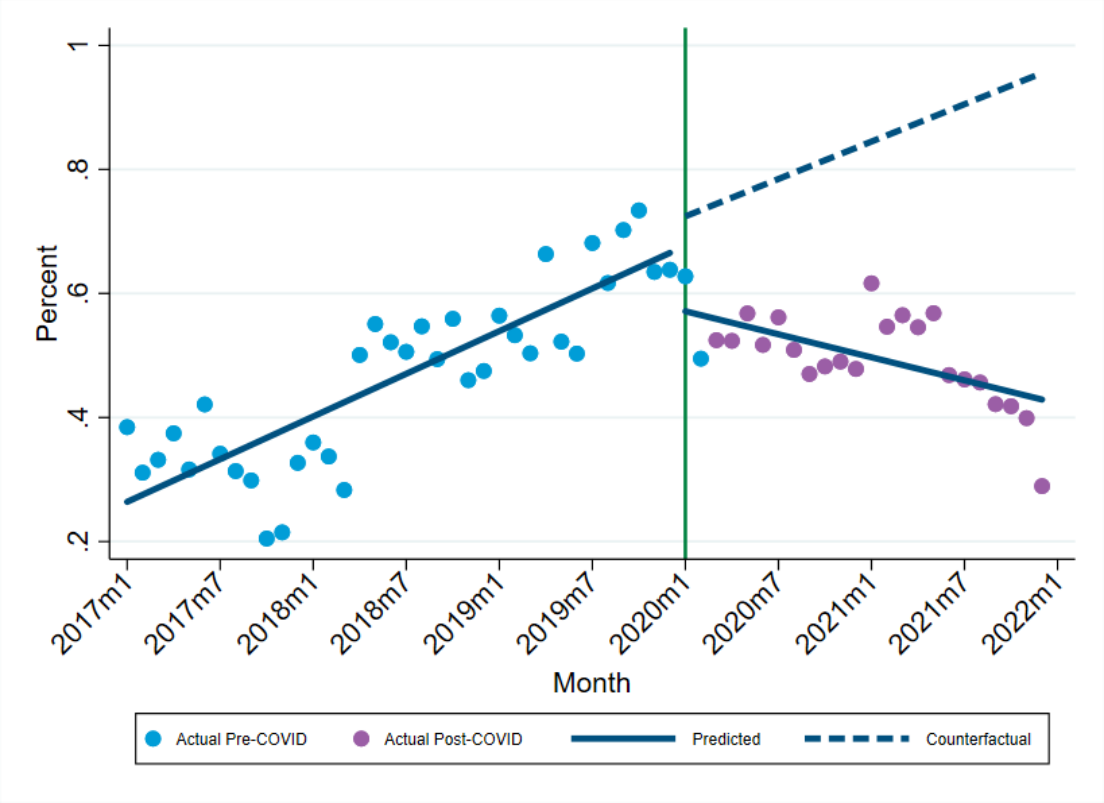
Exhibit F.31. Mental Health Services Utilization—ED (Number of Beneficiaries)



This monthly metric was adapted from SMI/SED Monitoring Metric #16 which is also a monthly metric. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[86] Exhibit F.31 shows that the observed number of beneficiaries with SMI/SED who used ED services for mental health during the measurement period increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

[86] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.32. Mental Health Services Utilization—ED (Percentage of Beneficiaries)



This monthly metric was adapted from SMI/SED Monitoring Metric #16 which is also a monthly metric. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[87] Exhibit F.32 shows that the observed percentage of beneficiaries with SMI/SED who used ED services for mental health during the measurement period increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

[87] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.33. Effect on Mental Health Services Utilization—ED

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of beneficiaries with SMI/SED who used ED services for mental health during the measurement period	↓	77.67	-15.94* (8.11)	-6.36*** (1.52)
Percentage of beneficiaries with SMI/SED who used ED services for mental health during the measurement period	↓	0.46	-0.12*** (0.04)	-0.05*** (0.01)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.33 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period decrease of 15.94 in the number of beneficiaries with SMI/SED who used ED services for mental health during the measurement period (level change in the predicted trend figure), from a baseline mean of 77.67. In addition, this metric decreased by a statistically significant value of 6.36 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit C.1.

The second row of Exhibit F.33 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period decrease of 0.12 percentage points in the percentage of beneficiaries with SMI/SED who used ED services for mental health during the measurement period (level change in the predicted trend figure), from a baseline mean of 0.46%. In addition, this metric decreased by a statistically significant 0.05 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit C.2.

> **Research Question 1.1b.** How does the Demonstration influence ED service utilization by beneficiaries with SMI/SED (e.g., through improved access to other continuum of care services)?

It is likely that the COVID-19 PHE contributed, at least in part, to the sharp decline in ED service utilization over the Demonstration period, given that utilization of all in-person services decreased because of safety restrictions and concerns. However, interview and listening session discussions with providers suggested that Demonstration changes may also have contributed to

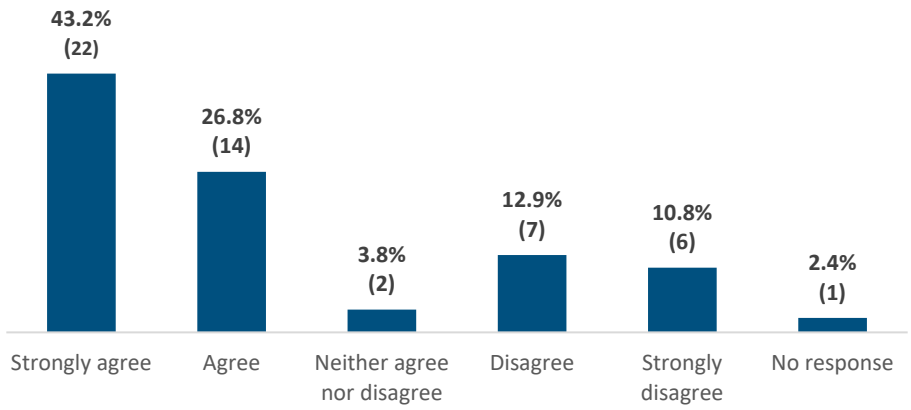
this decrease. Specifically, providers indicated that the changes to crisis stabilization services helped to keep beneficiaries out of the ED.

> "We have opened up some crisis stabilization beds that are really pulling people out of the emergency department who may not need hospitalization but cannot be discharged immediately."

In addition, beneficiary survey data suggested that survey respondents were aware of and using alternatives to emergency care when experiencing crises. As discussed earlier, 64% of all 358 survey respondents (*n* = 228) said they would know how to get help for a crisis or urgent problem related to their drug or alcohol use or mental health without going to the ED or hospital (Exhibit F.34).

Fifteen percent of all survey respondents (*n* = 52) reported wanting or needing emergency care without going to a hospital ED when having a crisis or needing urgent help related to drug or alcohol use or mental health. Of the 52 survey respondents, 70% (*n* = 36) agreed that they were able to get all the services they wanted or needed for emergency care without going to a hospital ED.

Exhibit F.34. Were you able to get all the services you wanted or needed for emergency care without going to a hospital ED when you were having a crisis or needed urgent help related to drug or alcohol use or mental health?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Research Question 1.2a. Was there a decrease in the LOS in hospital EDs among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings?

Exhibit F.35. ED LOS (in Hours)

The target population for this metric is Medicaid beneficiaries receiving treatment for SMI/SED in emergency departments. The data for this metric was provided by the DC Hospital Association. Beneficiaries with SMI/SED are identified based on diagnoses codes adopted by the DC Hospital Association, which may differ from the SMI/SED codes we used to define the target population for the other SMI/SED metrics.[88] Exhibit F.35 shows that the observed ED LOS (in hours) for Medicaid beneficiaries decreased over time during the pre-Demonstration period but increased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted slightly upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was an increasing trend over time under the Demonstration.

[88] See Appendix A for the list of SMI/SED diagnosis codes used in the other SMI/SED metrics, which are the same as those adopted by DHCF for the monitoring metrics when reporting under the State-specific definition of SMI.

Exhibit F.36. Effect on ED LOS (in Hours)

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
ED LOS (in hours) for Medicaid beneficiaries	↓	7.68	-1.15 (1.26)	1.31*** (0.35)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

Exhibit F.36 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in ED LOS (in hours) for Medicaid beneficiaries (level change in the predicted trend figure). However, this metric increased by a statistically significant value of 1.31 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Data for this measure were provided by the DC Hospital Association, and no subgroup data were provided, so the subgroup analysis is not applicable.

> **Research Question 1.2b.** How does the Demonstration influence the LOS in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings (e.g., through improved access to other continuum of care services)?

(See Research Question 1.1b. Provider and beneficiary perspectives on the Demonstration's influence on ED utilization are covered under Research Question 1.1b.)

F.2.1.2 Goal 2. Reduced preventable readmissions to acute care and specialty hospitals and residential settings

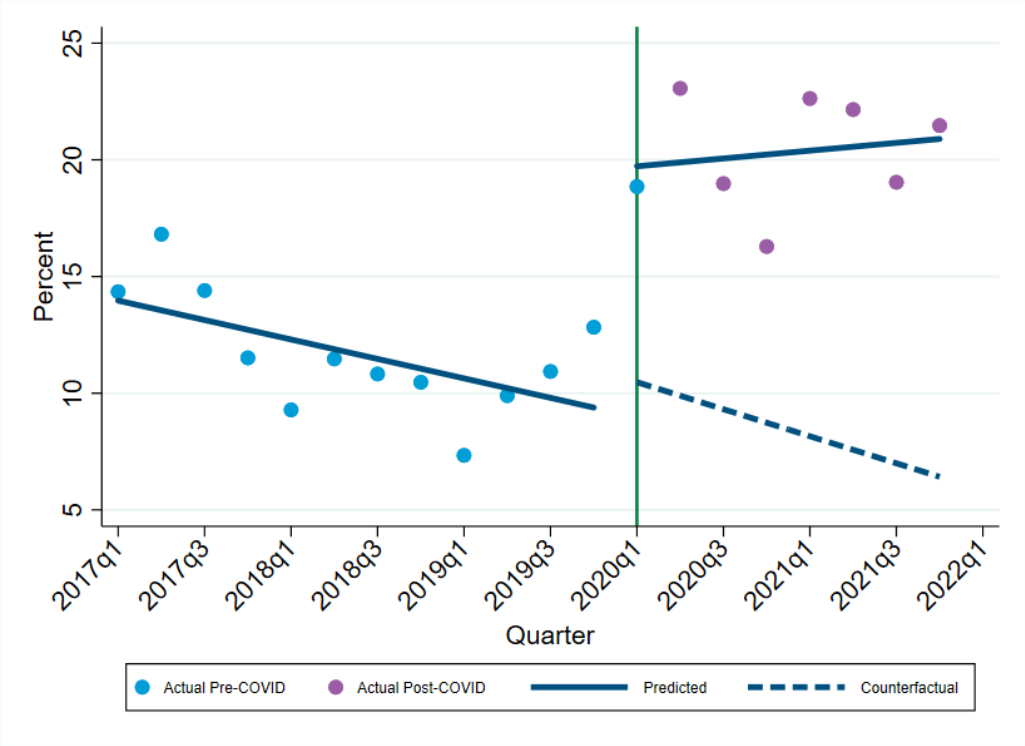
Takeaway: The Demonstration has not yet achieved the goal of reducing preventable readmissions. Goal assessment is based on SMI/SED Monitoring Metric #4, which counts all readmissions other than planned readmissions following a psychiatric admission to an inpatient psychiatric facility.

Hypothesis 2.1: The Demonstration will reduce preventable readmissions to acute care and specialty hospitals and residential settings for beneficiaries with SMI/SED.

1. The rate of unplanned, 30-day readmissions for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease had a statistically significant increase in level and slope.

> **Research Question 2.1.** Was there a decrease in preventable readmissions to acute care, specialty hospitals, and residential settings for beneficiaries with SMI/SED?

Exhibit F.37. Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (Percentage of Beneficiaries)



This quarterly metric was adapted from SMI/SED Monitoring Metric #4, which is an annual metric. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the quarter who had a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease during an index admission to an inpatient psychiatric facility (IPF).[89] Exhibit F.37 shows that the observed percentage of the unplanned, 30-day readmission rate for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease during an index admission to an IPF decreased over time during the pre-Demonstration period but increased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was an increasing trend over time under the Demonstration.

[89] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages 21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[90] This means more opportunity to observe both index admissions and readmissions in the data.[91]

Also note that this metric is not well aligned to the goal because the numerator of the metric is not limited to preventable readmissions but includes any admission, for any reason, to an IPF or a short-stay acute care hospital, except for admissions that are considered planned.

Exhibit F.38. Effect on Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
The rate of unplanned, 30-day readmissions for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/ Alzheimer's disease	↓	11.68	8.50** (2.83)	0.75* (0.39)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

Exhibit F.38 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 8.50 percentage points in the unplanned, 30-day readmission rate for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease during an index admission to an IPF (level change in the predicted trend figure), from a baseline mean of 11.68%. In addition, this metric increased by 0.75 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit C.3.

[90] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.
[91] It is possible that the newly covered beneficiaries are more likely to have readmissions because they may be less likely to receive follow-up care than previously covered beneficiaries.

F.2.1.3 Goal 3. Improved availability of crisis stabilization services, including services made available through call centers and mobile crisis units, and intensive outpatient services, as well as services provided during acute short-term stays in residential crisis stabilization programs and psychiatric hospitals and residential treatment settings throughout the District

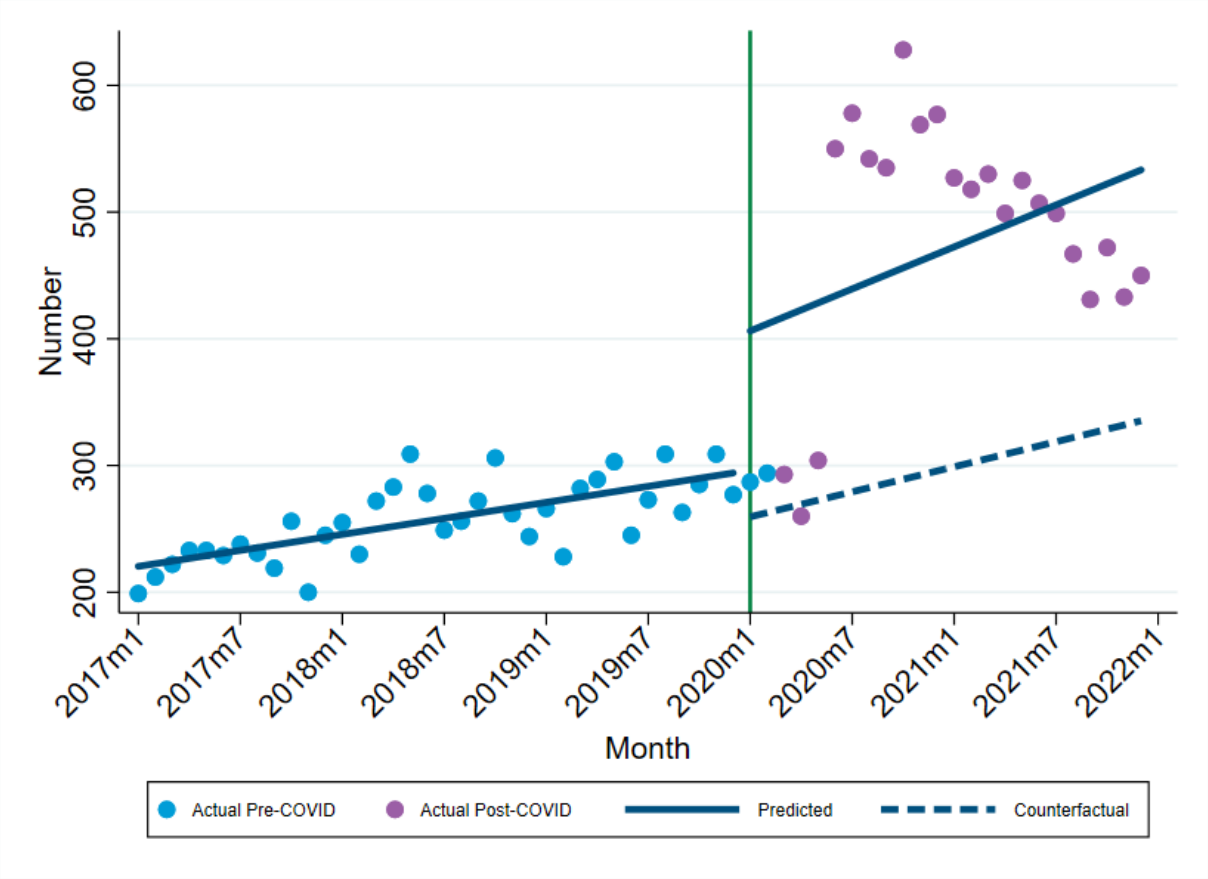
Takeaway: The Demonstration has achieved the goal of improving the utilization of crisis stabilization services.

Hypothesis 3.2: The Demonstration will increase the utilization of crisis-stabilization services.

1. The number of beneficiaries accessing any crisis stabilization services had a statistically significant increase in level and no change in slope.
2. The percentage of beneficiaries accessing any crisis stabilization services had a statistically significant increase in level and no change in slope.
3. The number of beneficiaries accessing CPEP had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was a statistically significant decrease.
4. The percentage of beneficiaries accessing CPEP had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was a statistically significant decrease.
5. The number of beneficiaries accessing mobile crisis and outreach services had no change in level and slope.
6. The percentage of beneficiaries accessing mobile crisis and outreach services had no change in level and slope.
7. The number of beneficiaries accessing psychiatric crisis stabilization services, which became newly available under the Demonstration, had an increasing trend.
8. The percentage of beneficiaries accessing psychiatric crisis stabilization services, which became newly available under the Demonstration, had an increasing trend.

Research Question 3.1a. Was there an increase in the utilization of crisis stabilization services?

Exhibit F.39. Any Crisis Stabilization Service (Number of Beneficiaries)



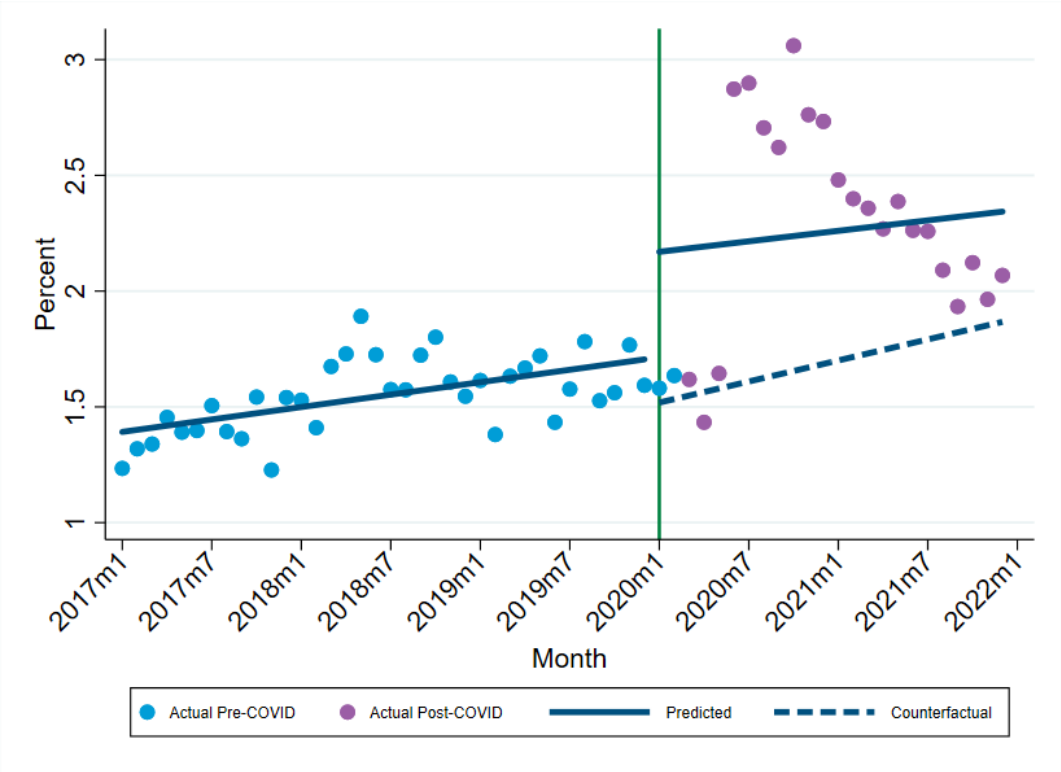
The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[92] Exhibit F.39 shows that the observed number of beneficiaries accessing crisis stabilization services increased over time during both the pre-and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

In interpreting this measure, note that the observed increases could be a combination of increased rates of mental health problems during the COVID-19 PHE as well as increased

[92] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

availability of services under the Demonstration, including psychiatric residential crisis stabilization, which is a newly added service under the Demonstration.[93]

Exhibit F.40. Any Crisis Stabilization Service (Percentage of Beneficiaries)



The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[94] Exhibit F.40 shows that the observed percentage of beneficiaries accessing crisis stabilization services increased over time during both the pre- and post-Demonstration periods, and the rate of increase was smaller under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was smaller than the counterfactual.

[93] National Center for Health Statistics. (2023). *U.S. Census Bureau, Household Pulse Survey, 2020–2023. Anxiety and Depression*. Generated interactively: from https://www.cdc.gov/nchs/covid19/pulse/mental-health.htm

[94] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

In interpreting this measure, note that the observed increases could be a combination of increased rates of mental health problems during the COVID-19 PHE as well as increased availability of crisis stabilization services under the Demonstration, including psychiatric residential crisis stabilization, which is a newly added service under the Demonstration.

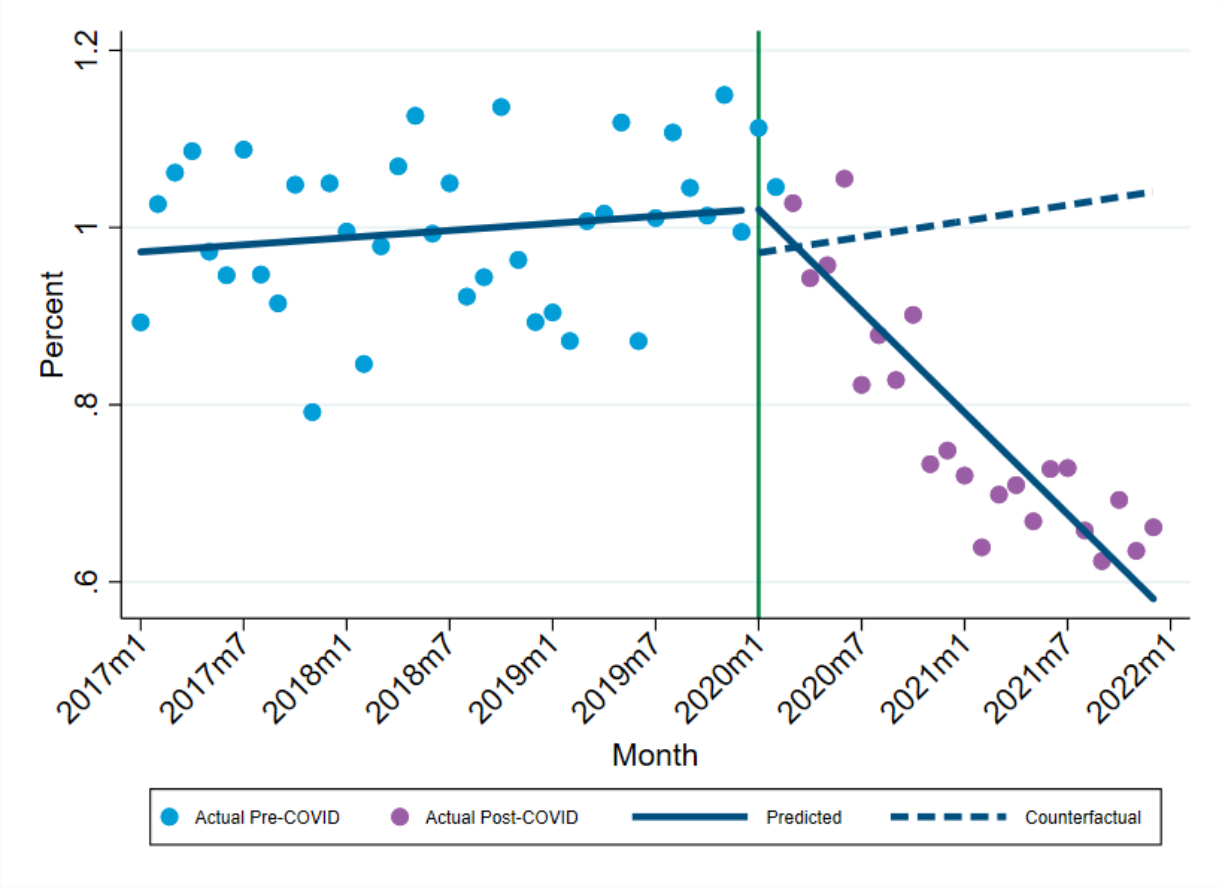
Exhibit F.41. Any Crisis Stabilization Service, by Setting (Number of Beneficiaries)—Comprehensive Psychiatric Emergency Program (CPEP)

The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[95] Exhibit F.41 shows that the observed number of beneficiaries accessing CPEP increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration. An

[95] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

explanation for the decreasing trend during the post-Demonstration period could be certain billing changes for the one provider approved to bill for this service.[96]

Exhibit F.42. Any Crisis Stabilization Service, by Setting (Percentage of Beneficiaries)—CPEP

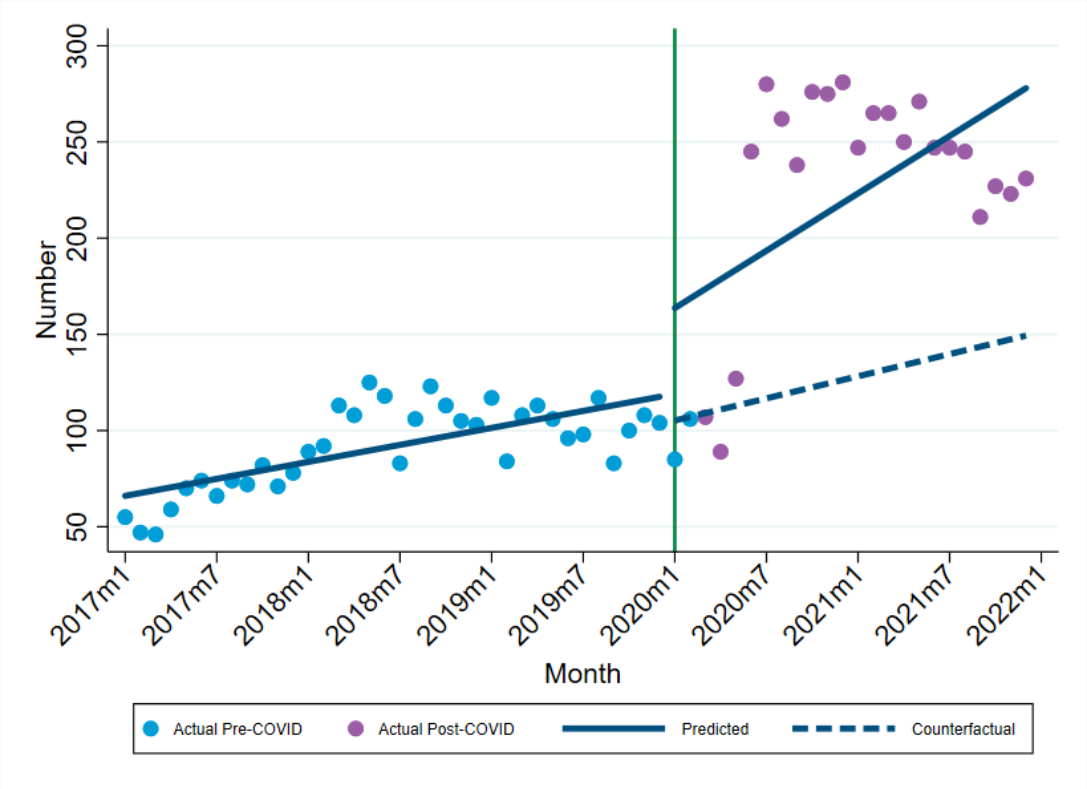


The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[97] Exhibit F.42 shows that the observed percentage of beneficiaries accessing CPEP slightly increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

[96] New procedure codes became available for this service in June 2020, but the billing ramped up in March 2021. Most billing using historical procedure codes ended in February 2021.

[97] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

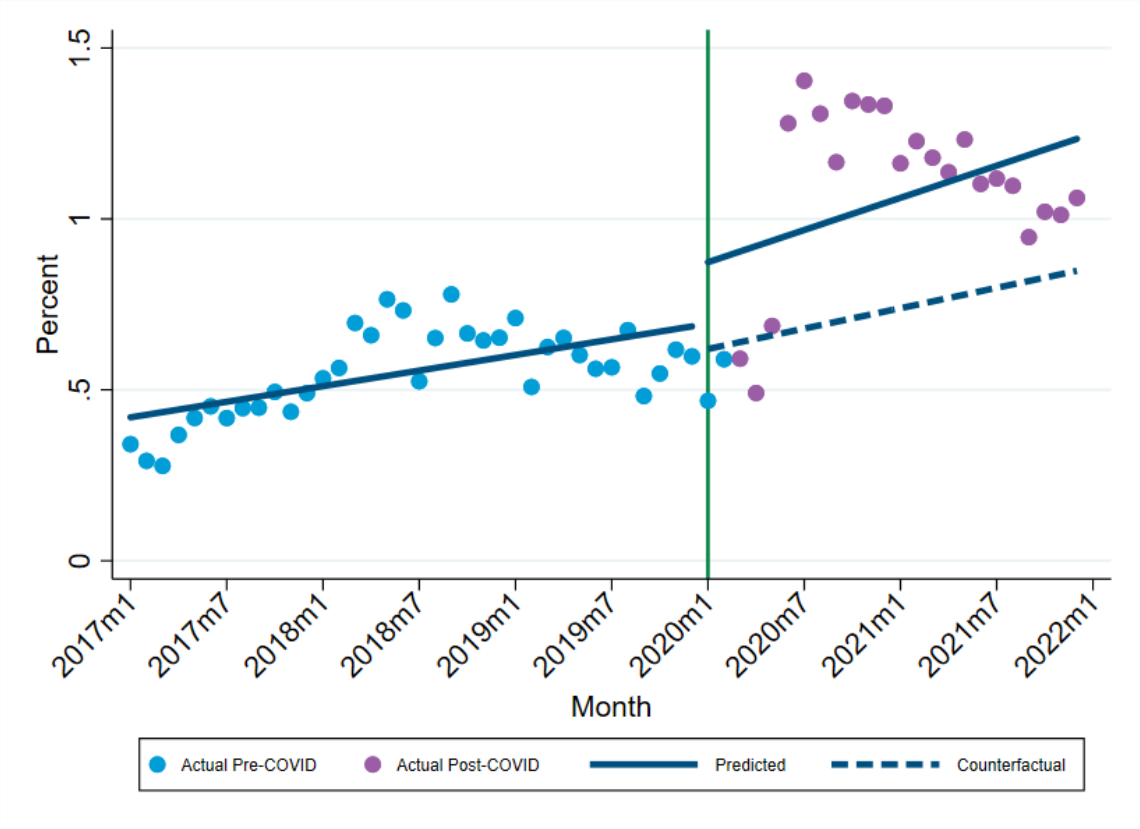
Exhibit F.43. Any Crisis Stabilization Service, by Setting (Number of Beneficiaries)—Mobile Crisis and Outreach



The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[98] Exhibit F.43 shows that the observed number of beneficiaries accessing mobile crisis and outreach services increased over time during both the pre- and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

[98] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

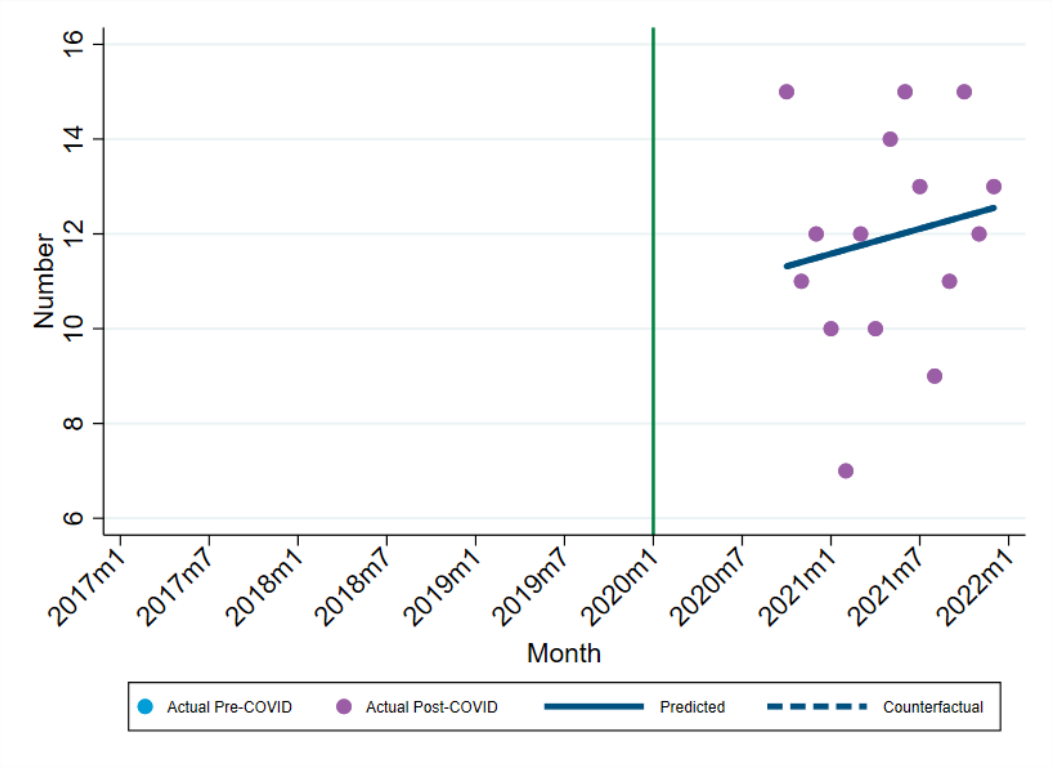
Exhibit F.44. Any Crisis Stabilization Service, by Setting (Percentage of Beneficiaries)—Mobile Crisis and Outreach



The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[99] Exhibit F.44 shows that the observed percentage of beneficiaries accessing mobile crisis and outreach services increased over time during the pre-Demonstration period and increased first and decreased thereafter in the post-Demonstration period. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

[99] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

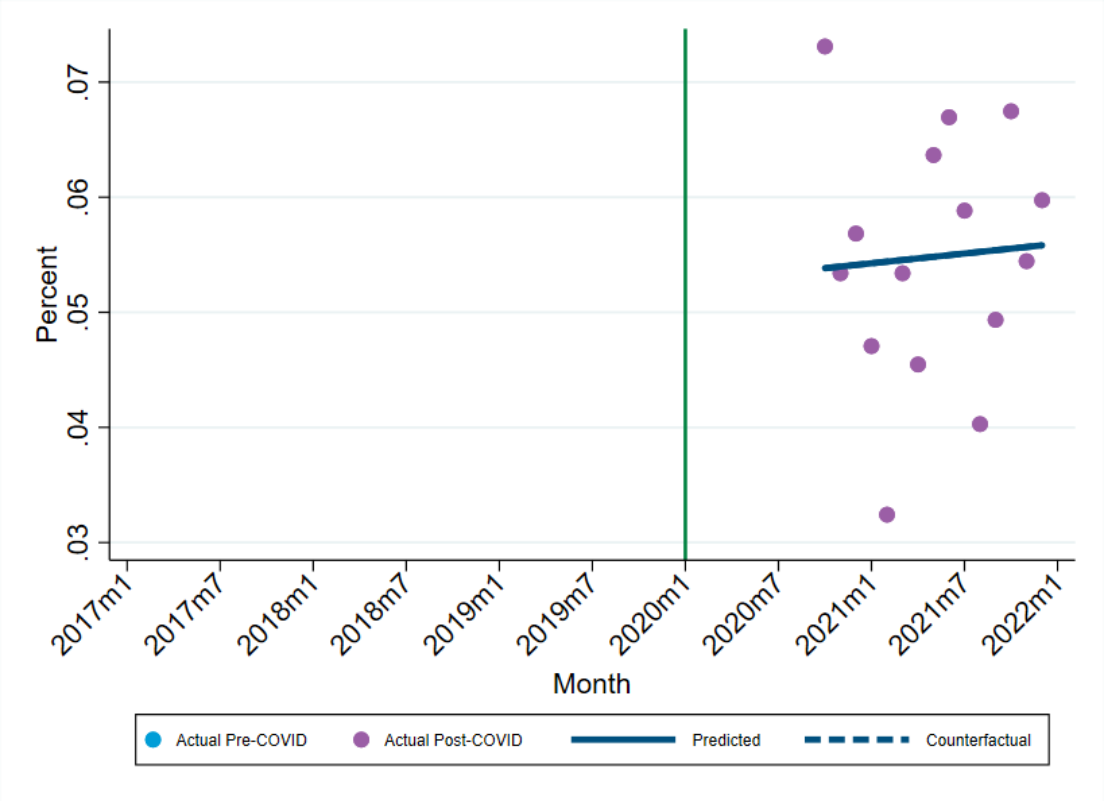
Exhibit F.45. Any Crisis Stabilization Service, by Setting (Number of Beneficiaries)—Psychiatric Residential Crisis Stabilization



Psychiatric residential crisis stabilization is a newly covered service under the Demonstration. Therefore, this measure does not have pre-Demonstration period data. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[100] Exhibit F.45 shows that the observed number of beneficiaries accessing psychiatric crisis stabilization services had an increasing trend during the post-Demonstration period. This was a new Demonstration service that began to be available only from June 1, 2020.

[100] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.46. Any Crisis Stabilization Service, by Setting (Percentage of Beneficiaries)—Psychiatric Residential Crisis Stabilization



Psychiatric residential crisis stabilization is a newly covered service under the Demonstration. Therefore, this measure does not have pre-Demonstration period data. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[101] Exhibit F.46 shows that the observed percentage of beneficiaries accessing psychiatric crisis stabilization services had an increasing trend during the post-Demonstration period. The service began to be available only from June 1, 2020.

[101] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.47. Effect on the Availability of Crisis Stabilization Services

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of beneficiaries accessing crisis stabilization services	↑	257.28	141.88** (67.89)	6.78 (10.31)
Percentage of beneficiaries accessing crisis stabilization services	↑	1.55	0.67** (0.32)	-0.02 (0.05)
Number of beneficiaries accessing crisis stabilization services, by setting—CPEP	↑	165.44	27.25*** (8.21)	-9.44*** (1.22)
Percentage of beneficiaries accessing crisis stabilization services, by setting—CPEP	↑	1.00	0.10* (0.05)	-0.07*** (0.01)
Number of beneficiaries accessing crisis stabilization services, by setting—mobile crisis and outreach	↑	91.83	51.80 (37.56)	9.28 (5.78)
Percentage of beneficiaries accessing crisis stabilization services, by setting—mobile crisis and outreach	↑	0.55	0.24 (0.18)	0.02 (0.03)
Number of beneficiaries accessing crisis stabilization services, by setting—psychiatric crisis stabilization	↑	N/A	N/A	N/A
Percentage of beneficiaries accessing crisis stabilization services, by setting—psychiatric crisis stabilization	↑	N/A	N/A	N/A

N/A means not applicable because there were no observations during the pre-Demonstration period. *Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.47 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 141.88 in the number of beneficiaries accessing crisis stabilization services (level change in the predicted trend figure), from a baseline mean of 257.28. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are presented in Appendix Exhibit C.4.

The second row of Exhibit F.47 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 0.67 percentage points in the percentage of beneficiaries accessing crisis stabilization services (level change in the predicted trend figure) from a baseline mean of 1.55%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit C.5.

The third row of Exhibit F.47 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 27.25 in the number of beneficiaries accessing CPEP (level change in the predicted trend figure), from a baseline mean of 165.44. In addition, this metric decreased by a statistically significant value of 9.44 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes resulted in a statistically significant decrease of 49.45. If the current trend continues, while all other influential factors remain the same, the number of beneficiaries accessing CPEP could continue to show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis results are presented in Appendix Exhibit C.6.

The fourth row of Exhibit F.47 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 0.10 percentage points in the percentage of beneficiaries accessing CPEP (level change in the predicted trend figure), from a baseline mean of 1.00%. In addition, this metric decreased by a statistically significant 0.07 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes resulted in a statistically significant decrease of 0.44 percentage points. If the current trend continues, while all other influential factors remain the same, the percentage of beneficiaries accessing CPEP could continue to show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis results are presented in Appendix Exhibit C.7.

The fifth row of Exhibit F.47 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the number of beneficiaries accessing mobile crisis and outreach services (level change in the predicted trend figure), from a baseline mean of 91.83. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results appear in Appendix Exhibit C.8.

The sixth row of Exhibit F.47 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of beneficiaries accessing mobile crisis and outreach services (level change in the predicted trend figure), from a baseline mean of 0.55%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results appear in Appendix Exhibit C.9.

As shown in the seventh and eighth rows of Exhibit F.47, because the psychiatric crisis stabilization services were available only under the Demonstration, an ITS analysis was not applicable.

F.2.1.4 Goal 4. Improved access to community-based services to address the chronic mental healthcare needs of beneficiaries with SMI or SED, including through increased integration of primary and behavioral healthcare

Takeaway: The Demonstration has achieved the goal of improving access to community-based services to address chronic mental health care needs, including through the increased integration of primary and behavioral health care. The number of beneficiaries with SMI/SED who used any mental health services increased. The number of episodes of care where IMD providers billed for assessments or the treatment of physical conditions also increased. The total number of mental health providers did not increase.

Hypothesis 4.1: The Demonstration will increase access to specific community-based SMI/SED treatment services.

1. The total number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration had a statistically significant decrease in level and a statistically significant increase in slope. However, the combined effect of the level and slope changes at the end of 2 years was not statistically significant.
2. The regression analysis was not conducted for the number of psychiatric hospitals that delivered services to beneficiaries with SMI/SED under the Demonstration because the number of hospitals was too small.
3. The number of physicians or other practitioners who delivered services to beneficiaries with SMI/SED under the Demonstration had a statistically significant decrease in level and a statistically significant increase in slope. However, the combined effect of the level and slope changes at the end of 2 years was not statistically significant.
4. The number of FQHCs that delivered services to beneficiaries with SMI/SED under the Demonstration had no change in level and a statistically significant increase in slope.
5. The number of other behavioral health clinics/entities that delivered services to beneficiaries with SMI/SED under the Demonstration had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was not statistically significant.

Hypothesis 4.2: The Demonstration will increase utilization of specific community-based SMI/SED treatment services.

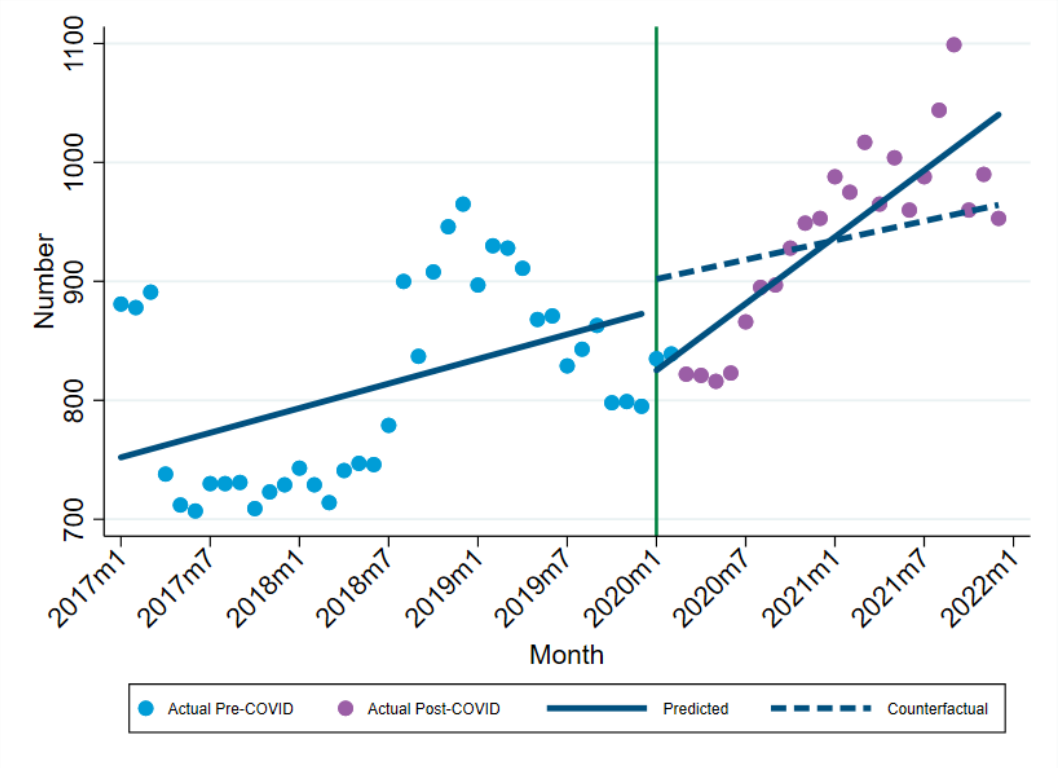
1. The number of beneficiaries with SMI/SED who used any services related to mental health during the measurement period had a statistically significant increase in level and slope.
2. The percentage of beneficiaries with SMI/SED who used any services related to mental health during the measurement period had a statistically significant increase in level and slope.

Hypothesis 4.3: The Demonstration will increase the integration of primary and behavioral health care.

1. The metric did not assess the integration of primary and behavioral health care directly. It assessed utilization patterns in the IMD setting to assess the integration of physical and behavioral health care.
2. The number of episodes of care where IMD providers billed for assessments or treatment of physical conditions had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was a statistically significant increase.
3. The percentage of episodes of care where IMD providers billed for assessments or treatment of physical conditions had no change in level or slope.

Research Question 4.1a. Was there an increase in access to community-based SMI/SED treatment services?

Exhibit F.48. Number of Mental Health Providers, in Total



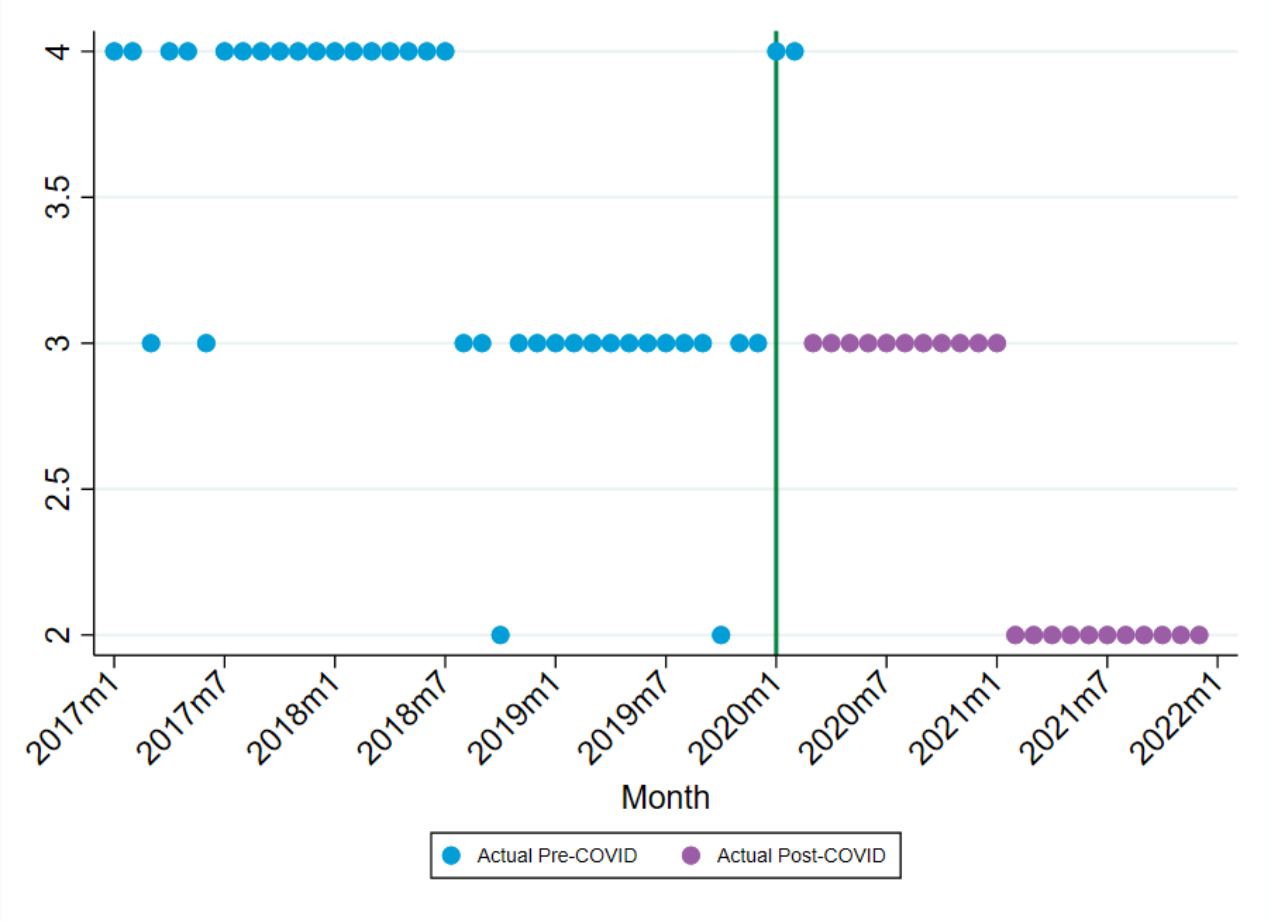
The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[102] Exhibit F.48 shows that the observed number of mental health providers who delivered services to beneficiaries with SMI/SED, in total, increased over time during both the pre- and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

In interpreting this measure, note that the measure may have undercounted the number of providers because information with sufficient granularity is not available in the claims data for

[102] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

certain types of providers . MHRS providers were at the entity and organization levels. When multiple individual practitioners were affiliated with the MHRS organization that submitted claims for the services, we counted them as one provider. Using the rendering provider information at both the header and the line levels did not alleviate this issue, because the rendering provider was likely just a default value filled by the system, and it was usually the same as the billing provider. However, because there exists no mapping between the entity and the associated providers, we cannot determine the degree of undercounting.

Exhibit F.49. Number of Mental Health Providers Who Delivered Services to Beneficiaries With SMI/SED Under the Demonstration, by Type—Psychiatric Hospital



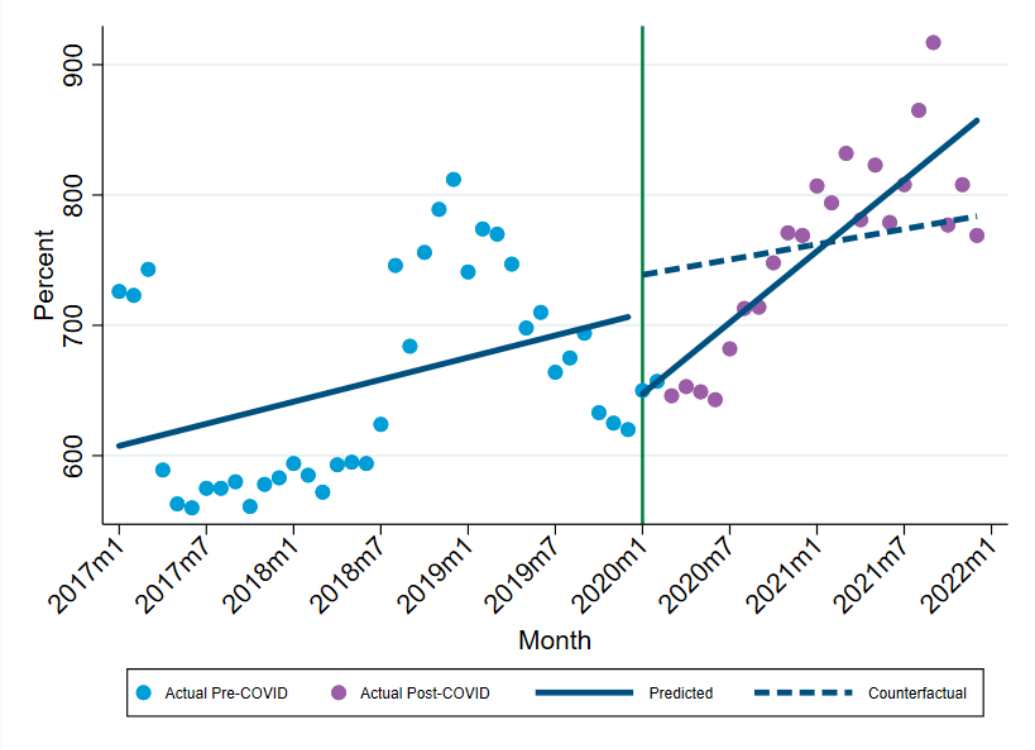
The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[103] Exhibit F.49 shows that the observed number of psychiatric hospitals that delivered services to beneficiaries with SMI/SED decreased over time during both the pre- and

[103] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

post-Demonstration periods. Four psychiatric hospitals delivered services to beneficiaries with SMI/SED in 2017, and this number decreased to two psychiatric hospitals by 2021.

In interpreting this measure, note that in both the pre- and post-Demonstration periods, there were only two psychiatric hospitals in the District. These two hospitals account for the vast majority of psychiatric hospital utilization by the District's Medicaid beneficiaries. The remaining one or two facilities per year that appear in the claims/encounter data reflect non-DC psychiatric hospitals covering a minuscule number of MCO or FFS beneficiaries with one-off service use.

Exhibit F.50. Number of Mental Health Providers Who Delivered Services to Beneficiaries With SMI/SED Under the Demonstration, by Type—Physician or Other Practitioner



The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[104] Exhibit F.50 shows that the observed number of physicians or other practitioners who delivered services to beneficiaries with SMI/SED increased over time during both the pre- and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during

[104] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

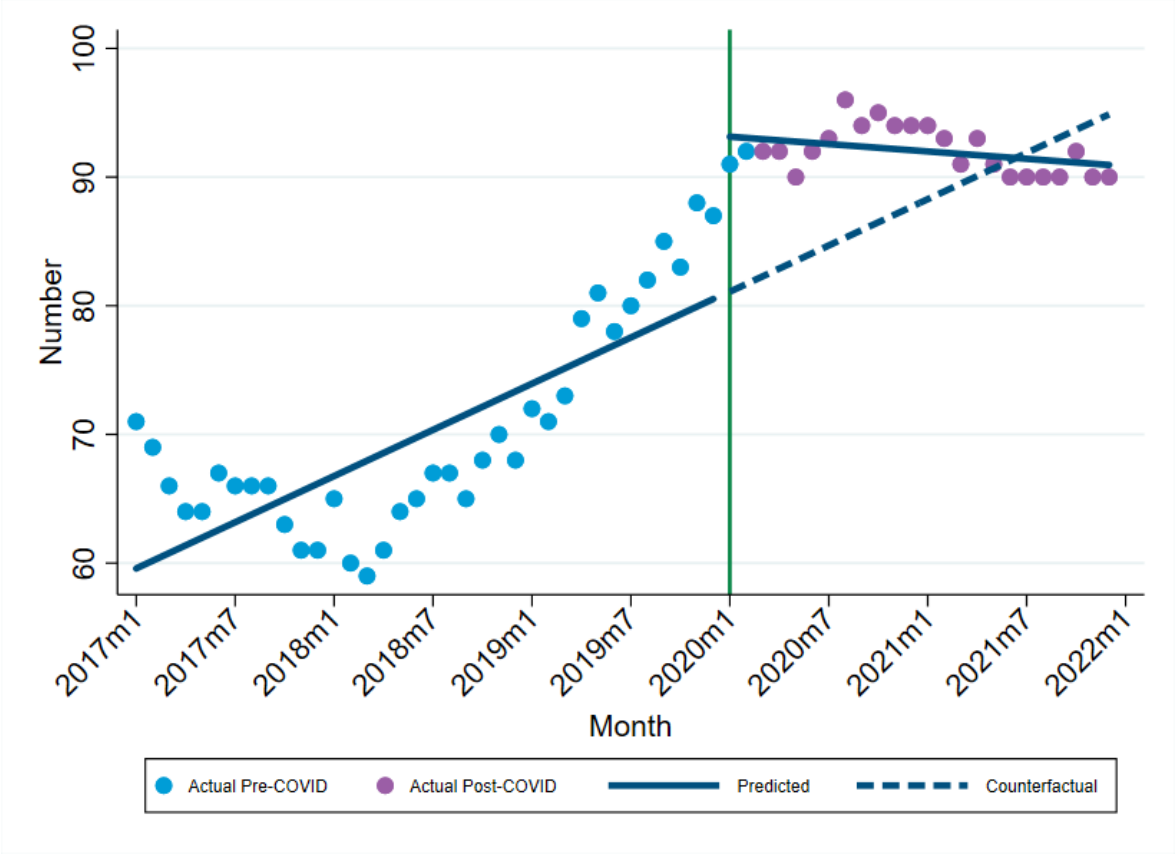
Exhibit F.51. Number of Mental Health Providers Who Delivered Services to Beneficiaries With SMI/SED Under the Demonstration, by Type—Federally Qualified Health Centers (FQHCs)

The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[105] Exhibit F.51 shows that the observed number of FQHCs that delivered services to beneficiaries with SMI/SED increased over time during both the pre- and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an

[105] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

Exhibit F.52. Number of Mental Health Providers Who Delivered Services to Beneficiaries With SMI/SED Under the Demonstration, by Type—Other Behavioral Health Clinic/Entity



The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[106] Exhibit F.52 shows that the observed number of other behavioral health clinics/entities that delivered services to beneficiaries with SMI/SED increased over time during the pre-Demonstration period but slightly decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a slight decreasing trend over time under the Demonstration.

[106] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.53. Effect on Number of Mental Health Providers

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration, in total	↑	812.39	-91.26*** (25.99)	20.19*** (5.81)
Number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration, by type—psychiatric hospital	↑	3.42	N/A	N/A
Number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration, by type—physician or other practitioner	↑	656.97	-107.07*** (26.18)	21.81*** (5.78)
Number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration, by type—Federally Qualified Health Centers (FQHCs)	↑	81.94	1.16 (2.05)	0.64** (0.30)
Number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration, by type—Other behavioral health clinic/entity	↑	70.06	13.57*** (1.92)	-2.11*** (0.38)

N/A means regression analysis was not conducted because the number of psychiatric hospitals was too small. *Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.53 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period decrease of 91.26 in the number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration, in total (level change in the predicted trend figure), from a baseline mean of 812.39. However, this metric increased by a statistically significant value of 20.19 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration

period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes did not result in a statistically significant change. However, if the current trend continues, while all other influential factors remain the same, the total number of mental health providers who delivered services to beneficiaries with SMI/SED could show a statistically significant net increase in the future in line with the Demonstration hypothesis. Subgroup analysis was not applicable for this measure.

The second row of Exhibit F.53 shows that the average number of psychiatric hospitals that delivered services to beneficiaries with SMI/SED during the pre-Demonstration period was 3.42. Given the small number, regression analysis was not conducted.

The third row of Exhibit F.53 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period decrease of 107.07 in the number of physicians or other practitioners who delivered services to beneficiaries with SMI/SED under the Demonstration by type (level change in the predicted trend figure), from a baseline mean of 656.97. However, this metric increased by a statistically significant value of 21.81 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes did not result in a statistically significant change. However, if the current trend continues, while all other influential factors remain the same, the total number of physicians or other practitioners who delivered services to beneficiaries with SMI/SED could show a statistically significant net increase in the future in line with the Demonstration hypothesis. Subgroup analysis was not applicable for this measure.

The fourth row of Exhibit F.53 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the number of FQHCs that delivered services to beneficiaries with SMI/SED under the Demonstration (level change in the predicted trend figure), from a baseline mean of 81.94. However, this metric increased by a statistically significant value of 0.64 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis was not applicable for this measure.

The fifth row of Exhibit F.53 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 13.57 in the number of other behavioral health clinics/entities that delivered services to beneficiaries with SMI/SED under the Demonstration (level change in the predicted trend figure), from a baseline mean of 70.06. In addition, this metric decreased by a statistically significant value of 2.11 on average

during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes did not result in a statistically significant change. However, if the current trend continues, while all other influential factors remain the same, the number of other behavioral health clinics/entities that delivered services to beneficiaries with SMI/SED could show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis was not applicable for this measure.

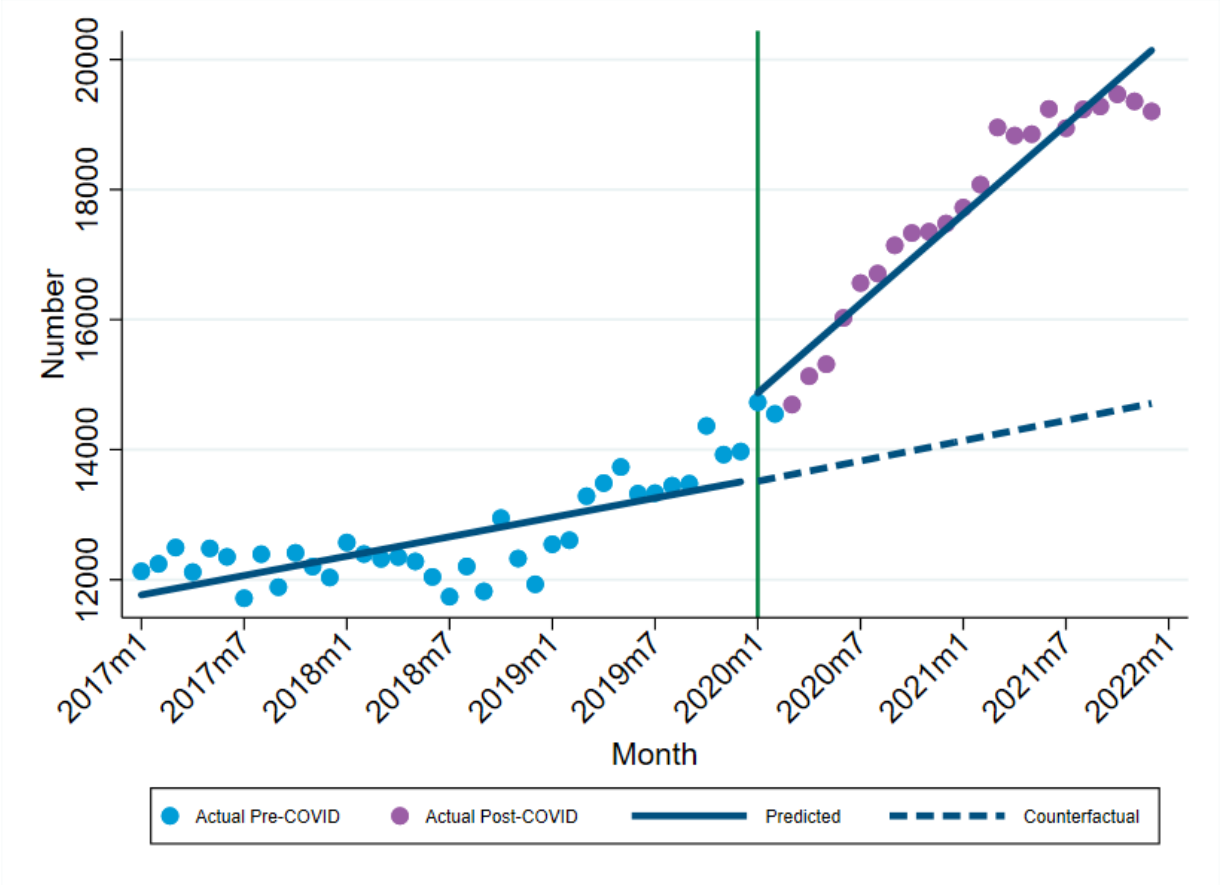
> **Research Question 4.1b.** Was there an increase in community knowledge of available community-based SMI/SED treatment and services?

We have not yet administered the second iteration of the beneficiary survey.[107] Thus, we are unable to assess whether there was an increase in community knowledge of available community-based SMI/SED treatment and services from the beneficiaries' perspective. However, baseline beneficiary survey data suggest that there is an opportunity for increase. Although awareness of crisis stabilization services was high, as described in Section F.1 above, a substantial percentage of survey respondents reported not knowing where to go as a barrier to getting the mental health and trauma-related services they needed. Of the 35 survey respondents who indicated that they were unable to get all of the services they wanted or needed for counseling or treatment for emotional or mental health, 16 (44%) indicated that they did not receive these services because they did not know where to go. Of the 27 survey respondents who indicated that they were unable to get all of the services they wanted or needed for counseling or treatment for a traumatic event, 12 (45%) reported that they did not receive these services because they did not know where to go. In addition, awareness of day treatment programs appeared to be low. Of the 23 survey respondents who indicated that they were unable to go someplace during the day to be with people, meet people who also wanted help with their drug or alcohol use or mental health, or connect with people for social support, 15 (66%) reported that they did not get these services because they did not know where to go.

> **Research Question 4.2a.** Was there an increase in utilization of community-based SMI/SED treatment services?

[107] We plan to administer the second iteration of the survey in time for the Summative Evaluation Report.

Exhibit F.54. Any Mental Health Services Utilization (Number of Beneficiaries)

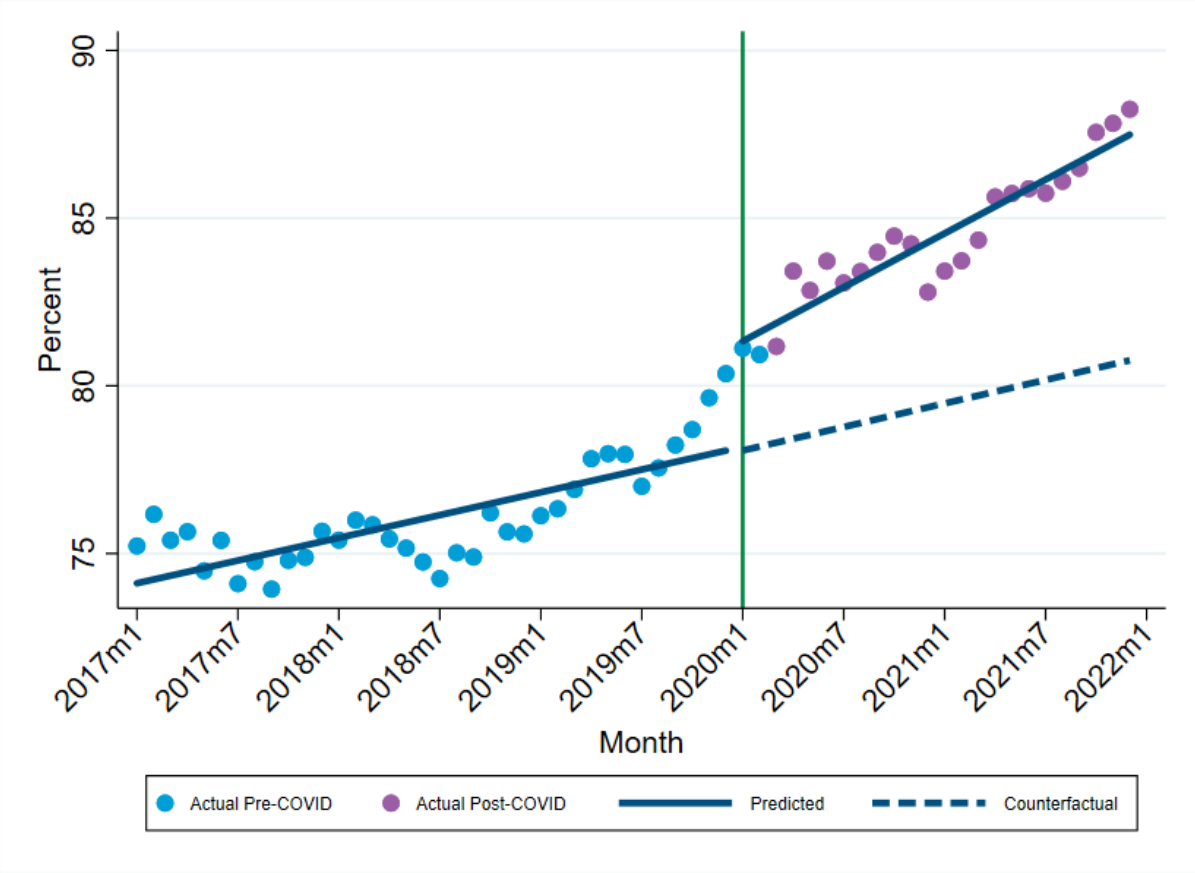


This monthly metric was adapted from SMI/SED Monitoring Metric #18 which is also a monthly metric. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[108] Exhibit F.54 shows that the observed number of beneficiaries with SMI/SED who used any services related to mental health during the measurement period increased over time during both the pre-and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

[108] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

In interpreting this measure, note that the observed increases could be a combination of increased rates of mental health problems during the COVID-19 PHE as well as increased availability of services under the Demonstration (e.g., newly available IMD services for Medicaid FFS beneficiaries ages 21–64).[109]

Exhibit F.55. Any Mental Health Services Utilization (Percentage of Beneficiaries)



This monthly metric was adapted from SMI/SED Monitoring Metric #18, which is also a monthly metric. The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the month.[110] Exhibit F.55 shows that the observed percentage of beneficiaries with SMI/SED who used any services related to mental health during the measurement period increased over time during both the pre-and post-Demonstration periods, and the rate of increase was larger under the Demonstration. A comparison of the predicted

[109] National Center for Health Statistics. (2023). U.S. Census Bureau, Household Pulse Survey, 2020–2023. Anxiety and Depression. Generated interactively: from https://www.cdc.gov/nchs/covid19/pulse/mental-health.htm

[110] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was larger than the counterfactual.

In interpreting this measure, note that the observed increases could be a combination of increased rates of mental health problems during the COVID-19 PHE as well as increased availability of services under the Demonstration (e.g., newly available IMD services for Medicaid FFS beneficiaries ages 21–64).

Exhibit F.56. Effect on Mental Health Services Utilization

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of beneficiaries with SMI/SED who used any services related to mental health during the measurement period	↑	12,635.69	970.32*** (330.60)	538.75*** (56.90)
Percentage of beneficiaries with SMI/SED who used any services related to mental health during the measurement period	↑	76.09	2.93*** (0.50)	0.46*** (0.09)

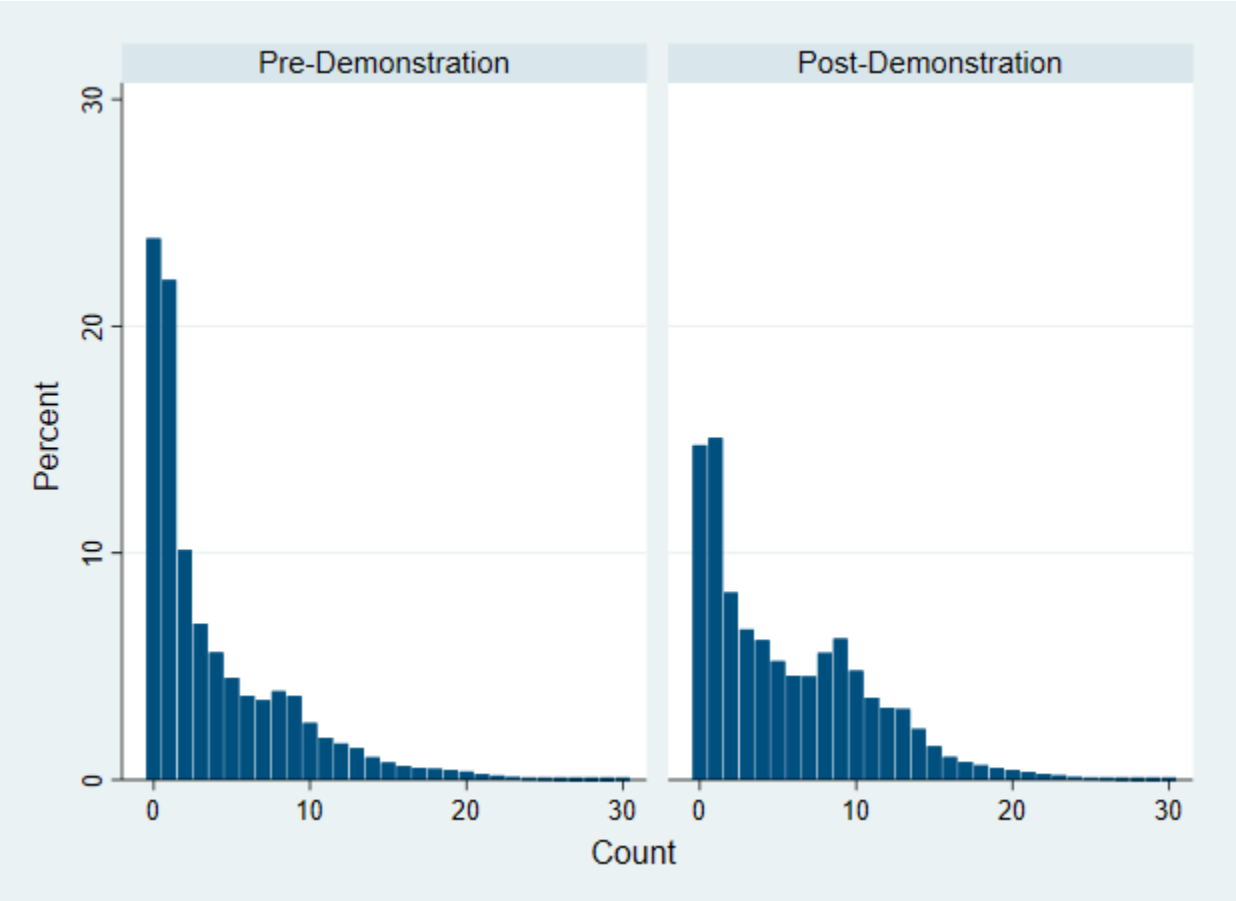
*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.56 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 970.32 in the number of beneficiaries with SMI/SED who used any services related to mental health during the measurement period (level change in the predicted trend figure), from a baseline mean of 12,635.69. In addition, this metric increased by a statistically significant value of 538.75 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results appear in Appendix Exhibit C.10.

The second row of Exhibit F.56 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 2.93 percentage points in

the percentage of beneficiaries with SMI/SED who used any services related to mental health during the measurement period (level change in the predicted trend figure), from a baseline mean of 76.09%. In addition, this metric increased by a statistically significant 0.46 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are presented in Appendix Exhibit C.11.

Exhibit F.57. Number of Mental Health Services Claims, PBPM



Note. Any value above 30 for the per beneficiary per month visits was recoded to 30.

We performed a supplemental individual-level analysis for this monthly measure. Exhibit F.57 displays the histograms of the number of monthly mental health services claims for the SMI/SED population, separately for the pre-Demonstration and post-Demonstration periods. Comparing the two graphs, the post-Demonstration period distribution shows increased frequencies of higher numbers of monthly services and decreased frequencies of zero or one monthly service per beneficiary. This is consistent with the increased utilization of any mental health services observed in the District-level analysis.

Exhibit F.58. Effect on Number of Mental Health Services Claims, PBPM

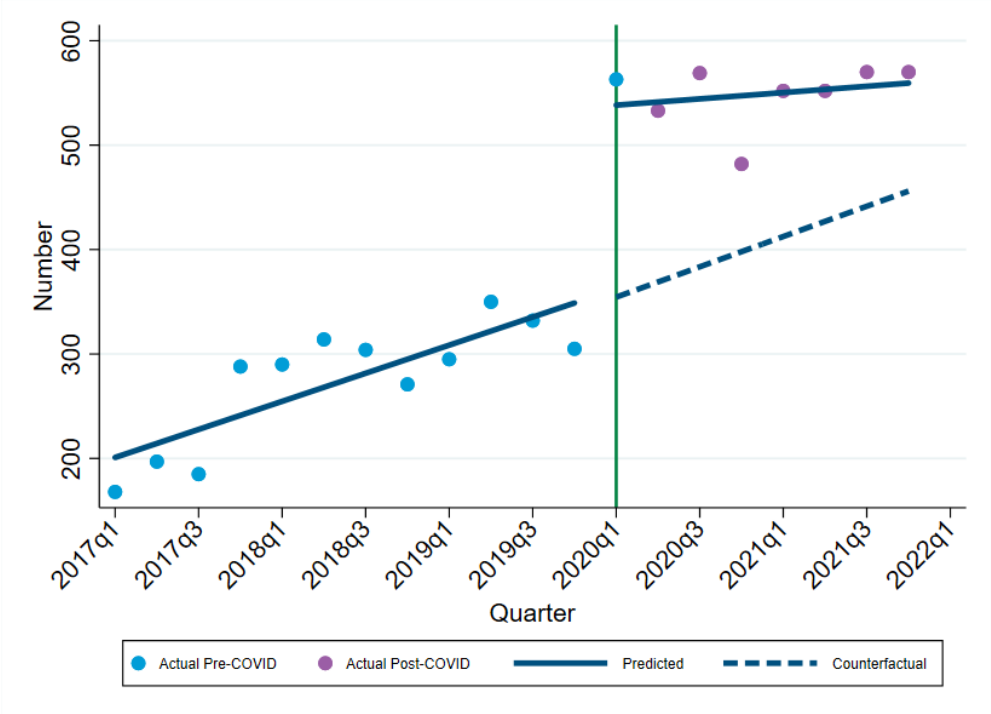
Measure Description	Hypothesized Direction	Baseline Mean (2017-2019)	Marginal Change Post-Demonstration from Count Model
For beneficiaries with SMI/SED, number of monthly services (claims) related to mental health during the measurement period	↑	3.88	0.68*** (0.02)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

Exhibit F.58 shows that the Demonstration was associated with a statistically significant increase of 0.68 mental health services per month for beneficiaries with SMI/SED. This is a meaningful change compared to the baseline mean of 3.88 visits and the positive effect is consistent with the District-level findings above. It is also consistent with the shift in the distribution toward higher numbers of visits observed in Figure F.57. Both the individual-level and District-level analyses show statistically significant increases in mental health services utilization for beneficiaries with SMI/SED.

> **Research Question 4.3a.** Did beneficiaries being treated in an IMD setting receive treatment for physical health conditions experienced by beneficiaries with SMI/SED?

Exhibit F.59. Assessment of Physical Health During IMD Stay (Number of Episodes of Care)

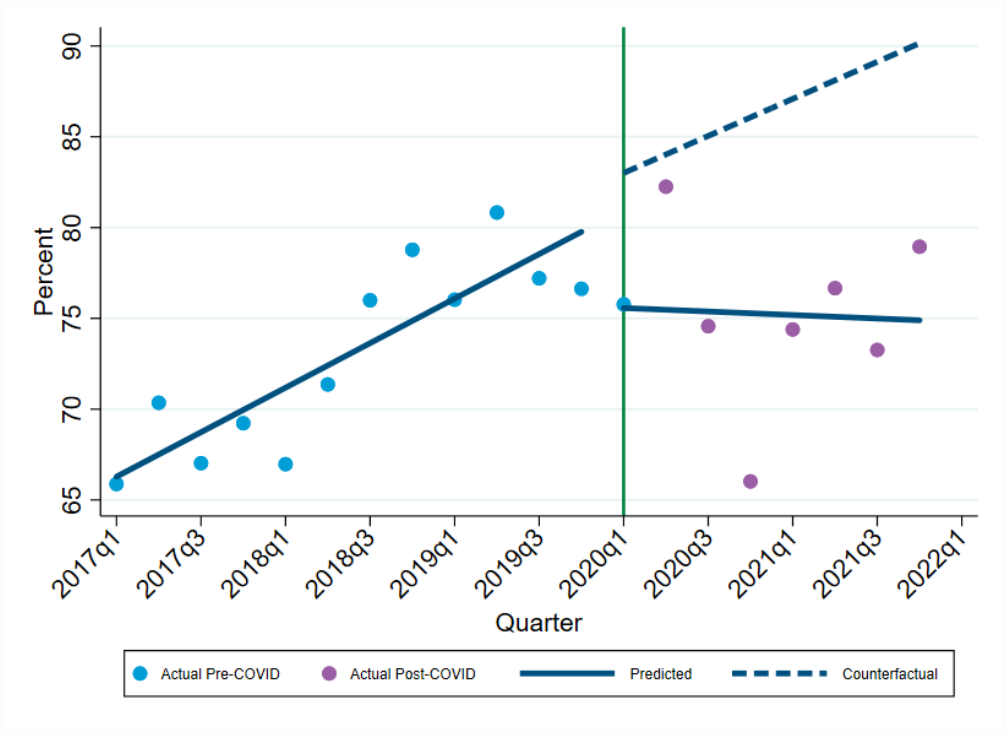


The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the quarter who had an IMD stay in the quarter.[111] Exhibit F.59 shows that the observed number of episodes of care where IMD providers billed for assessments or treatment of physical conditions increased over time during both the pre- and post-Demonstration periods, and the rate of increase was smaller under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under the Demonstration. The rate of increase under the Demonstration was smaller than the counterfactual. In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages 21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[112] This means there will be more opportunity to observe IMD stays and physical health assessment in the data.

[111] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

[112] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.

Exhibit F.60. Assessment of Physical Health During IMD Stay (Percentage of Episodes of Care)



The target population for this metric is beneficiaries enrolled in Medicaid with SMI/SED diagnoses during the quarter who had an IMD stay in the quarter.[113] Exhibit F.60 shows that the observed percentage of episodes of care where IMD providers billed for assessments or treatment of physical conditions increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages 21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[114] This means there will be more opportunity to observe IMD stays and physical health

[113] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

[114] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.

assessment in the data. It is unclear, however, whether the newly covered beneficiaries would have been less likely to receive a physical health assessment than previously covered beneficiaries.

Exhibit F.61. Effect on Assessment of Physical Health During IMD Stay

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of episodes of care where IMD providers billed for assessments or treatment of physical conditions	↑	274.92	195.33*** (31.24)	-11.49** (4.49)
Percentage of episodes of care where IMD providers billed for assessments or treatment of physical conditions	↑	73.03	-6.32 (4.52)	-1.12 (0.71)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.61 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 195.33 in the number of episodes of care where IMD providers billed for assessments or treatment of physical conditions (level change in the predicted trend figure), from a baseline mean of 274.92. However, this metric decreased by a statistically significant value of 11.49 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes resulted in a statistically significant increase of 103.38. However, if the current trend continues, while all other influential factors remain the same, the number of episodes of care where IMD providers billed for assessments or treatment of physical conditions could show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis results appear in Appendix Exhibit C.12.

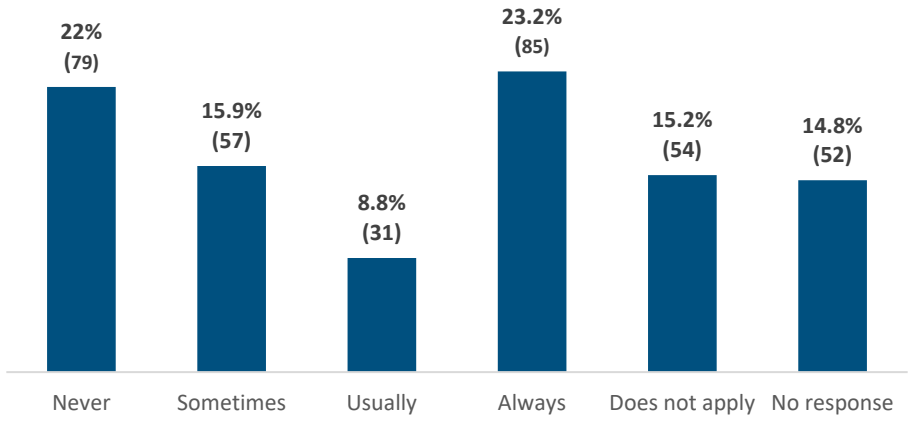
The second row of Exhibit F.61 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of episodes of care where IMD providers billed for assessments or the treatment of physical conditions (level

change in the predicted trend figure), from a baseline mean of 73.03%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit C.13.

> **Research Question 4.3b.** Did the Demonstration increase the integration of primary and behavioral healthcare for beneficiaries with SMI or SED?

Baseline beneficiary survey data suggest that there is an opportunity for increased integration of physical and behavioral healthcare, from the perspective of beneficiaries. Forty-eight percent of all survey respondents (*n* = 173) received both physical healthcare and help for their drug or alcohol use or mental health from the same provider or place at least some of the time Exhibit F.62).

Exhibit F.62. How often did you receive both physical healthcare (such as checkups and treatment for being sick) and help for your drug or alcohol use or mental health from the same provider or place?



Note. Percentages are weighted and may not add up to 100% due to rounding.

F.2.1.5 Goal 5. Improved care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities

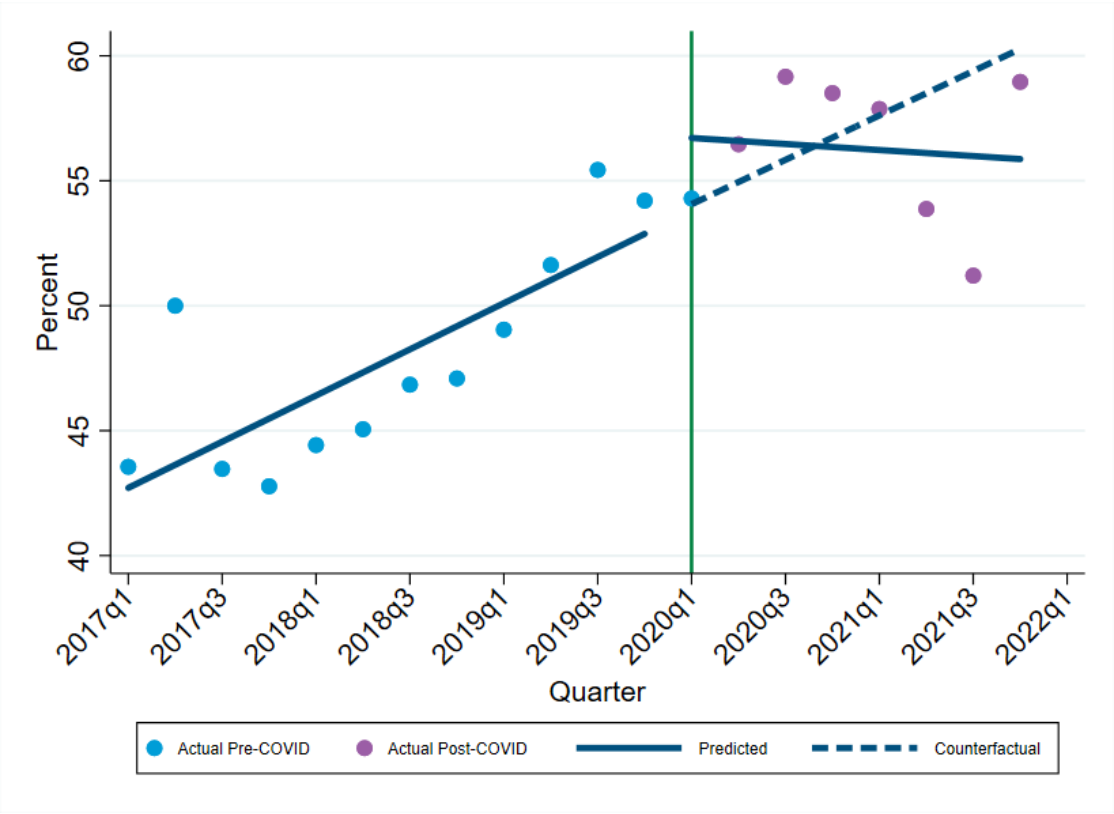
Takeaway: Results were mixed for the goal of improving care coordination; continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities is especially mixed at this time. There was an increase in mental health–related follow-up visits after mental health–related ED visits, but not after mental health–related hospitalizations.

Hypothesis 5.1: The Demonstration will improve follow-up for beneficiaries with SMI/SED after episodes of acute care in hospitals.

1. The percentage of discharges for beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner within 7 days had no change in level or slope.
2. The percentage of discharges for beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner within 30 days had no change in level and a statistically significant decrease in slope.
3. The percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 7 days of the ED visit had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was a statistically significant decrease.
4. The percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 30 days of the ED visit had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was a statistically significant decrease.

Research Question 5.1a. Was there an increase in utilization of follow-up services for beneficiaries with SMI/SED after episodes of acute care in hospitals?

Exhibit F.63. Follow-Up After Hospitalization for Mental Illness: Age 18 and Older (FUH-AD)—Within 7 Days

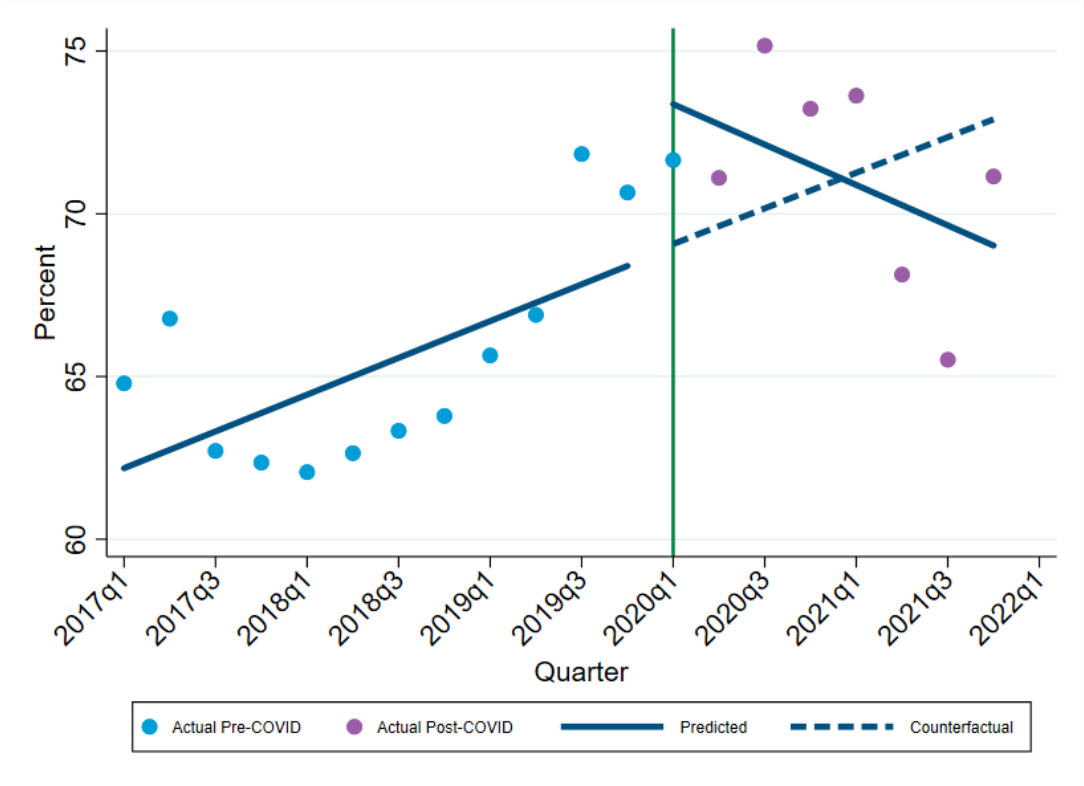


This quarterly metric was adapted from SMI/SED Monitoring Metric #8 which is an annual metric. The target population for this metric is beneficiaries ages 18 years and older enrolled in Medicaid with SMI/SED diagnoses during the quarter, who were discharged in the quarter from a hospitalization for treatment of selected mental illness diagnoses or intentional self-harm.[115] Exhibit F.63 shows that the observed percentage of discharges for beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner within 7 days increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

[115] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages 21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[116] It is possible that the newly covered beneficiaries are less likely to receive follow-up care than previously covered beneficiaries.

Exhibit F.64. Follow-Up After Hospitalization for Mental Illness: Age 18 and Older (FUH-AD)—Within 30 Days



This quarterly metric was adapted from SMI/SED Monitoring Metric #8 which is an annual metric. The target population for this metric is beneficiaries ages 18 and older enrolled in Medicaid with SMI/SED diagnoses during the quarter, who were discharged in the quarter from a hospitalization for treatment of selected mental illness diagnoses or intentional self-harm.[117] Exhibit F.64 shows that the observed percentage of discharges for beneficiaries age 18 years

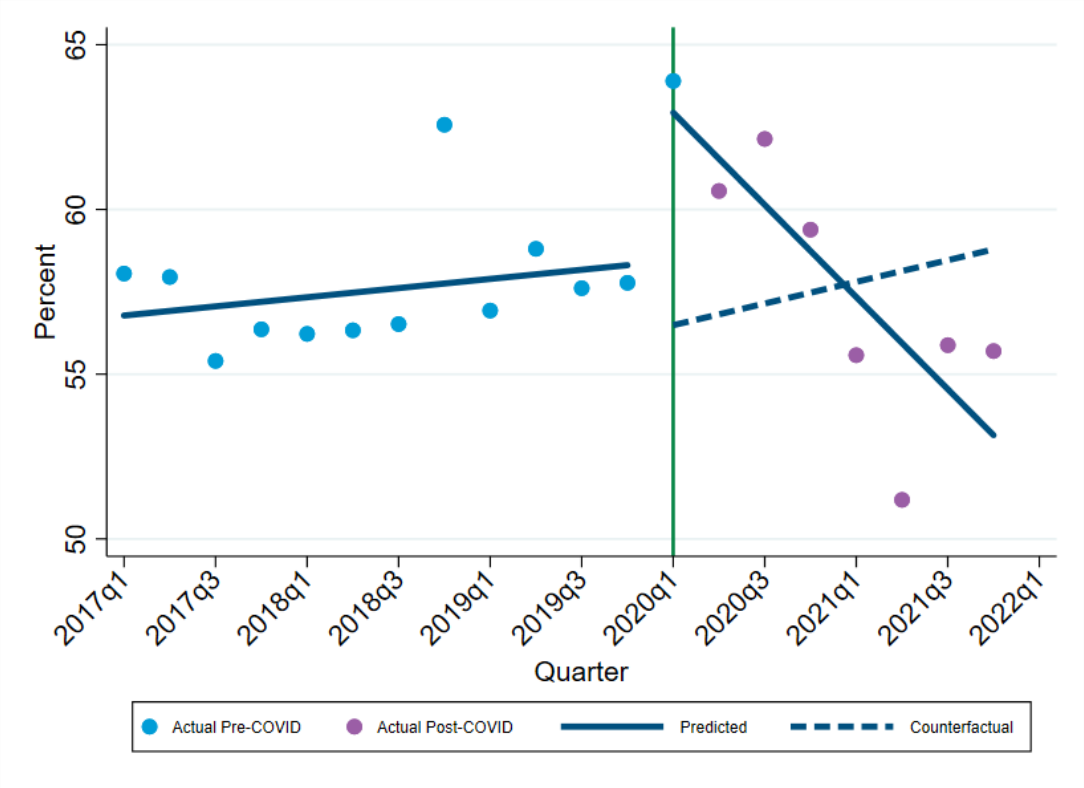
[116] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.

[117] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner within 30 days increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages 21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[118] It is possible that the newly covered beneficiaries are less likely to receive follow-up care than previously covered beneficiaries.

Exhibit F.65. Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD)—Within 7 Days

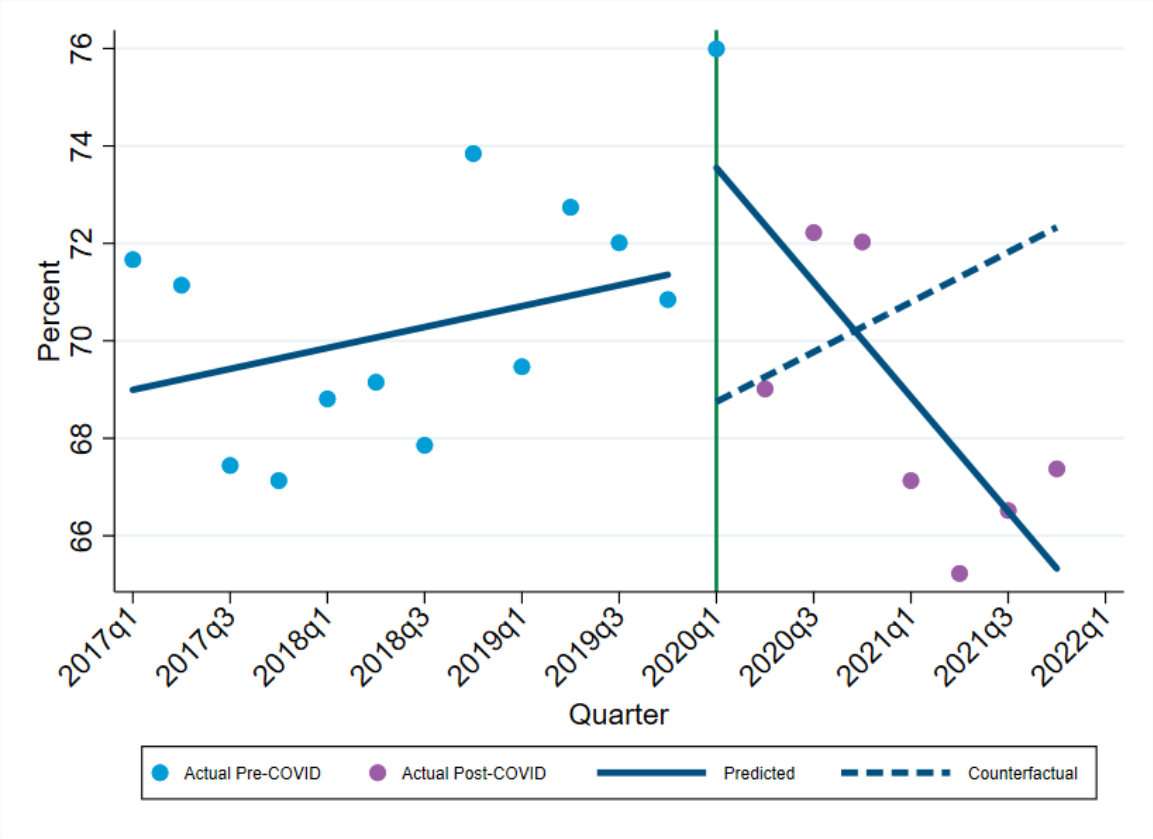


[118] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.

This quarterly metric was adapted from SMI/SED Monitoring Metric #10 which is an annual metric. The target population for this metric is beneficiaries aged 18 and older enrolled in Medicaid with SMI/SED diagnoses during the quarter, who had a principal diagnosis of mental illness or intentional self-harm in the quarter.[119] Exhibit F.65 shows that the observed percentage of ED visits for beneficiaries age 18 years and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 7 days of the ED visit increased over time during the pre-Demonstration period but decreased over time in the post-Demonstration period. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

[119] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.66. Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD)—Within 30 Days



This quarterly metric was adapted from SMI/SED Monitoring Metric #10 which is an annual metric. The target population for this metric is beneficiaries aged 18 and older enrolled in Medicaid with SMI/SED diagnoses during the quarter, who had a principal diagnosis of mental illness or intentional self-harm in the quarter.[120] Exhibit F.66 shows that the observed percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 30 days of the ED visit increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

[120] To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI. These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications. Appendix A contains a list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition.

Exhibit F.67. Effect on Follow-Up Services After Hospitalization or ED Visits for Mental Illness

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Percentage of discharges for beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner—within 7 days	↑	47.79	3.66 (3.35)	-1.01 (0.60)
Percentage of discharges for beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner—within 30 days	↑	65.29	5.46 (3.40)	-1.17* (0.56)
Percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness—within 7 days of the ED visit	↑	57.55	8.17*** (1.40)	-1.73*** (0.32)
Percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness—within 30 days of the ED visit	↑	70.18	6.49*** (1.49)	-1.69*** (0.27)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.67 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of discharged

beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner within 7 days (level change in the predicted trend figure), from a baseline mean of 47.79%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit C.14.

The second row of Exhibit F.67 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of discharged beneficiaries age 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner within 30 days (level change in the predicted trend figure), from a baseline mean of 65.29%. However, this metric decreased by a statistically significant 1.17 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are presented in Appendix Exhibit C.15.

The third row of Exhibit F.67 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 8.17 percentage points in the percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 7 days of the ED visit (level change in the predicted trend figure), from a baseline mean of 57.55%. However, this metric decreased by a statistically significant 1.73 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes resulted in a statistically significant decrease of 5.64 percentage points. If the current trend continues, while all other influential factors remain the same, the percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 7 days of the ED visit could continue to show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis results are provided in Appendix Exhibit C.16.

The fourth row of Exhibit F.67 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 6.49 percentage points in the percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 30 days of the ED visit (level change in the predicted trend figure), from a baseline mean of 70.18%. However, this metric decreased by a statistically significant 1.69 percentage points on

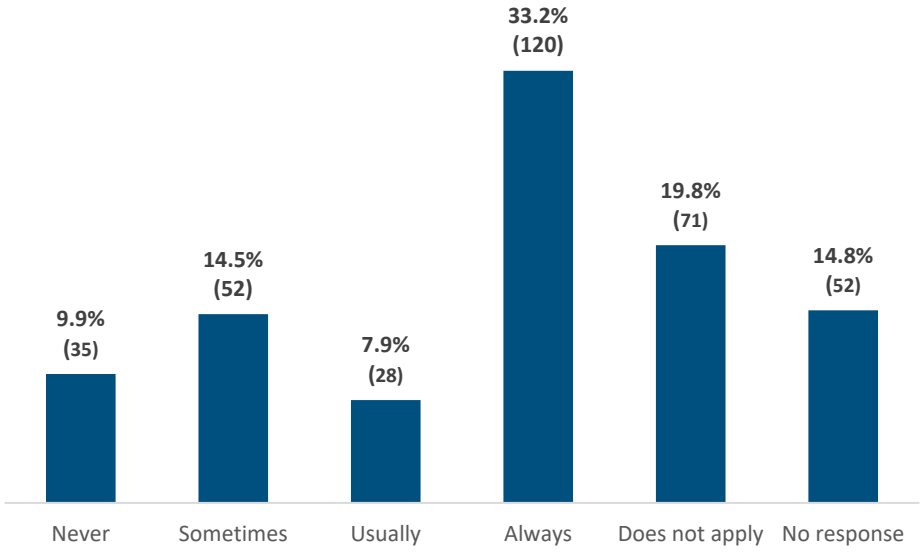
average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes resulted in a statistically significant decrease of 7.00 percentage points. If the current trend continues, while all other influential factors remain the same, the percentage of ED visits for beneficiaries age 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 30 days of the ED visit could continue to show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis results are given in Appendix Exhibit C.17.

Because very few survey respondents had experienced a hospital or residential facility stay for their behavioral health, it was difficult to assess how well follow-up care was occurring from the beneficiaries' perspective. Nine survey respondents indicated that they had had a hospital visit for their drug or alcohol use or mental health in the past year. Three of these survey respondents reported being contacted by a healthcare provider after leaving the hospital to discuss follow-up care. Of the three survey respondents who reported that they had been contacted, 2 had been contacted within 14 days of their hospital visit. Eleven survey respondents indicated they had stayed in a rehab center for their drug or alcohol use in the past year. Four of these 11 survey respondents reported that they had been contacted by a healthcare provider after leaving the rehab center to discuss follow-up care. Of these four survey respondents, three had been contacted within 7 days of leaving the rehab center.

Research Question 5.1f. Did care coordination improve for beneficiaries with SMI/SED?

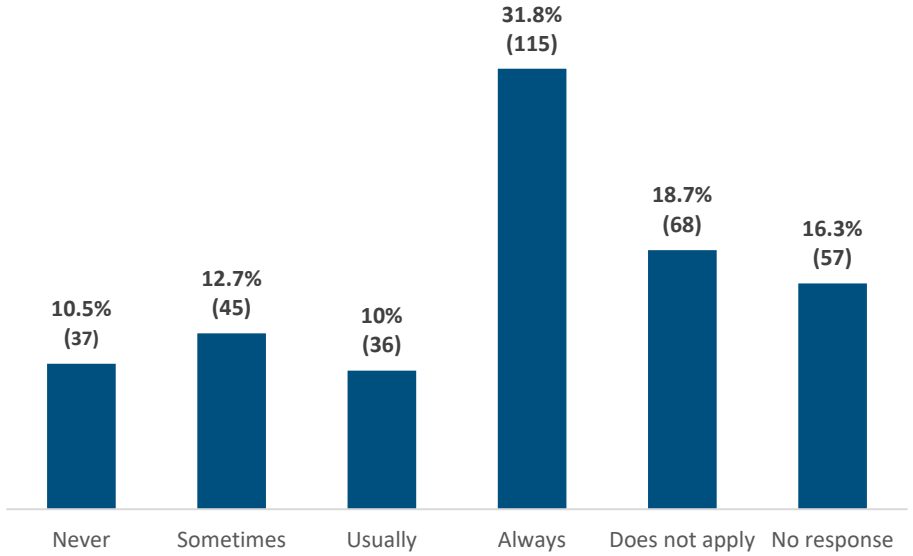
Baseline beneficiary survey data indicated that there are opportunities to improve care coordination. Forty-one percent of survey respondents (*n* = 148) reported that the providers who helped them with their drug or alcohol use or mental health always or usually knew about the medical care they had previously received for physical health problems (Exhibit F.68). Forty-two percent of survey respondents (*n* = 151) reported that the providers who helped them with physical health problems usually or always knew about the counseling, treatment, or medicine they had received for their drug or alcohol use or mental health (Exhibit F.69).

Exhibit F.68. How often did the providers who help you with your drug or alcohol use or mental health know about the medical care you received for any physical health problems you have, such as illness or injuries?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.69. How often did the providers who help you with medical care for your physical health problems, such as illness or injuries, know about the counseling, treatment, or medicine you received for your drug or alcohol use or mental health?



Note. Percentages are weighted and may not add up to 100% due to rounding.

F.2.2 SUD Goals

Section F.2.2 discusses the achievement of the six SUD goals based on the effects of Demonstration on the related outcome measures.

F.2.2.1 Goal 1. Increased Rates of Identification, Initiation, and Engagement in Treatment for SUD

Takeaway: Results were mixed for the goal of increasing rates of identification, initiation, and engagement in treatment for SUD. There was an increase in the number of beneficiaries who initiated SUD treatment. The number and percentage of beneficiaries enrolled in the measurement period receiving any SUD treatment service decreased. For context, note that the COVID-19 PHE impacted SUD service utilization considerably in the District, and more than it impacted SMI/SED service utilization.

Hypothesis 1.1: The Demonstration will increase rates of identification and initiation of treatment for SUD.

1. The number of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period, but not in the 3 months before the measurement period, had no change in level and a statistically significant increase in slope.
2. The percentage of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period, but not in the 3 months before the measurement period, had no change in level or slope.

Hypothesis 1.2: The Demonstration will increase access to specific SUD treatment services.

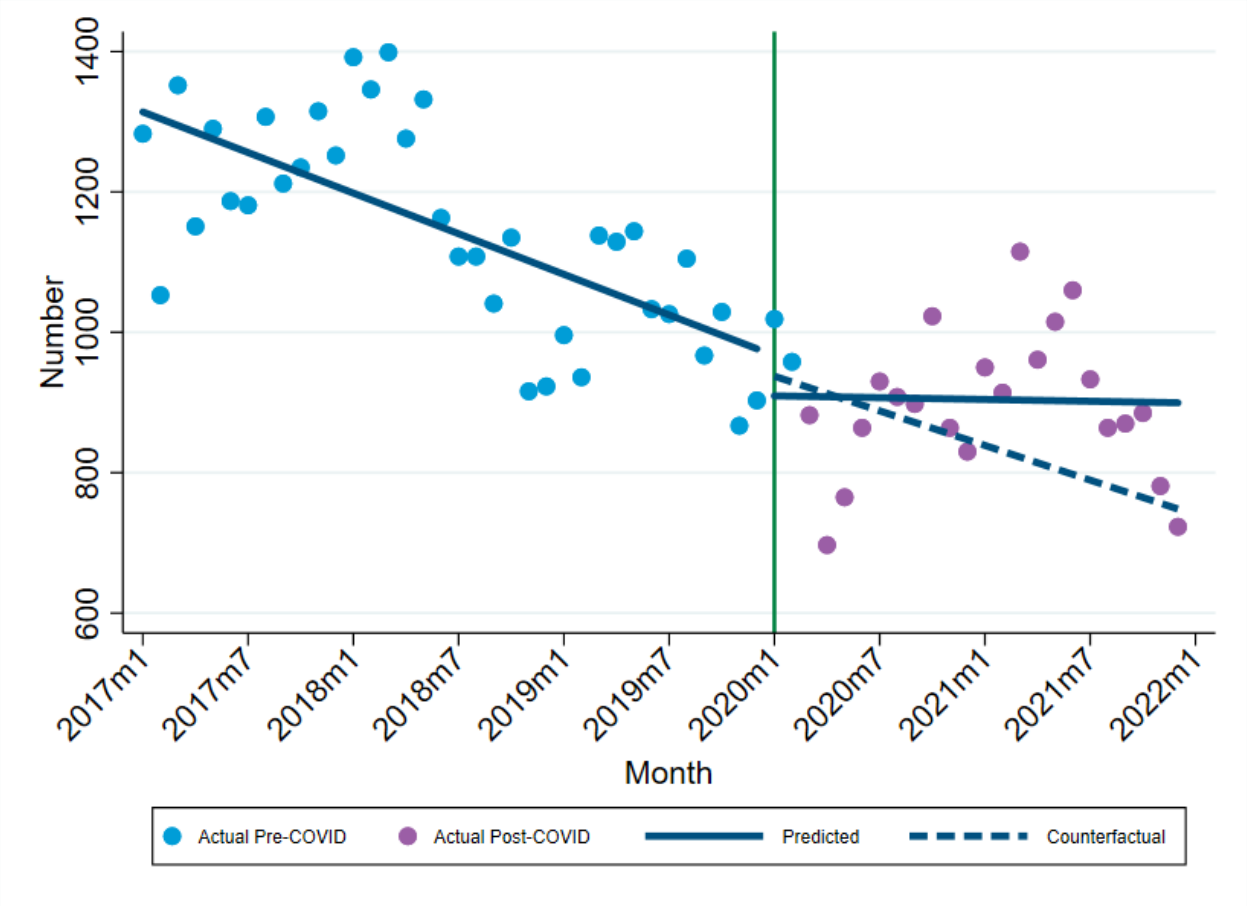
1. The number of providers who were enrolled in Medicaid and qualified to deliver SUD services during the measurement period slightly decreased under the Demonstration.

Hypothesis 1.3: The Demonstration will increase utilization of specific SUD treatment services.

1. The number of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period had a statistically significant decrease in level and no change in slope.
2. The percentage of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period had no change in level and a statistically significant decrease in slope.

Research Question 1.1. Was there an increase in the identification and initiation of treatment for beneficiaries with SUD?

Exhibit F.70. Newly Initiated SUD Treatment/Diagnosis (Number of Beneficiaries)

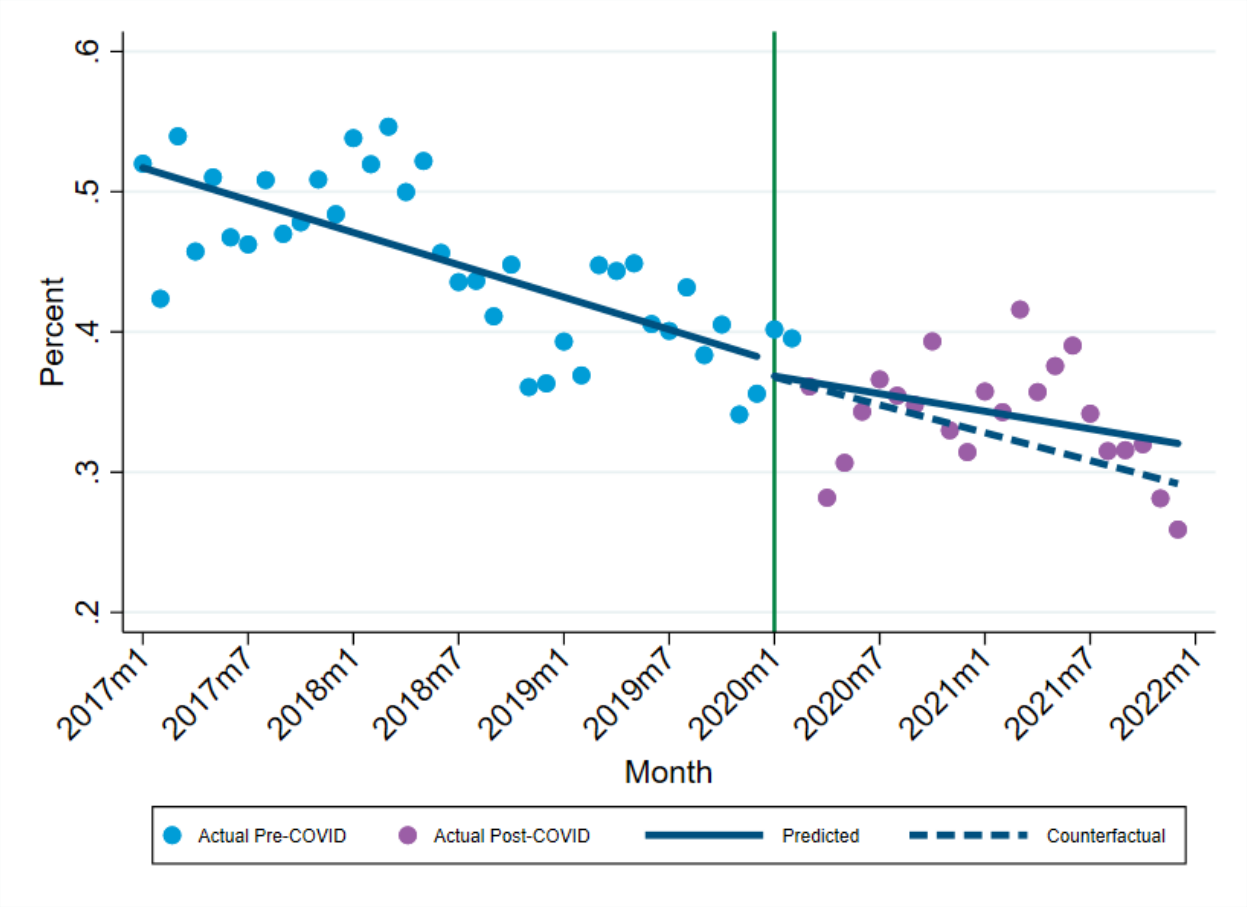


This monthly metric was adapted from SUD Monitoring Metric #2 which is also a monthly metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the month.[121] Exhibit F.70 shows that the observed number of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period decreased over time during the pre-Demonstration period but remained relatively stable under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, which had a decreasing trend, there was a stable trend over time under the Demonstration.

[121] This is the same target population used in SUD Monitoring Metric #2.

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths.[122,123] SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.[124]

Exhibit F.71. Newly Initiated SUD Treatment/Diagnosis (Percentage of Beneficiaries)



This monthly metric was adapted from SUD Monitoring Metric #2 which is also a monthly metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the month.[125] Exhibit F.71 shows that the observed percentage of

[122] Roberts, A., Rogers, J., Mason, R., Siriwardena, A. N., Hogue, T., Whitley, G. A., & Law, G. R. (2021). Alcohol and other substance use during the COVID-19 pandemic: A systematic review. *Drug and Alcohol Dependence, 229*, 109150.
[123] Kaiser Family Foundation. (2023). Opioid overdose deaths and opioid overdose deaths as a percent of all drug overdose deaths. https://www.kff.org/other/state-indicator/opioid-overdose-deaths/?currentTimeframe=2&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D
[124] Department of Behavioral Health & Department of Health Care Finance. (2022, October 28). *Behavioral health transformation demonstration post-award stakeholder forum.* https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/page_content/attachments/Post%20Award%20Forum%20October%202022%20Demonstration%20102822.pdf
[125] This is the same target population used in SUD Monitoring Metric #2.

beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period decreased over time during both the pre- and post-Demonstration periods. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend did not shift under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was a decreasing trend over time under the Demonstration. The rate of decrease under the Demonstration was smaller than the counterfactual.

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.72. Effect on Beneficiaries With Newly Initiated SUD Treatment/Diagnosis

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period	↑	1,145.28	-45.11 (54.92)	23.72** (9.67)
Percentage of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period	↑	0.45	-0.00 (0.02)	0.00 (0.00)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.72 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the number of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period (level change in the predicted trend figure), from a baseline mean of 1,145.28. However, this metric increased by a statistically significant value of

23.72 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit D.1.

The second row of Exhibit F.72 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period (level change in the predicted trend figure), from a baseline mean of 0.45%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit D.2.

Interview and listening session discussions with providers suggest that the Demonstration change that may have contributed to the leveling off of the decrease in new diagnoses and treatment for SUD was the decentralization of the assessment and intake functions of the ARC. As noted above, several providers described this change as the most substantial impact of the Demonstration. Providers described how decentralizing intake increased the likelihood that patients made it into treatment. Spreading out the options for intake sped up the process, allowing intake to be completed during the often short window in which an individual was willing to enter treatment. In addition, decentralizing intake allowed providers using trauma-informed care or providers already familiar to patients to do their intake, which made them more likely to continue through the whole intake process.

"It is so much easier for a patient to walk in and do an assessment once, instead of doing one at an ARC and then going to a provider and doing that assessment all over again so that a licensed practitioner can then do a diagnostic and an ASAM determination."

"We all know that window of, 'I'm willing, I'm going to go into treatment' is so tiny and fragile. If you're at Point A, and you wait for 4 hours, and then you're at Point B, waiting for another hour—you're losing that window."

Research Question 1.2a. Did the number of providers who were enrolled in Medicaid and qualified to deliver SUD services increase during the Demonstration period?

Exhibit F.73. Effect on SUD Provider Availability

Year	Number of providers who were enrolled in Medicaid and qualified to deliver SUD services during the measurement period
2017	500
2018	569

Year	Number of providers who were enrolled in Medicaid and qualified to deliver SUD services during the measurement period
2019	663
2020	648
2021	653

This metric was adapted from SUD Monitoring Metric #13 which is an annual metric.[126] The AIR team was unable to use the monitoring metrics specifications for SUD #13 because the public list (available on the website) and the confidential list of SAHMSA providers could not be obtained for prior years, even with assistance from DHCF. The only feasible way to create a metric comparable across the years for the number of providers was to identify providers based only on the claims associated with them for the respective year. Exhibit F.73 shows that the number of providers who were enrolled in Medicaid and qualified to deliver SUD services increased from 2017 to 2019 but decreased slightly under the Demonstration. The slight decrease could have been because SUD providers took a big hit under COVID-19, as many of their services could not be delivered via telemedicine. DHCF increased payments to these providers to try to sustain them while volume was low, but it is likely that those supplements were not enough for some organizations.

> **Research Question 1.3b.** Was there an increase in the utilization of specific SUD treatment services?

[126] We were unable to adapt this annual measure to a quarterly measure because the data sources included claims and also the roster of providers maintained by DBH which is available annually.

Exhibit F.74. Any SUD Treatment (Number of Beneficiaries)

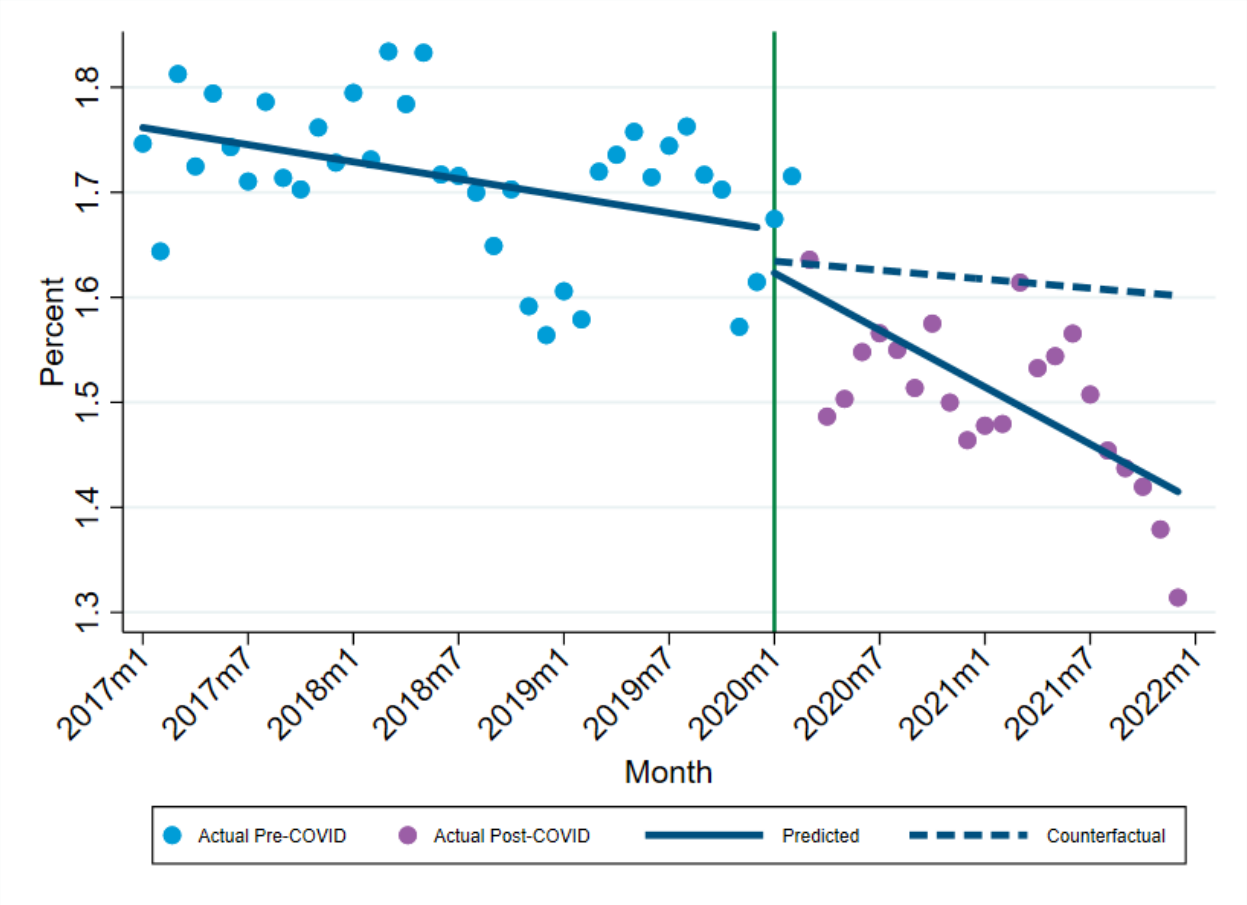
This monthly metric was adapted from SUD Monitoring Metric #6, which is also a monthly metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the month.[127] Exhibit F.74 shows that the observed number of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period decreased over time during the pre-Demonstration period but remained relatively stable under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Both the counterfactual and the predicted trends remained relatively stable over time under the Demonstration.

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The

[127] This is the same target population used in SUD Monitoring Metric #6.

COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.75. Any SUD Treatment (Percentage of Beneficiaries)



This monthly metric was adapted from SUD Monitoring Metric #6 which is also a monthly metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the month.[128] Exhibit F.75 shows that the observed percentage of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period decreased over time during both the pre- and post-Demonstration periods, and the rate of decrease was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward slightly under the Demonstration compared to what could have happened without the Demonstration. Similar to

[128] This is the same target population used in SUD Monitoring Metric #6.

the counterfactual, there was a decreasing trend over time under the Demonstration. The rate of decrease under the Demonstration was larger than the counterfactual.

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.76. Effect on SUD Treatment

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period	↑	4,363.44	-165.18* (94.66)	6.20 (14.99)
Percentage of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period	↑	1.71	0.01 (0.03)	-0.02*** (0.01)

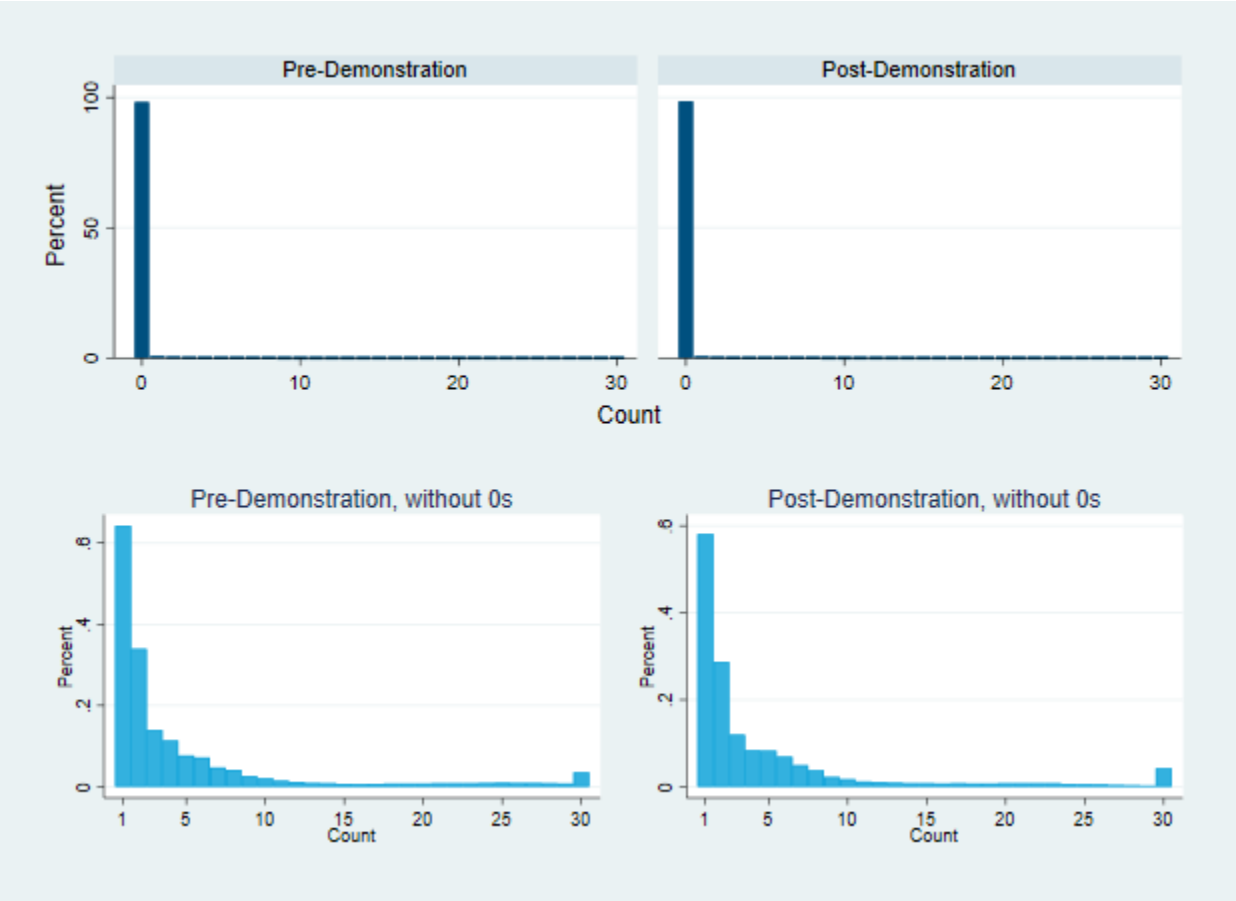
*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.76 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period decrease of 165.18 in the number of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period (level change in the predicted trend figure), from a baseline mean of 4,363.44. However, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results appear in Appendix Exhibit D.3.

The second row of Exhibit F.76 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of beneficiaries enrolled in the measurement period receiving any SUD treatment service, facility claim, or

pharmacy claim during the measurement period (level change in the predicted trend figure), from a baseline mean of 1.71%. However, this metric decreased by a statistically significant 0.02 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are presented in Appendix Exhibit D.4.

Exhibit F.77. Number of SUD Treatment Claims, PBPM



Note. Any value above 30 for the per beneficiary per month treatments was recoded to 30.

We performed a supplemental individual-level analysis for this monthly measure. Exhibit F.77 displays the histograms of the number of monthly SUD treatment services claims, facility claims, or pharmacy claims for the SUD population, separately for the pre-Demonstration and post-Demonstration periods. In consideration of the high percentage of zeroes, which is consistent with the magnitude of the percentage outcome in the District-level analysis (Exhibit F.75; less than 2% of beneficiaries with SUD received an SUD treatment in a month), we also include a zoomed-in version of each graph with the zero category left out. The distributions are very similar pre-Demonstration and post-Demonstration.

Exhibit F.78. Effect on Number of SUD Treatment Claims, PBPM

Measure description	Hypothesized direction	Baseline mean (2017-2019)	Marginal change post-Demonstration from count model
For beneficiaries with SUD, number of monthly SUD treatment services, facility claims, or pharmacy claims	↑	0.08	0.00 (0.00)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

Exhibit F.78 shows that the Demonstration was not associated with a statistically significant change in the monthly number of SUD treatment services claims, facility claims, or pharmacy claims. This is in line with the mixed results of the District-level analysis above. It is also consistent with the observation from Exhibit F.78 that the distributions pre-Demonstration and post-Demonstration are very similar.

F.2.2.2 Goal 2. Increased Adherence to and Retention in Treatment.

Takeaway: The Demonstration has not yet achieved the goal of increased adherence to and retention in SUD treatment. For context, note that the COVID-19 PHE impacted SUD service utilization considerably in the District, and more than it impacted SMI/SED service utilization.

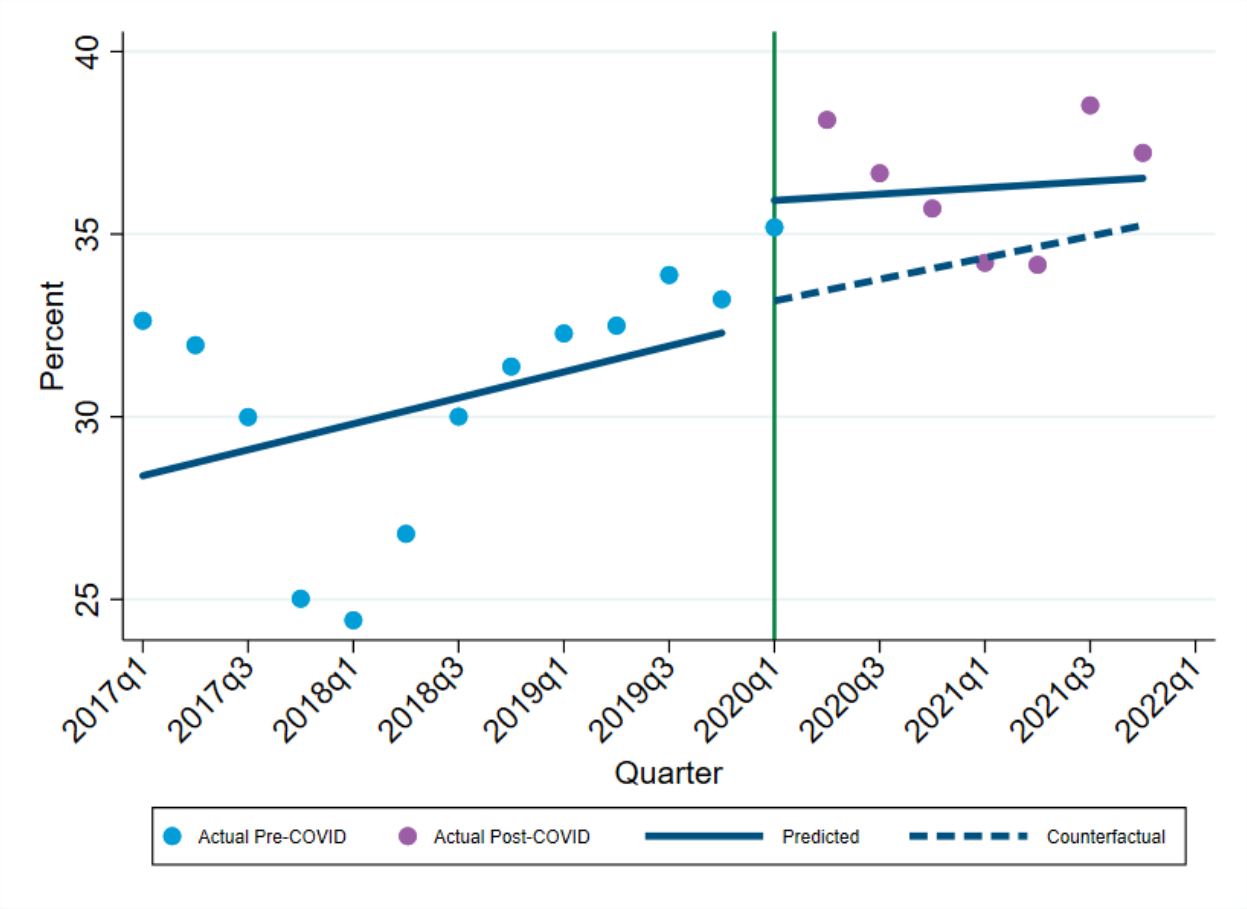
H↑

Hypothesis 2.1: The Demonstration will increase adherence to and retention in SUD treatment.

1. The percentage of beneficiaries with a new episode of alcohol or other drug (AOD) abuse or dependence who received initiation of AOD treatment had no change in level and slope.
2. The percentage of beneficiaries who initiated treatment and were engaged in ongoing AOD treatment within 34 days of the initiation visit had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was not statistically significant.
3. The number of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days had no change in level and a statistically significant decrease in slope.
4. The percentage of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days had no change in level or slope.

Research Question 2.1a. Did the Demonstration increase adherence to SUD treatment?

Exhibit F.79. Initiation of Alcohol and Other Drug Dependence Treatment (IET-AD)



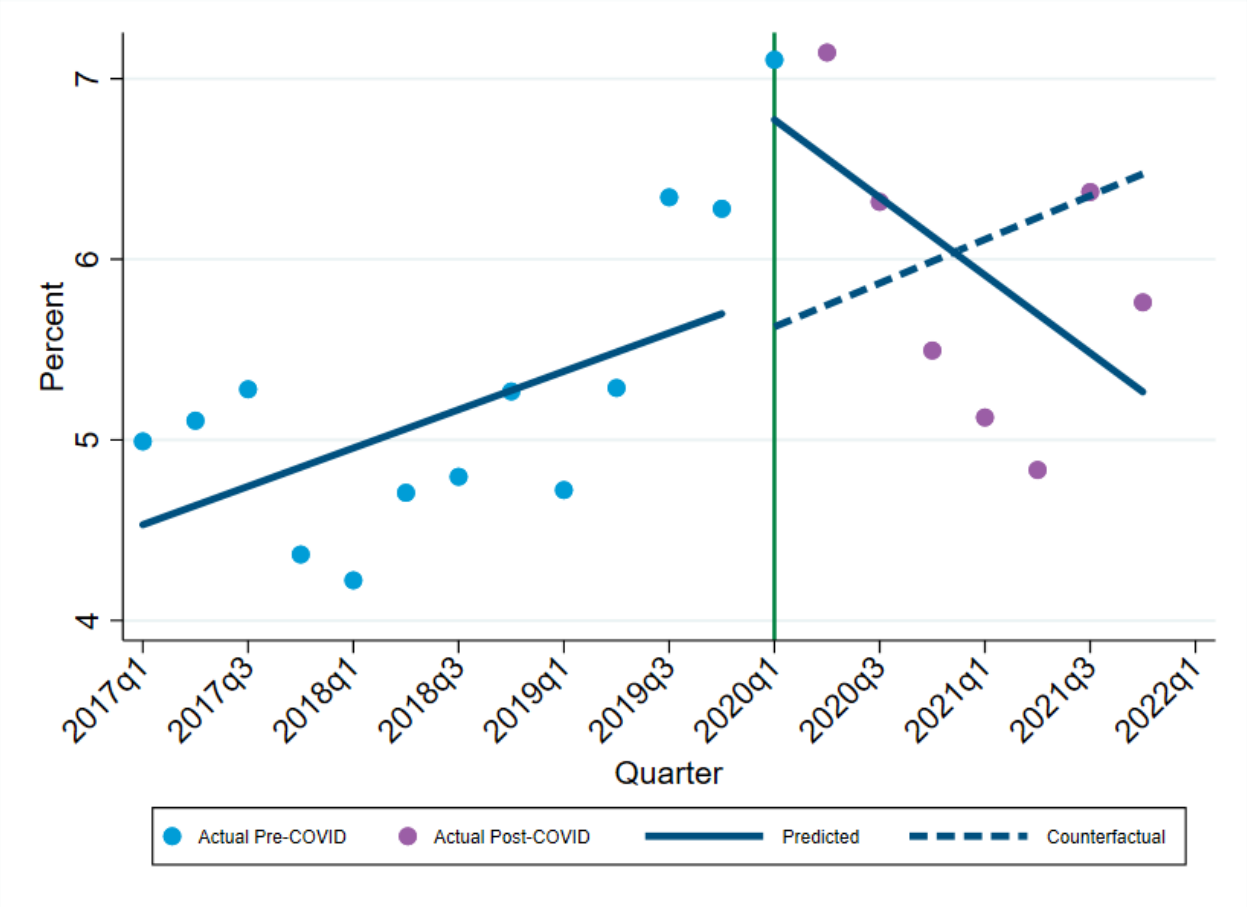
This quarterly metric was adapted from SUD Monitoring Metric #15 which is an annual metric. The target population for this metric is Medicaid beneficiaries ages 18 and older, enrolled for any amount of time during the quarter, who had a new episode of alcohol or other drug (AOD) abuse or dependence.[129] Exhibit F.79 shows that the observed percentage of beneficiaries with a new episode of AOD abuse or dependence who received initiation of AOD treatment increased over time during both the pre- and post-Demonstration periods, and the rate of increase was smaller under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was an increasing trend over time under

[129] This is the same target population used in SUD Monitoring Metric #15.

the Demonstration. The rate of increase under the Demonstration was smaller than the counterfactual.[130, 131, 132]

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.80. Engagement of Alcohol and Other Drug Dependence Treatment (IET-AD)



[130] A potential and partial explanation of the fluctuations observed over time is that this is an annual monitoring metric and, when adapting an annual measure to be a quarterly measure, we had to allocate observations in a calendar year to four quarters, which introduced random variation across quarters.
[131] The SUD initiation treatment measure under Research Question 1.1 showed an increase. That measure was about the number of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period. However, this measure was different from that measure and was about the percentage of beneficiaries with a new episode of AOD abuse or dependence who received initiation of AOD treatment.
[132] Although this measure was about initiation of AOD treatment, because it was part of the SUD Monitoring Metric #15, which has two measures, this measure was given under this research question rather than under Research Question 1.1.

This quarterly metric was adapted from SUD Monitoring Metric #15 which is an annual metric. The target population for this metric is Medicaid beneficiaries aged 18 and older enrolled for any amount of time during the quarter, who had a new episode of alcohol or other drug (AOD) abuse or dependence.[133] Exhibit F.80 shows that the observed percentage of beneficiaries who initiated treatment and were engaged in ongoing AOD treatment within 34 days of the initiation visit increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.[134]

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.81. Effect on Initiation and Engagement of Alcohol and Other Drug Dependence Treatment (IET-AD)

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Percentage of beneficiaries with a new episode of alcohol or other drug (AOD) abuse or dependence who received initiation of AOD treatment	↑	30.34	2.96 (1.95)	-0.21 (0.41)
Percentage of beneficiaries who initiated treatment and were engaged in ongoing AOD treatment within 34 days of the initiation visit	↑	5.11	1.48* (0.79)	-0.34** (0.14)

* Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

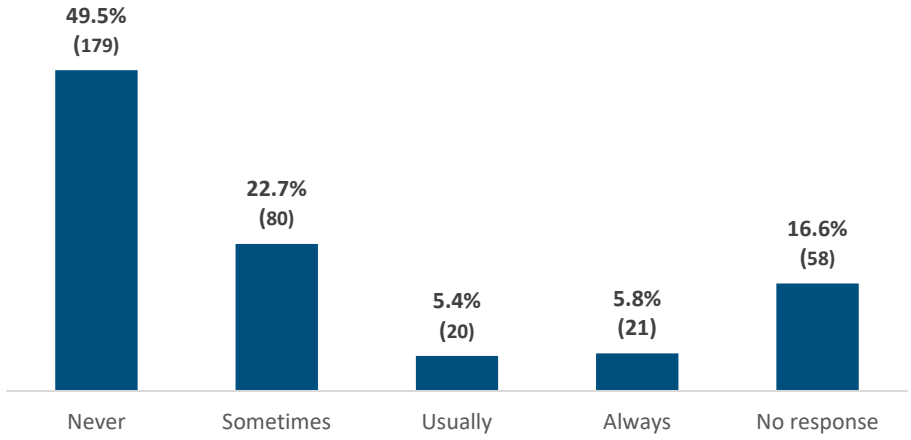
[133] This is the same target population used in SUD Monitoring Metric #15.
[134] A potential and partial explanation of the fluctuations observed over time is that this was an annual monitoring metric and, when adapting an annual measure to be a quarterly measure, we had to allocate observations in a calendar year to four quarters, which introduced random variation across quarters.

The first row of Exhibit F.81 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of beneficiaries with a new episode of AOD abuse or dependence who received initiation of AOD treatment (level change in the predicted trend figure), from a baseline mean of 30.34%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit D.5.

The second row of Exhibit F.81 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 1.48 percentage points in the percentage of beneficiaries who initiated treatment and were engaged in ongoing AOD treatment within 34 days of the initiation visit (level change in the predicted trend figure), from a baseline mean of 5.11%. However, this metric decreased by a statistically significant 0.34 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes did not result in a statistically significant change. However, if the current trend continues, while all other influential factors remain the same, the percentage of beneficiaries who initiated treatment and were engaged in ongoing AOD treatment within 34 days of the initiation visit could show a statistically significant net decrease in the future, as opposed to the Demonstration hypothesis. Subgroup analysis results are presented in Appendix Exhibit D.6.

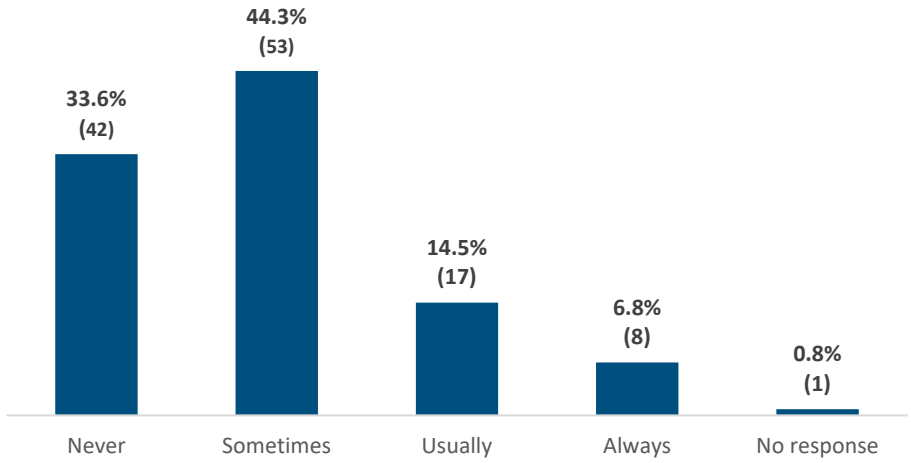
Baseline beneficiary survey data suggest that adherence to the care plans recommended by their providers was moderate. Thirty-four percent of all survey respondents (*n* = 121) reported that they were unable to do what was necessary to follow their healthcare providers' treatment plans at least some of the time (Exhibit F.82). Sixty-six percent of these survey respondents (*n* = 78) reported that they were unable to do what was necessary to follow their treatment plan because they could not get an appointment for follow-up care at least some of the time (Exhibit F.83). Forty-eight percent of survey respondents (*n* = 58) who were unable to do what was necessary to follow their treatment plan at least some of the time reported they could not follow their treatment plans because they could not pay for something at least some of the time (Exhibit F.84).

Exhibit F.82. How often was the following statement true for you during the past 12 months? I was unable to do what was necessary to follow my healthcare provider's treatment plans.



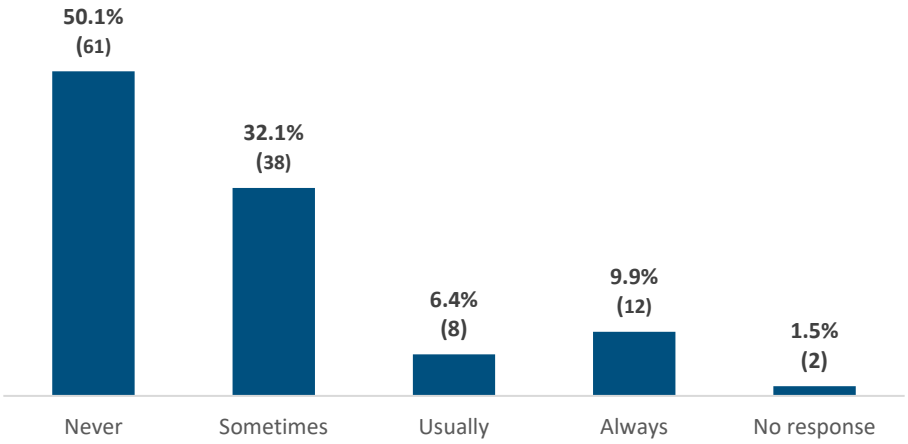
Note. Percentages are weighted and may not add up to 100% due to rounding.

Exhibit F.83. When you were unable to do what the healthcare provider told you to do, how often was it because you could not get an appointment you needed for follow-up care?



Note. Percentages are weighted and may not add up to 100% due to rounding.

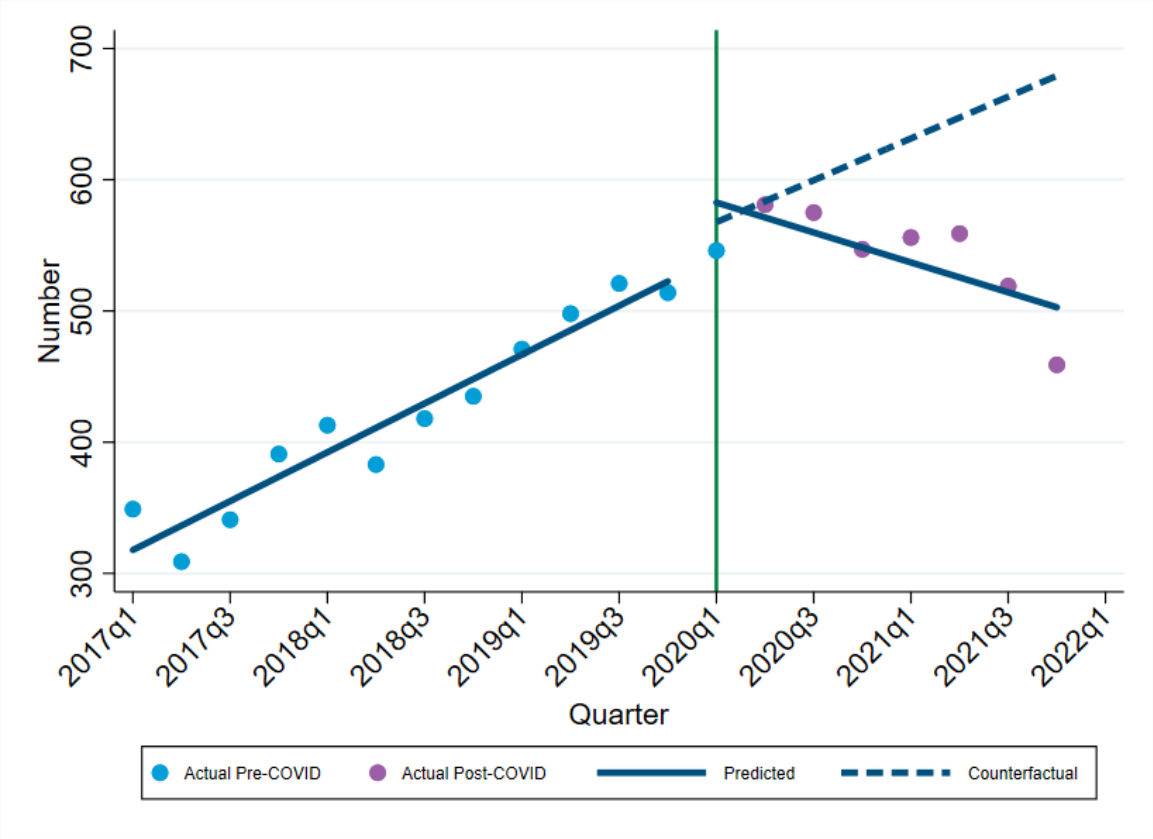
Exhibit F.84. When you were unable to do what the healthcare provider told you to do, how often was it because you could not pay for something, such as follow-up visits, medicine, or supplies?



Note. Percentages are weighted and may not add up to 100% due to rounding.

Research Question 2.1b. Did the Demonstration increase retention in SUD treatment?

Exhibit F.85. Continuity of Pharmacotherapy for Opioid Use Disorder (OD) (Number of Beneficiaries)



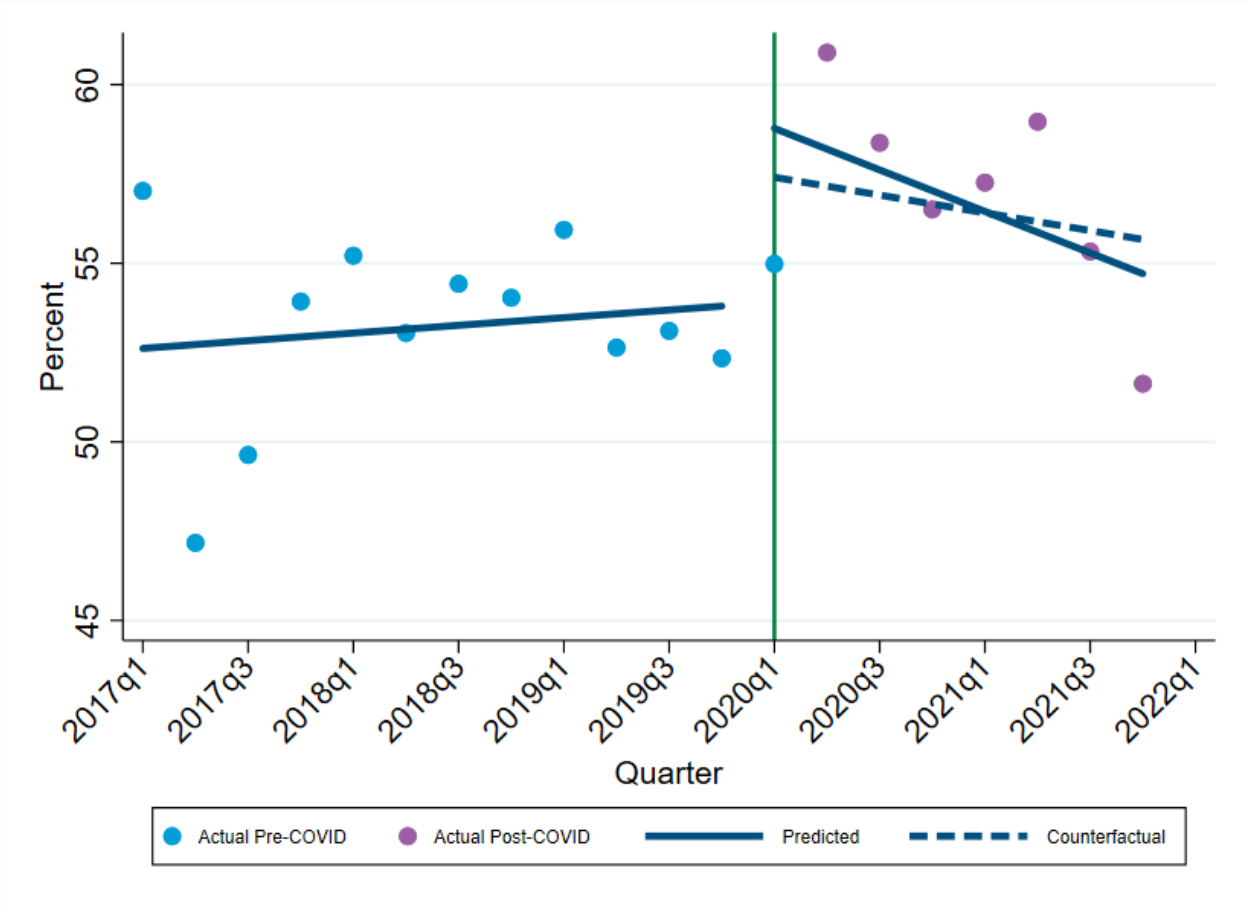
This quarterly metric was adapted from SUD Monitoring Metric #22 which is an annual metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the quarter who had a diagnosis of OUD and at least one claim for an OUD medication.[135] Exhibit F.85 shows that the observed number of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted slightly upward under the Demonstration compared to what could have happened without the

[135] This is the same target population used in SUD Monitoring Metric #22.

Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.[136,137]

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.86. Continuity of Pharmacotherapy for OUD (Percentage of Beneficiaries)



[136] The quarter in this measure indicates the quarter in which pharmacotherapy started, and from the start date we counted 180 days, so the data for this measure extended into June 2022. We confirmed that missing data, arising from inadequacy of claims data run-out, cannot explain the decreasing trend during the Demonstration period.

[137] Because the quarter is defined based on when the pharmacotherapy started, the measure's datapoints in 2019 q3 and q4 reflect the continuation of pharmacotherapy observed under the Demonstration (at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days). This continuation of pharmacotherapy occurring in the Demonstration period may have been influenced by the Demonstration. However, there is no immediate change in pattern observed for 2019 q3 and q4 compared to the earlier periods; so this misalignment of the quarter assignment and the experience captured by the measure does not seem to have biased the evaluation.

This quarterly metric was adapted from SUD Monitoring Metric #22 which is an annual metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the quarter who had a diagnosis of OUD and at least one claim for an OUD medication.[138] Exhibit F.86 shows that the observed percentage of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was a decreasing trend over time under the Demonstration. The rate of decrease under the Demonstration was larger than the counterfactual.[139]

In interpreting this measure, note that the COVID-19 PHE coincided with an increase in substance use and associated deaths. SUD service utilization declined substantially in early 2020 due to the COVID-19 PHE and has not yet fully rebounded to pre-PHE levels in the District. The COVID-19 PHE impacted SUD service utilization patterns more than it did SMI/SED service utilization patterns.

Exhibit F.87. Effect on Continuity of Pharmacotherapy for OUD

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Number of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days	↑	420.25	42.25 (30.43)	-27.34*** (5.64)
Percentage of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days	↑	53.21	1.70 (3.09)	-0.33 (0.55)

[138] This is the same target population used in SUD Monitoring Metric #22.
[139] A potential explanation of the decrease is that, when adapting an annual measure to be a quarterly measure, we had to allocate observations in a calendar year to four quarters for both the numerator and the denominator, which resulted in the reduction in the ratio mechanically.

* Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.87 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the number of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days (level change in the predicted trend figure), from a baseline mean of 420.25. However, this metric decreased by a statistically significant value of 27.34 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit D.7.

The second row of Exhibit F.87 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days (level change in the predicted trend figure), from a baseline mean of 53.21%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are presented in Appendix Exhibit D.8.

Exhibit F.88. Effect on Continuity of Pharmacotherapy for opioid use disorder, Individual Level

Measure Description	Hypothesized Direction	Baseline Mean (2017-2019)	Marginal Change Post-Demonstration from Logistic Regression
Quarterly indicator for whether a beneficiary has at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days	↑	0.53	0.00 (0.01)

* Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

We performed a supplemental individual-level analysis for this quarterly measure. Exhibit F.88 shows that the Demonstration was not associated with a statistically significant change in the probability of whether a beneficiary has continuity of pharmacotherapy for opioid use disorder, controlling for individual characteristics in a beneficiary-level logistic regression. This is in line with the mixed results of the District-level analysis above.[140]

[140] A graph is not included for this individual-level measure because with a 0/1 indicator the graph is similar to Exhibit F.81 on the percentage of beneficiaries with continuity of pharmacotherapy for opioid use disorder.

F.2.2.3 Goal 3. Reductions in Overdose Deaths, Particularly Those Due to Opioids

Takeaway: Goal not evaluated because of unavailability of data.

Hypothesis 3.1: The Demonstration will reduce the rate of overdose deaths.
Not evaluated in this report.

Research Question 3.1. Was there a decrease in the rate of overdose deaths?

This report did not evaluate this goal using a regression-based methodology because of the unavailability of the necessary mortality data. This measure will be evaluated in the summative evaluation report. As an alternative, Exhibit F.89 shows data on fatal opioid overdoses tracked by DBH between 2017 and 2022. The marked increase in fatal opioid overdoses starting in 2020 tracks national data showing a spike in overdose deaths after the start of the COVID-19 pandemic.[141] These trends are also likely to be reflected in the Medicaid population in the District.[142]

Exhibit F.89. Fatal Opioid Overdoses in the District, 2017–2022

Year	Fatal opioid overdoses
2017	281
2018	213
2019	281
2020	411
2021	427
2022	455

Source: Department of Behavioral Health Multi-Agency Opioid Dashboard. Internal data dashboard. Fatal opioid overdose profile.

[141] The Commonwealth Fund. (2021). *The spike in drug overdose deaths during the COVID-19 pandemic and policy options to move forward.* https://www.commonwealthfund.org/blog/2021/spike-drug-overdose-deaths-during-covid-19-pandemic-and-policy-options-move-forward

[142] These figures pertain to individuals who had a history of SUD treatment through the public system. They don't necessarily account for all Medicaid beneficiaries who died of opioid overdose because they might not have ever had treatment.

F.2.2.4 Goal 4. Reduced utilization of hospital emergency departments and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum of care services

Takeaway: Results were mixed for the goal of reducing utilization of hospital EDs and inpatient hospital settings for treatment where the utilization was preventable or medically inappropriate through improved access to other continuum-of-care services. SUD-related inpatient and ED visits did not decrease.

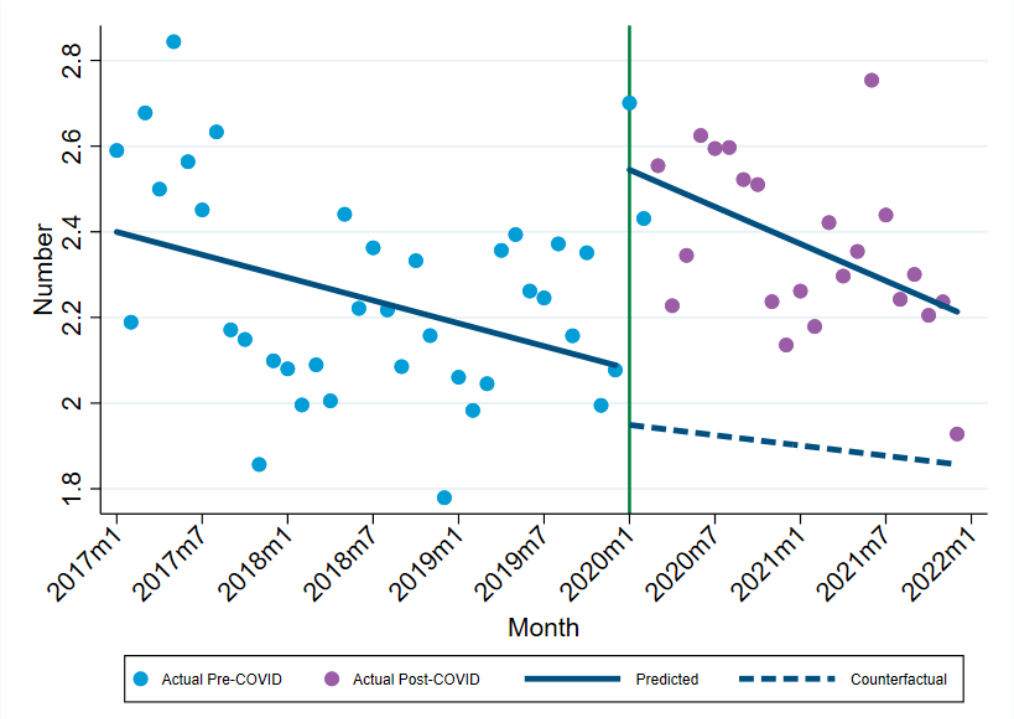
H↓

Hypothesis 4.1: The Demonstration will reduce utilization of hospital EDs and inpatient hospital settings.

1. The total number of SUD-related inpatient stays per 1,000 beneficiaries in the measurement period had a statistically significant increase in level and a statistically significant decrease in slope. However, the combined effect of the level and slope changes at the end of 2 years was a statistically significant increase.
2. The total number of ED visits for SUD per 1,000 beneficiaries in the measurement period had a statistically significant increase in level and no change in slope.

Research Question 4.1a. Was there a reduction in ED or inpatient utilization for beneficiaries with SUD?

Exhibit F.90. Inpatient Stays for SUD per 1,000 Medicaid Beneficiaries

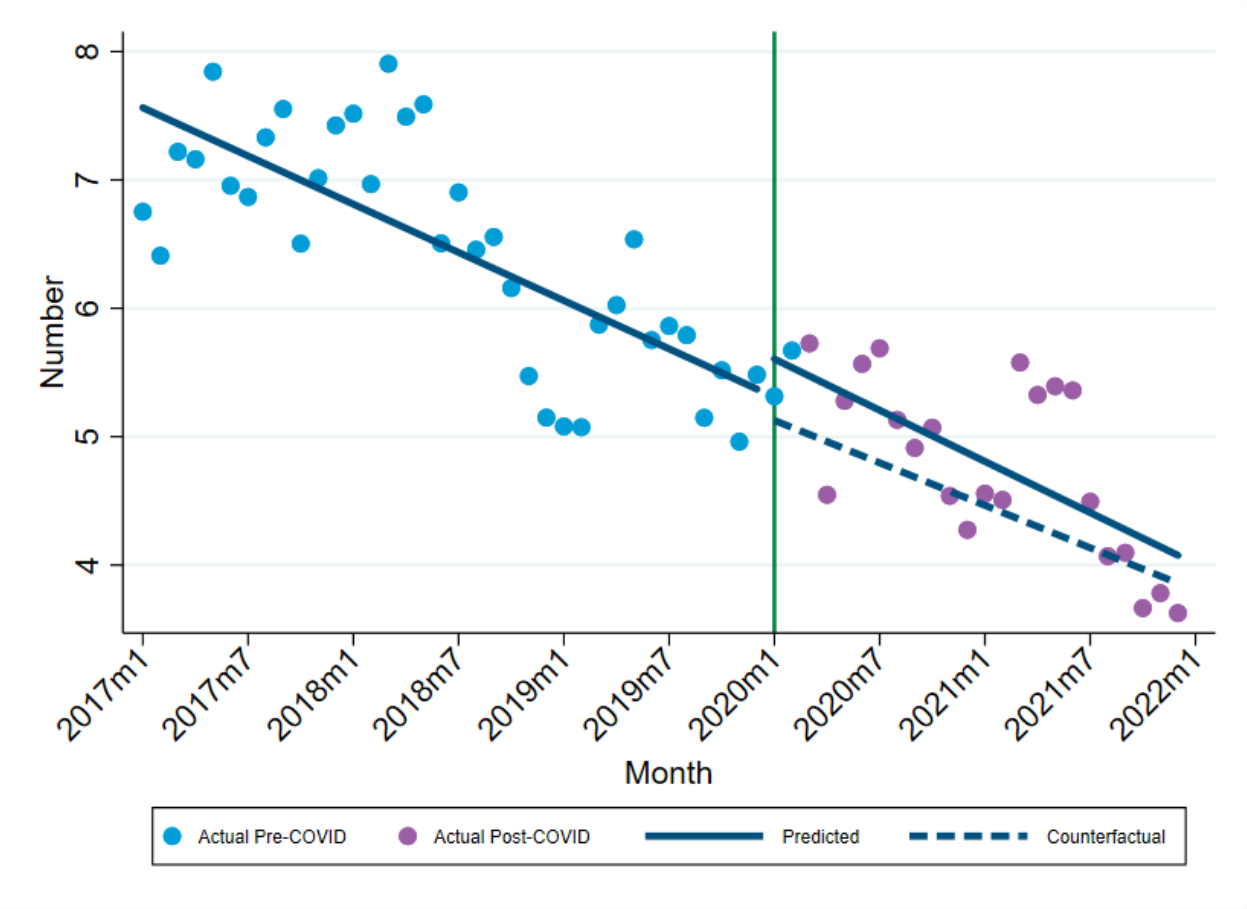


This monthly metric was adapted from SUD Monitoring Metric #24 which is also a monthly metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the month.[143] Exhibit F.90 shows that the observed total number of SUD-related inpatient stays per 1,000 beneficiaries in the measurement period decreased over time during both the pre- and post-Demonstration periods, and the rate of decrease was larger under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was a decreasing trend over time under the Demonstration. The rate of decrease under the Demonstration was larger than the counterfactual.[144]

In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages 21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[145] This means more inpatient stays are likely to be observed.

[143] This is the same target population used in SUD Monitoring Metric #24.
[144] It should be noted that this measure, which is an SUD Monitoring Metric, included inpatient admissions in general and was not limited to inpatient treatment where the utilization was preventable or medically inappropriate. Therefore, the metric is not completely aligned with the goal it is intended to measure. It is also to be noted that this measure includes IMD admissions for which increases in the Demonstration period are an expected outcome.
[145] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.

Exhibit F.91. ED Utilization for SUD per 1,000 Medicaid Beneficiaries



This monthly metric was adapted from SUD Monitoring Metric #23 which is also a monthly metric. The target population for this metric is all Medicaid beneficiaries enrolled for any amount of time during the month. [146] Exhibit F.91 shows that the observed total number of ED visits for SUD per 1,000 beneficiaries in the measurement period decreased over time during both the pre- and post-Demonstration periods, with similar rates of decrease. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted up under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was a decreasing trend over time under the Demonstration. The rate of decrease under the Demonstration was similar to the counterfactual.

[146] This is the same target population used in SUD Monitoring Metric #23.

Exhibit F.92. Effect on ED and Inpatient Utilization

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Total number of SUD-related inpatient stays per 1,000 beneficiaries in the measurement period	↓	2.24	0.62*** (0.08)	-0.03* (0.02)
Total number of ED visits for SUD per 1,000 beneficiaries in the measurement period	↓	6.47	0.50* (0.25)	-0.03 (0.04)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

The first row of Exhibit F.92 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 0.62 in the total number of SUD-related inpatient stays per 1,000 beneficiaries in the measurement period (level change in the predicted trend figure), from a baseline mean of 2.24. In addition, this metric decreased by a statistically significant value of 0.03 on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Because the level and slope changes were in opposite directions and both the effects were statistically significant, the net effect at the end of the 2-year Demonstration period was assessed. The combination of the level change and 2 years (eight quarters) of additional quarterly changes resulted in a statistically significant increase of 0.37. However, if the current trend continues, while all other influential factors remain the same, the total number of SUD-related inpatient stays per 1,000 beneficiaries in the measurement period could show a statistically significant net decrease in the future in line with the Demonstration hypothesis. Subgroup analysis results are presented in Appendix Exhibit D.9.

The second row of Exhibit F.92 shows that the Demonstration was associated with a statistically significant immediate or early post-Demonstration period increase of 0.50 in the total number of ED visits for SUD per 1,000 beneficiaries in the measurement period (level change in the predicted trend figure), from a baseline mean of 6.47. However, this metric was not associated with a quarterly change (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit D.10.

> **Research question 4.1b.** How does the Demonstration influence preventable utilization of ED or inpatient care through improved access to other continuum-of-care services?

Research question 4.1c. How does the Demonstration influence medically inappropriate utilization of ED or inpatient care through improved access to other continuum-of-care services?

As noted in section F.2.1, evaluation participants reported that the changes and clarifications related to crisis stabilization services have had a meaningful impact on reducing inappropriate utilization of ED care.

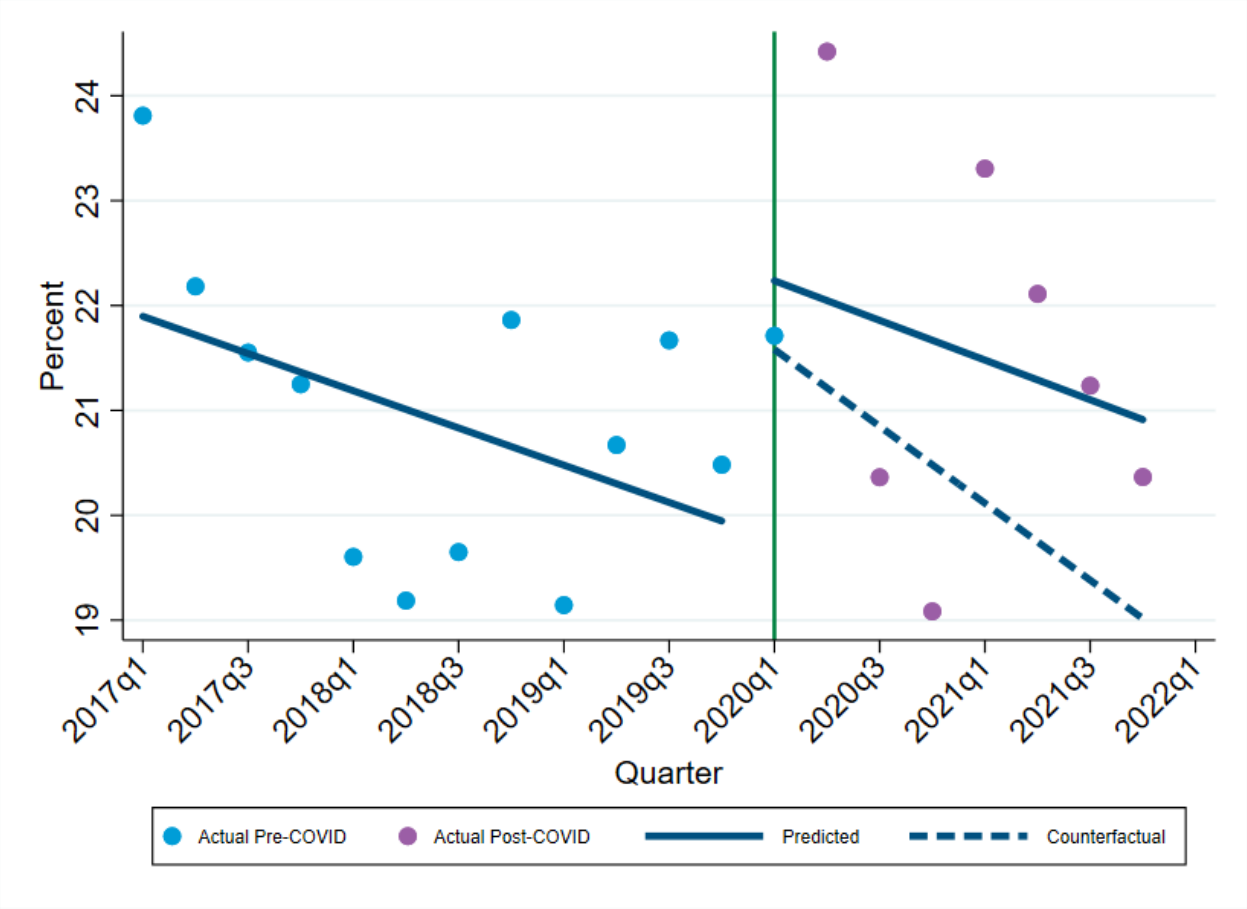
F.2.2.5 Goal 5. Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate

Takeaway: The Demonstration has not yet achieved the goal of fewer readmissions. The measure used was SUD Monitoring Metric #25; it looked at all-cause readmissions and was not limited to readmissions that were preventable or medically inappropriate. For context, note that the COVID-19 PHE impacted SUD service utilization considerably in the District, and more than it impacted SMI/SED service utilization.

Hypothesis 5.1: The Demonstration will decrease preventable or medically inappropriate readmissions to the same or higher level of care for beneficiaries with SUD.
The rate of 30-day all-cause readmissions during the measurement period among beneficiaries with SUD had no change in level or slope.

Research Question 5.1. Was there a decrease in preventable or medically inappropriate readmissions to the same or higher level of care for beneficiaries with SUD?

Exhibit F.93. Readmissions Among Beneficiaries With SUD



This quarterly metric was adapted from SUD Monitoring Metric #25 which is an annual metric. The target population for this metric is Medicaid beneficiaries, with an SUD diagnosis, enrolled for any amount of time during the quarter, with an index hospitalization in the quarter.[147] Exhibit F.93 shows that the observed rate of 30-day all-cause readmissions during the measurement period among beneficiaries with SUD decreased over time during both the pre- and post-Demonstration periods, and the rate of decrease was slightly smaller under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted upward under the Demonstration compared to what could have happened without the Demonstration. Similar to the counterfactual, there was a decreasing trend over time under the Demonstration. The rate of decrease under the Demonstration was smaller than the counterfactual.

In interpreting this measure, note that there is a change in the composition of the population included between the pre- and post-Demonstration periods: The coverage of beneficiaries ages

[147] This is the same target population used in SUD Monitoring Metric #25.

21–64 receiving care via IMDs increased in the post-Demonstration period, with FFS beneficiaries ages 21–64 becoming newly eligible for the service under the Demonstration.[148] This means more opportunity to observe both index admissions and readmissions in the data. It is possible that the newly covered beneficiaries are more likely to have readmissions because they may be less likely to receive follow-up care than previously covered beneficiaries.

Also note that this metric is not well aligned to the goal because the numerator of the metric is not limited to preventable or medically inappropriate readmissions but includes acute readmissions for any diagnosis (i.e., all-cause readmissions).

Exhibit F.94. Effect on Readmissions Among Beneficiaries With SUD

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Rate of 30-day all-cause readmissions during the measurement period among beneficiaries with SUD	↓	20.92	0.48 (1.71)	0.18 (0.22)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

Exhibit F.94 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the rate of 30-day all-cause readmissions during the measurement period among beneficiaries with SUD (level change in the predicted trend figure), from a baseline mean of 20.92%. In addition, this metric was not associated with a quarterly change (slope change in the predicted trend figure).[149] Subgroup analysis results are presented in Appendix Exhibit D.11.

[148] Prior to the Demonstration, MCO beneficiaries were eligible to receive up to 15 days of stay in IMDs as an "in lieu of" benefit.

[149] It is important to note that this measure captures all-cause readmissions rather than preventable or medically inappropriate readmissions; thus, the goal may not be adequately captured by the measure.

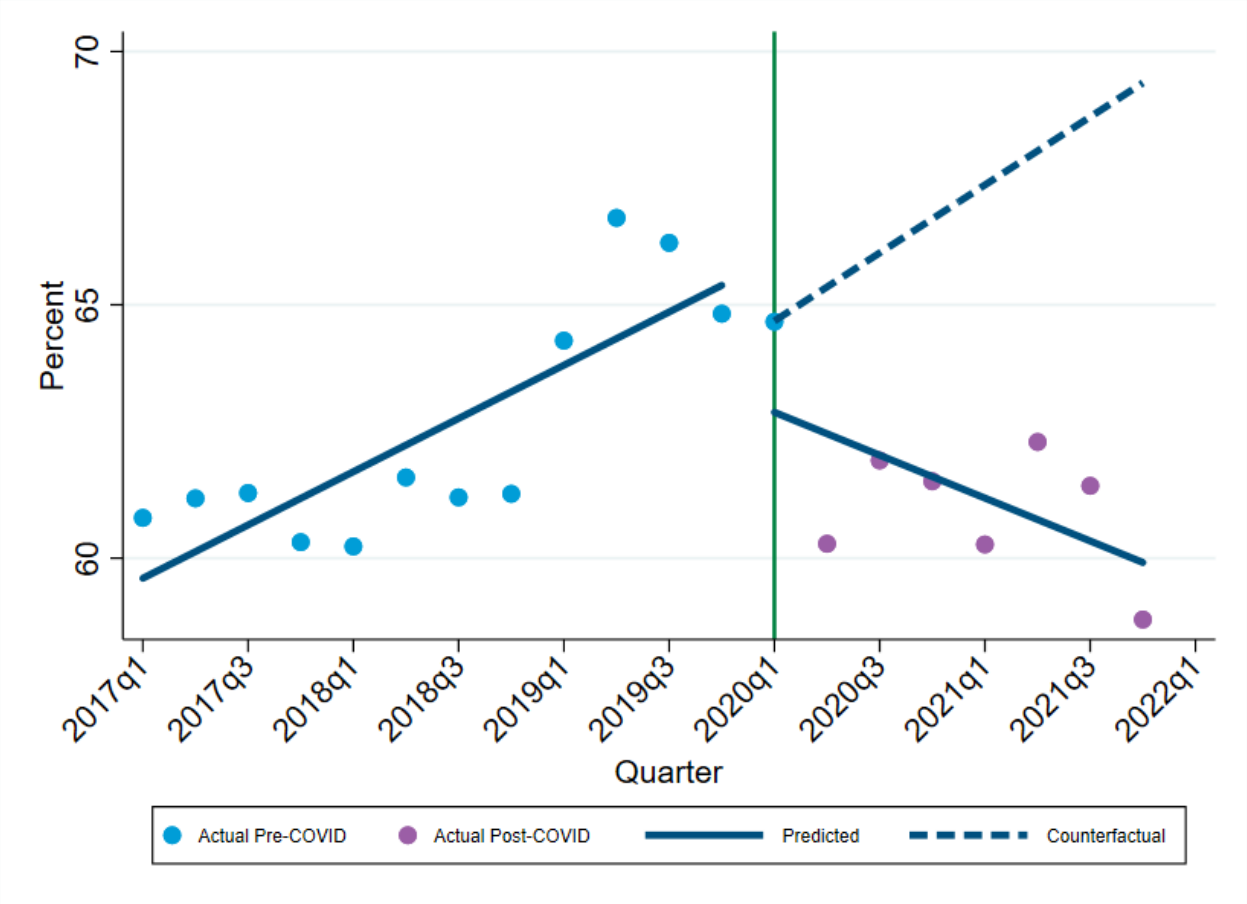
F.2.2.6 Goal 6. Improved access to care for physical health conditions among beneficiaries with SUD

Takeaway: The Demonstration has not yet achieved the goal of improving access to care for physical health conditions among beneficiaries with SUD.

Hypothesis 6.1: The Demonstration will increase access to care for physical health conditions among beneficiaries with SUD.
The percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period had no change in level and a statistically significant decrease in slope.

Research Question 6.1a. Was there an increase in access to care for physical health conditions among beneficiaries with SUD?

Exhibit F.95. Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries With SUD



This quarterly metric was adapted from SUD Monitoring Metric #32 which is an annual metric. The target population for this metric is Medicaid beneficiaries, with an SUD diagnosis, enrolled

for any amount of time during the quarter.[150] Exhibit F.95 shows that the observed percentage of Medicaid beneficiaries with an SUD who had an ambulatory or preventive care visit during the measurement period increased over time during the pre-Demonstration period but decreased over time under the Demonstration. A comparison of the predicted trend and the counterfactual trend during the post-Demonstration period suggests that the trend shifted downward under the Demonstration compared to what could have happened without the Demonstration. Contrary to the counterfactual, there was a decreasing trend over time under the Demonstration.

Exhibit F.96. Effect on Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries With SUD

Measure description	Hypothesized direction	Baseline mean (2017–2019)	Level change post-Demonstration	Additional quarterly change post-Demonstration
Percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period	↑	62.49	-0.71 (0.96)	-1.09*** (0.15)

*Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses.

Exhibit F.96 shows that the Demonstration was not associated with an immediate or early post-Demonstration period change in the percentage of Medicaid beneficiaries with an SUD who had an ambulatory or preventive care visit during the measurement period (level change in the predicted trend figure), from a baseline mean of 62.49%. However, this metric decreased by a statistically significant 1.09 percentage points on average during each quarter of the first 2 years of the Demonstration (slope change in the predicted trend figure). Subgroup analysis results are shown in Appendix Exhibit D.12. The observed decrease in utilization of ambulatory health services may reflect overall decrease in the utilization of these services on account of the COVID-19 pandemic.[151]

Research Question 6.1b. Did care coordination improve for beneficiaries with SUD?

[150] This is the same target population used in SUD Monitoring Metric #32.
[151] Mafi, J. N., Craff, M., Vangala, S., Pu, T., Skinner, D., Tabatabai-Yazdi, C., Nelson, A., Reid, R., Agniel, D., Tseng, C.-H., Sarkisian, C., Damberg, C. L., & Kahn, K. L. (2022). Trends in US ambulatory care patterns during the COVID-19 pandemic, 2019-2021. *JAMA*, *327*(3), 237–247.

The proposed measure for this research question was "use of new transition billing service by eligible beneficiaries." However, no claims were billed for these services during this report's measurement period. As described in Section F.1.2, few beneficiaries are eligible to receive the transition planning service. In addition, there was only one provider certified to deliver these services in the District, and their ability to identify and provide services to eligible beneficiaries was restricted by the service definition and COVID-19 restrictions that prevented in-person entry to the inpatient provider. Therefore, this report did not evaluate this goal. This measure will be evaluated in the summative evaluation report.

F.3 Effect on Costs

Sections F.3.1 and F.3.2 discuss the effect of the SMI/SED and SUD Demonstration components on total costs, costs related to the diagnosis and treatment of targeted conditions, and the sources of cost drivers, respectively. In Section F.3.3, the Demonstration's administrative costs PBPM are compared to the change in total costs PBPM to put the effect estimates from Section F.3.1 and F.3.2 in perspective.

Interpretation of cost analysis findings. The target population for the SMI/SED cost analysis is Medicaid beneficiaries with an SMI/SED diagnosis or treatment, and the target population for the SUD cost analysis is Medicaid beneficiaries with an SUD diagnosis or treatment. We used a repeated cross-sectional approach that does not require minimum enrollment durations for beneficiaries to be included in the analysis. Beneficiaries were included in the analysis during the first month in which a relevant SMI/SED or SUD diagnosis or treatment claim was observed and for up to 11 additional months that did not include a relevant diagnosis or treatment claim. Once an individual has a period of 1 year with no relevant diagnosis or treatment claim, that beneficiary is excluded from further analyses, unless and until they have a subsequent relevant diagnosis or treatment claim. Setting the inclusion criteria this way results in an analysis that represents the costs of serving individuals in the target population with active treatment needs.

We first present the yearly averages of all cost measures and the percentage change from 2018 to 2021. Then, for each cost measure, ordered by the research question, we provide a scatter plot to depict the average PBPM costs at different points in time during the pre- and post-Demonstration periods. We then provide a table of the key parameters of interest (regression coefficients and standard errors) from the two-part model, and the marginal effects of the Demonstration. The "marginal effect" on the variable called "Demonstration period" shown in the regression table section called "two-part model" is the policy estimate of interest. It shows the change in costs under the Demonstration. It should be noted that the regression analysis, based on pre- and post-Demonstration trends, was estimating associations and not the causal impact of the Demonstration in the absence of a comparison group. Any regression coefficient

that was statistically significant at the 10% level or lower was considered as showing a statistically significant effect.

The results reported are from the preferred ITS model, which captures changes in outcome trends after controlling for seasonality and the number of COVID-19 deaths. During the Demonstration period, COVID-19 PHE-related reimbursement rate increases, enhanced FMAP, and inflation resulted in cost increases, which are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases in addition to Demonstration-related changes. (See Section D.6.2 for a detailed discussion of COVID-19 PHE-related changes to costs.)

F.3.1 SMI/SED Costs

Takeaway: Because the Demonstration was hypothesized to increase SMI/SED care utilization in post-Demonstration costs, an increase in SMI/SED treatment costs was expected. The total costs PBPM for SMI/SED increased in the post-Demonstration period. This increase was both because the likelihood of beneficiaries incurring a positive expenditure increased and PBPM costs increased for those who had positive expenditures. Although there was an increase in costs for SMI/SED treatment, there was no increase in costs for non-SMI/SED treatment. There was a decrease in outpatient ED costs. In interpreting these findings, note that COVID-19 PHE-related rate increases, enhanced FMAP, and inflation resulted in increases in costs, which are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases, in addition to Demonstration-induced utilization changes.

Total Costs PBPM:

- Total PBPM costs increased by $115.94 in the post-Demonstration period.
- Total federal PBPM costs increased by $190.29 in the post-Demonstration period.

Costs related to diagnoses and treatment of SMI/SED:

- There is no change in the non-SMI costs PBPM in the post-Demonstration period.
- SMI costs PBPM increased by $62.17 in the post-Demonstration period.
- IMD costs PBPM increased by $6.78 in the post-Demonstration period.
- Non-IMD SMI/SED costs increased by $57.65 in the post-Demonstration period.

Source of treatment cost drivers:

- Non-ED outpatient costs PBPM increased by $65.54 in the post-Demonstration period.
- Outpatient ED costs PBPM decreased by $6.93 in the post-Demonstration period.
- Inpatient costs PBPM increased by $50.57 in the post-Demonstration period.
- There was no change in pharmacy costs PBPM in the post-Demonstration period.
- Long-term care costs PBPM increased by $23.92 in the post-Demonstration period.

Exhibit F.97 presents the average PBPM costs of various types each year from 2018–2021 for the target population of SMI/SED beneficiaries. These costs are expressed in current dollars and not expressed in constant dollars, indexing for inflation.[152]

Exhibit F.97. Annual Average PBPM Costs for the Target Population of SMI/SED Beneficiaries

		Pre-Demonstration ($)		Post-Demonstration ($)		Percentage change from 2018–2021
		2018	2019	2020	2021	
Total costs	Total costs	2,280.00	2,321.97	2,455.74	2,475.80	8.6%
	Total federal costs	1,670.98	1,706.85	1,923.58	1,945.45	16.4%
SMI/SED cost drivers	Non-SMI/SED costs	1,950.01	1,967.71	2,013.07	2,013.04	3.2%
	SMI/SED costs	320.10	346.62	430.79	452.84	41.5%
	IMD SMI/SED costs	9.19	.91	17.68	19.43	111.4%
	Non-IMD SMI/SED costs	312.21	339.13	418.67	440.63	41.1%
Type or source of care cost drivers	Non-ED outpatient costs	1,145.70	1,192.93	1,285.22	1,344.32	17.3%
	Outpatient ED costs	79.45	80.37	73.25	86.05	8.3%
	Inpatient costs	436.36	432.98	474.59	457.98	5.0%
	Pharmacy costs	262.12	270.13	271.47	251.16	-4.2%
	Long-term care costs	404.76	394.20	413.44	395.39	-2.3%
Target Population	Number of Unique beneficiaries	46,446	48,216	48,962	50,949	9.7%

Note. COVID-19 PHE-related rate increases, enhanced FMAP, and inflation, which resulted in increases in costs, are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases.

[152] Consumer Price Index for All Urban Consumers (CPI-U) increased by 12.48% (from 247.867 to 278.802) from January 2018 to December 2021. https://www.bls.gov/data/#prices

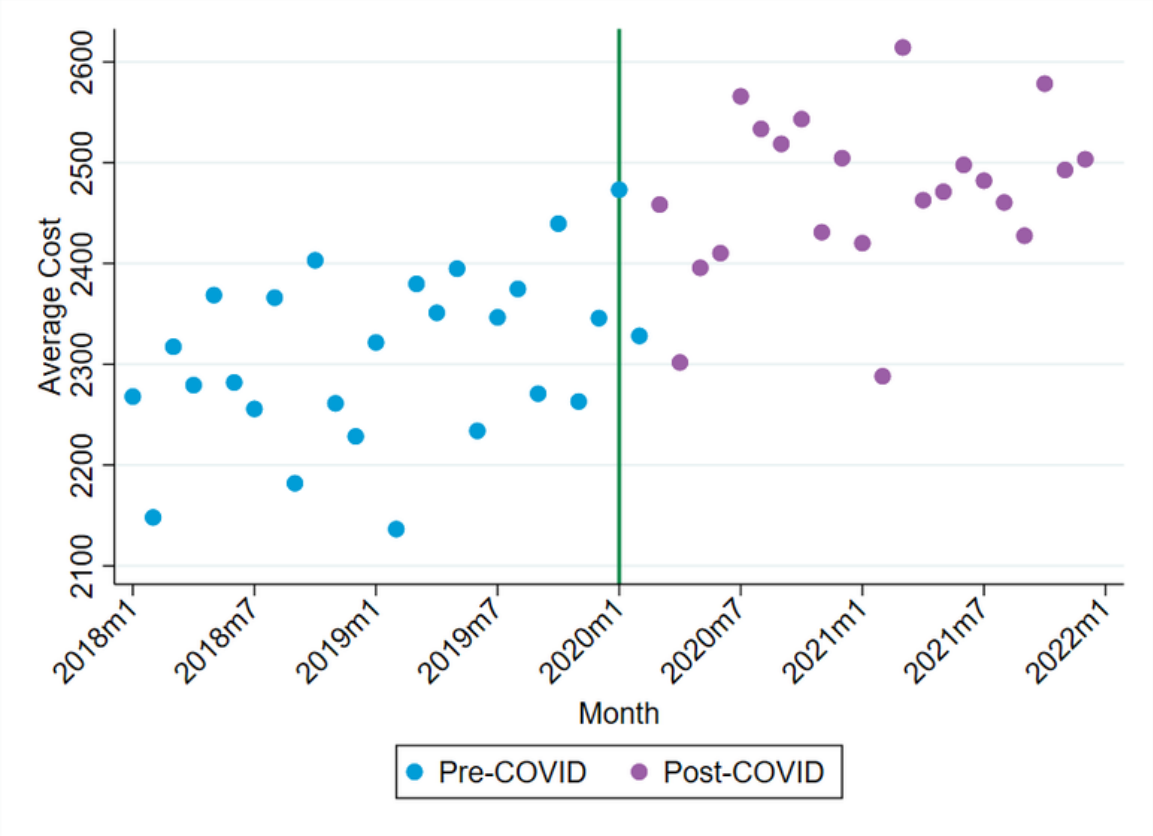
The average total costs PBPM increased from $2,280.00 in 2018 to $2,475.80 in 2021, which was an 8.6% increase. Total federal costs PBPM increased by 16.4% during the same period. SMI/SED costs increased by 41.5%, and most of the SMI/SED costs were non-IMD costs, which similarly increased by 41.1%. IMD costs were less than non-IMD costs, but they increased from $9.19 in 2018 to $19.43 in 2021. Both outpatient (ED and non-ED) and inpatient costs increased, but pharmacy and long-term care costs decreased in 2021 compared to 2018.

PBPM total cost and total federal cost measures covered only the cost of healthcare and excluded the Demonstration's administrative costs. Administrative costs were not incorporated directly into total costs for the regression analysis because the two-part model we used for the regression analysis was designed to account for the large number of zero-cost observations common in healthcare expenditure data.[153] Section F.3.3 compares administrative costs PBPM allocated across all SMI/SED and SUD beneficiaries in the analytic sample to the marginal effects on total costs from the regression analysis to put the latter in perspective relative to the direct cost of implementing the Demonstration.

> **Research Question 1.** Have total costs PBPM for the target population of SMI/SED beneficiaries increased, decreased, or stayed the same in the Demonstration period?

[153] Allocating administrative costs to all beneficiaries in the post-period would, by definition, change all zero-cost observations to positive-cost observations, making the two-part model infeasible. Furthermore, findings from a different regression model that incorporated the administrative costs through some allocation of the costs PBPM would not be directly comparable to the findings from the two-part model.

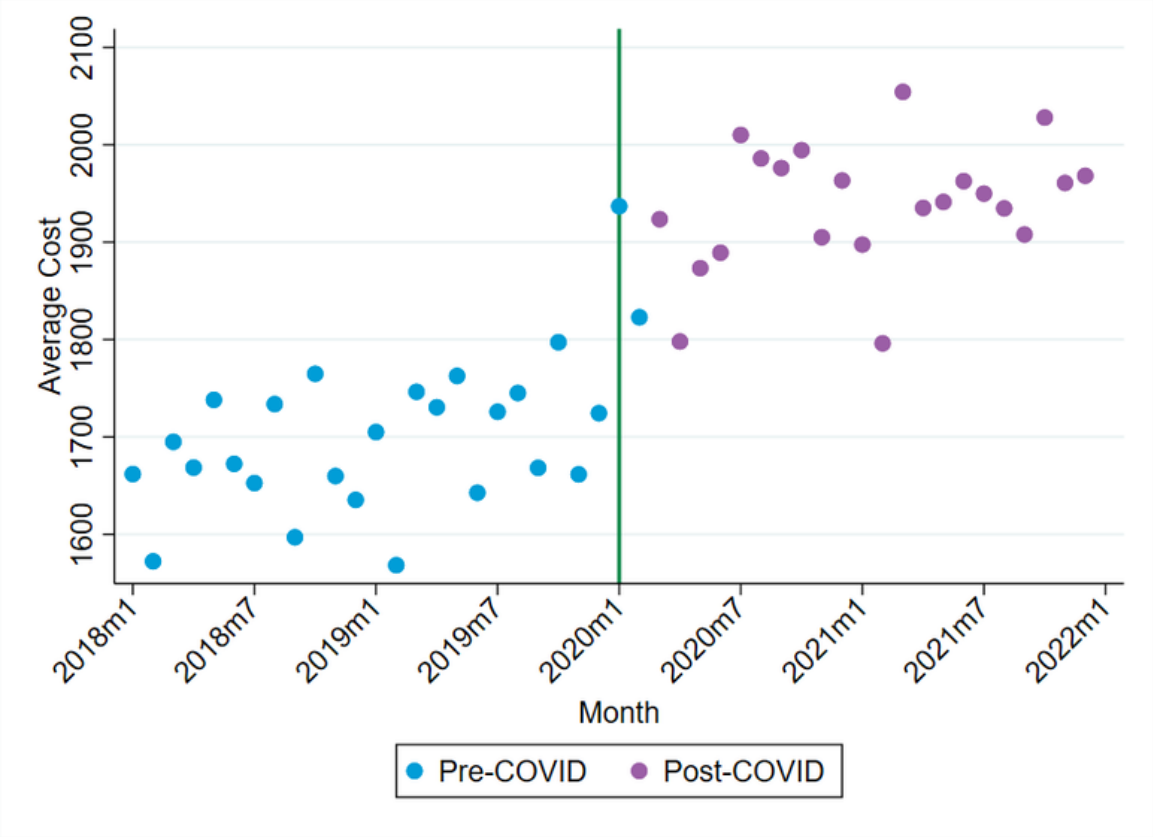
Exhibit F.98. Unadjusted Means of Total Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.98 shows that total costs PBPM increased over time during both the pre- and post-Demonstration periods.

Exhibit F.99. Unadjusted Means of Total Federal Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.99 shows that total federal costs PBPM increased over time during both the pre- and post-Demonstration periods.

Exhibit F.100. Interrupted Time Series Results (Marginal Effects and Standard Errors), SMI/SED Demonstration

	Research Question 1 Change in total costs PBPM		Research Question 2 Change in SMI/SED treatment costs PBPM				Research Question 3 Drivers of total cost				
	Total costs	Total federal costs	Non-SMI/SED costs	SMI/SED costs	IMD SMI/SED costs	Non-IMD SMI/SED costs	Non-ED outpatient costs	Outpatient ED costs	Inpatient costs	Pharmacy costs	Long-Term care costs
Logit											
Coefficients											
Demonstration period	0.20***	0.20***	0.20***	0.10***	0.56***	0.10***	0.22***	-0.05***	0.16***	0.02*	-0.04*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.10)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Time (continuous)	0.03***	0.03***	0.02***	0.01***	-0.03**	0.01***	0.03***	-0.01***	0.00	-0.00**	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Demonstration period * time (continuous)	0.00*	0.00*	-0.02***	0.03***	0.07***	0.03***	0.01***	-0.02***	0.00	-0.01***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marginal effects											
Demonstration period	0.03***	0.03***	0.03***	0.03***	0.00***	0.03***	0.04***	-0.00***	0.00***	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671
GLM											
Coefficients											
Demonstration period	0.02***	0.08***	-0.04***	0.09***	-0.04	0.08***	0.01	-0.05***	-0.04*	-0.02**	0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.10)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Time (continuous)	0.01***	0.01***	0.01***	0.01***	0.01	0.01***	0.01***	0.02***	0.01**	0.01***	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Demonstration period * time (continuous)	0.02***	0.02***	0.03***	0.01***	0.01	0.01***	0.02***	0.01***	0.02***	0.03***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Marginal effects											
Demonstration period	110.91***	208.71***	-53.87***	79.83***	-112.39	71.32***	49.83***	-28.18***	-285.03	0.45	805.71***
	(16.00)	(12.37)	(19.65)	(6.52)	(990.27)	(6.21)	(8.20)	(9.62)	(317.82)	(5.40)	(85.36)
Number of observations	1,454,768	1,454,768	1,261,780	853,301	2,585	853,053	1,330,257	186,728	53,720	840,874	73,181

	Research Question 1 Change in total costs PBPM		Research Question 2 Change in SMI/SED treatment costs PBPM				Research Question 3 Drivers of total cost				
	Total costs	Total federal costs	Non-SMI/SED costs	SMI/SED costs	IMD SMI/SED costs	Non-IMD SMI/SED costs	Non-ED outpatient costs	Outpatient ED costs	Inpatient costs	Pharmacy costs	Long-Term care costs
Two-part model											
Marginal effects											
Demonstration period	115.94***	190.29***	-18.12	62.17***	6.78***	57.65***	66.54***	-6.93***	50.57***	0.69	23.92***
	(13.08)	(10.12)	(13.97)	(3.22)	(1.34)	(3.08)	(6.20)	(1.32)	(12.68)	(2.62)	(6.24)
Number of observations	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671	1,785,671

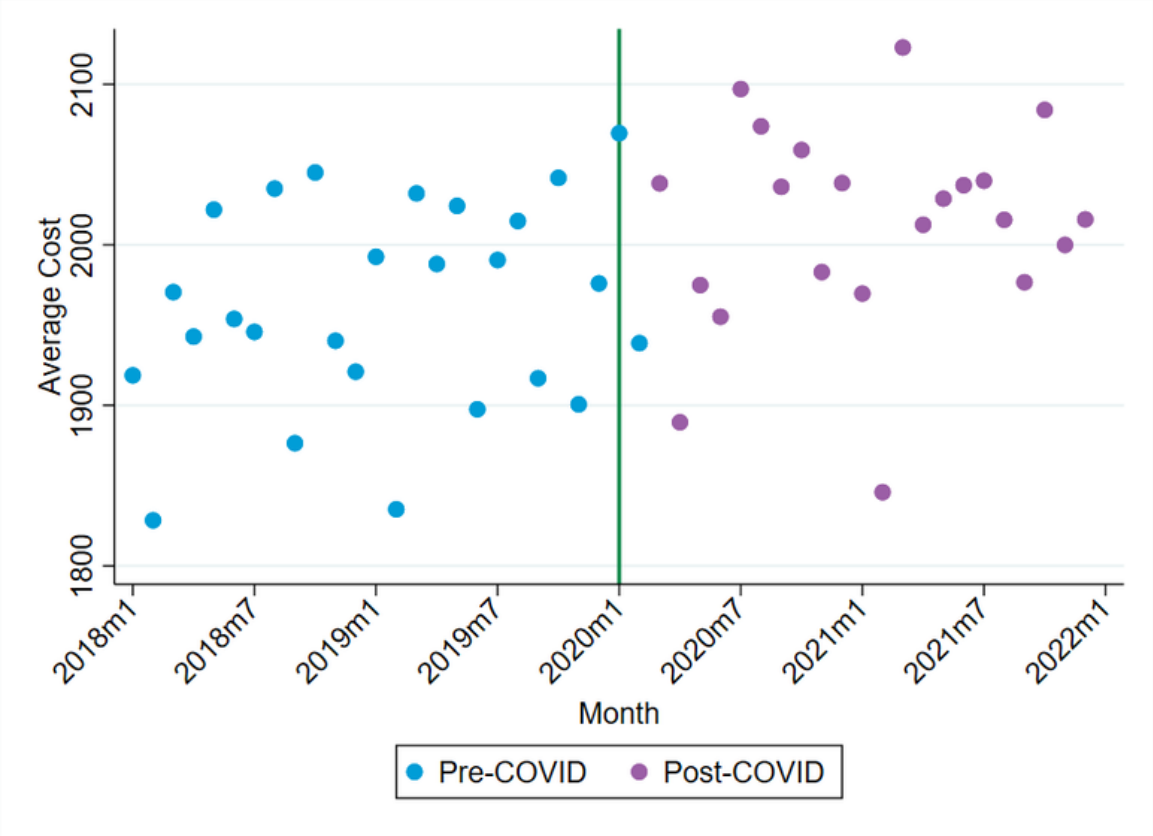
Note. ED = emergency department; GLM = generalized linear model; IMD = Institutions for Mental Diseases; SMI/SED = serious mental illness/serious emotional disturbance; SUD = substance use disorder. Standard errors in parentheses.* Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses. Where a statistically significant cell does not show a value different from 0.00, it is because the number at the third decimal was less than 5 and was rounded off.

Exhibit F.100 shows ITS analysis findings (marginal effects and standard errors) on total costs and total federal costs for beneficiaries with SMI/SED. Total costs PBPM increased by $115.94 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in costs for those who already had a positive cost ($110.91). The probability of a beneficiary having a positive cost (newly incurring healthcare costs) also increased by 3%. Total federal costs PBPM increased by $190.29 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($208.71). The probability of a beneficiary having a positive cost also increased by 3%.

In interpreting these findings, note that changes in costs seen are inclusive of COVID-19 PHE-related per-unit price increases, in addition to Demonstration-induced utilization changes.

> **Research Question 2.** Have the costs related to the diagnosis and treatment of SMI/SED increased, decreased, or stayed the same during the Demonstration period?

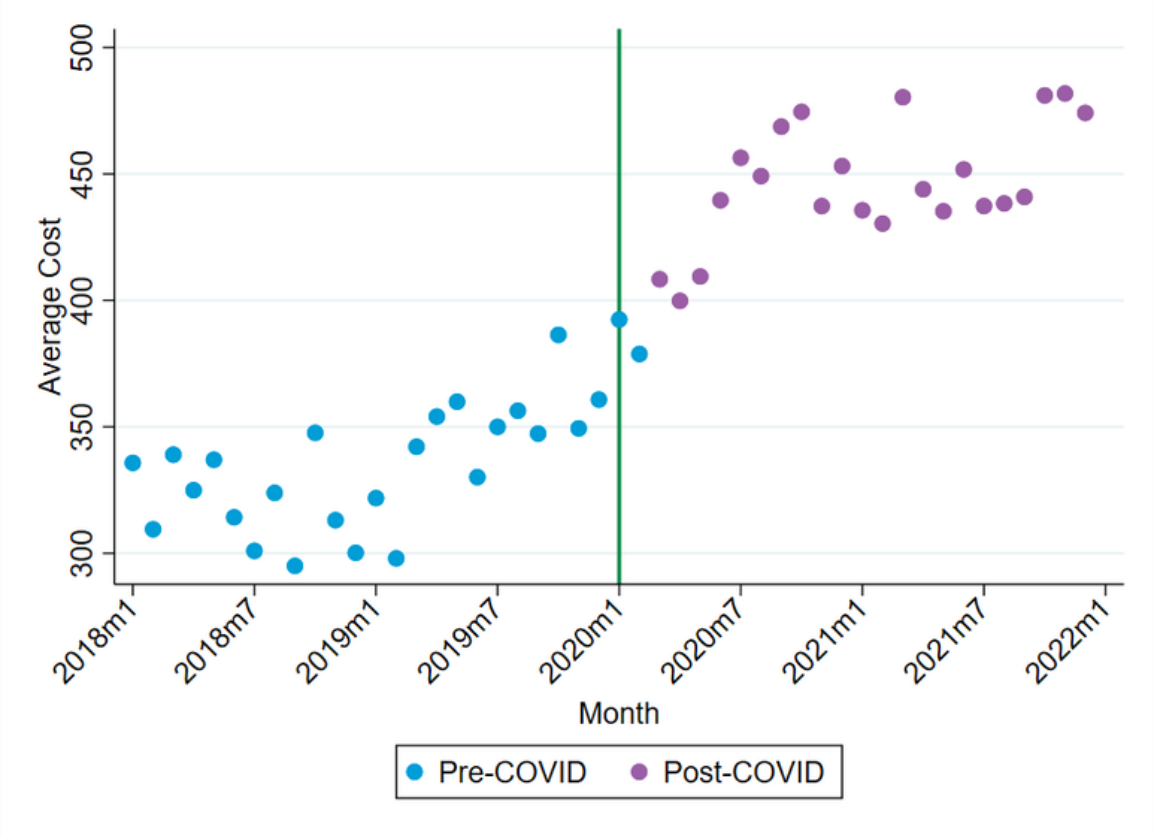
Exhibit F.101. Unadjusted Means of Non-SMI/SED Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.101 shows that non-SMI/SED costs PBPM did not show much change in trend over time during both the pre- and post-Demonstration periods.

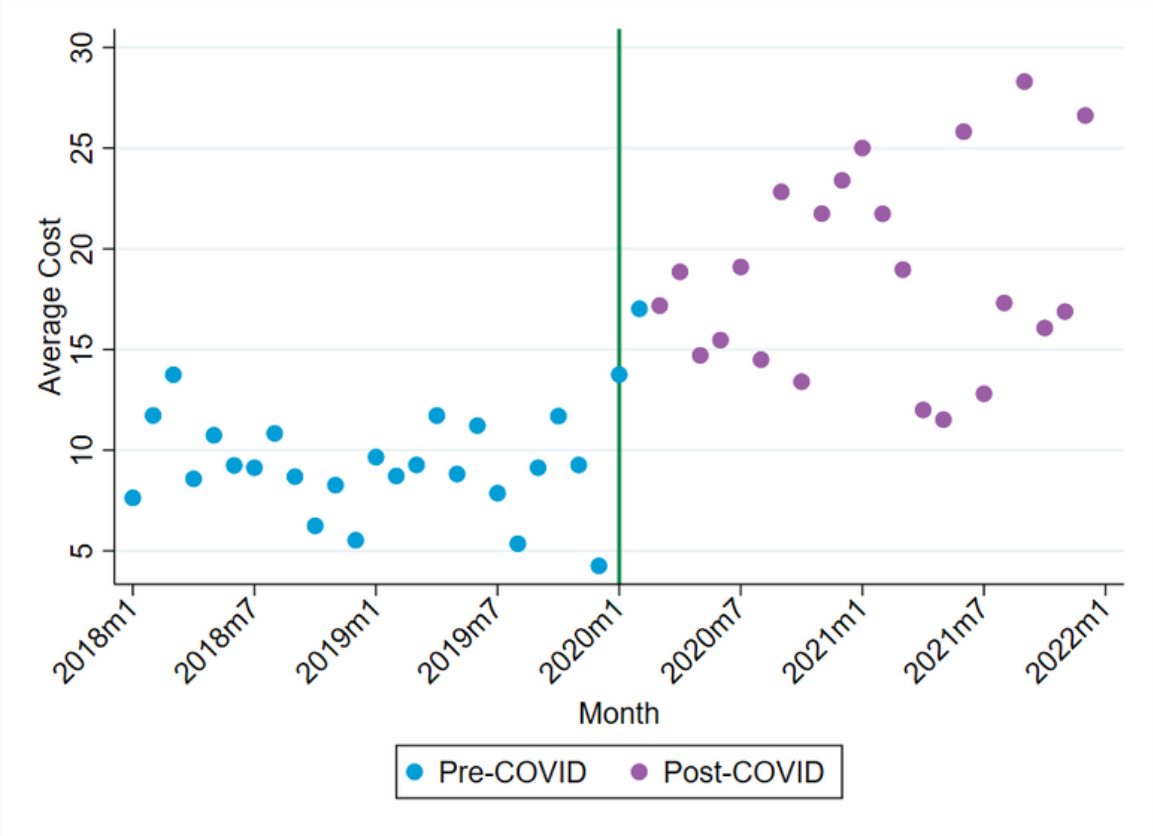
Exhibit F.102. Unadjusted Means of SMI/SED Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.102 shows that SMI/SED costs PBPM increased over time during both the pre- and post-Demonstration periods.

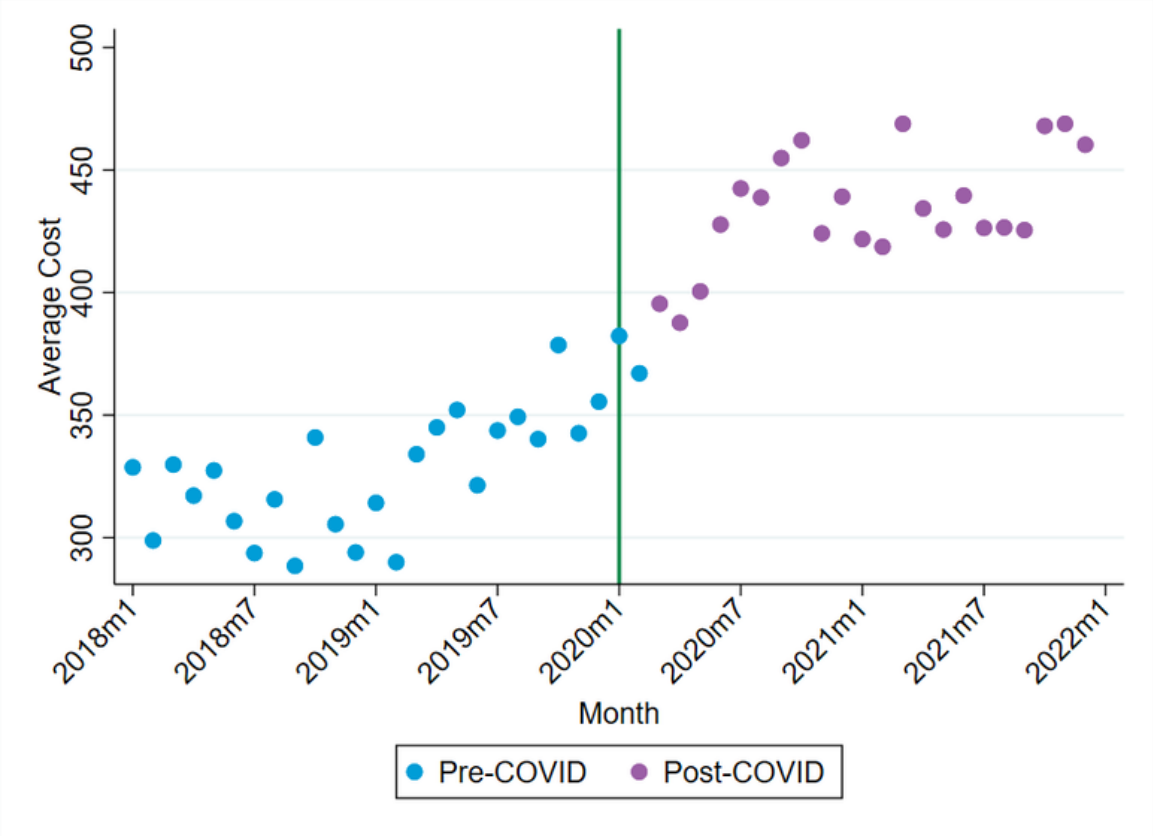
Exhibit F.103. Unadjusted Means of IMD SMI/SED Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.103 shows that IMD SMI/SED costs PBPM were relatively stable in the pre-Demonstration period and increased over time during the post-Demonstration period.

Exhibit F.104. Unadjusted Means of Non-IMD SMI/SED Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.104 shows that non-IMD SMI/SED costs PBPM increased over time during both the pre- and post-Demonstration periods.

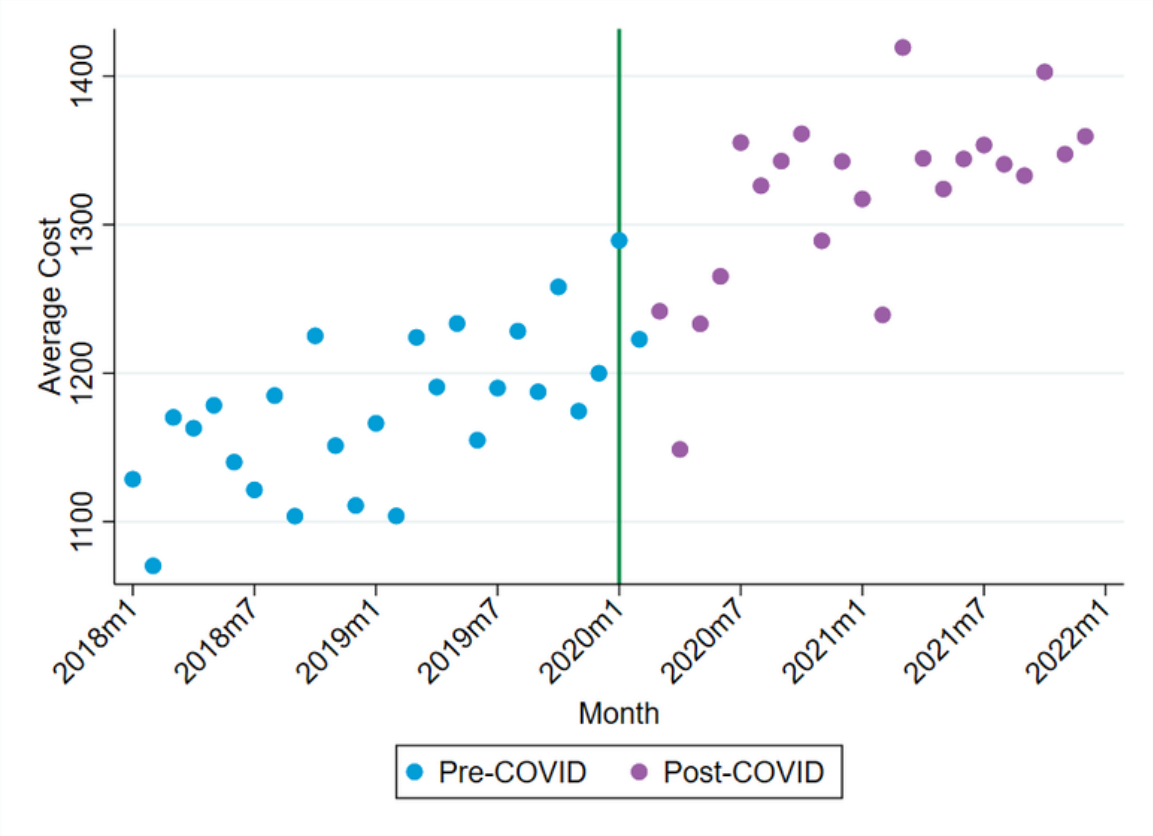
Exhibit F.100 shows ITS analysis findings (marginal effects and standard errors) on SMI/SED and non-SMI/SED costs for beneficiaries with SMI/SED. There was no change in non-SMI/SED costs PBPM in the post-Demonstration period. On the other hand, SMI/SED costs PBPM increased by $62.17 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($79.83). The probability of a beneficiary having a positive cost also increased by 3%. IMD costs PBPM increased by $6.78, which was statistically significant at the 1% level. Although there was no statistically significant change in cost for those who had a positive cost, the probability of a beneficiary having a positive cost increased. Non-IMD SMI/SED costs increased by $57.65, which was statistically significant at the 1% level. Most of this increase was from the increase in

cost for those who had a positive cost ($71.32). The probability of a beneficiary having a positive cost also increased by 3%.

In interpreting these findings, note that changes in costs seen are inclusive of COVID-19 PHE-related per-unit price increases, in addition to Demonstration-induced utilization changes.

> **Research Question 3.** What are the sources of treatment cost drivers for the target population of SMI/SED beneficiaries in the Demonstration period?

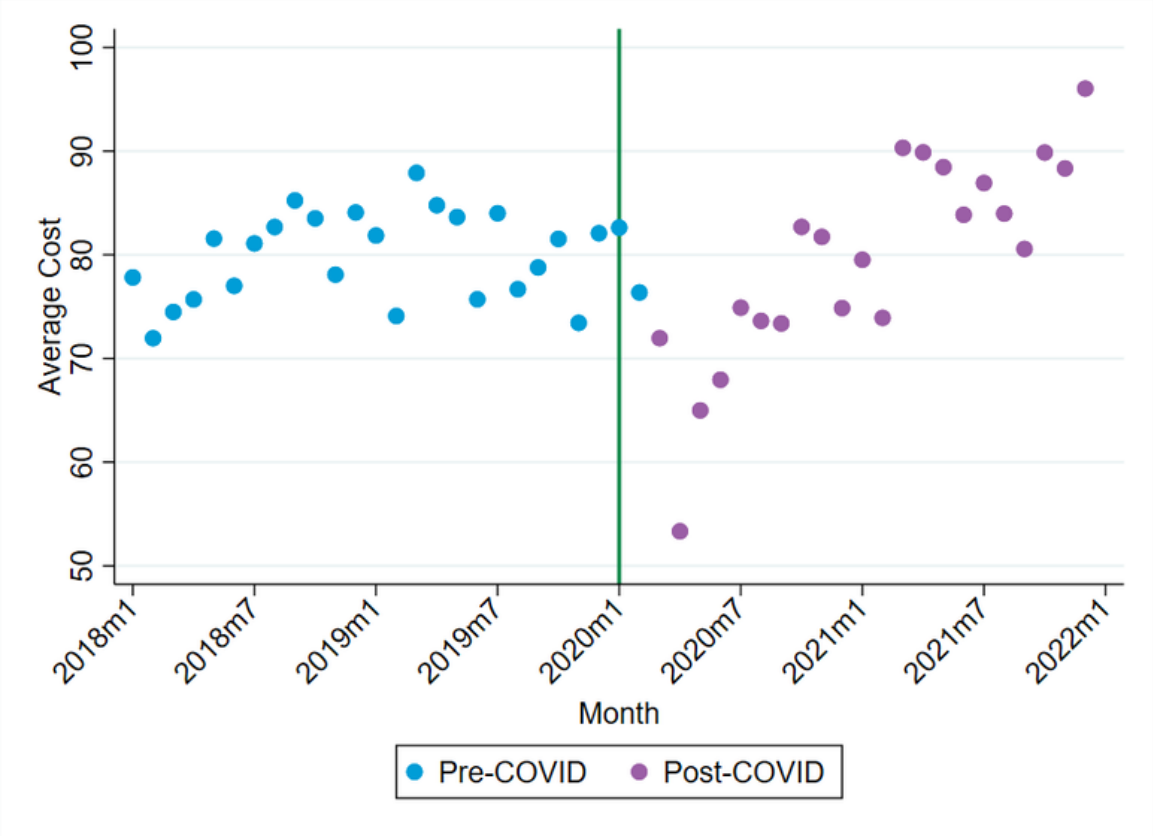
Exhibit F.105. Unadjusted Means of Non-ED Outpatient Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.105 shows that non-ED outpatient costs PBPM increased over time during both the pre- and post-Demonstration periods.

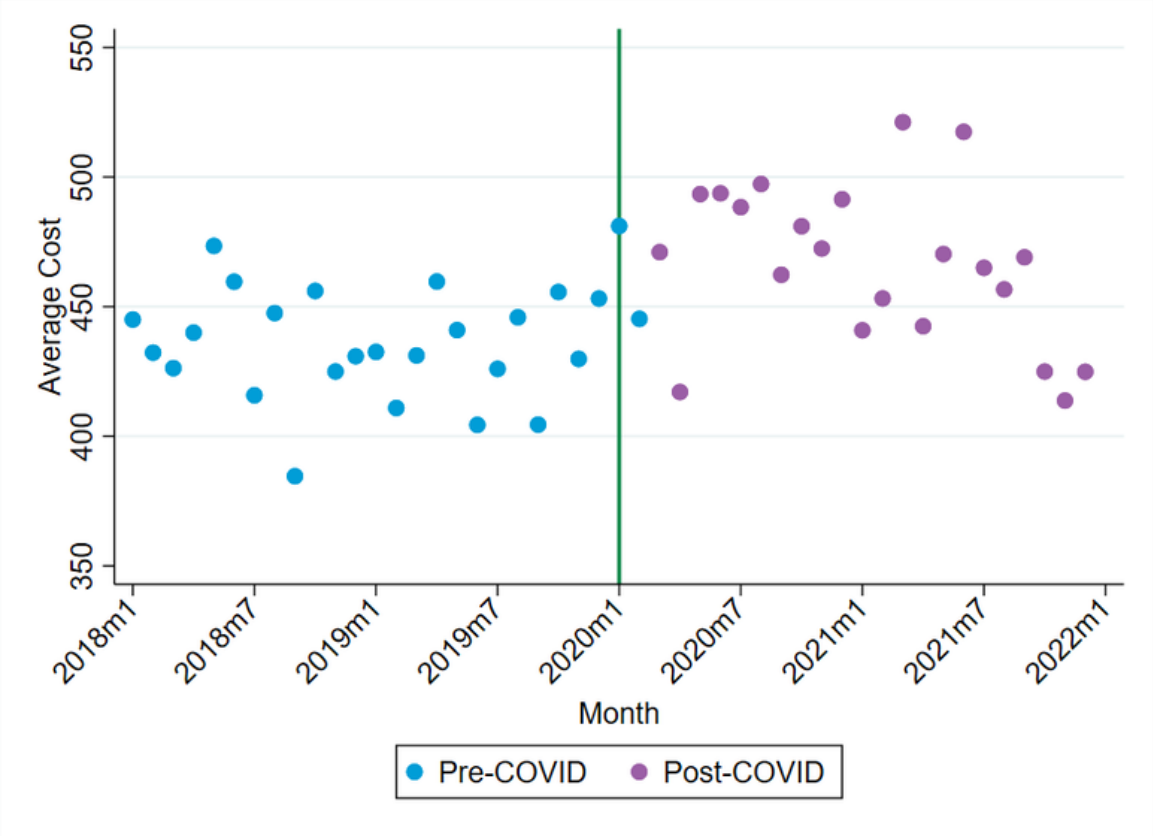
Exhibit F.106. Unadjusted Means of Outpatient-ED Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.106 shows that outpatient-ED costs PBPM remained stable during the pre-Demonstration period. They initially decreased over the post-Demonstration period and increased from the second half of 2020 onward.

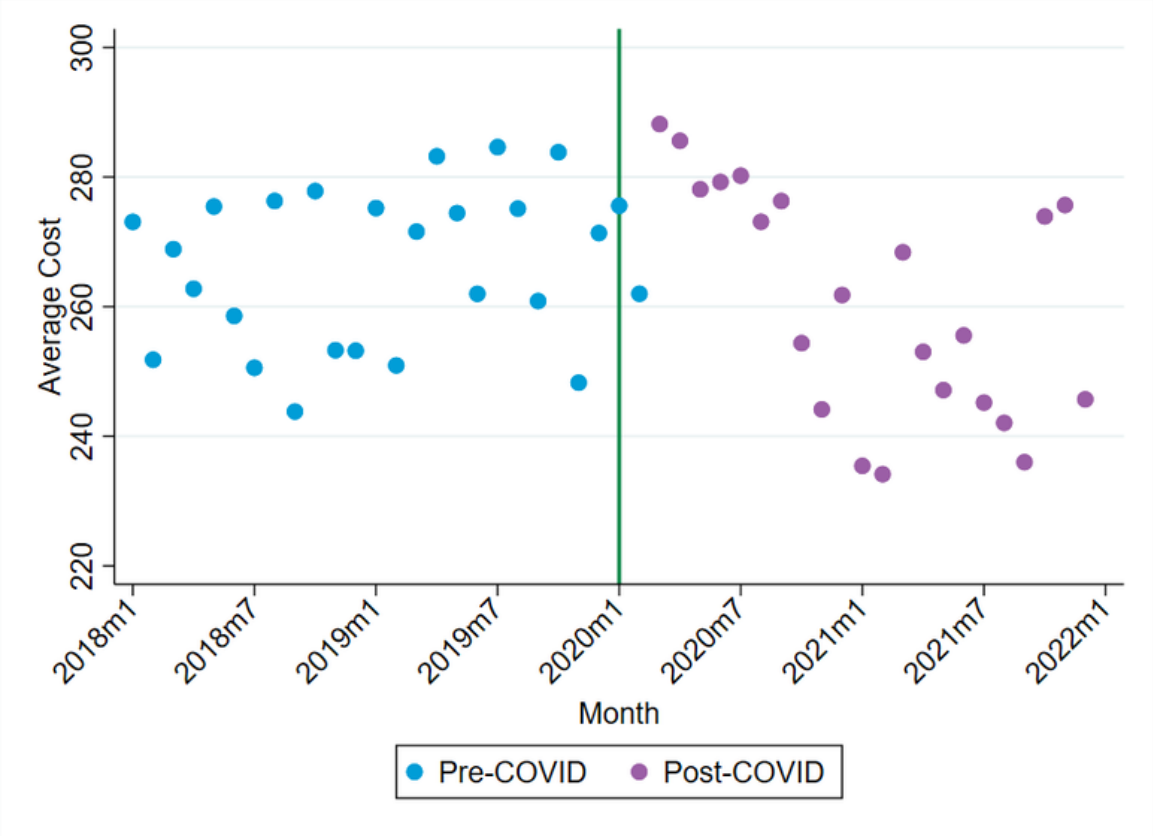
Exhibit F.107. Unadjusted Means of Inpatient Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.107 shows that inpatient costs PBPM remained stable over time during the pre-Demonstration period. They initially increased over the post-Demonstration period and decreased from the second half of 2020 onward.

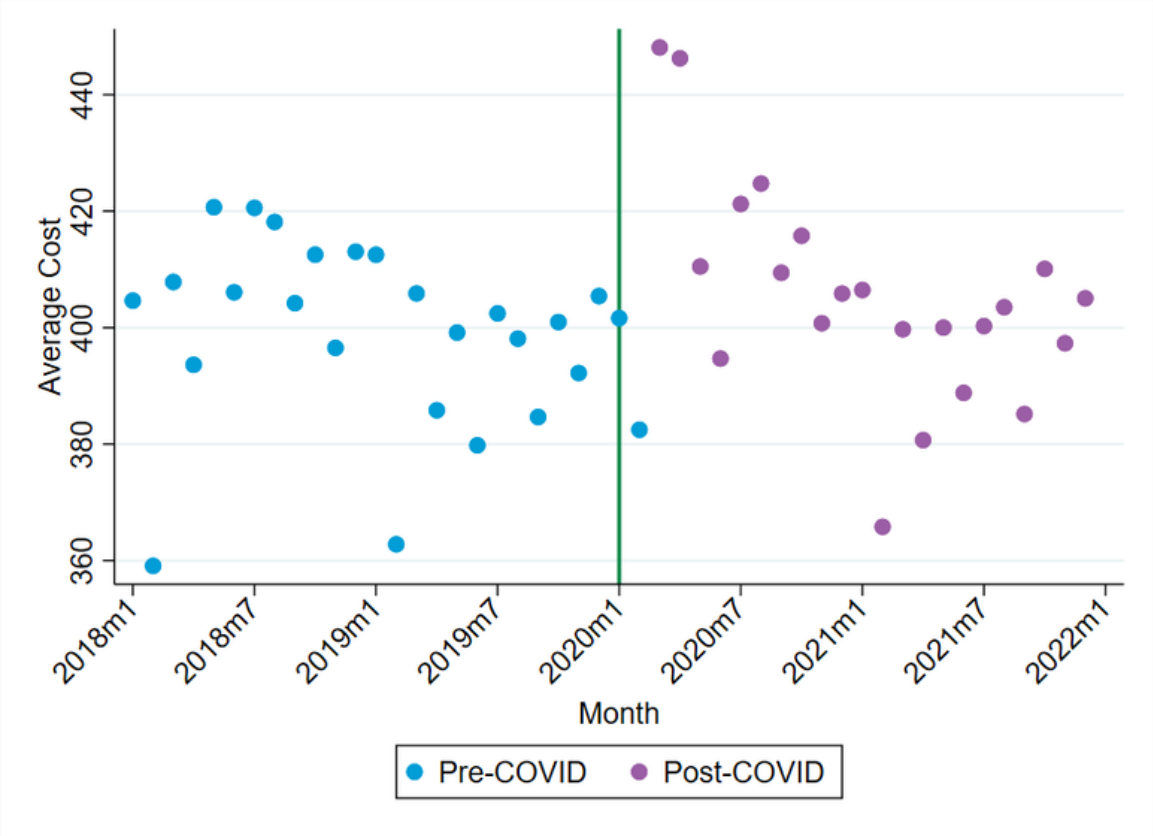
Exhibit F.108. Unadjusted Means of Pharmacy Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.108 shows that pharmacy costs PBPM fluctuated over time during the pre-Demonstration period and decreased over time in the post-Demonstration period.

Exhibit F.109. Unadjusted Means of Long-Term Care Cost Estimates for Individuals With SMI/SED, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.109 shows that long-term care costs PBPM decreased over time during the pre-Demonstration period but fluctuated over time under the Demonstration following an initial increase in 2020.

Exhibit F.100 shows ITS analysis findings (marginal effects and standard errors) on the cost drivers for beneficiaries with SMI/SED. Non-ED outpatient costs PBPM increased by $65.54 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($49.83). The probability of a beneficiary having a positive cost also increased by 4%. However, outpatient ED costs PBPM decreased by $6.93 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this decrease was from the decrease in cost for those who had a positive cost ($28.18). The probability of a beneficiary having a positive cost also decreased. Inpatient costs PBPM increased by $50.57 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Although there was no statistically

significant change in cost for those who had a positive cost, the probability of a beneficiary having a positive cost increased. There was no change in pharmacy costs PBPM in the post-Demonstration period. Similarly, there was no statistically significant change in cost for those who had a positive cost or in the probability of a beneficiary having a positive cost. Long-term care costs PBPM increased by $23.92 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($805.71). The probability of a beneficiary having a positive cost had no statistically significant change.

In interpreting these findings, note that changes in costs seen are inclusive of COVID-19 PHE-related per-unit price increases, in addition to Demonstration-induced utilization changes.

F.3.2 SUD Costs

Takeaway: Because the Demonstration was hypothesized to increase SUD care utilization in post-Demonstration costs, an increase in SUD treatment costs was expected. Total costs PBPM for SUD beneficiaries increased in the post-Demonstration period. This increase was both because the likelihood of beneficiaries incurring a positive expenditure increased and because the PBPM costs increased for those who had positive expenditures. Costs increased for both SUD treatment and non-SUD treatment. The SUD treatment cost increase was mostly attributable to increased IMD costs. There was a decrease in outpatient ED costs. In interpreting these findings, note that COVID-19 PHE-related rate increases, enhanced FMAP, and inflation resulted in increases in costs, which are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases, in addition to Demonstration-induced utilization changes.

Total Costs PBPM:

- Total costs PBPM increased by $134.91 in the post-Demonstration period.
- Total federal costs PBPM increased by $195.85 in the post-Demonstration period.

Costs related to diagnoses and treatment of SUD:

- Non-SUD costs PBPM increased by $91.87 in the post-Demonstration period.
- SUD costs PBPM increased by $44.44 in the post-Demonstration period.
- IMD costs PBPM increased by $38.37 in the post-Demonstration period.
- There was no change in non-IMD SUD costs PBPM in the post-Demonstration period.

Source of treatment cost drivers:

- Non-ED outpatient costs PBPM increased by $69.87 in the post-Demonstration period.
- Outpatient ED costs PBPM decreased by $7.57 in the post-Demonstration period.
- Inpatient costs PBPM increased by $87.38 in the post-Demonstration period.
- There was no change in pharmacy costs PBPM in the post-Demonstration period.
- There was no change in long-term care costs PBPM in the post-Demonstration period.

Exhibit F.110 presents the average PBPM costs each year from 2018–2021 for the target population of SUD beneficiaries. Average total costs PBPM increased from $2,035.54 in 2018 to $2,767.90, which was a 36.0% increase. Total federal costs increased by 44.9% during the same period. SUD costs increased by 56.0%, and the majority of SUD costs were non-IMD costs, which similarly increased by 46.8%. IMD costs were smaller than non-IMD costs but increased from 16.27 in 2018 to 63.20 in 2021. Outpatient (both ED and non-ED), inpatient, pharmacy, and long-term care costs all increased from 2018 to 2021.

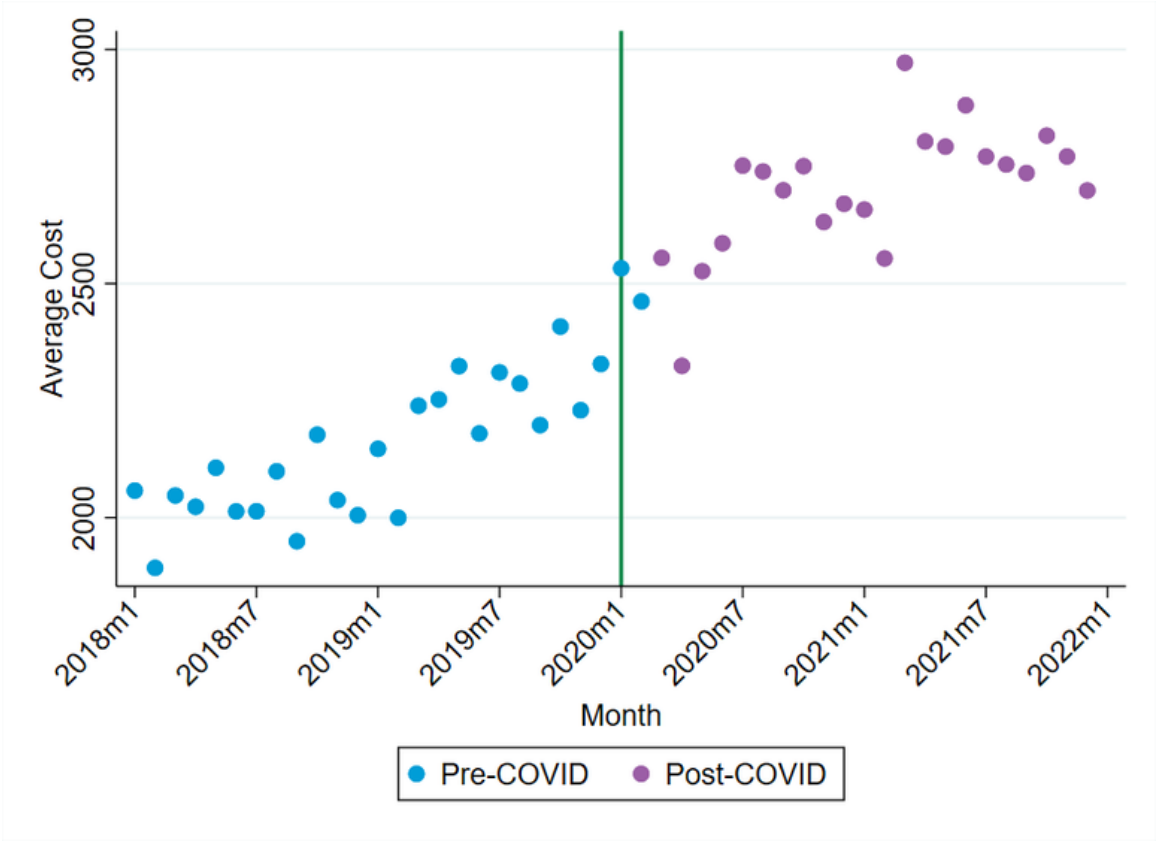
Exhibit F.110. Annual Average PBPM Costs for the Target Population of SUD Beneficiaries

		Pre-Demonstration ($)		Post-Demonstration ($)		Percentage change from 2018–2021
		2018	2019	2020	2021	
Total costs	Total costs	2,035.54	2,240.14	2,600.39	2,767.90	36.0%
	Total federal costs	1,536.57	1,696.97	2,078.41	2,226.50	44.9%
SUD cost drivers	Non-SUD costs	1,576.77	1,714.20	1,961.82	2,067.47	31.1%
	SUD costs	427.47	501.22	605.96	666.83	56.0%
	IMD SUD costs	16.27	21.51	59.37	63.20	288.4%
	Non-IMD SUD costs	411.52	480.05	546.52	604.21	46.8%
Type or source of care cost drivers	Non-ED outpatient costs	815.35	912.44	1,074.12	1,169.84	43.5%
	Outpatient ED costs	125.09	129.07	132.77	156.35	25.0%
	Inpatient costs	692.97	769.07	926.52	983.28	41.9%
	Pharmacy costs	274.83	305.41	330.20	323.67	17.8%
	Long-term care costs	168.04	189.14	229.29	243.00	44.6%
Target Population	Number of unique beneficiaries	26,818	24,827	22,018	21,243	-20.79%

Note. COVID-19 PHE-related rate increases, enhanced FMAP, and inflation, which resulted in increases in costs, are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases.

Research Question 1. Have total costs PBPM for the target population of SUD beneficiaries increased, decreased, or stayed the same in the Demonstration period?

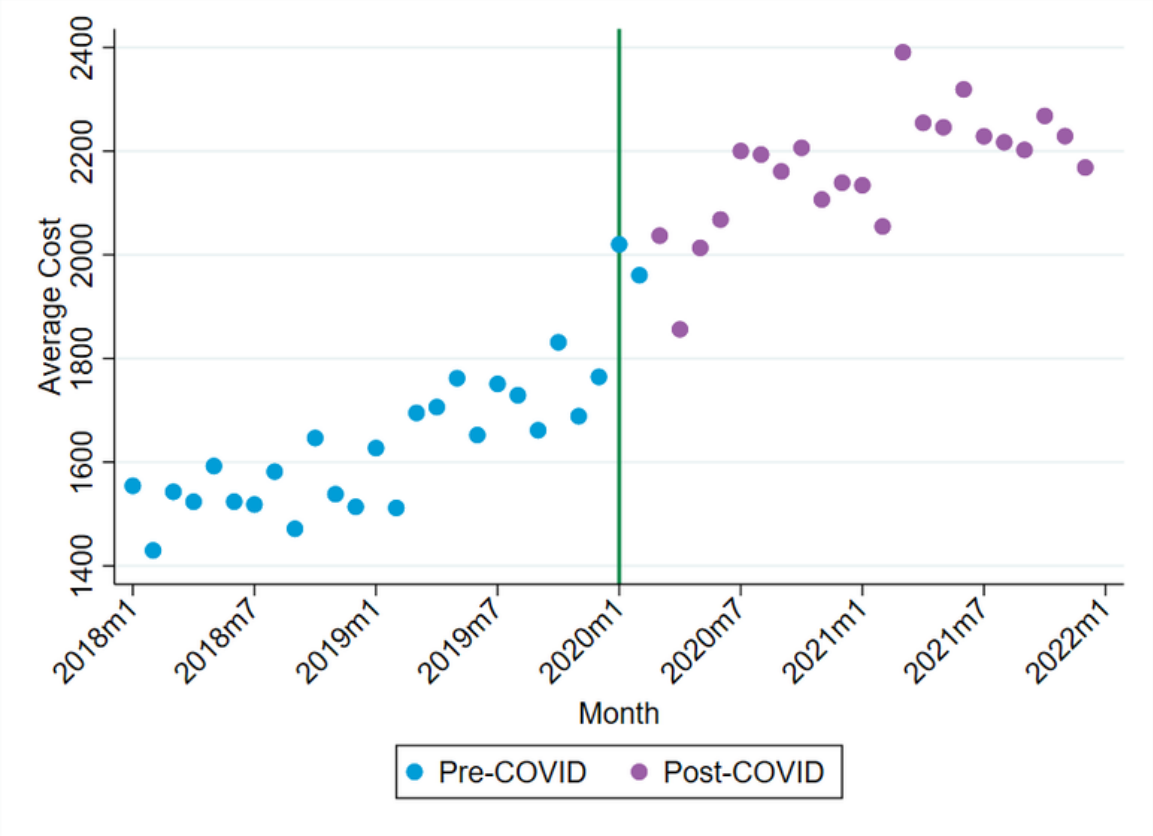
Exhibit F.111. Unadjusted Means of Total Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.111 shows that total costs PBPM increased over time during both the pre- and post-Demonstration periods.

Exhibit F.112. Unadjusted Means of Total Federal Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.112 shows that total federal costs PBPM increased over time during both the pre- and post-Demonstration periods.

Exhibit F.113. Interrupted Time Series Results (Marginal Effects and Standard Errors), SUD Demonstration

	Research Question 1 Change in total costs PBPM		Research Question 2 Change in SUD treatment costs PBPM				Research Question 3 Drivers of total cost				
	Total costs	Total federal costs	Non-SUD costs	SUD costs	IMD SUD costs	Non-IMD SUD costs	Non-ED outpatient costs	Outpatient ED costs	Inpatient costs	Pharmacy costs	Long-term care costs
Logit											
Coefficients											
Demonstration period	0.26***	0.26***	0.27***	0.00	1.12***	-0.02	0.30***	0.01	0.18***	0.00	-0.11***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.05)	(0.01)	(0.01)	(0.02)	(0.03)	(0.01)	(0.04)
Time (continuous)	0.04***	0.04***	0.04***	0.02***	0.07***	0.02***	0.05***	-0.01***	0.02***	0.03***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Demonstration period * time (continuous)	-0.02***	-0.02***	-0.02***	-0.01***	-0.06***	-0.02***	-0.02***	-0.01**	0.01*	-0.02***	0.10***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Marginal effects											
Demonstration period	0.03***	0.03***	0.04***	-0.00	0.01***	-0.00*	0.05***	0.00	0.01***	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400
GLM											
Coefficients											
Demonstration period	0.03**	0.08***	0.01	0.07***	-0.05	0.01	0.01	-0.06***	-0.06**	-0.04**	0.07***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.04)	(0.02)	(0.01)	(0.02)	(0.03)	(0.02)	(0.02)
Time (continuous)	0.02***	0.02***	0.02***	0.02***	-0.01*	0.02***	0.02***	0.03***	0.01**	0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	0.04***	0.03***	0.05***	0.03***	-0.00	0.03***	0.04***	0.00	0.02***	0.06***	0.02***
Demonstration period * time (continuous)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

	Research Question 1 Change in total costs PBPM		Research Question 2 Change in SUD treatment costs PBPM				Research Question 3 Drivers of total cost				
	Total costs	Total federal costs	Non-SUD costs	SUD costs	IMD SUD costs	Non-IMD SUD costs	Non-ED outpatient costs	Outpatient ED costs	Inpatient costs	Pharmacy costs	Long-term care costs
Marginal effects											
Demonstration period	135.34***	223.49***	81.60***	176.19***	-167.41	50.47	55.12***	-46.83***	-595.74	-9.11	791.59***
	(27.06)	(21.63)	(21.28)	(41.91)	(134.72)	(41.42)	(10.18)	(13.77)	(369.72)	(8.27)	(203.84)
Number of observations	583,989	583,989	570,459	198,999	10,162	195,874	524,862	123,833	40,745	363,157	16,682
Two-part model											
Marginal effects											
Demonstration period	134.91***	195.85***	91.87***	44.44***	38.37***	5.10	69.87***	-7.57***	87.38***	-4.03	5.19
	(20.64)	(16.52)	(15.92)	(11.64)	(2.90)	(11.35)	(7.19)	(2.72)	(25.37)	(4.08)	(5.90)
Number of observations	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400	773,400

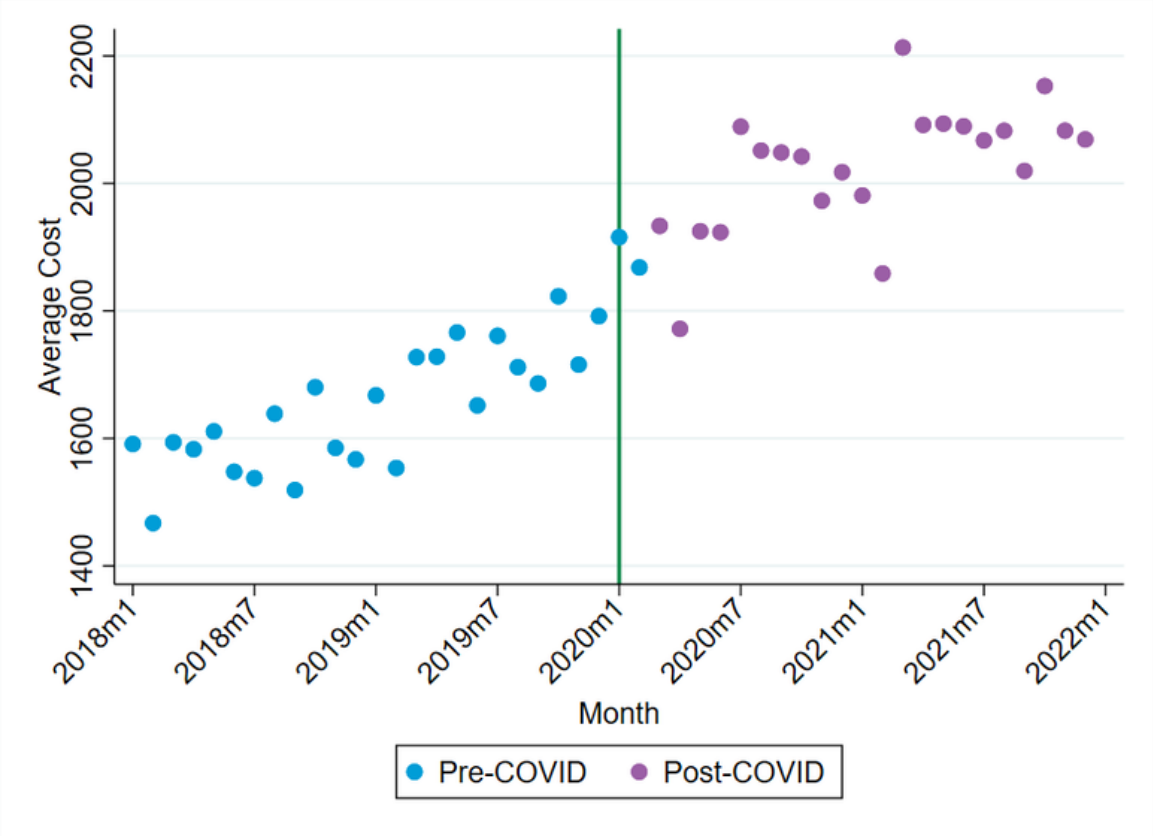
Notes: ED = emergency department; GLM = generalized linear model; IMD = Institutions for Mental Diseases; SMI/SED = serious mental illness/serious emotional disturbance; SUD = substance use disorder. Standard errors in parentheses. * Statistically significant at the 10% level; **statistically significant at the 5% level; ***statistically significant at the 1% level. Robust standard errors are in parentheses. Where a statistically significant cell does not show a value different from 0.00, it is because the number at the third decimal was less than 5 and was rounded off.

Exhibit F.113 shows ITS analysis findings (marginal effects and standard errors) on total costs and total federal costs for beneficiaries with SUD. Total costs PBPM increased by $134.91 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($135.34). The probability of a beneficiary having a positive cost also increased by 3%. Total federal costs PBPM increased by $195.85 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($223.49). The probability of a beneficiary having a positive cost also increased by 3%.

In interpreting these findings, note that changes in costs seen are inclusive of COVID-19 PHE-related per-unit price increases, in addition to Demonstration-induced utilization changes.

> **Research Question 2.** Have costs related to the diagnosis and treatment of SUD increased, decreased, or stayed the same during the Demonstration period?

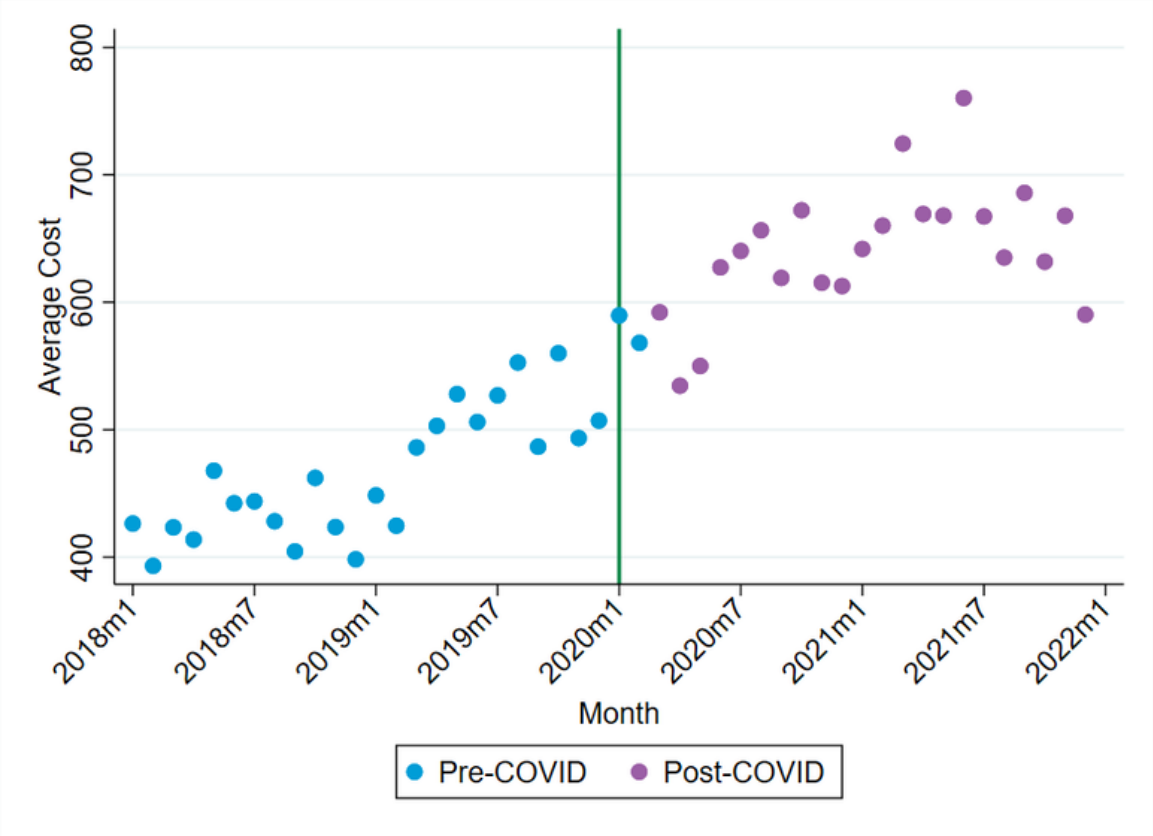
Exhibit F.114. Unadjusted Means of Non-SUD Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.114 shows that non-SUD costs PBPM increased over time during both the pre- and post-Demonstration periods.

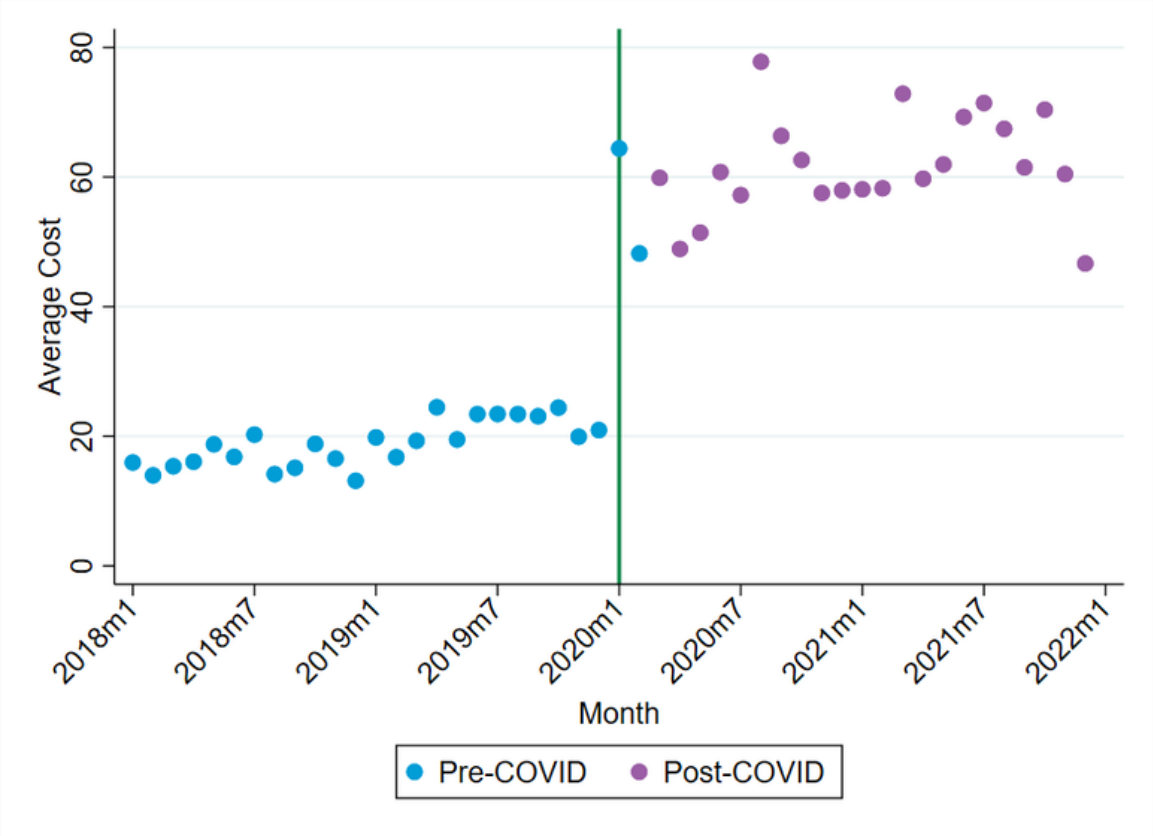
Exhibit F.115. Unadjusted Means of SUD Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.115 shows that SUD costs PBPM increased over time during the pre-Demonstration period. They initially increased over the post-Demonstration period and decreased in the second half of 2021.

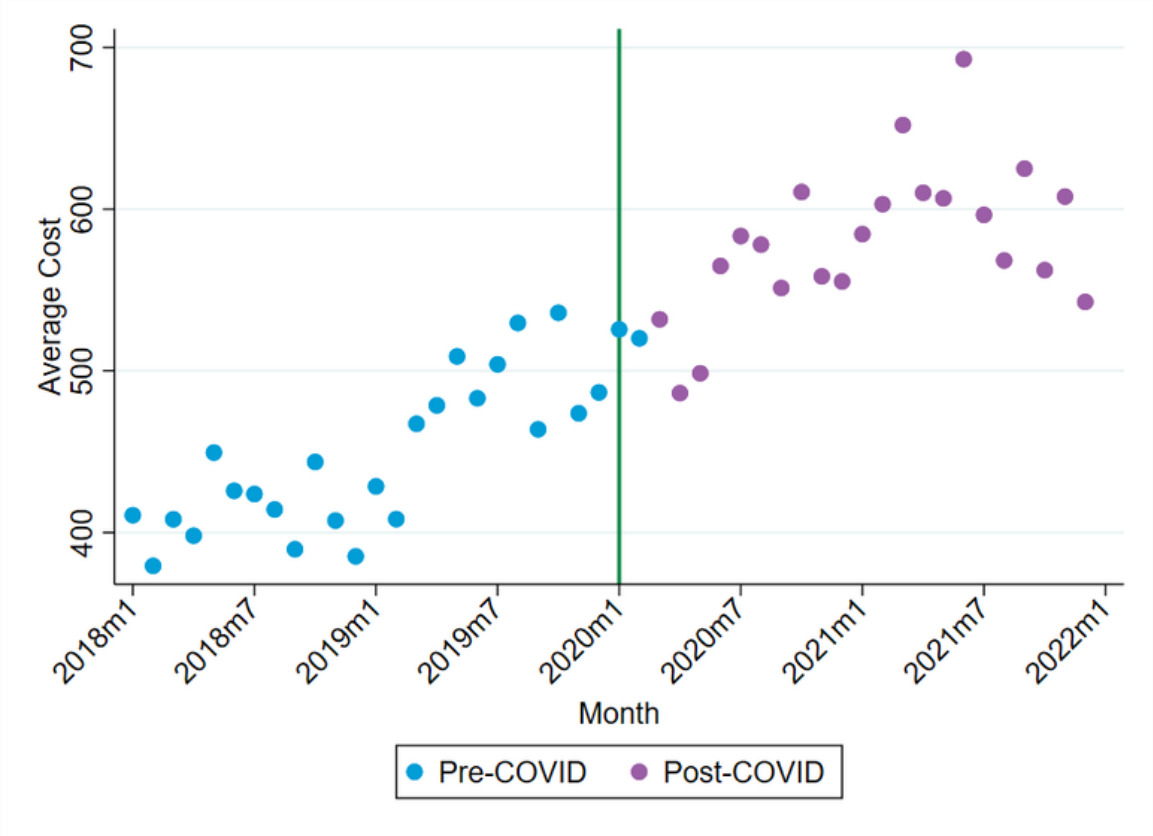
Exhibit F.116. Unadjusted Means of IMD Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.116 shows that IMD SUD costs PBPM increased slightly over time during the pre-Demonstration period and fluctuated during the post-Demonstration period. The trend shifted upward under the Demonstration.

Exhibit F.117. Unadjusted Means of Non-IMD SUD Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.117 shows that non-IMD SUD costs PBPM increased over time during the pre-Demonstration period. They initially increased over the post-Demonstration period and decreased in the second half of 2021.

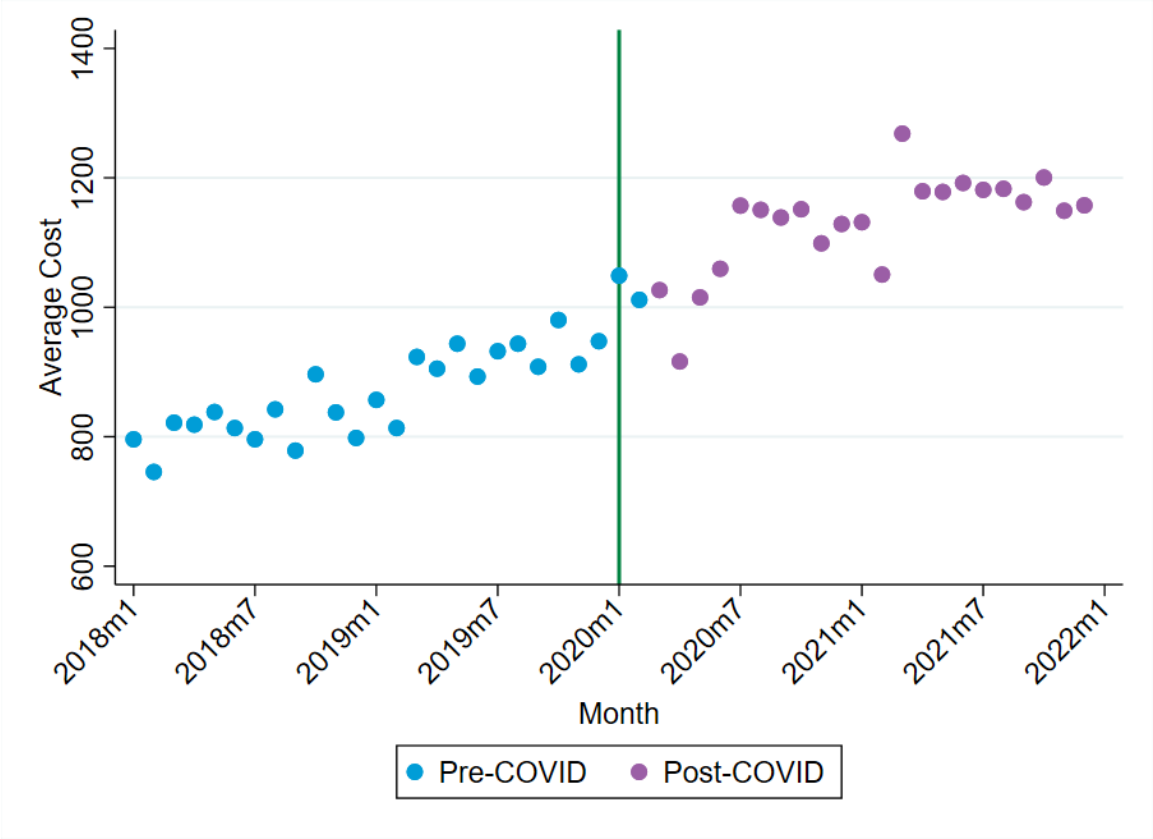
Exhibit F.113 shows ITS analysis findings (marginal effects and standard errors) on SUD and non-SUD costs for beneficiaries with SUD. Non-SUD costs PBPM increased by $91.87 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($81.60). The probability of a beneficiary having a positive cost also increased by 4%. SUD costs PBPM increased by $44.44 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($176.19), although the probability of a beneficiary having a positive cost had no statistically significant change. IMD costs PBPM increased by $38.37, and the effect was statistically significant at the 1% level. Although there was no statistically significant change in

cost for those who had a positive cost, the probability of a beneficiary having a positive cost increased by 1%. However, there was no change in non-IMD SUD costs PBPM in the post-Demonstration period. Similarly, there was no statistically significant change in cost for those who had a positive cost, although the probability of a beneficiary having a positive cost decreased.

In interpreting these findings, note that changes in costs seen are inclusive of COVID-19 PHE-related per-unit price increases, in addition to Demonstration-induced utilization changes.

> **Research Question 3.** What are the sources of treatment cost drivers for the target population of SUD beneficiaries in the Demonstration period?

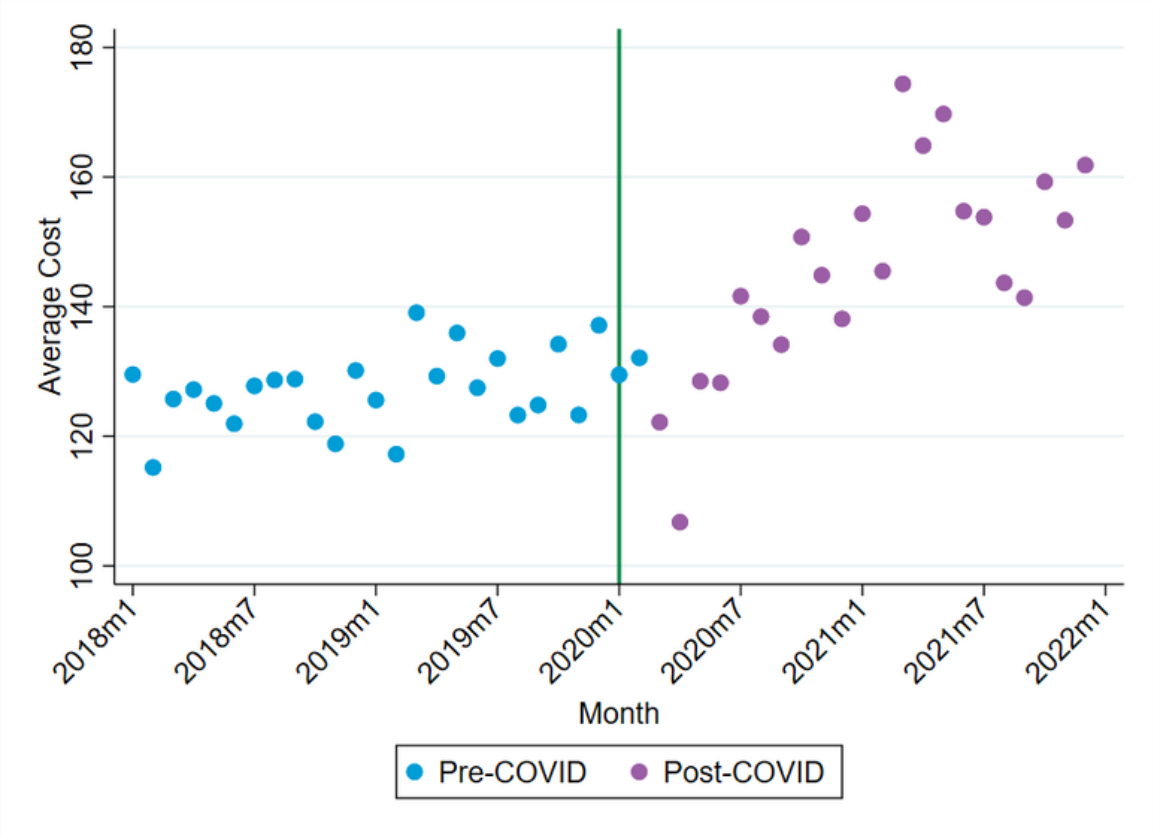
Exhibit F.118. Unadjusted Means of Non-ED Outpatient Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.118 shows that non-ED outpatient costs PBPM increased over time during both the pre- and post-Demonstration periods.

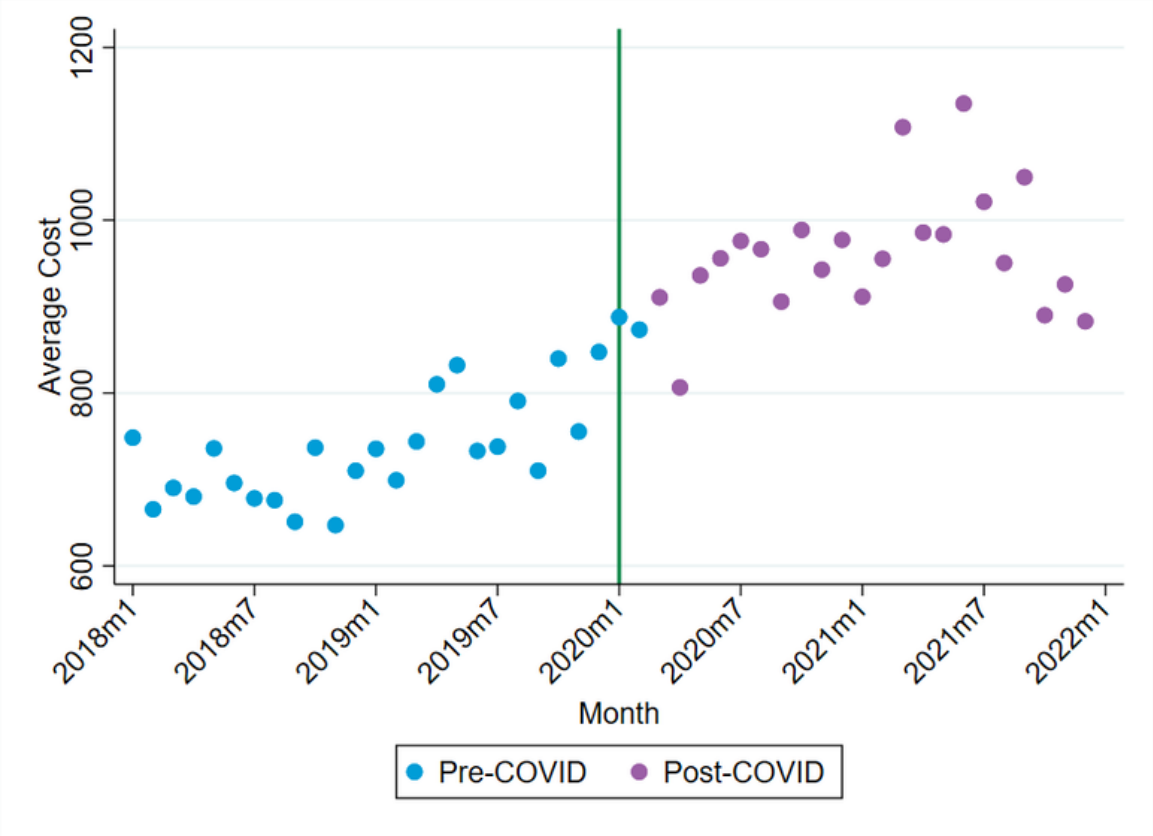
Exhibit F.119. Unadjusted Means of Outpatient ED Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.119 shows that outpatient ED costs PBPM increased over time during both the pre- and post-Demonstration periods.

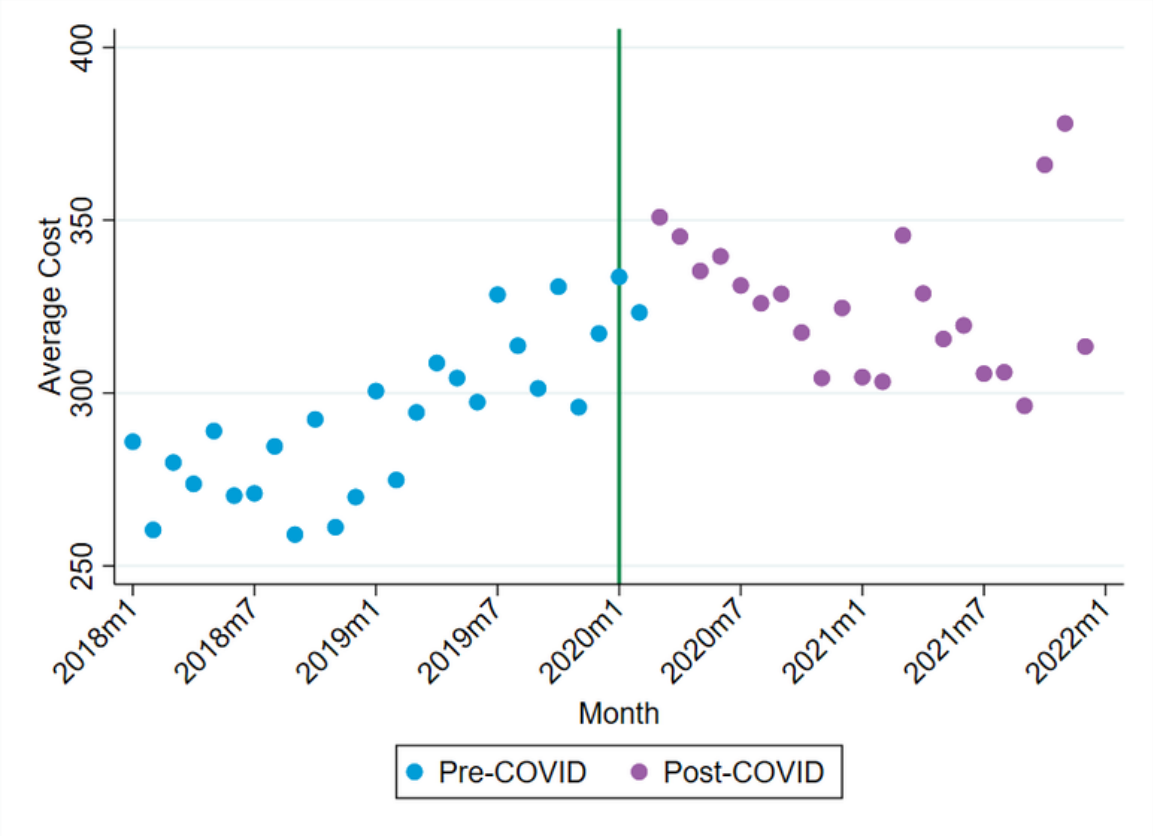
Exhibit F.120. Unadjusted Means of Inpatient Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.120 shows that inpatient costs PBPM increased over time during the pre-Demonstration period. They initially increased over the post-Demonstration period and decreased in the second half of 2021.

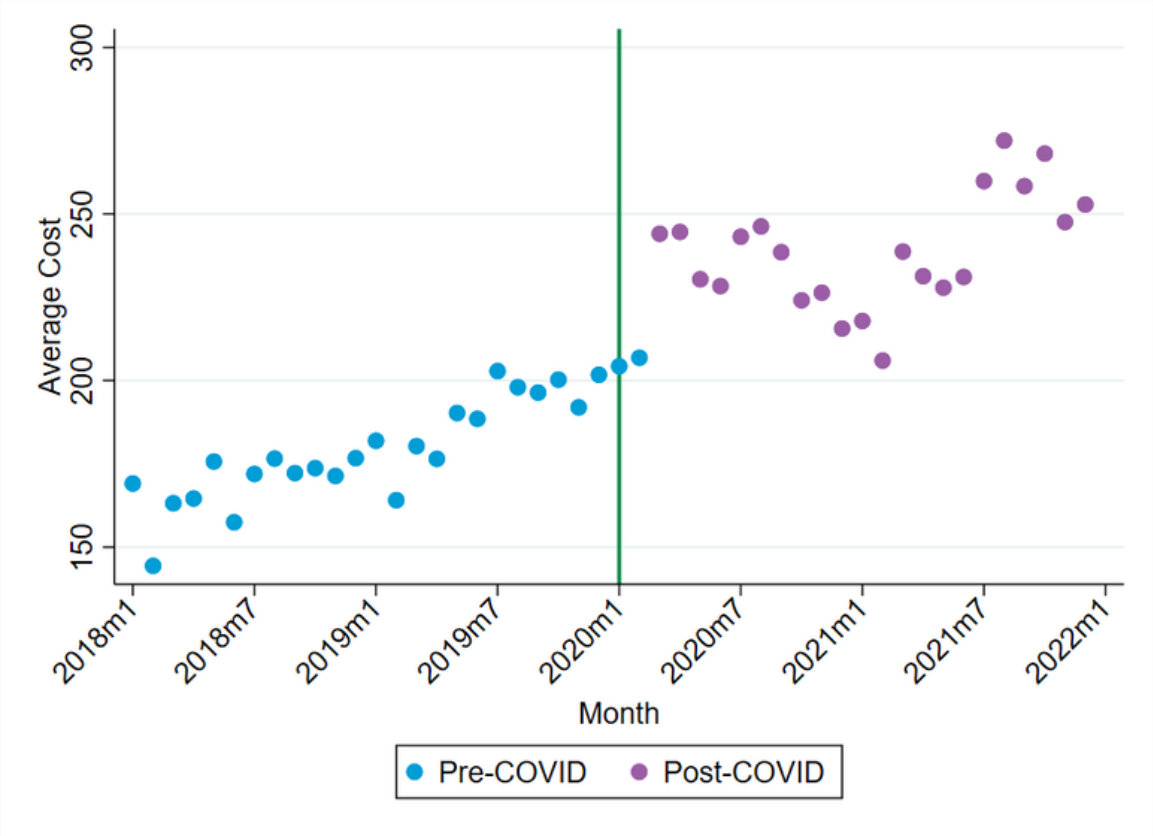
Exhibit F.121. Unadjusted Means of Pharmacy Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.121 shows that pharmacy costs PBPM increased over time during the pre-Demonstration period and fluctuated during the post-Demonstration period.

Exhibit F.122. Unadjusted Means of Long-Term Care Cost Estimates for Individuals With SUD, January 2018–December 2021



Note. The cost variable was top-coded—any value over the 99th percentile was replaced with the value at the 99th percentile.

Exhibit F.122 shows that long-term care costs PBPM increased over time during both the pre- and post-Demonstration periods.

Exhibit F.113 shows ITS analysis findings (marginal effects and standard errors) on the cost drivers for beneficiaries with SUD. Non-ED outpatient costs PBPM increased by $69.87 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this increase was from the increase in cost for those who had a positive cost ($55.12). The probability of a beneficiary having a positive cost also increased by 5%. However, outpatient ED costs PBPM decreased by $7.57 in the post-Demonstration period, and the effect was statistically significant at the 1% level. Most of this decrease was from the decrease in cost for those who had a positive cost ($46.83). The probability of a beneficiary having a positive cost had no statistically significant change. Inpatient costs PBPM increased by $87.38 in the post-Demonstration period, and the effect was statistically significant at the 1% level. There was no statistically significant change in cost for those who had a positive cost or the probability of a

beneficiary having a positive cost. There was no change in pharmacy costs PBPM in the post-Demonstration period. Similarly, there was no statistically significant change in cost for those who had a positive cost and the probability of a beneficiary having a positive cost. There was also no statistically significant change in long-term care costs PBPM in the post-Demonstration period. However, there was a statistically significant increase in cost for those who had a positive cost ($791.59). The probability of a beneficiary having a positive cost had no statistically significant change.

In interpreting these findings, note that changes in costs seen are inclusive of COVID-19 PHE-related per-unit price increases, in addition to Demonstration-induced utilization changes.

F.3.3 Effect of Administrative Costs

To understand the administrative costs of the Demonstration in perspective, we computed the PBPM administrative costs by dividing total administrative costs by the sum of SMI/SED and SUD beneficiary-months in the cost analysis sample. As Exhibit F.123 shows, PBPM administrative costs in the post-Demonstration period were $1.93, compared to the estimated $115.94 and $134.91 in additional total costs PBPM for beneficiaries with SMI/SED and SUD, respectively. On average, administrative costs PBPM were less than 1.7% and 1.4% of additional total costs PBPM for beneficiaries with SMI/SED and SUD, respectively.

Exhibit F.123. Comparison of Administrative Costs and Marginal Effects of Total Costs, PBPM

Administrative cost	SMI/SED beneficiary-months	SUD beneficiary-months	Administrative cost PBPM	Additional total costs PBPM for SMI/SED beneficiaries	Additional total costs PBPM for SUD beneficiaries
$2,481,277.29	930,713	356,681	$1.93	$115.94	$134.91

Although total costs PBPM for both SMI/SED beneficiaries and SUD beneficiaries increased under the Demonstration and are inclusive of COVID-19 PHE-related per-unit price increases, some of the cost increase could be explained by increased utilization of needed services, some of which were not previously available. Such increases in healthcare costs resulting from increased use of necessary services could be considered benefits of the Demonstration or utility gains to society, although it is hard to pin down the exact dollar amounts. Given the relatively small proportion of administrative costs in comparison to total healthcare costs, it seems that the Demonstration is a cost-effective way to provide more services to more people with behavioral health needs.

G. Conclusions

At the 2.5-year mark, the 5-year Behavioral Health Transformation Demonstration, which began January 1, 2020, is showing substantial progress in achieving its overarching goals of expanding the District Medicaid program's continuum of behavioral health services and supports, bolstering the District's fight against the opioid epidemic, and moving Medicaid toward a more patient-centered and integrated model of physical and behavioral healthcare delivery.

The Demonstration, targeting Medicaid beneficiaries with SMI/SED and/or SUD, authorized payment for services provided in an IMD setting and added new community-based behavioral health services, including for crisis stabilization, care transition and coordination, recovery support and rehabilitation, and employment support. It eliminated the $1 copayment for MAT prescriptions. All the Demonstration services were implemented in phases in the first year of the Demonstration, with most services being effective from January 1, 2020. The MHRS and ASURS services authorized under the Demonstration transitioned to permanent state plan authority with effect from January 1, 2022. The IMD services and the MAT copay waiver continue under the Demonstration.

The evidence on the Demonstration's implementation progress and effectiveness was collected from implementing entities, providers, provider associations, health plans, and Medicaid beneficiaries and also identified through the quantitative analysis of Medicaid claims, other administrative data, and beneficiary surveys. The evaluation does not have a comparison group, but it uses the ITS design, which is a robust evaluation method for population-level interventions with a clearly defined time period and targeted health outcomes, such as this Demonstration, in the absence of a comparison group. The quantitative analyses account for the influence of the COVID-19 PHE and certain of the overlapping programs to some extent, but not completely. Since the Demonstration effect estimates could be capturing the combined effect of the Demonstration as well as that of the pandemic and concurrent external efforts to some extent, the results indicate associations of outcomes of interest with the Demonstration rather than precise causal impacts.

G.1 Implementation Progress

Overall, the District has implemented all key Demonstration interventions as intended and there is broad awareness among providers of these changes. Whether and how these changes influence providers' delivery of care, and thus Demonstration outcomes, varies. For most interventions, the Demonstration changes have influenced a small set of providers for whom the services are currently or potentially relevant. However, evaluation participants'

perspectives suggest that a few Demonstration changes have had a widespread positive influence:

- *The ability of independent licensed behavioral health clinicians to enroll in Medicaid.* This change has expanded beneficiaries' access to clinicians who are in settings outside of FQHCs, FSMHCs, and MHRS and ASURS providers. Of note, evaluation participants described instances of newly enrolled behavioral health clinicians being located in primary care settings, which suggests progress toward the District's goal of more integrated care.
- *Revising and clarifying reimbursement methodology for telemedicine.* Finalizing telehealth flexibilities has had a substantial impact on behavioral healthcare delivery in the District. It took some time for providers to assess what services were appropriate for this modality and to create the workflows and technological supports needed for its delivery. However, telemedicine use has been high, suggesting that these flexibilities mitigated some of the impact of the PHE.
- *Reimbursement methodology for crisis stabilization services.* Several providers described the changes to the crisis stabilization services as having a substantial impact on their ability to deliver these services and thus their ability to prevent unnecessary emergency department use. Evaluation participants attributed this impact to increased referrals to crisis stabilization providers and the financial stabilization of these providers that occurred as a result of clear and adequate reimbursement.
- *Decentralizing the intake and assessment functions of the ARC.* This Demonstration change expanded and eased beneficiaries' access to intake and assessment services. In addition, evaluation participants noted that this change improved beneficiaries' experience with the intake and assessment process because they could receive these services from providers they knew and trusted and who were aware of their needs for trauma- and culturally informed care.
- *Expanded adoption of health IT.* Participation in the District's HIE has increased substantially over the course of the Demonstration due to a number of different policy requirements as well as technical assistance efforts sponsored by DHCF and the HIE. While providers described the process of getting connected to the HIE and implementing workflows to use it as difficult and resource intensive, they praised the HIE's ability to support their tracking of beneficiaries' care use. Evaluation participants are optimistic that it will become even more useful over time as timely bidirectional use increases and providers and beneficiaries become more comfortable with data sharing.

Evaluation data suggest that the following Demonstration changes have not influenced outcomes as much as intended:

- *Transition planning services.* These services were intentionally narrowly defined to avoid duplication of services. However, this resulted in few beneficiaries being eligible. Combined with the rigid service delivery requirements and inability to enter the inpatient setting during COVID-19, these eligibility requirements have resulted in very little delivery of these services.
- *Reimbursement for SES for SMI and SUD.* The incorporation of SES into the state plan resulted in new requirements to ensure consumer choice. These requirements underlie the administrative burden evaluation participants identified as a barrier to timely and successful delivery of these services. Consumer choice requirements were operationalized in a way that increased the length of the SES assessment tool and added an independent assessor to the process.
- *Clubhouse and RSS.* Providers held the Clubhouse and RSS in high regard, largely because they involved peer supports. But in both instances, uptake has been slow and low. The challenges for the Clubhouse have been the certification requirements. The challenges for RSS have been confusion and limited capacity related to billing. In addition, evaluation participants expressed general frustration with the District's limitations on the types of organizations within which peer supports could be embedded and receive reimbursement.

In addition, evaluation participants uniformly lamented lack of care coordination and capacity as a persistent and significant weak point in the District's behavioral health delivery system despite the Demonstration's efforts to address this issue. Evaluation data suggest these core challenges:

- overall shortage of workers, in both clinical and nonclinical roles, which is common for organizations that rely on Medicaid funding and has been exacerbated by the COVID-19 PHE;
- limited capacity at certain points in the care continuum, such as stepdown care following an ED visit, inpatient stay, or residential stay; and
- lack of timely and efficient collaboration between providers (through either traditional or health IT–enabled workflows) to communicate beneficiaries' health status and care needs as the beneficiary is transitioning along the care continuum.

As the District hones its approach to measuring provider capacity relative to beneficiary demand, the precise magnitude and nature of capacity gaps may become clearer, thereby

enabling development of strategies to address these gaps. In the meantime, continued development of the HIE to expand data sharing and to facilitate clinical referrals and the upcoming carve-in of behavioral health services into MCO contracts may help improve care coordination.

G.2 Effect on SMI/SED Goals

The SMI/SED Demonstration had three goals related to improved access to, utilization of, and better coordination of care and two goals related to improved health outcomes. Both of the access-related goals were achieved by the end of 2 Demonstration years, while the results were mixed for the care coordination–related goal.[154]

- *Improved availability of crisis stabilization services.* This goal was achieved. The number and percentage of beneficiaries accessing any crisis stabilization services increased in the Demonstration period. The crisis stabilization services provided under the Demonstration included CPEP, youth mobile crisis, adult mobile crisis and behavioral outreach services, and psychiatric residential crisis stabilization services (a newly introduced service under the Demonstration). This finding aligns with the evaluation participants considering increased availability of crisis stabilization services as one of the most influential components of the Demonstration.
- *Improved access to community-based services.* This goal was achieved. There was an increase in the number and percentage of beneficiaries with SMI/SED who used any services related to mental health during the Demonstration period. The aim of increased integration of physical and behavioral healthcare under the Demonstration was assessed using the number and percentage of episodes of care where IMD providers billed for assessments or treatment of physical conditions. The number of episodes of care where IMD providers billed for assessments or treatment of physical conditions increased, but there was no change in the percentage. At the end of 2 Demonstration years, there was no net increase in the total number of mental health providers. However, after an initial decrease in the total number of providers, there have been quarterly increases over time. Results are similar for the number of physicians or other providers.
- *Improved care coordination*. The goal of improving care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities, showed mixed results. There was an increase in the percentage of beneficiaries ages 18 and older with a principal diagnosis of mental illness

[154] Though the regression analysis includes a control variable to account for the severity of the COVID-19 PHE, some of the increase in mental health service utilization could be due to pandemic-related changes such as increases in mental health problems.

or intentional self-harm who had a follow-up visit for mental illness within 7 days and 30 days of an ED visit. Such an increase is not observed for follow-up after hospitalization. As described above, transition planning services under the Demonstration had low uptake and, hence, the Demonstration's not achieving this goal is not surprising.

Only one of the two goals of the SMI/SED Demonstration related to improving healthcare outcomes was achieved by the end of the second Demonstration year.

- *Reduction in the utilization of ED services.* This goal was achieved. The number and percentage of beneficiaries with SMI/SED who used ED services for mental health decreased during the Demonstration period. This is consistent with evaluation participants' descriptions of how the changes to crisis stabilization services helped to prevent unnecessary ED visits. However, there was no reduction in the length of ED stay.
- *Reduction in readmissions.* The goal of reducing preventable readmissions has not yet been achieved. However, goal assessment is based on SMI/SED Monitoring Metric 4, which counts all readmissions other than planned readmissions following a psychiatric admission to an IPF.

G.3 Effect on SUD Goals

Unlike the SMI/SED Demonstration, for which most of the goals were achieved at the time of the interim evaluation, none of the SUD Demonstration goals were achieved. Three of the Demonstration goals were about increasing access and utilization of SUD services, and three were about improving health outcomes. Results were mixed for one of the access and utilization–related goals, while the other two goals were not achieved.

- *Increased rates of identification of, initiation of, and engagement in SUD treatment.* Evaluation participants praised the decentralization of the SUD assessment and referral functions of the ARC for expanding beneficiaries' access to these services. However, the goal of increasing identification, initiation, and engagement in SUD treatment showed mixed results. There was an increase in the number of beneficiaries initiating SUD treatment as measured by the number of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period, but not in the 3 months before the measurement period. There was no change in the percentage of beneficiaries. On the other hand, there was no increase in the number and percentage of beneficiaries receiving any SUD treatment service, facility claim, or pharmacy claim during the Demonstration period. The number of providers who were enrolled in Medicaid and qualified to deliver SUD services, which was used as an access measure, slightly decreased under the Demonstration.

- *Increased adherence to and retention in treatment.* The goal of increasing adherence to and retention in SUD treatment has not yet been achieved. There was no net increase in the percentage of beneficiaries who were engaged in ongoing AOD treatment within 34 days of the initiation visit at the end of 2 Demonstration years, with there being an increase in the percentage immediately on the Demonstration startup and quarterly decreases thereafter. There was also no increase in the number of beneficiaries who had at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days. On the other hand, the quarterly numbers decreased over time. There was also no change in the percentage of beneficiaries who had at least 180 days of continuous pharmacotherapy for OUD. In addition, baseline beneficiary survey data suggest that respondents' adherence to the care plans recommended by their providers was moderate. About one third of survey respondents reported they were unable to do what was necessary to follow their healthcare providers' treatment plans at least some of the time.
- *Improved access to care for physical health conditions among beneficiaries with SUD.* The goal of improving access to care for physical health conditions has not yet been achieved. The measure used to assess this goal was the percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period. This measure showed a decrease in the Demonstration period rather than an increase.

Of the three goals targeting improved health outcomes, one showed mixed results, one could not be achieved, and one could not be assessed.

- *Reductions in overdose deaths, particularly those due to opioids.* This goal could not be assessed using regression analysis because the overdose death data were not available at the time of the interim evaluation. Data on fatal opioid overdoses, tracked by DBH between 2017 and 2022, showed an increase in overdoses of around 46% in 2020 (411 deaths) relative to the prior year (281 deaths). Fatal opioid overdoses continued to increase and reached 455 deaths in 2022. These trends track national data, which show a spike in overdose deaths after the start of the pandemic.[155]
- *Reduced utilization of EDs and inpatient hospital settings.* The goal of reducing utilization of hospital EDs and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum of care services, showed mixed results. The measures used to assess

[155] These figures pertain to individuals who had a history of SUD treatment through the public system. They don't necessarily account for all Medicaid beneficiaries who died of opioid overdose because they might not have ever had treatment.

utilization of ED and inpatient hospital settings were the total number of SUD-related inpatient stays and ED visits per 1,000 beneficiaries. The use of these measures assumed that SUD-related inpatient stays and ED visits are preventable. These measures do not capture whether inpatient stays and ED visits were preventable or medically inappropriate. The number of inpatient stays showed a net increase at the end of 2 Demonstration years, while the number of ED visits did not change.

- *Reduction in preventable or medically inappropriate readmissions*. The goal of fewer readmissions to the same or higher LOC where the readmission is preventable or medically inappropriate has not yet been achieved. However, the metric used to assess the goal includes all-cause readmissions and not just preventable or medically inappropriate readmissions.

G.4 Effect on Costs

In the post-Demonstration period, total costs PBPM increased by $115.94 for SMI/SED beneficiaries and by $134.91 for SUD beneficiaries. For both the targeted populations, the Demonstration increased the likelihood of beneficiaries incurring healthcare costs. Furthermore, the average amount of healthcare costs increased for beneficiaries who had positive costs in the post-Demonstration period.

As hypothesized, the Demonstration increased utilization of SMI/SED and SUD services. This increase was reflected in increased SMI/SED and SUD treatment costs in the post-Demonstration period. IMD costs increased for both the populations which is an expected change considering FFP for IMD services being a major component of the Demonstration. While non-IMD SMI/SED costs increased, non-IMD SUD costs didn't increase.

Non-SMI/SED costs didn't increase in the post-Demonstration period for SMI/SED beneficiaries, while non-SUD costs increased for SUD beneficiaries.

In terms of the drivers of total costs, ED costs slightly decreased for both populations (by $6.93 PBPM for SMI/SED and by $7.57 PBPM for SUD), while inpatient costs increased (by $50.57 PBPM for SMI/SED and by $87.38 PDPM for SUD). Non-ED outpatient costs increased for both populations (by $65.54 PBPM for SMI/SED and by $69.87 PBPM for SUD). Pharmacy costs didn't change for the two populations. There was an increase in long-term care costs for SMI/SED beneficiaries (by $23.92 PBPM) but not for SUD beneficiaries.

During the Demonstration period, COVID-19 PHE-related rate increases, enhanced FMAP, and inflation resulted in increases in costs, which are not adjusted for in this analysis. Therefore, any increases in total costs seen are inclusive of these per-unit price increases in addition to Demonstration-related utilization changes.

G.5 Overall Conclusions

Providers, provider associations, and health plans broadly acknowledged the Demonstration services as being designed to address specific challenges that stakeholders were facing in the delivery of adequate, timely, and coordinated care across the behavioral healthcare continuum, particularly as a way to address the opioid epidemic unfolding in the District. The depth of their awareness of the components of the Demonstration and associated regulatory changes varied among evaluation participants depending on the relevance of the particular components for the services they provide.

Evaluation participants considered the ability of independent licensed behavioral health clinicians to enroll in Medicaid, revising and clarifying reimbursement methodology for telemedicine, reimbursement methodology for crisis stabilization services, and decentralizing the intake and assessment functions of the ARC as the Demonstration services with most influence on delivery of care. Promotion of health IT under the Demonstration was also considered influential, though bidirectional data sharing is still not widely adopted due to privacy concerns and insufficient technological capabilities.

A few of the Demonstration services that could have made substantial improvements to the well-being of the target population continue to face the challenge of low volume even after 2.5 years. These include transition planning services, SES, Clubhouse services, and RSS. Barriers to more widespread take-up of these services are stringent design features (transition planning), adoption of tools and workflows needed to meet billing requirements (RSS), and increased assessment processes (SES), in addition to the COVID-19 pandemic (Clubhouse).

Assessment of beneficiary utilization data indicate that the Demonstration goal of increased utilization of SMI/SED services is being achieved, while the goals related to identification of, adherence to, and retention in SUD treatment show mixed findings. Some of these less-than-anticipated results could be due to the disruption caused by the COVID-19 pandemic. The regression methodology attempts to account for this, but it is unlikely that all the effects of the pandemic are being controlled. While the COVID-19 PHE affected utilization patterns of both SMI/SED and SUD services, the effect was larger for the latter. Although there is progress in the reduction of ED use among the target populations of SMI/SED and SUD beneficiaries, there is no significant reduction in readmissions, which are the two costly and preventable use goals of the Demonstration.

While the Demonstration did not have specific hypotheses related to changes in total costs and its various components, the increase in SMI/SED costs for beneficiaries with SMI/SED, SUD costs for beneficiaries with SUD, and total costs for both types of beneficiaries are not unexpected. This is because the Demonstration targets increased utilization of SMI/SED/SUD treatment and more

integrated physical and behavioral healthcare; increased utilization means higher costs. The small decreases observed for the costly ED visits are not large enough to compensate for the increase in costs for the other services. IMD costs increased for both populations under the Demonstration, as expected, and this increase contributed to the increase in inpatient costs.

In sum, at the interim evaluation point halfway through the Demonstration, the Demonstration implementation has progressed as planned, with the District making timely regulatory and subregulatory changes necessary, including prompt action with COVID-19 regulatory flexibilities. The situation is more mixed in terms of Demonstration goal achievement. Progress has been better on the SMI/SED component of the Demonstration compared to the SUD component. The District could focus more on promotion of the SUD Demonstration goals of improved identification of, adherence to, and retention in SUD treatment in the second half of the Demonstration.

G.6 Recommendations for the District

Below are a few recommendations for the District's consideration as it explores renewing and revising the Demonstration. Renewing the Demonstration may result in a more accurate impact estimation as it provides a longer period to isolate the Demonstration's effect from that of the effect of the pandemic. It will also allow for accurate estimation of the effect of certain Demonstration services that have been lagging in uptake.

Explore opportunities to clarify service delivery requirements in ways that ease provider burden and that allow providers to make informed decisions about service offerings. The District has implemented policies to ensure that the Demonstration services that beneficiaries are receiving are medically necessary, standardized across providers, and delivered with fidelity. Evaluation data suggest that some providers choose not to offer some Demonstration services because they believe that these policies are cost prohibitive or challenging to implement. For some services, such as residential SUD care, burdens may ease as providers gain more experience with new procedures and tools for assessing clinical appropriateness and solidify workflows. For other services, it may be valuable for agency staff to clarify service delivery requirements to ensure that providers have complete and accurate information to inform their decisions about which services to provide. For example, several providers believed that TREM service delivery requires a higher level of clinical licensure than they currently have on staff or could afford to recruit. In addition, providers reported that there are unique requirements related to youth mobile outreach services that are challenging to adhere to. It may be valuable to educate providers about service delivery requirements so that they do not opt out of providing services because of an inaccurate understanding of service delivery requirements.

Continue to build the policy, payment, and delivery system infrastructure for telemedicine. Telemedicine utilization increased substantially during the COVID-19 PHE, particularly for mental health services. The fact that increased telemedicine use continues to persist despite lifting of in-person COVID-19 restrictions and that beneficiary survey respondents reported positive experiences with telemedicine suggests that this delivery model should be permanently supported. By implementing policies that will permanently allow audio-only telemedicine visits and allow beneficiaries to participate in telemedicine visits from home, the District has a solid foundation for supporting expanded delivery of telemedicine. However, providers varied in their perspectives on which services were appropriate to deliver via telemedicine. In addition, both providers and patients faced challenges to utilizing telemedicine technologies. The following are additional supports the District could consider:

- Issue guidance on which services are likely appropriate for telemedicine to promote broader access to care, when appropriate.
- Expand, as needed, support for beneficiaries who face barriers to utilizing telemedicine by increasing availability of cell phone minute and data vouchers and telemedicine stations. For example, it may be valuable to learn from, and build on, DBH's new initiative to provide cell phones to the District's most vulnerable populations to promote their telemedicine engagement.
- Educate providers on which software tools may be best suited for telemedicine, for example, those that are user-friendly from the perspective of both clinicians and patients and that require lower internet bandwidth.

Expand access to peer supports. Peer-provided services are an evidence-based model for behavioral health. In addition, there was widespread support for these services among providers. However, the Demonstration's interventions related to peer services were limited. As providers who offer peer supports become more familiar with how to bill for peer services and put billing procedures into practice, utilization of the Clubhouse and RSS may increase. The District could consider expanding the settings in which peer services may receive Medicaid reimbursements beyond DBH-certified providers.

In addition, DBH offers a Peer Certification Program for individuals with lived experience of mental health, SUD, and family/caregiver support to individuals with behavioral health needs, to aid them in becoming part of the behavioral health workforce. As part of their Behavioral Health System Transformation and Comprehensive Rate Study, the District is in the process of implanting a stand-alone peer service, which could be included as a distinct intervention on a person-centered treatment plan. The District is hopeful that the subsequent training and

education associated with implementing this service will increase utilization and reach across the service delivery system.

Review care coordination services provided by MCOs to assess whether they are likely to meet the needs of beneficiaries with SUD, SMI, and SED. Evaluation participants were optimistic that some of the current gaps related to care transition and coordination that beneficiaries experience would improve once behavioral health services are carved into MCO contracts in October 2023. The carve-in may incentivize MCOs to incorporate enrollees' higher acuity behavioral healthcare into existing care management strategies. However, it is unclear whether MCOs have services that are similar to the Demonstration's transition planning service or the care management programs funded by the SOR grant and whether there is a need to modify the MCOs' care coordination approaches to be suitable for higher acuity behavioral health needs. For example, there may be a need for MCOs to:

- familiarize themselves with the services available and historical referral patterns across the behavioral health ecosystem in the District,
- conduct more proactive and frequent outreach and follow-up to ensure that beneficiaries are connecting with needed services, and
- train care managers on how to effectively interact with patients who have behavioral health diagnoses.

Conduct a special study on access and delivery challenges associated with SUD for future rounds of evaluation data collection. Generally speaking, the Demonstration has not had much influence on SUD-related goals thus far. As we described above, this is likely due in part to the challenges associated with caring for beneficiaries with the unique demographic characteristics of the District's beneficiary population and the COVID-19 PHE. However, tailoring services to the District's population did not come up in evaluation discussions, and SUD service utilization has not reached pre-COVID-19 rates despite in-person restrictions having been lifted. Thus, we believe that further attention to SUD will help the evaluation team to gain a better understanding of the impact estimation results and help to inform the District's future SUD strategy. For example, lingering effects of the COVID-19 PHE may need to be addressed, such as beneficiaries who may have become sicker during the pandemic and need increased help to reconnect to care. There may also be delivery system barriers that were not addressed by the Demonstration that are interfering with progress independent of the pandemic. We propose prioritizing exploration into the lack of SUD outcome progress in future rounds of data collection by focusing on SUD providers for listening sessions and developing discussion guides that solicit information about the barriers and bright spots related to SUD care in the District. We may also explore the feasibility and utility of conducting interviews and listening sessions with peer support specialists

and beneficiaries in recovery to gain a better understanding of the lived experience of SUD care in the District. Areas of focus to explore with SUD providers and beneficiaries include culturally attuned service availability and delivery, ED and hospitalization follow-up, treatment adherence and retention, and telemedicine adoption and utilization. We also will conduct a descriptive analysis of the demographic characteristics of SUD patients who did or did not receive follow-up care after an ED visit or hospitalization.

H. Interpretations, Policy Implications, and Interactions With Other District Initiatives

In this section, we identify relevant Medicaid and other program changes that coincide with the Demonstration and discuss their implications for accurately estimating the effects of the Demonstration. Some of these programs are similar to the drivers implemented under the Demonstration and have similar outcomes (e.g., increased initiation of SUD treatment) as those targeted by the Demonstration. Where possible, particularly for the individual-level regressions, we use control variables to account for the confounding effects of these programs on Demonstration effect estimates (e.g., MCO and FFS status of beneficiaries). However, due to the lack of a comparison group and the small sample size available for the ITS analysis (District-quarter level observations), we are unable to isolate the Demonstration effects from the effect of some of these programs. Therefore, the regression estimates from the ITS analysis are interpreted as associations rather than causal impacts.

The Demonstration could be considered as being implemented in two phases, with the Demonstration's first 2 years covering all the waiver services and the last 3 years covering only IMD waiver services. All waiver services but MAT copay and IMD services transitioned from the waiver to the state plan authority starting January 1, 2022.[156] This transition of billing authority is not expected to have a substantial effect on provider or beneficiary behavior and outcomes of interest for the evaluation. However, in the quantitative component of this interim evaluation, we limit the data coverage for the regression analysis to the period from January 1, 2020, to December 31, 2021. This data restriction allowed us to assess the effects of the Demonstration with all its original services in the Interim Evaluation Report, while the Summative Evaluation Report will cover the combined effect of both the phases of the Demonstration.

The Demonstration is one component of a larger behavioral health redesign in the District.[157] The District has established a multiyear phased approach encompassing behavioral health service expansion (Phase I), managed care integration (Phase II), and integrated care payment models (Phase III).[158] Exhibit H.1 lists two substantial changes to DC Medicaid's structure that are occurring contemporaneously with the Demonstration. The first change is the transition of

[156] On March 21, 2022, CMS provided time-limited approval to the Managed Care Risk Mitigation COVID-19 Public Health Emergency (PHE) section 1115 demonstration application as an amendment to the Demonstration. Since this demonstration amendment has separate monitoring and evaluation requirements, it is not discussed in this Interim Evaluation Report.
[157] Department of Behavioral Health & Department of Health Care Finance. (2022 October 28). *Behavioral Health Transformation Demonstration Post-Award Stakeholder Forum.*
[158] Department of Health Care Finance. (2021, December 2). *Medicaid director letter (MDL #21-06).* https://dbh.dc.gov/sites/default/files/dc/sites/dmh/publication/attachments/MDL%2021-06%20BH%20Transformation%20Update%20Timeline%2020211202-signed.pdf

Medicaid FFS beneficiaries with complex conditions to managed care, which occurred in October 2020 during the first year of the Demonstration. The number of beneficiaries using certain Demonstration services decreased when approximately 17,000 beneficiaries (largely adults with disabilities who were not dually enrolled in Medicare and who were contributing disproportionately to Medicaid program costs) transitioned to managed care in an effort to grant these beneficiaries access to case management services offered by the MCOs. The transition resulted in few payment and service delivery changes for behavioral health services. However, it did result in fewer beneficiaries being eligible for some Demonstration services (e.g., transition planning) and posed an administrative hurdle for certain providers (e.g., home health agencies.)

The second change is the integration of behavioral health services previously available only via FFS payment into managed care, which is scheduled to occur in October 2023. Preparations for this transition are currently underway and are consuming a considerable amount of resources, from the perspective of key informants from the implementing agencies and stakeholders who participated in evaluation data collection, such as the providers, provider associations, and MCOs. For example, some providers were not previously contracted with some or any MCOs or had different contractual relationships with different MCOs. This caused uncertainty because providers were not sure what the MCOs would pay for, what the reimbursement amounts would be, which services would be allowed, and so on. In addition, these types of changes often required redesign of infrastructure that affected providers' bottom line, requiring time to make appropriate adjustments. It is noteworthy that, despite the confusion and billing challenges, providers reported that the managed care transition had not impacted their implementation of Demonstration changes.

We will have a better understanding of the impact of this transition on care delivery, utilization, and outcomes by the time of the Summative Evaluation Report. The individual-level regression analysis controls for beneficiaries' FFS/MCO program status and accounts for some of the potential effects of the October 2021 transition of certain FFS beneficiaries to managed care. However, the District-level ITS regression results are confounded by this transition to the extent that it affected FFS and MCO beneficiaries' access to and receipt of various services.

Exhibit H.1. Medicaid Program Changes coinciding with the Demonstration, 2017–2025

Program name	Program start date	Program end date
Transition of certain fee-for-service beneficiaries to managed care	October 2020	N/A
Carve-in of additional behavioral health services to managed care	October 2023 (start of FY 2024)	N/A

Exhibit H.2 lists other programs that coincided with the Demonstration. These include federally funded programs such as SOR grants and SUPPORT Act grants as well as the District's own initiatives such as LIVE.LONG.DC, its strategic plan for reducing opioid use, misuse, and related deaths. Key informants and stakeholders who participated in the evaluation data collection noted that these programs are intended to achieve many of the same goals as the Demonstration and thus are likely synergistic to Demonstration changes' influence on perceived or quantifiable changes in beneficiary or provider outcomes. The time variables included in the regression models account for the effect of the programs that started in the baseline period and are continuing into the Demonstration, provided their effects over time remain constant. The effects of the other programs on Demonstration outcomes, if any, confound the Demonstration effect estimates. Therefore, caution is warranted in interpreting the effect estimates.

Exhibit H.2. Other Programs Coinciding With the Demonstration, 2017–2025

Program name	Program start date	Program end date
Substance Abuse and Mental Health Services Administration's State Opioid Response Grant (three rounds of 2-year grants)	FY 2018	FY 2024
LIVE.LONG.DC. (District's Opioid Strategic Plan)	December 2018	Ongoing
Integrated Care DC	January 2021	September 2025
Emergency department SBIRT and buprenorphine induction	May 2019	N/A
PDMP requirement (mandatory query by prescribers/pharmacists before prescribing and dispensing opioids/benzodiazepines)	March 2021	N/A
New DHCF prior authorization process for SUD residential services	January 2022	N/A
HIE connectivity grant	October 2019	September 2021
Consent management within HIE	July 2022	N/A
Bidirectional relationship with HIE required for DBH providers	October 2023	N/A

DBH = Department of Behavioral Health; DHCF = Department of Health Care Finance; HIE = Health Information Exchange; PDMP = prescription drug monitoring program; SBIRT = screening, brief intervention, and referral to treatment; SUD = substance use disorder.

The launch of the Demonstration in January 2020 coincided with the beginning of the COVID-19 PHE in March 2020, which has had a substantial impact on the Demonstration. DHCF authorized telehealth flexibilities related to reimbursing for audio-only visits and allowing home as an originating site in March 2020. The District also authorized a temporary payment increase for certain nonwaiver SUD services and secured approval for a COVID-19 waiver to renegotiate provider rates to further address COVID-19 challenges. The PHE has affected utilization patterns, particularly for services that must be delivered in person. However, telemedicine utilization for behavioral health services, particularly for mental health, substantially increased. While utilization levels of SMI/SED services have mostly returned to pre-pandemic levels, that is

not yet the case with SUD services. The PHE's effect on Medicaid enrollment and changes in healthcare needs and utilization patterns could confound the estimation of the Demonstration's effects. To isolate the Demonstration's effect from that of the COVID-19 pandemic, as much as feasible given the policy timing, we used COVID-related deaths as a control variable in the regression analyses. We also collected primary data through interviews, listening sessions, and the beneficiary survey to collect stakeholder perspectives on how the pandemic affected the Demonstration implementation and outcomes. These data show that the pandemic reduced providers' volume, disrupted typical care delivery patterns, negatively impacted beneficiaries' physical and mental health, and prevented beneficiaries from getting the behavioral health services they needed.

Overall, these findings suggest that concurrent federal and state programs are synergistic. The stakeholder engagement and research activities of the SUPPORT Act and SOR grant helped inform the District's strategies under the Demonstration. In addition, the Demonstration provided a path to expanding and sustaining services initially piloted and funded through the SOR grant and via local funds stewarded by DBH. Federal flexibilities related to the COVID-19 PHE, such as allowing states to issue telehealth flexibilities and to revisit provider rate setting, helped mitigate some of the impact of COVID-19 and prompted longer term delivery system improvements. It may be helpful for states designing 1115 waiver applications to review activities occurring in related initiatives in order to identify opportunities to scale, sustain, and rigorously evaluate activities that are widely supported or that fill gaps in the states' Medicaid state plan. Federal agencies could consider promoting similar approaches as they advise states interested in pursuing 1115 waivers.

I. Lessons Learned and Recommendations

This section covers the lessons learned from the first 2.5 years of the Demonstration and associated recommendations that could be of use to other states that may be interested in implementing a similar approach and to CMS. The lessons learned and recommendations are grouped under three topics:

- Demonstration design,
- Demonstration implementation, and
- Evaluation.

Demonstration design. As states look to design and revise their 1115 waivers, lessons learned from the District's Demonstration may provide insights into areas of the behavioral healthcare delivery system on which to focus. For example, it may be valuable to include policies related to crisis stabilization services. The District implemented several policy changes associated with crisis stabilization, including modifying and clarifying payment methodology for specialized crisis stabilization services, introducing new specialized crisis stabilization services, and including general crisis support as a core service for DBH-certified providers. These changes likely contributed to the increased utilization of these services. In addition, evaluation participants believed the increased delivery and utilization of these services to be the reason why ED visits for mental health have decreased in the District post-Demonstration.

Another area of 1115 waiver design that states may want to consider based on the interim results of the Demonstration evaluation is intake and assessment for SUD needs. The District decentralized these functions by requiring all SUD providers to offer these services. This policy change may be contributing to the increase in new SUD diagnoses observed in the District post-Demonstration. This change may also increase beneficiaries' satisfaction with these services, according to evaluation participants, because it makes it easier for beneficiaries to reconnect with service providers they know and trust.

There was also an increase in physical health screenings conducted in IMDs post-Demonstration. This suggests that states may want to explore how to engage IMD settings in their goals to promote more integrated care for beneficiaries with behavioral health diagnoses.

Demonstration implementation. Clear, detailed, and frequent communication with providers has been essential to the timely implementation of the Demonstration. Early in the Demonstration, there was confusion about some of the Demonstration services. The District responded to this confusion by issuing a series of bulletins to clarify the policies and provide

guidance on how to put these policies into practice. The District also provided individualized support to providers as they adopted new tools and workflows related to Demonstration policies. These ongoing efforts helped to ensure that policies were implemented in practice by providers. States implementing 1115 waivers may want to assess the need for similar guidance documents and targeted one-on-one support.

Evaluation. The following lessons learned indicate ways to improve the accuracy and usefulness of Demonstration evaluations.

- **Adapting SMI/SED and SUD monitoring metrics for evaluation.** CMS evaluation guidance suggests the selection of evaluation measures from nationally recognized sources and national measure sets. SMI/SED and SUD Demonstration Monitoring Metrics, which states have to routinely report to CMS under Demonstrations, is a good source for such measures. The availability of codes for generating the metrics also makes the monitoring metrics an attractive source for evaluations. However, a couple of monitoring metrics used in this report are not well aligned to Demonstration goals (SMI/SED Monitoring Metric #4 and SUD Monitoring Metric #25), though they cover generally similar concepts. In such cases, CMS could consider offering additional measure specifications that adapt the standard metrics to better align with Demonstration goals. For example, to assess progress on SUD Goal 5 (fewer readmissions to the same or higher LOC where the readmission is preventable or medically inappropriate), CMS could provide an adapted version of SUD Monitoring Metric #25, which is the rate of all-cause readmissions during the measurement period among beneficiaries with SUD and not limited to readmissions that are preventable or medically inappropriate. Adding these adaptations in the SMI/SED and SUD Monitoring Metrics Technical Specifications documents is an efficient solution that ensures standardization across states and reduces states' coding burden.
- **Improved capture of rendering provider information.** An important Demonstration strategy to improve access to SMI/SED/SUD services is increasing the number of mental health and SUD providers. Therefore, it is important to accurately capture the number of providers offering services at various levels and settings of care. However, certain claims data limitations may lead to undercounting of certain types of providers. For example, MHRS organizations bill at the entity level even when care is provided by individual practitioners affiliated with the organization. The rendering provider field in the claim is usually populated with the billing provider information, leading to undercounting of individual clinicians in the case of these types of organizational providers. CMS/states could encourage accurate capture of rendering provider information in the claims data to reduce this miscounting. CMS could also encourage states to promote all behavioral health clinicians at billing providers to enroll in

Medicaid, so that they can be the rendering provider on the claim. This would enable better insight into the range and capacity of clinicians providing behavioral services.

- **Routine provision of T-MSIS data for evaluation**. For estimating causal impacts from observational data, a comparison group is needed. However, in the case of Demonstrations such as the District's, where the intervention covers all eligible Medicaid beneficiaries in the jurisdiction and their participation begins at the same time, it is not feasible to find an appropriate comparison group within the state. In such situations, CMS may encourage the use of T-MSIS data to generate a comparison group from a comparable state or through innovative methods such as synthetic controls. While the data lag in T-MSIS Research Identifiable Files (TAF RIFs) does not allow use of the data for interim evaluation reports, use of the data is feasible for summative evaluation reports to estimate the causal impact of the early years of the Demonstration. To encourage the use of T-MSIS data for evaluations, CMS could give state evaluators access to TAF RIF data free of cost and publicize its routine availability for the purpose to state Demonstration applicants. States may also be encouraged to include TAF RIF data in their evaluation scope of work.[159]
- **Extension of Demonstration period.** For Demonstrations that mostly overlapped with the emergence of the COVID-19 PHE, the use of control variables or other methods does not guarantee the complete removal of the pandemic's confounding effect on impact estimates. In such cases, extending the Demonstration period beyond the original duration set in the pre-pandemic period could be considered. The longer Demonstration period, where the impacts of the pandemic are waning or are known and stable, would allow for less biased impact estimation.

[159] Use of T-MSIS data was out of scope for this evaluation. Furthermore, since the COVID-19 pandemic was just unfolding at the time the evaluation design was being prepared, it was difficult to determine which state (or metropolitan area) could potentially be a good comparison group.

J. Attachment: CMS-Approved Evaluation Design

[To be provided]

Appendix A. SMI/SED Diagnosis Codes Used to Identify the SMI/SED Target Population

DHCF defines the SMI population for purposes of monitoring (including ages, diagnosis groups and associated service use requirements) as the population that has:

1. An ICD-10-CM diagnosis from the list on the next page during the measurement period and age 21 or older at the start of the measurement period, or
2. A claim with a provider type of "D05" (residential treatment center) during the measurement period and age 21 or older at the start of the measurement period, or
3. A claim with a provider type of "D02" or "D03" (public and private psychiatric hospitals) that meets the criteria of the inpatient stay HEDIS value set during the measurement period and age 21 or older at the start of the measurement period.

DHCF defines the SED population for purposes of monitoring as the population that has:

1. An ICD-10-CM diagnosis from the list on the next page during the measurement period and under age 21 at the start of the measurement period, or
2. A claim with a provider type of "D05" (residential treatment center) during the measurement period and under age 21 at the start of the measurement period, or
3. A claim with a provider type of "D02" or "D03" (public and private psychiatric hospitals) that meets the criteria of the inpatient stay HEDIS value.

The AIR team uses the following list of ICD-10-CM diagnosis codes for identifying the target population for the SMI/SED evaluation metrics. To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI**.** These codes differ from the diagnosis codes used in the Standardized Definition of SMI specified in the CMS Technical Specifications.

Appendix Exhibit A.1. List of Diagnosis Codes Used to Identify the Target Population for SMI/SED Evaluation Metrics

Diagnosis code	Diagnosis description
F20.0	PARANOID SCHIZOPHRENIA
F20.1	DISORGANIZED SCHIZOPHRENIA
F20.2	CATATONIC SCHIZOPHRENIA
F20.5	RESIDUAL SCHIZOPHRENIA
F20.81	SCHIZOPHRENIFORM DISORDER
F20.89	OTHER SCHIZOPHRENIA
F20.9	SCHIZOPHRENIA, UNSPECIFIED
F22	DELUSIONAL DISORDERS
F25.9	SCHIZOAFFECTIVE DISORDER, UNSPECIFIED
F29	UNSPECIFIED PSYCHOSIS NOT DUE TO A SUBSTANCE OR KNOWN PHYSIOLOGICAL CONDITION
F30.10	MANIC EPISODE WITHOUT PSYCHOTIC SYMPTOMS, UNSPECIFIED
F30.11	MANIC EPISODE WITHOUT PSYCHOTIC SYMPTOMS, MILD
F30.12	MANIC EPISODE WITHOUT PSYCHOTIC SYMPTOMS, MODERATE
F30.13	MANIC EPISODE, SEVERE, WITHOUT PSYCHOTIC SYMPTOMS
F30.2	MANIC EPISODE, SEVERE WITH PSYCHOTIC SYMPTOMS
F30.3	MANIC EPISODE IN PARTIAL REMISSION
F30.4	MANIC EPISODE IN FULL REMISSION
F30.8	OTHER MANIC EPISODES
F31.10	BIPOLAR DISORDER, CURRENT EPISODE MANIC WITHOUT PSYCHOTIC FEATURES, UNSPECIFIED
F31.11	BIPOLAR DISORDER, CURRENT EPISODE MANIC WITHOUT PSYCHOTIC FEATURES, MILD
F31.12	BIPOLAR DISORDER, CURRENT EPISODE MANIC WITHOUT PSYCHOTIC FEATURES, MODERATE
F31.13	BIPOLAR DISORDER, CURRENT EPISODE MANIC WITHOUT PSYCHOTIC FEATURES, SEVERE
F31.2	BIPOLAR DISORDER, CURRENT EPISODE MANIC SEVERE WITH PSYCHOTIC FEATURES
F31.30	BIPOLAR DISORDER, CURRENT EPISODE DEPRESSED, MILD OR MODERATE SEVERITY, UNSPECIFIED
F31.31	BIPOLAR DISORDER, CURRENT EPISODE DEPRESSED, MILD
F31.32	BIPOLAR DISORDER, CURRENT EPISODE DEPRESSED, MODERATE

Diagnosis code	Diagnosis description
F31.4	BIPOLAR DISORDER, CURRENT EPISODE DEPRESSED, SEVERE, WITHOUT PSYCHOTIC FEATURES
F31.5	BIPOLAR DISORDER, CURRENT EPISODE DEPRESSED, SEVERE, WITH PSYCHOTIC FEATURES
F31.60	BIPOLAR DISORDER, CURRENT EPISODE MIXED, UNSPECIFIED
F31.61	BIPOLAR DISORDER, CURRENT EPISODE MIXED, MILD
F31.62	BIPOLAR DISORDER, CURRENT EPISODE MIXED, MODERATE
F31.63	BIPOLAR DISORDER, CURRENT EPISODE MIXED, SEVERE, WITHOUT PSYCHOTIC FEATURES
F31.64	BIPOLAR DISORDER, CURRENT EPISODE MIXED, SEVERE, WITH PSYCHOTIC FEATURES
F31.73	BIPOLAR DISORDER, IN PARTIAL REMISSION, MOST RECENT EPISODE MANIC
F31.74	BIPOLAR DISORDER, IN FULL REMISSION, MOST RECENT EPISODE MANIC
F31.75	BIPOLAR DISORDER, IN PARTIAL REMISSION, MOST RECENT EPISODE DEPRESSED
F31.76	BIPOLAR DISORDER, IN FULL REMISSION, MOST RECENT EPISODE DEPRESSED
F31.77	BIPOLAR DISORDER, IN PARTIAL REMISSION, MOST RECENT EPISODE MIXED
F31.78	BIPOLAR DISORDER, IN FULL REMISSION, MOST RECENT EPISODE MIXED
F31.81	BIPOLAR II DISORDER
F31.9	BIPOLAR DISORDER, UNSPECIFIED
F32.0	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, MILD
F32.1	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, MODERATE
F32.2	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, SEVERE WITHOUT PSYCHOTIC FEATURES
F32.3	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, SEVERE WITH PSYCHOTIC FEATURES
F32.4	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, IN PARTIAL REMISSION
F32.5	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, IN FULL REMISSION
F32.8	OTHER DEPRESSIVE EPISODES
F32.9	MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, UNSPECIFIED
F33.0	MAJOR DEPRESSIVE DISORDER, RECURRENT, MILD
F33.1	MAJOR DEPRESSIVE DISORDER, RECURRENT, MODERATE
F33.2	MAJOR DEPRESSIVE DISORDER, RECURRENT SEVERE WITHOUT PSYCHOTIC FEATURES
F33.3	MAJOR DEPRESSIVE DISORDER, RECURRENT, SEVERE WITH PSYCHOTIC SYMPTOMS
F33.41	MAJOR DEPRESSIVE DISORDER, RECURRENT, IN PARTIAL REMISSION

Diagnosis code	Diagnosis description
F33.42	MAJOR DEPRESSIVE DISORDER, RECURRENT, IN FULL REMISSION
F33.9	MAJOR DEPRESSIVE DISORDER, RECURRENT, UNSPECIFIED
F34.1	DYSTHYMIC DISORDER
F34.8	OTHER PERSISTENT MOOD [AFFECTIVE] DISORDERS
F39	UNSPECIFIED MOOD [AFFECTIVE] DISORDER
F43.10	POST-TRAUMATIC STRESS DISORDER, UNSPECIFIED
F43.12	POST-TRAUMATIC STRESS DISORDER, CHRONIC

Appendix B. Evaluation Measures

B.1 Evaluation Measures—SMI/SED Goals

For the claims-based SMI/SED metrics used to evaluate the Demonstration's effectiveness in achieving the SMI/SED goals, generally, the target population is Medicaid beneficiaries with SMI/SED enrolled in Medicaid for any amount of time during the measurement period of the metric. To identify beneficiaries with SMI/SED, we used the set of diagnosis codes for SMI/SED adopted by DHCF for the monitoring metrics, when reporting under the State-specific definition of SMI for the monitoring metrics. Appendix A contains the list of SMI/SED diagnosis codes adopted by DHCF for the State-specific definition of SMI.

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 1: Reduced utilization and lengths of stay in hospital emergency departments (EDs) among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings. (SMI/SED-1 in STCs)							
Primary Driver: *Reduce ED admissions /readmissions for SUD and SMI/SED*	**Research question 1.1a:** Was there a decrease in ED services by beneficiaries with SMI/SED?						
	Mental Health Services Utilization—ED (number and percentage of beneficiaries)	Number and percentage of beneficiaries with SMI/SED who use emergency department services for mental health during the measurement period	CMS-constructed SMI Monitoring Metric #16	The total number of unique beneficiaries (de-duplicated total) who have a claim for emergency services for mental health during the measurement period	Medicaid beneficiaries with SMI/SED enrolled for any amount of time during the measurement period *(Denominator)*	• Claims Data	• ITS • Descriptive statistics
	Research question 1.1b: How does the Demonstration influence ED service utilization among Medicaid beneficiaries with SMI/SED (e.g., through improved access to other continuum of care services)?						
	Perceptions of how the Demonstration has reduced utilization of ED services		AIR defined, with input from DHCF	Number of beneficiaries who report that they know they can get help when in crisis outside of the ED	Total number of survey participants *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression Analysis • Thematic Analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Triangulation
Primary Driver: *Reduce ED admissions/ readmissions for SUD and SMI/SED*	**Research question 1.2a:** Was there a decrease in the length of stay in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings?						
	ED length of stay (LOS) (in hours)	LOS in EDs for Medicaid beneficiaries	AIR defined, with input from DHCF	LOS for Medicaid beneficiaries receiving treatment for SMI/SED in emergency departments	Medicaid beneficiaries receiving treatment for SMI/SED in emergency departments (*Denominator*)	• DC Hospital Association	• Descriptive Statistics • Regression Analysis
	Perceptions of whether there was a decrease in the LOS in hospital EDs among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Research question 1.2b: How does the Demonstration influence the length of stay in hospital EDs among Medicaid beneficiaries with SMI/SED while awaiting mental health treatment in specialized settings (e.g., through improved access to other continuum of care services)?						
	Perceptions of how the Demonstration has reduced LOS in hospital EDs		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 2: Reduced preventable readmissions to acute care and specialty hospitals and residential settings. (SMI/SED-2 in STCs)							
Primary Driver: *Reduce ED admissions/ readmissions for SUD and SMI/SED*	**Research question 2.1:** Was there a decrease in preventable readmissions to acute care, specialty hospitals, and residential settings for beneficiaries with SMI/SED?						
	Readmission following psychiatric hospitalization in an inpatient psychiatric facility (percentage of beneficiaries)	The rate of unplanned, 30-day readmissions for demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/ Alzheimer's disease	Inpatient Psychiatric Facility Quality Reporting (IPFQR), NQF #2860 SMI Monitoring Metric #4	The count of 30-day readmissions. A readmission is defined as any admission, for any reason, to an IPF or a short-stay acute care hospital (including critical access hospitals) that occurs within 30 days after the discharge date from an eligible index admission to an IPF, except those considered planned. The measure uses the CMS 30-day Hospital-Wide Readmission (HWR) Measure Planned Readmission Algorithm, Version 4.0.	The count of index hospital admissions to IPFs among Medicaid beneficiaries with SMI/SED and a primary discharge diagnosis of a psychiatric disorder or dementia/ Alzheimer's disease *(Denominator)*	• Claims Data	• ITS • Descriptive Statistics
	Perceptions of whether there was a decrease in preventable readmissions to acute care and specialty hospitals and residential settings		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 3: Improved availability of crisis stabilization services, including services made available through call centers and mobile crisis units, intensive outpatient services, as well as services provided during acute short-term stays in residential crisis stabilization programs and psychiatric hospitals and residential treatment settings throughout the District. (SMI/SED-3 in STCs)							
Primary Driver: *Expand access to the full range of SUD and SMI/SED services*	**Research question 3.1a:** Was there an increase in the utilization of crisis stabilization services?						
	Any crisis stabilization service (number and percentage of beneficiaries)	Number and percentage of beneficiaries accessing crisis stabilization services	AIR defined, with input from DHCF	Number and percentage of beneficiaries accessing crisis stabilization services	Medicaid beneficiaries with SMI/SED enrolled for any amount of time during the measurement period *(Denominator)*	• Claims Data	• ITS • Descriptive Statistics
	Any crisis stabilization service, by setting (number and percentage of beneficiaries: • comprehensive psychiatric emergency program (CPEP) • mobile crisis and outreach • psychiatric crisis stabilization	Number and percentage of beneficiaries accessing crisis stabilization services: • CPEP • mobile crisis and outreach • psychiatric crisis stabilization	AIR defined, with input from DHCF	Number of beneficiaries receiving crisis stabilization service in the specified setting	Number of beneficiaries, enrolled in Medicaid with SMI/SED diagnoses during the month *(Denominator)*	• Claims Data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Primary Driver: *Expand access to the full range of SUD and SMI/SED services*	**Research question 3.1b:** Was there an increase in awareness of the availability of crisis stabilization services?						
	Awareness of available crisis stabilization services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
Secondary Driver: *Revise/clarify reimbursement for crisis stabilization services, TREM, TST, and telemedicine*	**Research question 3.1c:** How does the Demonstration influence the availability of crisis stabilization services (i.e., CPEP, Psychiatric Crisis Stabilization Program, Youth Mobile Crisis Intervention, and Adult Mobile Crisis and Behavioral Health Outreach)?						
	Content of changes to the reimbursement methodology for crisis stabilization services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of changes to the reimbursement methodology for crisis stabilization services		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which reimbursement changes incentivize or facilitate increased availability of crisis stabilization services		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of how the Demonstration influenced availability of crisis stabilization services		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 4: Improved access to community-based services to address the chronic mental healthcare needs of beneficiaries with SMI or SED including through increased integration of primary and behavioral healthcare. (SMI/SED-4 in STCs)							
Primary Driver: *Expand access to the full range of SUD and SMI/SED services*	**Research question 4.1a:** Was there an increase in access to community-based SMI/SED treatment services?						
	Number of mental health providers: • In total • Psychiatric hospital • Physician or other practitioner • Federally Qualified Health Centers (FQHC) • Other behavioral health clinic/entity	Number of mental health providers who delivered services to beneficiaries with SMI/SED under the Demonstration: • In total • Psychiatric hospital • Physician or other practitioner • Federally Qualified Health Centers (FQHC) • Other behavioral health clinic/entity	AIR defined, with input from DHCF	Total number of eligible mental health practitioners delivering services to SMI/SED beneficiaries (includes stratifications for provider type)	SMI/SED providers who were enrolled in Medicaid and qualified to deliver Medicaid services during the measurement period *(Population of interest)*	• Provider Enrollment Database • Claims Data	• ITS • Descriptive Statistics
	Capacity of newly enrolled Medicaid providers qualified to deliver SMI/SED services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Increase in newly enrolled Medicaid providers qualified to deliver SMI/SED services relative to overall increase in providers qualified to deliver SMI/SED services in the District		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Change in beneficiary self-report of barriers to treatment		AIR defined, with input from DHCF	Number of beneficiaries who report a barrier to treatment	Total number of survey respondents *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	
	Research question 4.1b: Was there an increase in community knowledge of available community-based SMI/SED treatment and services?						
	Change in beneficiary awareness of SMI treatment and services		AIR defined, with input from DHCF	Number of beneficiaries indicating they know where to go to receive treatment for SMI	Total number of survey participants *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	
Secondary Driver: *Revise/clarify reimbursement methodology for crisis stabilization services, TREM, TST, and telemedicine*	**Research question 4.1c:** How does the implementation of changes to the reimbursement methodology for Trauma Systems Therapy (TST) and Trauma Recovery and Empowerment Model (TREM) influence access to TST and TREM?						
	Content of the changes to the reimbursement methodology for TST and TREM		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of changes to the reimbursement methodology for TST and TREM		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Expanded TST and TREM services as reported by providers		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which changes to the reimbursement methodology for TST and TREM incentivized or facilitated expanded access to TST and TREM		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
Secondary Driver: *Provide Medicaid reimbursement for independent licensed BH clinicians*	**Research question 4.1d:** How does the implementation of reimbursement for independent licensed providers for SMI/SED services influence access to independent licensed behavioral health clinicians?						
	Availability of reimbursement for independent licensed BH clinicians for SMI/SED services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of reimbursement to independent licensed BH clinicians for SMI/SED services		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which reimbursement of independent licensed BH clinicians for SMI/SED services incentivized or facilitated expanded access to SMI/SED treatment services		N/A, Qualitative Measure			• Site Visits	• Thematic analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Driver: *Revise/clarify reimbursement methodology for crisis stabilization services, TREM, TST, and telemedicine*	**Research question 4.1e:** How does creating separate service definitions for TREM and TST influence access to TREM and TST treatment services?						
	Content of changes to the definitions or to the regulations for TREM and TST		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of changes to the definitions or regulations for TREM and TST		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which changes to the definitions or regulations for TREM and TST incentivized or facilitated expanded access to TREM and TST treatment services		N/A, Qualitative Measure			• Site Visits	• Thematic analysis
Secondary Driver: *Provide reimbursement for residential and inpatient treatment in IMDs, including short-term, monitored WM, and transition planning services*	**Research question 4.1f:** How does the implementation of FFP for short-term stays for acute care in IMD settings influence access to short-term stays for acute care in IMD settings?						
	Availability of FFP for short-term stays for acute care in IMD settings		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Content of reimbursement policy for short-term stays for acute care in IMD settings (e.g., eligible services, payment rate)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of reimbursement for short-term stays for acute care in IMD settings		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Perceptions of the extent to which reimbursement incentivized or facilitated expanded access to short-term stays for acute care in IMD settings		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
Primary Driver: *Increase initiation and engagement for treatment of SUD and/or SMI/SED*	**Research question 4.2a:** Was there an increase in utilization of community-based SMI/SED treatment services?						
	Any mental health services utilization (number and percentage of beneficiaries)	Number and percentage of beneficiaries with SMI/SED who used any services related to mental health during the measurement period.	CMS-constructed SMI Monitoring Metric #18	Number of unique beneficiaries (de-duplicated total) with a service claim for any services related to mental health during the measurement period	Medicaid beneficiaries with SMI/SED enrolled for any amount of time during the measurement period *(Population of interest)*	• Claims Data	• ITS • Descriptive Statistics
	Change in self-reported utilization of SMI treatment and services		AIR defined, with input from DHCF	Number of beneficiaries who report receiving the SMI services that they wanted or needed	Total number of survey participants *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	
Primary Driver: *Increase initiation and engagement for treatment of SUD and/or SMI/SED*	**Research question 4.2b:** How does the Demonstration influence utilization of TST and TREM?						
	Perceptions of whether the Demonstration increased utilization of TST and TREM		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of how the Demonstration increased utilization of TST and TREM		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and therapeutic SE for SUD*	**Research question 4.2c:** How does the availability of the Clubhouse influence utilization of SMI/SED treatment services?						
	Availability of the Clubhouse		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Resources and services available at the Clubhouse		N/A, Qualitative Measure			• Document Reviews • Site Visits	• Thematic Analysis • Triangulation
	Perceptions of the resources and services provided through the Clubhouse		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of the extent to which the availability of the Clubhouse increased utilization of SMI/SED treatment services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis
Primary Driver: *Increase initiation and engagement for treatment of SUD and/or SMI/SED*	**Research question 4.2d:** How does the Demonstration influence utilization of independent licensed behavioral health clinicians by beneficiaries with SMI or SED?						
	Perceptions of whether the Demonstration increased utilization of independent licensed BH clinicians by beneficiaries with SMI or SED		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of how the Demonstration increased utilization of independent licensed BH clinicians by beneficiaries with SMI or SED		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Primary Driver: *Improve care transitions and behavioral/ physical health coordination*	**Research question 4.3a:** Did beneficiaries being treated in an IMD setting receive treatment for physical health conditions experienced by beneficiaries with SMI/SED?						
	Assessment of physical health during IMD stay (number and percentage of episodes of care)	Number and percentage of episodes of care where IMD providers billed for assessments or treatment of physical conditions	AIR defined, with input from DHCF	Number of IMD stay episodes with a physical condition diagnosis	Number of IMD stay episodes during the measurement period, among Medicaid beneficiaries with SMI/SED diagnoses *(Denominator)*	• Claims Data	• ITS • Descriptive Statistics
	Research question 4.3b: Did the Demonstration increase integration of primary and behavioral healthcare for beneficiaries with SMI or SED?						
	Perceptions of whether the Demonstration increased integration of primary and behavioral healthcare for beneficiaries with SMI or SED		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Descriptions of ways primary and behavioral healthcare are integrated for beneficiaries with SMI or SED		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Beneficiary self-reported receipt of behavioral health and physical healthcare from same provider		AIR defined, with input from DHCF	Number of beneficiaries who report they have received behavioral health and physical healthcare from same provider	Total number of survey participants *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Beneficiary Interviews	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 5: Improved care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities. (SMI/SED-5 in STCs)							
Primary Driver: *Improve care transitions and behavioral/ physical health coordination*	**Research question 5.1a:** Was there an increase in utilization of follow-up services for beneficiaries with SMI/SED after episodes of acute care in hospitals?						
	Follow-up After Hospitalization for Mental Illness: Age 18 and Older (FUH-AD) • within 7 days • within 30 days	Percentage of discharges for beneficiaries ages 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm and who had a follow-up visit with a mental health practitioner • within 7 days • within 30 days	NCQA, NQF #0576 SMI Monitoring Metric #8	A follow-up visit with a mental health practitioner within 7 or 30 days after discharge	Number of discharges for beneficiaries ages 18 years and older who were hospitalized for treatment of selected mental illness diagnoses or intentional self-harm, among Medicaid beneficiaries with SMI/SED diagnoses *(Denominator)*	• Claims Data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Driver: *Require and operationalize integrated, coordinated clinical care, particularly at care transitions*	Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD) • within 7 days • within 30 days	Percentage of emergency department (ED) visits for beneficiaries ages 18 and older with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness • within 7 days of the ED visit • within 30 days of the ED visit	NCQA, NQF #2605 SMI Monitoring Metric #10	A follow-up visit with any practitioner, with a principal diagnosis of a mental health disorder or with a principal diagnosis of intentional self-harm and any diagnosis of mental health disorder within 7 or 30 days after the ED visit	Number of ED visits for beneficiaries ages 18 and older with a principal diagnosis of mental illness or intentional self-harm, among Medicaid beneficiaries with SMI/SED diagnoses *(Denominator)*	• Claims Data	• ITS • Descriptive Statistics
Secondary Driver: *Require and operationalize integrated, coordinated clinical care, particularly at care transitions*	**Research question 5.1b:** How does the implementation of the requirement that psychiatric hospitals initiate contact with the beneficiary and community-based providers within 72 hours of discharge influence care coordination?						
	Whether and through what mechanisms the District implements requirements for psychiatric hospitals and residential treatment settings to initiate contact within 72 hours of discharge with the beneficiary and community-based providers	N/A, Qualitative Measure				• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Perceived facilitators and barriers to initiating contact within 72 hours of discharge with the beneficiary and community-based providers	N/A, Qualitative Measure				• Site Visits	• Thematic Analysis

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Driver: *Provide reimbursement for residential and inpatient treatment in IMDs, including short-term, monitored WM, and transition planning services*	**Research question 5.1c:** How does the implementation of reimbursement for transition planning services influence care coordination?						
	Availability of reimbursement for transition planning activities		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Content of reimbursement policy for transition planning activities (e.g., eligible beneficiaries, reimbursement rates)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of the availability of reimbursement for transition planning activities		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of whether the available reimbursement for discharge-planning activities incentivized or facilitated improved care coordination		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Utilization of transition planning service	Use of new transition planning service by eligible beneficiaries with SMI/SED	AIR defined, with input from DHCF	Number and percentage of eligible beneficiaries using the new transition planning service for beneficiaries with SMI/SED	Medicaid beneficiaries eligible for the service (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics
	Research question 5.1d: How did changes in care coordination infrastructure influence experiences of care coordination for beneficiaries with SMI/SED?						
	Strategies implemented by the District to facilitate health IT adoption and interoperability (e.g., via improvements to the HIE)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Drivers: *Offer technical assistance and training on clinical care coordination. Leverage existing grants and stakeholder collaborations to expand provider adoption of health IT*	Challenges and facilitators to adopting and using health IT		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Workflows for integrating HIE data into care coordination efforts		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceptions of information available via HIE		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Content, format, and reach of the technical assistance and training given to providers related to care coordination		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceptions of the technical assistance and training given to providers related to care coordination		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Driver: *Require and operationalize integrated, coordinated clinical care, particularly at care transitions*	**Research question 5.1e:** How does the implementation of requirements for IMDs to conduct psychiatric and medical screenings influence assessment and treatment of physical health conditions for beneficiaries with SMI/SED?						
	Whether and through what mechanisms the District implements requirements for IMDs to conduct psychiatric and medical screenings		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Perceptions of the extent to which requiring IMDs to conduct psychiatric and medical screenings influenced care coordination for beneficiaries with SMI/SED		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceived facilitators and barriers to conducting psychiatric and medical screenings in IMDs for beneficiaries with SMI/SED		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis
	Research question 5.1f: Did care coordination improve for beneficiaries with SMI/SED?						
	Care coordination for beneficiaries with SMI/SED	Beneficiary perceptions of how their healthcare providers work together	AIR defined, with input from DHCF	Number of beneficiaries who rate their providers' collaboration highly	Total number of survey participants *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression
	Beneficiaries' experiences with coordinated care		N/A, Qualitative Measure			• Beneficiary Interviews	• Thematic Analysis
	Providers' experiences coordinating care		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis

B.2 Evaluation Measures—SUD Goals

For the claims-based SUD metrics used to evaluate the Demonstration's effectiveness in achieving the SUD goals, generally, the target population is all Medicaid beneficiaries enrolled in Medicaid for any amount of time during the measurement period of the metric.

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
Goal 1: Increased rates of identification of, initiation of, and engagement in treatment for SUD. (SUD-1 in STCs)							
Primary Driver: *Increase identification of SUD and SMI/SED*	**Research question 1.1:** Was there an increase in the identification and initiation of treatment for beneficiaries with SUD?						
	Newly initiated SUD treatment/diagnosis (number and percentage of beneficiaries)	Number and percentage of beneficiaries with an SUD diagnosis and an SUD-related service during the measurement period but not in the 3 months before the measurement period	CMS-constructed SUD Monitoring Metric #2	Number of unique beneficiaries (de-duplicated total) enrolled in the measurement period who receive MAT or have qualifying facility, provider, or pharmacy claims with an SUD diagnosis and an SUD-related treatment during the measurement period but not in the 3 months before the measurement period	All Medicaid beneficiaries enrolled for any amount of time during the measurement period *(Population of interest)*	• Claims Data	• ITS • Descriptive Statistics
	Change in beneficiary self-report of barriers to treatment		AIR defined, with input from DHCF	Number of beneficiaries who report a barrier to treatment	Total number of survey respondents *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
						• Beneficiary Interviews	
Primary Driver: *Expand access to the full range of SUD and SMI/SED services*	**Research question 1.2a:** Did the number of providers who were enrolled in Medicaid and qualified to deliver SUD services increase during the Demonstration period?						
	SUD provider availability	Number of providers who were enrolled in Medicaid and qualified to deliver SUD services during the measurement period	CMS-constructed SUD Monitoring Metric #13	Total number of eligible SUD providers	SUD providers who were enrolled in Medicaid and qualified to deliver Medicaid services during the measurement period *(Population of interest)*	• Provider Enrollment Database • Claims Data	• ITS • Descriptive Statistics
	Capacity of newly enrolled Medicaid providers qualified to deliver SUD services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Increase in newly enrolled Medicaid providers qualified to deliver SUD services relative to overall increase in providers qualified to deliver SUD services in the District		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
Secondary Driver: *Provide reimbursement for residential and inpatient treatment in IMDs, including short-term, monitored WM, and transition planning services*	**Research question 1.2b:** How does the implementation of reimbursement for services provided in IMD settings influence access to specific SUD treatment services?						
	Availability of reimbursement for services in IMD settings		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Content of reimbursement policy for services in IMD settings (e.g., which services are covered and at what rate)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of reimbursement for services in IMD settings		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which reimbursement incentivized or facilitated expanded access to services in IMD settings		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Research question 1.2c: How does the implementation of reimbursement for withdrawal management in IMD settings influence access to these SUD treatment services?						
	Availability of reimbursement for withdrawal management services in IMD settings		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Content of reimbursement policy for withdrawal management services in IMD settings (e.g., which services are covered and at what rate)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
Secondary Driver: *Provide reimbursement for residential and inpatient treatment in IMDs, including short-term, monitored WM, and transition planning services*	Awareness of reimbursement for withdrawal management services in IMD settings		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which reimbursement incentivized or facilitated expanded access to withdrawal management services in IMD settings		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis • Triangulation
Secondary Driver: *Require evidence-based assessment tools and practices, availability of MAT, and participation in the PDMP*	**Research question 1.2d:** How does the implementation of requirements to offer or facilitate access to all FDA-approved medications for use in SUD influence access to these SUD treatment services?						
	Whether and through what mechanisms the District implements requirements to offer or facilitate access to all FDA-approved medications for use in SUD		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Perceptions of the extent to which requiring the availability of all FDA-approved medications facilitated expanded access to SUD services		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceived facilitators and barriers to offering or facilitating access to all FDA-approved medications for use in SUD		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
Secondary Driver: *Provide Medicaid reimbursement for independent licensed BH clinicians*	**Research question 1.2e:** How does the implementation of reimbursement for independent behavioral health clinicians for SUD services influence access to specific SUD treatment services?						
	Availability of reimbursement for independent licensed BH clinicians for SUD services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
Secondary Driver: *Provide Medicaid reimbursement for independent licensed BH clinicians*	Content of reimbursement policy for independent licensed BH clinicians for SUD services (e.g., which services are covered and at what rate)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Awareness of reimbursement to independent licensed BH clinicians for SUD services		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Perceptions of the extent to which reimbursement of independent licensed BH clinicians for SUD services incentivized or facilitated expanded access to SUD services		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
Primary Driver: *Expand access to the full range of SUD and SMI/SED services* Secondary Driver: *Decentralize the intake and assessment functions of the ARC*	**Research question 1.3a:** Was there an increase in community knowledge of available treatment and services?						
	Change in beneficiary awareness of available SUD treatment and services		AIR defined, with input from DHCF	Number of beneficiaries who indicate awareness of SUD treatment and services	Total number of survey participants *(Denomina-tor)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	
Primary Driver: *Increase initiation and engagement for treatment of SUD and/or SMI/SED*	**Research question 1.3b:** Was there an increase in the utilization of specific SUD treatment services?						
	Any SUD treatment (number and percentage of beneficiaries)	Number and percentage of beneficiaries enrolled in the measurement	CMS-constructed SUD Monitoring Metric #6	Number of unique beneficiaries (de-duplicated) enrolled in the measurement	All Medicaid beneficiaries enrolled for any amount of time	• Claims data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
Primary Driver: *Increase initiation and engagement for treatment of SUD and/or SMI/SED*		period receiving any SUD treatment service, facility claim, or pharmacy claim during the measurement period		period receiving at least one SUD treatment service or pharmacy claim during the measurement period	during the measure-ment period *(Population of interest)*		
	Change in self-reported utilization of SUD treatment and services		AIR defined, with input from DHCF	Number of beneficiaries who report receiving the SUD services that they wanted or needed	Total number of survey participants *(Denomina-tor)*	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	
Primary Driver: *Expand access to the full range of SUD and SMI/SED services* Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and therapeutic SE for SUD*	**Research question 1.3c:** How does the implementation of the removal of the $1 copay for certain MAT prescriptions influence utilization of appropriate SUD services?						
	Beneficiary awareness of MAT copay removal		AIR defined, with input from DHCF	Number of beneficiaries indicating awareness of the copay removal for MAT	Total number of survey participants (*Denomina-tor*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator / population of interest	Data source	Analytic approach
Primary Driver: *Expand access to the full range of SUD and SMI/SED services* Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and therapeutic SE for SUD*	Mechanisms through which the District removed the $1 copay for certain MAT prescriptions		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Perceptions of the extent to which the removal of the $1 copay incentivized or facilitated increased utilization of SUD services		AIR defined, with input from DHCF	Number of beneficiaries indicating copay removal for MAT increased their utilization of SUD services	Total number of survey participants who were aware of the copay removal for MAT (*Denomina-tor*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 2: Increased adherence to and retention in treatment.							
Primary Driver: *Increase adherence to and retention in treatment*	**Research question 2.1a:** Did the demonstration increase adherence to SUD treatment?						
	Initiation of Alcohol and Other Drug Dependence Treatment (IET-AD)	Percentage of beneficiaries with a new episode of alcohol or other drug (AOD) abuse or dependence who received initiation of AOD treatment	National Committee for Quality Assurance (NCQA), National Quality Forum (NQF) #0004 SUD Monitoring Metric #15	Number of beneficiaries who initiate treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization, telehealth, or medication treatment within 14 days of the diagnosis	Medicaid beneficiaries ages 18 and older during the measurement period, who had a new episode of alcohol or other drug (AOD) abuse or dependence (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics
Primary Driver: *Increase adherence to and retention in treatment*	Engagement of Alcohol and Other Drug Dependence Treatment (IET-AD)	Percentage of beneficiaries who initiated treatment and who were engaged in ongoing alcohol or other drug (AOD) treatment within 34 days of the initiation visit	National Committee for Quality Assurance (NCQA), National Quality Forum (NQF) #0004 SUD Monitoring Metric #15	Number of beneficiaries who initiated treatment and who were engaged in ongoing AOD treatment within 34 days of the initiation visit	Medicaid beneficiaries ages 18 and older during the measurement period, who had a new episode of alcohol or other drug (AOD) abuse or dependence (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Beneficiary self-report of how well they have adhered to their providers' treatment advice		AIR defined, with input from DHCF	Number of beneficiaries who indicate they have adhered to their providers' treatment advice	Total number of survey respondents (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Beneficiary Interviews	
	Perceptions of facilitators and barriers to adherence to SUD treatment		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Research question 2.1b: Did the demonstration increase retention in SUD treatment?						
	Continuity of pharmacotherapy for opioid use disorder (number and percentage of beneficiaries)	Number and percentage of beneficiaries who have at least 180 days of continuous pharmacotherapy with a medication prescribed for OUD without a gap of more than 7 days	USC, NQF#3175 SUD Monitoring Metric #22	Number of beneficiaries who have at least 180 days of continuous pharmacotherapy with a medication prescribed for SUD without a gap of more than 7 days	Individuals who had a diagnosis of OUD and at least one claim for an OUD medication (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics
Primary Driver: *Increase adherence to and retention in treatment*	Beneficiary self-report of how well they have adhered to their providers' treatment advice		AIR defined, with input from DHCF	Number of beneficiaries who indicate they have adhered to their providers' treatment advice	Total number of survey respondents (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Beneficiary Interviews	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Perceptions of facilitators and barriers to retention in SUD treatment		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and therapeutic SE for SUD*	**Research question 2.1c:** How does the implementation of the removal of the $1 copay for certain MAT prescriptions influence adherence to and retention in SUD treatment?						
	Mechanisms through which the District removed the $1 copay for certain MAT prescriptions		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Beneficiary awareness of the removal of the $1 copay for certain MAT prescriptions		AIR defined, with input from DHCF	Number of beneficiaries indicating awareness of the copay removal for MAT	Total number of survey participants (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and therapeutic SE for SUD*	Perceptions of the extent to which removal of the $1 copay for certain MAT prescriptions increased adherence to and retention in SUD treatment		AIR defined, with input from DHCF	Number of beneficiaries indicating copay removal for MAT increased their adherence to/retention in SUD treatment services	Total number of survey participants who were aware of the copay removal for MAT (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Research question 2.1d: How does the availability of supported employment services influence adherence to and retention in SUD treatment?						
	Availability of supported employment services (SES)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Type of SES available		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Awareness of the availability of SES		AIR defined, with input from DHCF	Number of beneficiaries indicating awareness of services	Total number of survey participants (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and therapeutic SE for SUD*			N/A, Qualitative Measure			• Site Visits • Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Use of SES		AIR defined, with input from DHCF	Number of beneficiaries indicating that they used services	Total number of survey participants indicating that they are aware of services (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression
	Perceptions of the SES		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of whether the SES influenced adherence to and retention in SUD treatment		AIR defined, with input from DHCF	Number of beneficiaries indicating services influenced their adherence to and retention in SUD treatment	Total number of survey participants who indicated that they have used services (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Descriptive Statistics • Regression • Thematic Analysis – Triangulation
Secondary Driver: *Remove $1 copay for certain MAT prescriptions. Add reimbursement for Clubhouse services, RSS, vocational SE for SMI, and vocational and*	**Research question 2.1e:** How does the availability of recovery support services influence initiation of, adherence to, and retention in SUD treatment?						
	Availability of recovery support services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Types of recovery support services available		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
therapeutic SE for SUD	Awareness of the availability of recovery support services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of the recovery support services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of whether the recovery support services influenced initiation of, adherence to, and retention in SUD treatment		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
Primary Driver: *Increase adherence to and retention in treatment*	**Research question 2.1f:** How does the availability of transition planning services influence adherence to and retention in SUD treatment?						
	Availability of transition planning services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
Primary Driver: *Increase adherence to and retention in treatment*	Types of transition planning services available		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Awareness of the availability of transition planning services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of the transition planning services		AIR defined, with input from DHCF	Number of beneficiaries who report they knew what the next step in their care would be	Total number of survey participants (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression Analysis • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Perceptions of whether the transition planning services influenced adherence to and retention in SUD treatment		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Research question 2.1g: How does the availability of independent licensed behavioral health clinician services influence adherence to and retention in SUD treatment?						
	Availability of independent licensed BH clinician services		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
Primary Driver: *Increase adherence to and retention in treatment*	Types of independent licensed BH clinician services available		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Awareness of the availability of independent licensed BH clinician services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of the independent licensed BH clinician services		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of whether the independent licensed BH clinician services influenced adherence to and retention in SUD treatment		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 3: Reductions in overdose deaths, particularly those due to opioids. (SUD-3 in STCs)							
Primary Driver: *All primary drivers*	**Research question 3.1:** Was there a decrease in the rate of overdose deaths?						
	Opioid overdose deaths	Number and percentage of overdose deaths during the measurement period among Medicaid beneficiaries living in a geographic area covered by the Demonstration	SUD Monitoring Metric #26	Number of SUD overdose deaths during the measurement period among Medicaid beneficiaries	Beneficiaries enrolled in Medicaid for at least 1 month (30 consecutive days) during the measurement period or the 30 days prior to the beginning of the measurement period (*Denominator*)	• Vital Records Data	• ITS • Descriptive Statistics
Goal 4: Reduced utilization of hospital emergency departments and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum of care services. (SUD-4 in STCs)							
Primary Driver: *Reduce ED admissions/ readmissions for SUD and SMI/SED*	**Research question 4.1a:** Was there a reduction in ED or inpatient utilization for beneficiaries with SUD?						
	Inpatient stays for SUD per 1,000 Medicaid beneficiaries	Total number of SUD-related inpatient stays per 1,000 beneficiaries in the measurement period	CMS-constructed SUD Monitoring Metric #24	The number of inpatient discharges related to a SUD stay during the measurement period	All Medicaid beneficiaries enrolled for any amount of time during the measurement period (*Population of interest*)	• Claims Data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Emergency department utilization for SUD per 1,000 Medicaid beneficiaries	Total number of ED visits for SUD per 1,000 beneficiaries in the measurement period	CMS-constructed SUD Monitoring Metric #23	The number of ED visits for SUD during the measurement period	All Medicaid beneficiaries enrolled for any amount of time during the measurement period (*Population of interest*)	• Claims Data	• ITS • Descriptive Statistics
Primary Driver: *Reduce ED admissions/ readmissions for SUD and SMI/SED (continued)*	**Research question 4.1b:** How does the Demonstration influence preventable utilization of ED or inpatient care through improved access to other continuum of care services?						
	Perceptions of whether the Demonstration has reduced preventable utilization of ED or inpatient care		AIR defined, with input from DHCF	Number of beneficiaries who report that they know they can get help when in crisis outside of the ED	Total number of survey participants (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression Analysis • Thematic Analysis • Triangulation
			N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	
	Perceptions of how the Demonstration has reduced preventable utilization of ED or inpatient care		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Research question 4.1c: How does the Demonstration influence medically inappropriate utilization of ED or inpatient care through improved access to other continuum of care services?						
	Perceptions of whether the Demonstration has reduced medically inappropriate utilization of ED or inpatient care		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
	Perceptions of how the Demonstration has reduced medically inappropriate of ED or inpatient care		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Goal 5: Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate. (SUD-5 in STCs)							
Primary Driver: *Reduce ED admissions/ readmissions for SUD and SMI/SED*	**Research question 5.1:** Was there a decrease in preventable or medically inappropriate readmissions to the same or higher level of care for beneficiaries with SUD?						
	Readmissions among beneficiaries with SUD	Rate of 30-day all-cause readmissions during the measurement period among beneficiaries with SUD	CMS-constructed SUD Monitoring Metric #25	The count of 30-day readmissions: at least one acute readmission for any diagnosis within 30 days of the Index Discharge Date	The count of Index Hospital Stays for beneficiaries with SUD (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics
	Perceptions of whether there was a decrease in preventable or medically inappropriate readmissions to the same or higher level of care for (LOC) beneficiaries with SUD		N/A, Qualitative Measure			• Site Visits • Beneficiary Interviews	• Thematic Analysis • Triangulation
Goal 6: Improved access to care for physical health conditions among beneficiaries with SUD. (SUD-6 in STCs)							
Primary Driver: *Improve care transitions and behavioral/ physical health coordination*	**Research question 6.1a:** Was there an increase in access to care for physical health conditions among beneficiaries with SUD?						
	Access to preventive/ ambulatory health services for adult Medicaid beneficiaries with SUD	Percentage of Medicaid beneficiaries with SUD who had an ambulatory or preventive care visit during the measurement period	NCQA, Adjusted HEDIS Measure SUD Monitoring Metric #32	Number of Medicaid beneficiaries who had an ambulatory or preventive care visit during the measurement period	Number of Medicaid beneficiaries with a diagnosis of SUD during the measurement period (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
	Receipt of behavioral health and physical healthcare from same provider		AIR defined, with input from DHCF	Number of beneficiaries who report they have received behavioral health and physical healthcare from same provider	Total number of survey participants (*Denominator*)	• Beneficiary Survey	• Descriptive Statistics • Regression • Thematic Analysis • Triangulation
			NA, Qualitative Measure			• Site Visits • Beneficiary Interviews	
Secondary Driver: *Require and operationalize integrated, coordinated clinical care, particularly at care transitions*	**Research question 6.1b:** Did care coordination improve for beneficiaries with SUD?						
	Care coordination for beneficiaries with SUD	Beneficiary perceptions of how their healthcare providers work together	AIR defined, with input from DHCF	Number of beneficiaries who rate their providers' collaboration highly	Total number of survey participants *(Denominator)*	• Beneficiary Survey	• Descriptive Statistics • Regression
	Beneficiaries' experiences with coordinated care		N/A, Qualitative Measure			• Beneficiary Interviews	• Thematic Analysis
	Providers' experiences coordinating care		N/A, Qualitative Measure			• Site Visits	• Thematic analysis
	Utilization of transition planning service	Use of new transition billing service by eligible beneficiaries	AIR defined, with input from DHCF	Number and percentage of eligible beneficiaries using the new transition planning service for beneficiaries with SUD	Medicaid mental health providers (*Denominator*)	• Claims Data	• ITS • Descriptive Statistics

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Secondary Drivers: *Offer technical assistance and training on clinical care coordination. Leverage existing grants and stakeholder collaborations to expand provider adoption of Health IT*	**Research question 6.1c:** How did changes in care coordination infrastructure influence experiences of care coordination for beneficiaries with SUD?						
	Strategies implemented by the District to facilitate health IT adoption and interoperability (e.g., via improvements to the HIE, increased use of the PDMP)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
	Challenges and facilitators to adopting and using health IT		N/A, Qualitative Measure			• Key Informant Interviews • Site Visit	• Thematic Analysis • Triangulation
Secondary Drivers: *Offer technical assistance and training on clinical care coordination. Leverage existing grants and stakeholder collaborations to expand provider adoption of Health IT (continued)*	Workflows for integrating HIE data into care coordination efforts		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceptions of information available via HIE		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Content, format, and reach of the technical assistance and training given to providers related to care coordination		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceptions of the technical assistance and training given to providers related to care coordination		N/A, Qualitative Measure			• Site Visits	• Thematic Analysis
	Strategies implemented by the District to facilitate health IT adoption and interoperability (e.g., via improvements to the HIE, increased use of the PDMP)		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation

Driver	Measure name or research domain	Measure description	Measure steward, endorsement	Numerator	Denominator/ population of interest	Data source	Analytic approach
Primary Driver: *Improve care transitions and behavioral/physical health coordination*	**Research question 6.1d:** How does the implementation of requirements for IMDs to conduct psychiatric and medical screenings influence assessment and treatment of physical health conditions for beneficiaries with SUD?						
	Whether and through what mechanisms the District implements requirements for IMDs to conduct psychiatric and medical screenings		N/A, Qualitative Measure			• Document Reviews • Key Informant Interviews	• Thematic Analysis • Triangulation
Primary Driver: *Improve care transitions and behavioral/physical health coordination*	Perceptions of the extent to which requiring IMDs to conduct psychiatric and medical screenings influenced care coordination		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis • Triangulation
	Perceived facilitators and barriers to conducting psychiatric and medical screenings in IMDs		N/A, Qualitative Measure			• Key Informant Interviews • Site Visits	• Thematic Analysis

Appendix C. SMI/SED Goals—Regression Results Tables

Goal 1: Reduced utilization and lengths of stay in hospital emergency departments (ED) among Medicaid beneficiaries with SMI or SED while awaiting mental health treatment in specialized settings

Research question 1.1a. Was there a decrease in ED service utilization by beneficiaries with SMI/SED?

Appendix Exhibit C.1. Mental Health Services Utilization—ED (Number of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	6.88***	(0.67)	-15.94*	(8.11)	-6.36***	(1.52)	60	77.67
Main sample: Model 2 – robustness check; most parsimonious model	6.42***	(0.64)	-10.18	(7.45)	-6.80***	(1.60)	60	77.67
FFS	4.39***	(0.53)	-12.32*	(6.58)	-12.05***	(1.00)	60	55.97
MCO	2.49***	(0.36)	-3.62	(8.32)	5.69***	(1.61)	60	21.69
Dual	1.28***	(0.22)	-5.73**	(2.18)	-3.38***	(0.35)	60	18.22
Non-Dual	5.60***	(0.59)	-10.21	(7.32)	-2.98**	(1.43)	60	59.44
Pregnant	0.33***	(0.08)	-1.82**	(0.89)	-0.16	(0.14)	60	2.47
Not Pregnant	6.55***	(0.66)	-14.12*	(7.93)	-6.20***	(1.49)	60	75.19
Justice Involved	0.65***	(0.08)	-1.69	(1.25)	-1.44***	(0.21)	60	5.08
Not Justice Involved	6.24***	(0.64)	-14.25*	(8.13)	-4.92***	(1.55)	60	72.58
Disability	3.14***	(0.44)	-13.91**	(6.01)	-4.52***	(0.99)	60	44.72
No Disability	3.75***	(0.37)	-2.03	(5.38)	-1.84*	(1.03)	60	32.94
SMI/SED with Co-occurring SUD	3.44***	(0.41)	-3.08	(5.83)	-3.07***	(1.00)	60	42.36
SMI/SED without Co-occurring SUD	3.44***	(0.36)	-12.86**	(5.46)	-3.29***	(0.95)	60	35.31

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED with Co-occurring SUD	3.44***	(0.41)	-3.08	(5.83)	-3.07***	(1.00)	60	42.36
State Defined SMI/SED without Co-occurring SUD	3.44***	(0.36)	-12.86**	(5.46)	-3.29***	(0.95)	60	35.31
State Defined SMI/SED with Co-occurring Physical Condition	5.14***	(0.58)	-13.59*	(8.10)	-5.24***	(1.35)	60	62.81
State Defined SMI/SED without Co-occurring Physical Condition	1.75***	(0.20)	-2.35	(3.45)	-1.12*	(0.66)	60	14.86
OUD	0.61***	(0.17)	-0.79	(2.12)	-0.42	(0.32)	60	9.17
No OUD	6.27***	(0.64)	-15.15*	(7.65)	-5.94***	(1.42)	60	68.50
Age<21	0.30**	(0.13)	-4.22*	(2.45)	1.59***	(0.49)	60	3.50
Age21-44	4.30***	(0.58)	-1.29	(6.00)	-4.64***	(1.09)	60	40.61
Age45-64	1.93***	(0.26)	-10.49**	(3.93)	-2.29***	(0.63)	60	29.92
Age>=65	0.35***	(0.10)	0.06	(1.18)	-1.01***	(0.15)	60	3.64
Ward01	0.37***	(0.11)	0.60	(1.79)	-0.44	(0.30)	60	3.67
Ward02	0.11	(0.15)	-4.17**	(1.76)	0.36	(0.31)	60	7.81
Ward03	-0.03	(0.07)	0.23	(1.18)	0.12	(0.19)	60	1.31
Ward04	0.13	(0.11)	0.30	(1.50)	0.01	(0.27)	60	4.44
Ward05	0.87***	(0.17)	-4.39**	(2.03)	-0.42	(0.35)	60	9.50
Ward06	0.77***	(0.13)	2.06	(2.36)	-1.12***	(0.38)	60	9.75
Ward07	1.32***	(0.19)	-1.32	(3.41)	-1.30**	(0.55)	60	12.69
Ward08	2.36***	(0.23)	-5.62*	(3.15)	-2.45***	(0.53)	60	17.08
Ward99, 00, or missing	0.97***	(0.18)	-3.62	(2.22)	-1.12***	(0.34)	60	11.42

Appendix Exhibit C.2. Mental Health Services Utilization—ED (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.04***	(0.00)	-0.12***	(0.04)	-0.05***	(0.01)	60	0.46
Main sample: Model 2 – robustness check; most parsimonious model	0.03***	(0.00)	-0.09**	(0.04)	-0.05***	(0.01)	60	0.46
FFS	0.04***	(0.00)	-0.17***	(0.06)	-0.09***	(0.01)	60	0.54
MCO	0.03***	(0.00)	-0.01	(0.06)	-0.02**	(0.01)	60	0.34
Dual	0.03***	(0.00)	-0.12**	(0.05)	-0.07***	(0.01)	60	0.40
Non-Dual	0.04***	(0.00)	-0.12**	(0.05)	-0.04***	(0.01)	60	0.49
Pregnant	0.07***	(0.02)	-0.47**	(0.21)	-0.06*	(0.03)	60	0.65
Not Pregnant	0.04***	(0.00)	-0.11***	(0.04)	-0.05***	(0.01)	60	0.46
Justice Involved	0.18***	(0.03)	-0.24	(0.40)	-0.35***	(0.07)	60	1.30
Not Justice Involved	0.03***	(0.00)	-0.11***	(0.04)	-0.04***	(0.01)	60	0.45
Disability	0.05***	(0.01)	-0.23***	(0.08)	-0.07***	(0.01)	60	0.62
No Disability	0.03***	(0.00)	-0.05	(0.04)	-0.04***	(0.01)	60	0.35
SMI/SED with Co-occurring SUD	0.08***	(0.01)	-0.15	(0.12)	-0.09***	(0.02)	60	0.98
SMI/SED without Co-occurring SUD	0.02***	(0.00)	-0.11***	(0.04)	-0.03***	(0.01)	60	0.28
State Defined SMI/SED with Co-occurring SUD	0.08***	(0.01)	-0.15	(0.12)	-0.09***	(0.02)	60	0.98
State Defined SMI/SED without Co-occurring SUD	0.02***	(0.00)	-0.11***	(0.04)	-0.03***	(0.01)	60	0.28
State Defined SMI/SED with Co-occurring Physical Condition	0.05***	(0.01)	-0.10	(0.08)	-0.07***	(0.01)	60	0.72

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.02***	(0.00)	-0.06*	(0.03)	-0.02***	(0.01)	60	0.19
OUD	0.04***	(0.01)	-0.10	(0.12)	-0.02	(0.02)	60	0.56
No OUD	0.04***	(0.00)	-0.12***	(0.04)	-0.05***	(0.01)	60	0.45
Age<21	0.02*	(0.01)	-0.32*	(0.17)	0.11***	(0.03)	60	0.29
Age21-44	0.06***	(0.01)	-0.12	(0.07)	-0.10***	(0.01)	60	0.70
Age45-64	0.03***	(0.00)	-0.15***	(0.05)	-0.04***	(0.01)	60	0.39
Age>=65	0.01***	(0.00)	0.00	(0.05)	-0.05***	(0.01)	60	0.17
Ward01	0.03***	(0.01)	0.05	(0.15)	-0.05*	(0.02)	60	0.33
Ward02	0.02	(0.01)	-0.42**	(0.19)	0.03	(0.03)	60	0.76
Ward03	-0.01	(0.02)	0.08	(0.32)	0.02	(0.05)	60	0.37
Ward04	0.01	(0.01)	0.02	(0.11)	-0.01	(0.02)	60	0.36
Ward05	0.03***	(0.01)	-0.21***	(0.08)	-0.03**	(0.01)	60	0.43
Ward06	0.04***	(0.01)	0.05	(0.10)	-0.07***	(0.02)	60	0.51
Ward07	0.04***	(0.01)	-0.08	(0.10)	-0.06***	(0.02)	60	0.43
Ward08	0.06***	(0.01)	-0.21***	(0.07)	-0.08***	(0.01)	60	0.48
Ward99, 00, or missing	0.04***	(0.01)	-0.16*	(0.09)	-0.06***	(0.01)	60	0.48

Goal 2: Reduced preventable readmissions to acute care and specialty hospitals and residential settings.

Research Question 2.1. Was there a decrease in preventable readmissions to acute care, specialty hospitals, and residential settings for beneficiaries with SMI/SED?

Appendix Exhibit C.3. Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-0.42*	(0.23)	8.50**	(2.83)	0.75*	(0.39)	20	11.68
Main sample: Model 2 – robustness check; most parsimonious model	-0.42*	(0.22)	7.91***	(2.02)	0.80**	(0.30)	20	11.68
FFS	-0.45	(0.44)	14.05*	(7.40)	0.25	(1.03)	20	7.44
MCO	-0.43*	(0.22)	4.55	(2.71)	1.42***	(0.42)	20	12.84
Dual	-0.30	(0.43)	4.93	(4.63)	1.04	(0.71)	20	5.57
Non-Dual	-0.45*	(0.24)	8.32***	(2.63)	0.77*	(0.38)	20	13.12
Pregnant	-1.44	(1.37)	-2.73	(16.04)	6.55*	(3.23)	20	14.82
Not Pregnant	-0.40	(0.24)	8.58**	(2.94)	0.70	(0.41)	20	11.61
Justice Involved	-1.83	(1.04)	13.63	(10.10)	2.79	(1.64)	20	15.87
Not Justice Involved	-0.35	(0.23)	7.44**	(2.61)	0.75*	(0.36)	20	11.57
Disability	-0.01	(0.38)	12.40**	(5.61)	0.26	(0.78)	20	7.57
No Disability	-0.55**	(0.23)	6.73**	(2.41)	0.97**	(0.34)	20	12.69
SMI/SED with Co-occurring SUD	-0.41*	(0.21)	8.40***	(2.67)	0.91**	(0.40)	20	11.76
SMI/SED without Co-occurring SUD	-0.43	(0.54)	5.79	(5.58)	0.36	(0.75)	20	12.00
State Defined SMI/SED with Co-occurring SUD	-0.41*	(0.21)	8.40***	(2.67)	0.91**	(0.40)	20	11.76

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring SUD	-0.43	(0.54)	5.79	(5.58)	0.36	(0.75)	20	12.00
State Defined SMI/SED with Co-occurring Physical Condition	-0.44*	(0.22)	9.05***	(2.68)	0.84**	(0.35)	20	12.44
State Defined SMI/SED without Co-occurring Physical Condition	-0.40	(0.38)	4.87*	(2.58)	0.60	(0.55)	20	10.46
OUD	-0.26	(0.25)	7.29*	(3.42)	1.01*	(0.49)	20	10.13
No OUD	-0.50	(0.34)	9.23**	(3.87)	0.57	(0.51)	20	13.27
Age<21	-0.76	(0.71)	-6.85	(9.04)	1.78	(1.40)	20	17.58
Age21-44	-0.63**	(0.25)	5.91*	(2.94)	1.66**	(0.56)	20	13.68
Age45-64	-0.23	(0.24)	11.72***	(2.49)	-0.12	(0.36)	20	9.20
Age>=65	-1.52	(1.22)	18.78*	(10.17)	0.44	(1.73)	20	13.21
Ward01	-1.83**	(0.78)	11.19	(7.79)	1.71	(1.24)	20	14.03
Ward02	0.63	(0.93)	6.43	(7.46)	0.52	(1.37)	20	10.39
Ward03	0.35	(1.55)	-14.83	(19.03)	2.99*	(1.64)	20	8.13
Ward04	0.39	(0.73)	8.03	(11.03)	-0.29	(1.59)	20	7.65
Ward05	-0.53	(0.89)	9.88	(6.40)	0.13	(1.05)	20	14.00
Ward06	0.88	(0.50)	12.00*	(6.19)	-2.29**	(0.83)	20	11.34
Ward07	-0.37	(0.38)	3.96	(3.44)	1.06*	(0.53)	20	9.85
Ward08	-0.72*	(0.35)	8.50*	(4.61)	1.96***	(0.57)	20	11.85
Ward99, 00, or missing	-1.47	(1.23)	11.21	(12.05)	2.11	(2.05)	20	14.31

Goal 3: Improved availability of crisis stabilization services, including services made available through call centers and mobile crisis units, intensive outpatient services, as well as services provided during acute short-term stays in residential crisis stabilization programs and psychiatric hospitals and residential treatment settings throughout the District.

Research Question 3.1a. Was there an increase in the utilization of crisis-stabilization services?

Appendix Exhibit C.4. Any Crisis Stabilization Service (Number of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	5.22***	(1.34)	141.88**	(67.89)	6.78	(10.31)	60	257.28
Main sample: Model 2 – robustness check; most parsimonious model	6.36***	(0.85)	122.49*	(71.57)	8.37	(10.75)	60	257.28
FFS	3.32***	(0.94)	101.27**	(39.84)	-21.39***	(5.59)	60	163.25
MCO	1.91*	(1.12)	40.61	(43.37)	28.18***	(6.81)	60	94.03
Dual	0.49	(0.52)	40.60**	(17.17)	-0.14	(2.45)	60	58.22
Non-Dual	4.73***	(1.09)	101.29*	(51.88)	6.92	(8.05)	60	199.06
Pregnant	0.26	(0.17)	1.23	(3.37)	0.44	(0.53)	60	7.58
Not Pregnant	4.96***	(1.30)	140.65**	(65.87)	6.34	(9.99)	60	249.69
Justice Involved	0.86***	(0.20)	0.55	(4.00)	-2.01***	(0.63)	60	17.58
Not Justice Involved	4.36***	(1.33)	141.33**	(65.39)	8.80	(9.94)	60	239.69
Disability	2.22***	(0.80)	71.09**	(31.75)	-0.58	(4.70)	60	126.58
No Disability	3.00***	(0.83)	70.79*	(37.92)	7.36	(5.95)	60	130.69
SMI/SED with Co-occurring SUD	1.34*	(0.79)	75.75**	(32.98)	3.82	(5.23)	60	109.19
SMI/SED without Co-occurring SUD	3.88***	(0.91)	66.13*	(36.20)	2.96	(5.38)	60	148.08
State Defined SMI/SED with Co-occurring SUD	1.34*	(0.79)	75.75**	(32.98)	3.82	(5.23)	60	109.19
State Defined SMI/SED without Co-occurring SUD	3.88***	(0.91)	66.13*	(36.20)	2.96	(5.38)	60	148.08
State Defined SMI/SED with Co-occurring Physical Condition	2.94***	(0.73)	86.86**	(38.23)	2.11	(5.99)	60	149.44

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	2.28**	(0.87)	55.03*	(30.93)	4.67	(4.57)	60	107.83
OUD	0.20	(0.33)	21.40***	(7.59)	1.14	(1.38)	60	19.50
No OUD	5.03***	(1.31)	120.48*	(62.77)	5.64	(9.38)	60	237.78
Age<21	1.19***	(0.42)	6.87	(7.42)	-0.95	(1.10)	60	31.44
Age21-44	2.59***	(0.82)	84.66**	(40.22)	6.87	(6.34)	60	133.72
Age45-64	1.15*	(0.63)	32.23*	(18.92)	2.45	(2.80)	60	80.53
Age>=65	0.30*	(0.18)	18.12***	(6.44)	-1.60*	(0.93)	60	11.58
Ward01	0.79***	(0.21)	9.27	(6.23)	0.08	(0.97)	60	15.08
Ward02	-0.09	(0.24)	6.22	(4.77)	1.41*	(0.78)	60	18.47
Ward03	0.17	(0.12)	2.09	(2.61)	0.94**	(0.43)	60	3.44
Ward04	0.24	(0.20)	6.29	(5.28)	2.03**	(0.89)	60	18.92
Ward05	0.87*	(0.46)	11.46	(9.26)	2.08	(1.40)	60	38.78
Ward06	0.05	(0.27)	29.91***	(10.83)	0.65	(1.63)	60	31.94
Ward07	0.87	(0.55)	39.09**	(18.04)	-0.67	(2.77)	60	52.39
Ward08	1.80***	(0.47)	28.77*	(16.37)	0.15	(2.47)	60	59.03
Ward99, 00, or missing	0.52**	(0.20)	8.79	(5.41)	0.12	(0.80)	60	19.22

Appendix Exhibit C.5. Any Crisis Stabilization Service (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.02***	(0.01)	0.67**	(0.32)	-0.02	(0.05)	60	1.55
Main sample: Model 2 – robustness check; most parsimonious model	0.03***	(0.01)	0.55	(0.34)	-0.01	(0.05)	60	1.55
FFS	0.03***	(0.01)	0.75**	(0.34)	-0.04	(0.05)	60	1.59
MCO	0.01	(0.01)	0.55*	(0.31)	0.02	(0.05)	60	1.49
Dual	0.01	(0.01)	0.88**	(0.35)	-0.03	(0.05)	60	1.27
Non-Dual	0.02***	(0.01)	0.59*	(0.32)	-0.02	(0.05)	60	1.65
Pregnant	0.03	(0.04)	0.15	(0.69)	0.03	(0.10)	60	2.04
Not Pregnant	0.02***	(0.01)	0.68**	(0.32)	-0.02	(0.05)	60	1.54
Justice Involved	0.26***	(0.06)	0.14	(1.10)	-0.03	(0.21)	60	4.44
Not Justice Involved	0.02**	(0.01)	0.69**	(0.31)	-0.01	(0.05)	60	1.48
Disability	0.04***	(0.01)	0.83**	(0.40)	-0.03	(0.06)	60	1.74
No Disability	0.01	(0.01)	0.57*	(0.29)	-0.01	(0.04)	60	1.40
SMI/SED with Co-occurring SUD	0.04**	(0.02)	1.49**	(0.67)	0.03	(0.10)	60	2.53
SMI/SED without Co-occurring SUD	0.02***	(0.01)	0.40*	(0.22)	-0.03	(0.03)	60	1.20
State Defined SMI/SED with Co-occurring SUD	0.04**	(0.02)	1.49**	(0.67)	0.03	(0.10)	60	2.53
State Defined SMI/SED without Co-occurring SUD	0.02***	(0.01)	0.40*	(0.22)	-0.03	(0.03)	60	1.20
State Defined SMI/SED with Co-occurring Physical Condition	0.02**	(0.01)	1.16**	(0.44)	-0.00	(0.07)	60	1.71

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.02*	(0.01)	0.30	(0.26)	-0.02	(0.04)	60	1.38
OUD	0.01	(0.02)	1.10***	(0.40)	0.07	(0.07)	60	1.19
No OUD	0.02**	(0.01)	0.62*	(0.33)	-0.03	(0.05)	60	1.59
Age<21	0.04	(0.03)	0.23	(0.52)	-0.05	(0.07)	60	2.62
Age21-44	0.01	(0.01)	0.99**	(0.47)	-0.04	(0.07)	60	2.34
Age45-64	0.02**	(0.01)	0.35	(0.21)	0.00	(0.03)	60	1.06
Age>=65	0.00	(0.01)	0.84***	(0.28)	-0.08**	(0.04)	60	0.56
Ward01	0.06***	(0.02)	0.69	(0.46)	-0.04	(0.07)	60	1.26
Ward02	0.02	(0.02)	0.64	(0.44)	0.12	(0.07)	60	1.67
Ward03	0.04	(0.03)	0.58	(0.64)	0.14	(0.10)	60	0.95
Ward04	0.01	(0.01)	0.45	(0.34)	0.08	(0.05)	60	1.40
Ward05	0.02	(0.02)	0.35	(0.31)	0.02	(0.05)	60	1.60
Ward06	-0.00	(0.01)	1.28***	(0.46)	-0.02	(0.07)	60	1.65
Ward07	0.01	(0.02)	0.86**	(0.42)	-0.07	(0.06)	60	1.60
Ward08	0.03***	(0.01)	0.46	(0.30)	-0.06	(0.04)	60	1.52
Ward99, 00, or missing	0.03*	(0.02)	0.57	(0.40)	-0.06	(0.06)	60	1.75

Appendix Exhibit C.6. Any Crisis Stabilization Service, by Setting (Number of Beneficiaries)—Comprehensive Psychiatric Emergency Program (CPEP)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	1.81**	(0.82)	27.25***	(8.21)	-9.44***	(1.22)	60	165.44
Main sample: Model 2 – robustness check; most parsimonious model	1.92**	(0.75)	22.89***	(7.47)	-9.04***	(1.15)	60	165.44
FFS	1.56**	(0.61)	18.05*	(10.21)	-15.23***	(1.56)	60	113.42
MCO	0.25	(0.48)	9.20	(9.17)	5.79***	(1.30)	60	52.03
Dual	0.01	(0.27)	5.66	(3.43)	-2.03***	(0.47)	60	40.47
Non-Dual	1.80**	(0.70)	21.59**	(8.35)	-7.41***	(1.31)	60	124.97
Pregnant	0.09	(0.12)	-0.33	(1.90)	-0.34	(0.29)	60	4.61
Not Pregnant	1.72**	(0.77)	27.58***	(7.30)	-9.10***	(1.09)	60	160.83
Justice Involved	0.57***	(0.17)	-3.55*	(1.81)	-1.75***	(0.27)	60	14.33
Not Justice Involved	1.24	(0.79)	30.81***	(7.85)	-7.69***	(1.13)	60	151.11
Disability	1.10**	(0.50)	15.78**	(5.94)	-7.34***	(0.95)	60	86.61
No Disability	0.71	(0.49)	11.47*	(6.61)	-2.10**	(1.03)	60	78.83
SMI/SED with Co-occurring SUD	0.37	(0.54)	17.87***	(4.86)	-3.82***	(0.75)	60	77.72
SMI/SED without Co-occurring SUD	1.44**	(0.55)	9.38	(7.01)	-5.62***	(1.04)	60	87.72
State Defined SMI/SED with Co-occurring SUD	0.37	(0.54)	17.87***	(4.86)	-3.82***	(0.75)	60	77.72
State Defined SMI/SED without Co-occurring SUD	1.44**	(0.55)	9.38	(7.01)	-5.62***	(1.04)	60	87.72

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED with Co-occurring Physical Condition	0.94*	(0.54)	19.13***	(5.90)	-5.78***	(1.02)	60	98.56
State Defined SMI/SED without Co-occurring Physical Condition	0.87*	(0.50)	8.12	(6.26)	-3.66***	(0.97)	60	66.89
OUD	0.07	(0.24)	6.17**	(3.01)	-0.74	(0.50)	60	14.00
No OUD	1.74**	(0.69)	21.08**	(8.93)	-8.70***	(1.29)	60	151.44
Age<21	0.38**	(0.14)	1.93	(1.86)	-0.92***	(0.26)	60	7.39
Age21-44	1.17**	(0.54)	20.92***	(7.26)	-4.65***	(1.06)	60	96.53
Age45-64	0.09	(0.36)	1.21	(3.91)	-2.92***	(0.66)	60	54.89
Age>=65	0.17	(0.13)	3.19*	(1.62)	-0.96***	(0.24)	60	6.64
Ward01	0.51***	(0.13)	1.48	(1.72)	-1.28***	(0.27)	60	9.44
Ward02	-0.30*	(0.16)	2.39	(1.72)	-0.27	(0.24)	60	11.75
Ward03	0.07	(0.08)	-0.55	(1.19)	0.10	(0.18)	60	2.03
Ward04	-0.07	(0.12)	0.97	(1.57)	-0.03	(0.34)	60	11.53
Ward05	0.44	(0.28)	0.90	(2.89)	-1.50***	(0.41)	60	25.25
Ward06	-0.27	(0.21)	10.91**	(4.72)	-1.34*	(0.67)	60	22.03
Ward07	0.38	(0.32)	7.36**	(3.57)	-2.20***	(0.58)	60	33.86
Ward08	0.75*	(0.40)	4.54	(4.17)	-2.31***	(0.64)	60	36.92
Ward99, 00, or missing	0.30**	(0.15)	-0.75	(2.27)	-0.61	(0.37)	60	12.64

Appendix Exhibit C.7. Any Crisis Stabilization Service, by Setting (Percentage of Beneficiaries)—Comprehensive Psychiatric Emergency Program (CPEP)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.00	(0.00)	0.10*	(0.05)	-0.07***	(0.01)	60	1.00
Main sample: Model 2 – robustness check; most parsimonious model	0.00	(0.00)	0.07	(0.04)	-0.06***	(0.01)	60	1.00
FFS	0.01**	(0.01)	0.07	(0.08)	-0.09***	(0.01)	60	1.10
MCO	-0.01	(0.01)	0.11*	(0.07)	-0.02**	(0.01)	60	0.83
Dual	-0.00	(0.01)	0.13*	(0.07)	-0.05***	(0.01)	60	0.88
Non-Dual	0.01	(0.01)	0.08	(0.07)	-0.07***	(0.01)	60	1.04
Pregnant	0.00	(0.03)	-0.14	(0.44)	-0.09	(0.07)	60	1.24
Not Pregnant	0.00	(0.00)	0.10**	(0.05)	-0.07***	(0.01)	60	0.99
Justice Involved	0.18***	(0.05)	-0.71	(0.49)	-0.30***	(0.10)	60	3.62
Not Justice Involved	0.00	(0.00)	0.12**	(0.05)	-0.06***	(0.01)	60	0.93
Disability	0.02***	(0.01)	0.15*	(0.08)	-0.11***	(0.01)	60	1.19
No Disability	-0.01	(0.00)	0.07	(0.06)	-0.04***	(0.01)	60	0.85
SMI/SED with Co-occurring SUD	0.01	(0.01)	0.30**	(0.12)	-0.11***	(0.02)	60	1.80
SMI/SED without Co-occurring SUD	0.00	(0.00)	0.03	(0.05)	-0.05***	(0.01)	60	0.71
State Defined SMI/SED with Co-occurring SUD	0.01	(0.01)	0.30**	(0.12)	-0.11***	(0.02)	60	1.80
State Defined SMI/SED without Co-occurring SUD	0.00	(0.00)	0.03	(0.05)	-0.05***	(0.01)	60	0.71

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED with Co-occurring Physical Condition	0.00	(0.01)	0.29***	(0.07)	-0.07***	(0.01)	60	1.13
State Defined SMI/SED without Co-occurring Physical Condition	0.00	(0.01)	-0.05	(0.08)	-0.05***	(0.01)	60	0.85
OUD	0.01	(0.02)	0.30	(0.18)	-0.04	(0.03)	60	0.85
No OUD	0.00	(0.00)	0.07	(0.06)	-0.07***	(0.01)	60	1.01
Age<21	0.02	(0.01)	0.07	(0.14)	-0.06***	(0.02)	60	0.62
Age21-44	-0.01	(0.01)	0.18	(0.11)	-0.11***	(0.02)	60	1.69
Age45-64	0.00	(0.00)	-0.02	(0.05)	-0.05***	(0.01)	60	0.72
Age>=65	0.00	(0.01)	0.16**	(0.07)	-0.04***	(0.01)	60	0.32
Ward01	0.04***	(0.01)	0.08	(0.14)	-0.11***	(0.02)	60	0.79
Ward02	-0.01	(0.01)	0.25	(0.18)	-0.05*	(0.02)	60	1.06
Ward03	0.01	(0.02)	-0.12	(0.30)	0.01	(0.04)	60	0.56
Ward04	-0.01	(0.01)	0.08	(0.11)	-0.02	(0.02)	60	0.85
Ward05	0.01	(0.01)	-0.02	(0.12)	-0.07***	(0.02)	60	1.04
Ward06	-0.02*	(0.01)	0.44**	(0.22)	-0.08**	(0.03)	60	1.14
Ward07	0.00	(0.01)	0.11	(0.09)	-0.07***	(0.01)	60	1.04
Ward08	0.01	(0.01)	0.01	(0.08)	-0.07***	(0.01)	60	0.95
Ward99, 00, or missing	0.02	(0.01)	-0.10	(0.19)	-0.07**	(0.03)	60	1.15

Appendix Exhibit C.8. Any Crisis Stabilization Service, by Setting (Number of Beneficiaries)—Mobile Crisis and Outreach

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	4.00***	(0.85)	51.80	(37.56)	9.28	(5.78)	60	91.83
Main sample: Model 2 – robustness check; most parsimonious model	4.44***	(0.70)	44.17	(39.56)	9.91	(6.02)	60	91.83
FFS	2.09***	(0.61)	43.81*	(23.92)	-5.81*	(3.34)	60	49.83
MCO	1.91***	(0.56)	7.99	(19.42)	15.08***	(3.25)	60	42.00
Dual	0.70*	(0.36)	17.30*	(9.78)	1.15	(1.42)	60	17.75
Non-Dual	3.30***	(0.60)	34.50	(28.39)	8.12*	(4.44)	60	74.08
Pregnant	0.17*	(0.09)	-0.51	(1.59)	0.64**	(0.26)	60	2.97
Not Pregnant	3.83***	(0.84)	52.31	(36.55)	8.64	(5.63)	60	88.86
Justice Involved	0.33***	(0.09)	1.30	(2.02)	-0.31	(0.31)	60	3.25
Not Justice Involved	3.67***	(0.85)	50.50	(36.09)	9.58*	(5.57)	60	88.58
Disability	1.54***	(0.48)	22.31	(18.56)	4.36	(2.81)	60	39.97
No Disability	2.46***	(0.51)	29.49	(19.91)	4.91	(3.11)	60	51.86
SMI/SED with Co-occurring SUD	1.19**	(0.45)	28.27	(18.93)	4.58	(3.03)	60	31.47
SMI/SED without Co-occurring SUD	2.81***	(0.53)	23.53	(19.26)	4.70	(2.90)	60	60.36
State Defined SMI/SED with Co-occurring SUD	1.19**	(0.45)	28.27	(18.93)	4.58	(3.03)	60	31.47
State Defined SMI/SED without Co-occurring SUD	2.81***	(0.53)	23.53	(19.26)	4.70	(2.90)	60	60.36
State Defined SMI/SED with Co-occurring Physical Condition	2.25***	(0.45)	31.18	(20.96)	3.59	(3.28)	60	50.89

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	1.75***	(0.51)	20.62	(17.27)	5.69**	(2.61)	60	40.94
OUD	0.11	(0.14)	10.04**	(4.11)	1.21	(0.78)	60	5.50
No OUD	3.89***	(0.83)	41.76	(34.26)	8.07	(5.18)	60	86.33
Age<21	0.87**	(0.34)	-0.69	(3.96)	-1.03*	(0.57)	60	24.06
Age21-44	1.73***	(0.51)	28.30	(22.28)	7.62**	(3.54)	60	37.19
Age45-64	1.24***	(0.42)	14.58	(11.80)	3.28*	(1.74)	60	25.64
Age>=65	0.16	(0.10)	9.61**	(3.77)	-0.60	(0.56)	60	4.94
Ward01	0.31**	(0.12)	3.61	(3.70)	0.85	(0.56)	60	5.64
Ward02	0.21	(0.14)	0.83	(2.69)	1.18***	(0.44)	60	6.72
Ward03	0.13**	(0.06)	1.08	(1.33)	0.54**	(0.25)	60	1.42
Ward04	0.32**	(0.14)	1.72	(3.25)	1.25**	(0.48)	60	7.39
Ward05	0.49*	(0.26)	4.43	(5.12)	1.88**	(0.80)	60	13.53
Ward06	0.43***	(0.15)	8.85	(5.59)	1.42	(0.85)	60	9.92
Ward07	0.66**	(0.31)	16.85*	(9.34)	0.60	(1.43)	60	18.53
Ward08	1.19***	(0.24)	9.53	(8.15)	1.26	(1.33)	60	22.11
Ward99, 00, or missing	0.27*	(0.14)	4.90	(3.55)	0.30	(0.53)	60	6.58

Appendix Exhibit C.9. Any Crisis Stabilization Service, by Setting (Percentage of Beneficiaries)—Mobile Crisis and Outreach

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.02***	(0.01)	0.24	(0.18)	0.02	(0.03)	60	0.55
Main sample: Model 2 – robustness check; most parsimonious model	0.02***	(0.00)	0.19	(0.20)	0.02	(0.03)	60	0.55
FFS	0.02***	(0.01)	0.32	(0.22)	0.02	(0.03)	60	0.48
MCO	0.02**	(0.01)	0.15	(0.16)	0.01	(0.02)	60	0.67
Dual	0.01*	(0.01)	0.38*	(0.20)	0.01	(0.03)	60	0.39
Non-Dual	0.02***	(0.00)	0.19	(0.18)	0.02	(0.03)	60	0.62
Pregnant	0.03	(0.02)	-0.14	(0.34)	0.10*	(0.05)	60	0.80
Not Pregnant	0.02***	(0.01)	0.25	(0.18)	0.02	(0.03)	60	0.55
Justice Involved	0.10***	(0.03)	0.14	(0.57)	0.16	(0.10)	60	0.82
Not Justice Involved	0.02***	(0.01)	0.24	(0.18)	0.02	(0.03)	60	0.55
Disability	0.02***	(0.01)	0.25	(0.24)	0.05	(0.04)	60	0.55
No Disability	0.02***	(0.01)	0.23	(0.16)	0.00	(0.02)	60	0.55
SMI/SED with Co-occurring SUD	0.03***	(0.01)	0.55	(0.40)	0.08	(0.06)	60	0.73
SMI/SED without Co-occurring SUD	0.02***	(0.00)	0.14	(0.12)	0.00	(0.02)	60	0.49
State Defined SMI/SED with Co-occurring SUD	0.03***	(0.01)	0.55	(0.40)	0.08	(0.06)	60	0.73
State Defined SMI/SED without Co-occurring SUD	0.02***	(0.00)	0.14	(0.12)	0.00	(0.02)	60	0.49
State Defined SMI/SED with Co-occurring Physical Condition	0.02***	(0.01)	0.42*	(0.24)	0.03	(0.04)	60	0.58

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.02***	(0.01)	0.11	(0.15)	0.01	(0.02)	60	0.52
OUD	0.01	(0.01)	0.53**	(0.22)	0.07*	(0.04)	60	0.33
No OUD	0.02***	(0.01)	0.21	(0.19)	0.01	(0.03)	60	0.58
Age<21	0.03	(0.03)	-0.25	(0.28)	-0.05	(0.04)	60	2.00
Age21-44	0.02**	(0.01)	0.33	(0.28)	0.04	(0.04)	60	0.65
Age45-64	0.02***	(0.01)	0.16	(0.14)	0.03	(0.02)	60	0.34
Age>=65	0.00	(0.00)	0.44**	(0.17)	-0.04	(0.02)	60	0.24
Ward01	0.02**	(0.01)	0.27	(0.28)	0.04	(0.04)	60	0.47
Ward02	0.03*	(0.01)	0.10	(0.25)	0.11***	(0.04)	60	0.61
Ward03	0.03*	(0.02)	0.32	(0.32)	0.08	(0.06)	60	0.39
Ward04	0.02*	(0.01)	0.12	(0.21)	0.06*	(0.03)	60	0.54
Ward05	0.02	(0.01)	0.14	(0.18)	0.04	(0.03)	60	0.56
Ward06	0.02***	(0.01)	0.38	(0.24)	0.03	(0.04)	60	0.51
Ward07	0.02*	(0.01)	0.37	(0.23)	-0.01	(0.03)	60	0.56
Ward08	0.02***	(0.01)	0.14	(0.16)	-0.01	(0.03)	60	0.57
Ward99, 00, or missing	0.02	(0.01)	0.31	(0.26)	-0.01	(0.04)	60	0.60

Goal 4: Improved access to community-based services to address the chronic mental healthcare needs of beneficiaries with SMI or SED including through increased integration of primary and behavioral healthcare.

Research Question 4.2a. Was there an increase in utilization of community-based SMI/SED treatment services?

Appendix Exhibit C.10. Any Mental Health Services Utilization (Number of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	157.04***	(21.99)	970.32***	(330.60)	538.75***	(56.90)	60	12,635.69
Main sample: Model 2 – robustness check; most parsimonious model	150.00***	(22.81)	1,018.90***	(312.28)	535.89***	(53.16)	60	12,635.69
FFS	33.72*	(18.59)	1,372.33**	(539.78)	-672.03***	(77.49)	60	7,277.17
MCO	123.32***	(22.28)	-402.07	(596.59)	1,210.79***	(104.05)	60	5,358.56
Dual	25.31***	(3.31)	108.39**	(49.11)	81.80***	(8.29)	60	2,720.44
Non-Dual	131.73***	(19.35)	861.92***	(285.81)	456.95***	(49.24)	60	9,915.25
Pregnant	5.64***	(1.23)	20.49	(16.82)	15.97***	(2.73)	60	280.47
Not Pregnant	151.40***	(21.17)	949.83***	(316.75)	522.78***	(54.65)	60	12,355.22
Justice Involved	-0.08	(1.20)	14.12	(15.94)	-27.75***	(2.44)	60	315.58
Not Justice Involved	157.11***	(22.70)	956.19***	(331.11)	566.50***	(57.61)	60	12,320.11
Disability	-7.44	(7.08)	436.44***	(102.21)	92.34***	(17.33)	60	5,867.25
No Disability	164.47***	(15.56)	533.87**	(237.84)	446.42***	(40.51)	60	6,768.44
SMI/SED with Co-occurring SUD	-2.56	(4.35)	354.65***	(80.41)	77.29***	(13.36)	60	3,387.72
SMI/SED without Co-occurring SUD	159.60***	(19.21)	615.66**	(263.40)	461.46***	(45.14)	60	9,247.97
State Defined SMI/SED with Co-occurring SUD	-2.56	(4.35)	354.65***	(80.41)	77.29***	(13.36)	60	3,387.72

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring SUD	159.60***	(19.21)	615.66**	(263.40)	461.46***	(45.14)	60	9,247.97
State Defined SMI/SED with Co-occurring Physical Condition	61.50***	(12.81)	-98.74	(210.10)	97.53**	(36.77)	60	5,575.19
State Defined SMI/SED without Co-occurring Physical Condition	95.54***	(17.67)	1,069.06***	(326.07)	441.22***	(50.74)	60	7,060.50
OUD	-6.93***	(2.37)	202.33***	(44.21)	19.77**	(7.67)	60	1,197.97
No OUD	163.96***	(21.46)	767.98**	(293.70)	518.98***	(50.73)	60	11,437.72
Age<21	24.52***	(3.94)	120.12***	(34.43)	-11.03*	(5.89)	60	1,074.44
Age21-44	94.02***	(10.89)	438.95**	(168.75)	332.88***	(29.20)	60	4,854.08
Age45-64	11.95	(7.34)	394.45***	(144.18)	176.57***	(23.63)	60	5,825.42
Age>=65	26.55***	(1.64)	16.80	(17.81)	40.33***	(3.00)	60	881.75
Ward01	14.72***	(1.47)	11.43	(17.90)	21.73***	(2.93)	60	888.89
Ward02	-6.38***	(0.91)	7.42	(17.54)	15.28***	(3.20)	60	708.42
Ward03	4.45***	(0.77)	-8.65	(10.83)	13.66***	(2.11)	60	261.17
Ward04	15.13***	(1.79)	7.12	(26.59)	32.95***	(4.84)	60	1,032.69
Ward05	27.49***	(3.17)	135.31***	(46.28)	60.94***	(7.71)	60	1,834.14
Ward06	9.86***	(2.78)	171.34***	(42.59)	52.27***	(7.18)	60	1,434.56
Ward07	32.58***	(5.19)	239.28***	(64.78)	130.50***	(11.28)	60	2,572.50
Ward08	48.41***	(7.25)	331.47***	(99.18)	179.08***	(16.60)	60	3,088.39
Ward99, 00, or missing	10.78***	(1.73)	75.59**	(29.80)	32.34***	(5.20)	60	814.94

Appendix Exhibit C.11. Any Mental Health Services Utilization (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.34***	(0.05)	2.93***	(0.50)	0.46***	(0.09)	60	76.09
Main sample: Model 2 – robustness check; most parsimonious model	0.34***	(0.06)	2.72***	(0.50)	0.48***	(0.08)	60	76.09
FFS	0.26***	(0.06)	4.10***	(1.36)	-1.16***	(0.22)	60	70.80
MCO	0.32***	(0.06)	3.51***	(0.60)	0.09	(0.11)	60	84.72
Dual	0.28***	(0.05)	4.08***	(0.80)	0.57***	(0.12)	60	59.39
Non-Dual	0.33***	(0.05)	2.03***	(0.38)	0.37***	(0.08)	60	82.46
Pregnant	0.05	(0.13)	5.24***	(1.48)	0.79***	(0.26)	60	75.49
Not Pregnant	0.35***	(0.05)	2.88***	(0.50)	0.45***	(0.09)	60	76.11
Justice Involved	0.58***	(0.10)	6.43***	(1.53)	-3.03***	(0.27)	60	79.18
Not Justice Involved	0.33***	(0.05)	2.95***	(0.50)	0.49***	(0.09)	60	76.02
Disability	0.37***	(0.05)	1.49***	(0.51)	0.43***	(0.08)	60	80.61
No Disability	0.40***	(0.06)	3.91***	(0.60)	0.48***	(0.10)	60	72.55
SMI/SED with Co-occurring SUD	0.16***	(0.06)	3.64***	(0.68)	0.53***	(0.11)	60	78.55
SMI/SED without Co-occurring SUD	0.41***	(0.05)	2.70***	(0.51)	0.43***	(0.09)	60	75.22
State Defined SMI/SED with Co-occurring SUD	0.16***	(0.06)	3.64***	(0.68)	0.53***	(0.11)	60	78.55
State Defined SMI/SED without Co-occurring SUD	0.41***	(0.05)	2.70***	(0.51)	0.43***	(0.09)	60	75.22
State Defined SMI/SED with Co-occurring Physical Condition	0.25***	(0.05)	2.94***	(0.60)	0.59***	(0.09)	60	63.78

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.41***	(0.03)	0.29	(0.30)	0.05	(0.05)	60	89.79
OUD	-0.30***	(0.08)	5.70***	(1.09)	1.35***	(0.17)	60	73.02
No OUD	0.40***	(0.05)	2.65***	(0.46)	0.36***	(0.08)	60	76.42
Age<21	0.11***	(0.04)	0.95*	(0.56)	0.01	(0.09)	60	90.02
Age21-44	0.32***	(0.04)	2.30***	(0.42)	0.23***	(0.08)	60	84.76
Age45-64	0.35***	(0.05)	2.53***	(0.50)	0.51***	(0.09)	60	76.35
Age>=65	0.53***	(0.06)	3.54***	(0.79)	0.78***	(0.12)	60	42.89
Ward01	0.72***	(0.05)	-0.03	(0.53)	0.13	(0.08)	60	74.55
Ward02	0.33***	(0.06)	2.01**	(0.90)	0.54***	(0.13)	60	64.14
Ward03	0.37***	(0.10)	1.60	(1.02)	0.48***	(0.16)	60	72.49
Ward04	0.45***	(0.06)	1.16*	(0.66)	0.31***	(0.10)	60	76.20
Ward05	0.49***	(0.07)	2.07***	(0.59)	0.41***	(0.11)	60	75.68
Ward06	0.20***	(0.07)	4.20***	(0.78)	0.58***	(0.13)	60	73.89
Ward07	0.21***	(0.06)	3.65***	(0.60)	0.54***	(0.11)	60	78.62
Ward08	0.20***	(0.07)	3.44***	(0.68)	0.56***	(0.12)	60	79.99
Ward99, 00, or missing	0.21***	(0.07)	3.93***	(0.77)	0.16	(0.13)	60	74.52

Research Question 4.3a. Did beneficiaries being treated in an IMD setting receive treatment for physical health conditions experienced by beneficiaries with SMI/SED?

Appendix Exhibit C.12. Assessment of Physical Health During IMD Stay (number of episodes of care)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	14.25***	(3.64)	195.33***	(31.24)	-11.49**	(4.49)	20	274.92
Main sample: Model 2 – robustness check; most parsimonious model	13.44***	(3.12)	202.09***	(27.09)	-11.94***	(3.87)	20	274.92
FFS	3.95**	(1.68)	301.13***	(59.20)	-42.42***	(9.60)	20	61.00
MCO	10.81**	(3.69)	-92.64*	(42.64)	29.46***	(7.72)	20	217.75
Dual	3.77***	(0.30)	-5.03	(4.44)	-7.93***	(1.28)	20	50.83
Non-Dual	10.54**	(3.74)	199.56***	(29.62)	-3.38	(4.24)	20	224.42
Pregnant	0.24	(0.15)	3.38*	(1.87)	-0.09	(0.22)	20	3.58
Not Pregnant	14.04***	(3.62)	195.17***	(31.34)	-11.77**	(4.50)	20	273.00
Justice Involved	0.04	(0.36)	50.28***	(8.82)	-4.48**	(1.57)	20	9.50
Not Justice Involved	14.21***	(3.54)	147.56***	(27.81)	-6.99	(3.99)	20	267.75
Disability	4.28***	(0.70)	182.77***	(19.63)	-11.89**	(4.30)	20	58.08
No Disability	10.36**	(3.82)	13.94	(25.24)	-0.24	(4.31)	20	219.58
SMI/SED with Co-occurring SUD	13.10***	(3.29)	187.98***	(25.84)	-13.23***	(3.60)	20	238.17
SMI/SED without Co-occurring SUD	2.33***	(0.52)	17.56*	(8.75)	1.93	(1.16)	20	53.17
State Defined SMI/SED with Co-occurring SUD	13.10***	(3.29)	187.98***	(25.84)	-13.23***	(3.60)	20	238.17
State Defined SMI/SED without Co-occurring SUD	2.33***	(0.52)	17.56*	(8.75)	1.93	(1.16)	20	53.17
State Defined SMI/SED with Co-occurring Physical Condition	14.46***	(3.72)	195.24***	(31.28)	-11.73**	(4.64)	20	274.00

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	4.34***	(0.74)	75.33***	(21.73)	-3.36	(2.69)	20	78.00
OUD	6.92***	(2.08)	139.00***	(14.05)	-12.89***	(1.82)	20	134.17
No OUD	8.11***	(2.12)	77.52***	(21.26)	0.06	(3.39)	20	147.67
Age<21	0.96**	(0.43)	6.89	(4.17)	-3.65***	(0.85)	20	29.00
Age21-44	5.33**	(2.02)	36.22	(22.11)	6.62**	(2.96)	20	105.17
Age45-64	6.17***	(1.63)	145.07***	(13.56)	-10.43***	(2.11)	20	129.58
Age>=65	1.75***	(0.30)	6.73*	(3.43)	-3.75***	(0.96)	20	11.92
Ward01	1.22*	(0.59)	4.65	(6.50)	-0.09	(0.78)	20	19.50
Ward02	0.51	(0.42)	11.79*	(6.54)	-1.02	(0.96)	20	14.58
Ward03	-0.27	(0.24)	-0.85	(4.75)	4.06***	(0.70)	20	4.17
Ward04	1.54**	(0.54)	8.00*	(4.46)	-1.28	(0.82)	20	21.08
Ward05	1.98**	(0.88)	47.04***	(12.42)	-5.27**	(1.85)	20	40.50
Ward06	1.37***	(0.43)	36.09***	(5.84)	-1.72	(1.01)	20	31.00
Ward07	2.78**	(0.91)	34.26***	(7.69)	-2.19	(1.49)	20	48.75
Ward08	3.68***	(0.94)	32.40***	(6.13)	-1.46	(1.49)	20	70.67
Ward99, 00, or missing	1.43***	(0.39)	21.94***	(5.20)	-2.52**	(1.13)	20	24.67

Appendix Exhibit C.13. Assessment of Physical Health During IMD Stay (Percentage of Episodes of Care)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	1.26***	(0.16)	-6.32	(4.52)	-1.12	(0.71)	20	73.03
Main sample: Model 2 – robustness check; most parsimonious model	1.23***	(0.22)	-6.91*	(3.81)	-1.05	(0.61)	20	73.03
FFS	2.95***	(0.71)	-6.43	(8.72)	-6.60***	(1.55)	20	71.67
MCO	0.81**	(0.29)	-12.52***	(3.46)	1.78***	(0.43)	20	73.21
Dual	2.96***	(0.59)	-6.87	(6.71)	-10.46***	(1.23)	20	77.76
Non-Dual	0.95***	(0.22)	-5.86	(4.70)	0.43	(0.66)	20	72.02
Pregnant	3.47*	(1.76)	-41.92***	(12.85)	2.18	(2.61)	20	69.44
Not Pregnant	1.25***	(0.16)	-5.94	(4.61)	-1.16	(0.73)	20	73.17
Justice Involved	1.10	(0.98)	0.77	(13.23)	-1.95	(1.84)	20	78.45
Not Justice Involved	1.21***	(0.17)	-6.83	(4.33)	-0.99	(0.71)	20	72.97
Disability	2.51**	(1.01)	-6.37	(8.30)	-3.86**	(1.29)	20	74.09
No Disability	1.02***	(0.30)	-10.71**	(4.51)	0.29	(0.68)	20	72.74
SMI/SED with Co-occurring SUD	1.06***	(0.19)	-7.60	(4.87)	-0.48	(0.75)	20	76.84
SMI/SED without Co-occurring SUD	1.50***	(0.31)	-3.55	(3.92)	-2.04**	(0.71)	20	59.20
State Defined SMI/SED with Co-occurring SUD	1.06***	(0.19)	-7.60	(4.87)	-0.48	(0.75)	20	76.84
State Defined SMI/SED without Co-occurring SUD	1.50***	(0.31)	-3.55	(3.92)	-2.04**	(0.71)	20	59.20
State Defined SMI/SED with Co-occurring Physical Condition	0.50**	(0.20)	-6.77*	(3.60)	0.09	(0.66)	20	83.02

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	2.28***	(0.32)	-4.00	(5.15)	-2.74***	(0.77)	20	51.99
OUD	0.88***	(0.27)	-5.96	(4.58)	-0.63	(0.81)	20	80.31
No OUD	1.47***	(0.24)	-6.07	(4.43)	-1.34*	(0.68)	20	67.43
Age<21	1.49**	(0.55)	-12.73**	(4.81)	-1.53*	(0.78)	20	56.78
Age21-44	1.01***	(0.28)	-11.75*	(5.87)	0.21	(0.88)	20	70.38
Age45-64	1.09***	(0.26)	-3.04	(4.36)	-1.10*	(0.53)	20	81.28
Age>=65	3.98**	(1.38)	-3.56	(12.12)	-11.21***	(2.52)	20	69.92
Ward01	2.12*	(0.99)	-16.60	(11.52)	-1.32	(1.47)	20	72.64
Ward02	-0.58	(1.41)	-0.91	(14.23)	0.30	(2.24)	20	71.93
Ward03	-1.74	(2.83)	5.99	(18.09)	2.53	(3.37)	20	65.93
Ward04	1.57**	(0.72)	-4.28	(8.25)	-1.57	(1.17)	20	69.25
Ward05	1.14***	(0.30)	-0.96	(5.80)	-1.76**	(0.76)	20	75.39
Ward06	1.49**	(0.60)	-15.30**	(6.37)	0.50	(0.99)	20	72.74
Ward07	1.26***	(0.37)	-10.03	(7.27)	-0.41	(1.17)	20	74.23
Ward08	1.46***	(0.39)	-2.85	(5.00)	-1.96**	(0.80)	20	73.82
Ward99, 00, or missing	1.10	(0.63)	-2.43	(4.90)	-1.36	(0.84)	20	70.07

Goal 5: Improved care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities.

Research Question 5.1a. Was there an increase in utilization of follow-up services for beneficiaries with SMI/SED after episodes of acute care in hospitals?

Appendix Exhibit C.14. Follow-Up After Hospitalization for Mental Illness: Ages 18 and Older (FUH-AD)—Within 7 Days

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.90**	(0.32)	3.66	(3.35)	-1.01	(0.60)	20	47.79
Main sample: Model 2 – robustness check; most parsimonious model	0.92***	(0.28)	3.02	(2.76)	-0.95	(0.57)	20	47.79
FFS	0.44	(0.32)	6.50	(4.40)	-1.82**	(0.68)	20	48.85
MCO	1.72***	(0.41)	-0.48	(3.46)	-1.18*	(0.56)	20	46.24
Dual	0.29	(0.62)	7.95	(5.14)	0.20	(0.76)	20	49.87
Non-Dual	1.05**	(0.36)	2.62	(4.04)	-1.35	(0.81)	20	47.41
Pregnant	1.47	(1.10)	14.65*	(7.98)	-2.84**	(1.12)	20	47.20
Not Pregnant	0.91**	(0.31)	3.40	(3.37)	-0.99	(0.60)	20	47.79
Justice Involved	0.50	(0.63)	1.30	(13.04)	-1.35	(2.23)	20	48.58
Not Justice Involved	0.92**	(0.33)	3.67	(3.32)	-1.00	(0.63)	20	47.89
Disability	0.72	(0.41)	3.83	(4.71)	0.21	(0.70)	20	54.71
No Disability	1.13***	(0.31)	2.12	(4.23)	-1.59**	(0.70)	20	41.73
SMI/SED with Co-occurring SUD	0.93**	(0.33)	3.35	(3.25)	-0.66	(0.51)	20	47.50
SMI/SED without Co-occurring SUD	0.95**	(0.36)	2.11	(4.56)	-1.30	(0.87)	20	49.66
State Defined SMI/SED with Co-occurring SUD	0.93**	(0.33)	3.35	(3.25)	-0.66	(0.51)	20	47.50
State Defined SMI/SED without Co-occurring SUD	0.95**	(0.36)	2.11	(4.56)	-1.30	(0.87)	20	49.66
State Defined SMI/SED with Co-occurring Physical Condition	0.69*	(0.32)	4.26	(3.24)	-0.65	(0.56)	20	49.25

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	1.18***	(0.33)	-1.57	(3.27)	-0.89	(0.60)	20	56.27
OUD	0.21	(0.58)	12.32**	(4.87)	-0.52	(0.87)	20	46.71
No OUD	1.00***	(0.30)	2.56	(3.68)	-1.07	(0.63)	20	48.07
Age<21	1.89*	(1.03)	-10.05	(16.41)	0.80	(2.10)	20	39.79
Age21-44	1.01**	(0.40)	4.44	(4.15)	-1.64**	(0.69)	20	46.50
Age45-64	0.87*	(0.45)	2.22	(4.71)	-0.20	(0.88)	20	50.04
Age>=65	-0.43	(0.64)	17.55**	(6.99)	-0.74	(1.05)	20	47.93
Ward01	1.36	(0.86)	-12.07	(9.50)	1.10	(1.48)	20	45.95
Ward02	0.41	(0.83)	4.09	(11.00)	0.38	(1.63)	20	43.11
Ward03	1.04	(1.59)	-6.34	(12.92)	-2.64	(2.86)	20	46.47
Ward04	0.87	(0.59)	-2.72	(9.52)	1.13	(1.31)	20	50.00
Ward05	1.41***	(0.40)	5.74	(3.50)	-1.95*	(0.90)	20	47.42
Ward06	0.94	(0.61)	2.20	(6.69)	-0.72	(1.25)	20	48.89
Ward07	1.05*	(0.55)	3.53	(4.49)	-2.18**	(0.75)	20	52.40
Ward08	0.47	(0.36)	5.87	(4.23)	0.78	(0.66)	20	46.06
Ward99, 00, or missing	-0.01	(0.64)	12.50**	(5.05)	-2.21***	(0.71)	20	44.59

Appendix Exhibit C.15. Follow-up after hospitalization for mental illness: ages 18 and older (FUH-AD) —Within 30 days

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.54*	(0.29)	5.46	(3.40)	-1.17*	(0.56)	20	65.29
Main sample: Model 2 – robustness check; most parsimonious model	0.56**	(0.26)	5.39*	(2.80)	-1.17**	(0.51)	20	65.29
FFS	0.10	(0.38)	8.39	(5.47)	-2.45**	(0.84)	20	66.38
MCO	1.29***	(0.23)	2.83	(1.79)	-1.13***	(0.32)	20	64.05
Dual	-0.31	(0.47)	10.80*	(4.96)	-0.06	(0.71)	20	68.13
Non-Dual	0.75**	(0.33)	4.20	(3.52)	-1.45*	(0.68)	20	64.66
Pregnant	1.33	(0.94)	14.45*	(7.69)	-3.09**	(1.39)	20	63.93
Not Pregnant	0.55*	(0.28)	5.05	(3.33)	-1.12*	(0.56)	20	65.34
Justice Involved	0.28	(0.59)	8.47	(12.58)	-2.76	(2.89)	20	65.85
Not Justice Involved	0.57*	(0.29)	5.42	(3.49)	-1.14*	(0.63)	20	65.41
Disability	0.14	(0.41)	5.59	(4.27)	0.52	(0.64)	20	72.37
No Disability	0.93***	(0.25)	3.87	(4.23)	-2.06***	(0.65)	20	59.12
SMI/SED with Co-occurring SUD	0.72**	(0.30)	4.59	(2.90)	-0.96**	(0.42)	20	65.31
SMI/SED without Co-occurring SUD	0.18	(0.30)	5.69	(4.58)	-1.10	(0.79)	20	67.09
State Defined SMI/SED with Co-occurring SUD	0.72**	(0.30)	4.59	(2.90)	-0.96**	(0.42)	20	65.31
State Defined SMI/SED without Co-occurring SUD	0.18	(0.30)	5.69	(4.58)	-1.10	(0.79)	20	67.09
State Defined SMI/SED with Co-occurring Physical Condition	0.36	(0.31)	6.10*	(3.15)	-0.91	(0.53)	20	66.68

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.74**	(0.30)	1.65	(3.75)	-1.23*	(0.59)	20	76.10
OUD	0.76	(0.63)	10.11*	(5.10)	-1.21	(0.83)	20	63.58
No OUD	0.53	(0.30)	4.64	(3.69)	-1.13*	(0.63)	20	65.69
Age<21	1.69*	(0.85)	-7.34	(14.81)	-0.08	(2.03)	20	56.92
Age21-44	0.72*	(0.37)	6.40	(4.17)	-1.73**	(0.69)	20	63.24
Age45-64	0.48	(0.39)	3.96	(4.94)	-0.55	(0.85)	20	69.09
Age>=65	-0.82**	(0.29)	12.78*	(6.86)	0.12	(0.85)	20	61.62
Ward01	1.62	(1.06)	-17.69	(11.19)	1.19	(1.66)	20	62.05
Ward02	-0.15	(0.57)	0.92	(10.81)	1.65	(1.44)	20	61.73
Ward03	0.37	(1.37)	3.26	(14.55)	-4.73*	(2.45)	20	61.32
Ward04	0.34	(0.45)	1.04	(9.61)	0.24	(1.42)	20	67.03
Ward05	0.66	(0.53)	12.04***	(3.81)	-1.82*	(0.91)	20	63.87
Ward06	0.51	(0.84)	0.25	(6.99)	-0.14	(1.18)	20	68.66
Ward07	0.49	(0.41)	6.84*	(3.54)	-1.73***	(0.47)	20	69.27
Ward08	0.37	(0.35)	8.81**	(3.56)	-0.10	(0.54)	20	64.30
Ward99, 00, or missing	0.46	(0.60)	9.65	(7.29)	-3.07***	(0.97)	20	60.79

Appendix Exhibit C.16. Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD)—Within 7 Days

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.07	(0.18)	8.17***	(1.40)	-1.73***	(0.32)	20	57.55
Main sample: Model 2 – robustness check; most parsimonious model	0.14	(0.11)	7.33***	(1.36)	-1.66***	(0.33)	20	57.55
FFS	-0.06	(0.14)	7.95***	(2.38)	-1.67***	(0.45)	20	60.21
MCO	0.34	(0.30)	6.37**	(2.30)	-1.20***	(0.35)	20	53.13
Dual	-0.02	(0.18)	14.76***	(2.58)	-1.92***	(0.50)	20	57.26
Non-Dual	0.10	(0.20)	6.02**	(1.97)	-1.63***	(0.38)	20	57.65
Pregnant	0.57	(0.92)	14.56	(14.42)	-3.78	(2.95)	20	58.49
Not Pregnant	0.06	(0.18)	8.12***	(1.49)	-1.69***	(0.32)	20	57.61
Justice Involved	-0.40	(1.06)	0.64	(12.22)	-0.37	(2.54)	20	59.60
Not Justice Involved	0.08	(0.18)	8.65***	(1.61)	-1.78***	(0.35)	20	57.46
Disability	-0.07	(0.24)	6.21**	(2.71)	-0.82	(0.49)	20	64.67
No Disability	0.32	(0.22)	8.32**	(3.23)	-2.23***	(0.52)	20	50.98
SMI/SED with Co-occurring SUD	-0.23	(0.22)	12.82***	(2.67)	-1.38***	(0.41)	20	56.24
SMI/SED without Co-occurring SUD	0.25	(0.17)	5.33**	(2.36)	-1.93***	(0.45)	20	58.77
State Defined SMI/SED with Co-occurring SUD	-0.23	(0.22)	12.82***	(2.67)	-1.38***	(0.41)	20	56.24
State Defined SMI/SED without Co-occurring SUD	0.25	(0.17)	5.33**	(2.36)	-1.93***	(0.45)	20	58.77
State Defined SMI/SED with Co-occurring Physical Condition	-0.00	(0.22)	4.71**	(1.98)	-0.71	(0.46)	20	58.39

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.24	(0.18)	6.42***	(2.01)	-2.46***	(0.30)	20	63.65
OUD	-0.68	(0.46)	0.25	(7.58)	0.53	(1.45)	20	57.61
No OUD	0.16	(0.22)	8.44***	(1.83)	-1.87***	(0.42)	20	57.52
Age<21	-0.87	(1.08)	37.28**	(15.94)	-2.62	(2.45)	20	48.12
Age21-44	0.32	(0.24)	6.75***	(2.10)	-2.22***	(0.49)	20	54.90
Age45-64	0.00	(0.22)	6.48*	(2.99)	-0.78	(0.57)	20	61.60
Age>=65	0.01	(0.37)	10.95*	(5.43)	-1.53	(1.22)	20	56.93
Ward01	-0.07	(0.75)	2.39	(7.26)	-2.79**	(0.93)	20	53.60
Ward02	0.70	(0.84)	-3.80	(12.20)	-1.12	(1.90)	20	50.55
Ward03	0.05	(1.07)	-19.49	(15.83)	-1.48	(3.71)	20	56.24
Ward04	-0.16	(0.31)	1.69	(5.16)	-0.32	(0.87)	20	58.79
Ward05	-0.20	(0.42)	7.43	(5.28)	0.38	(1.01)	20	56.87
Ward06	0.63	(0.43)	13.63*	(7.62)	-4.11***	(1.09)	20	59.65
Ward07	-0.00	(0.48)	12.08**	(4.88)	-2.13**	(0.80)	20	59.25
Ward08	-0.09	(0.31)	11.80**	(5.19)	-2.25***	(0.68)	20	60.04
Ward99, 00, or missing	-0.10	(0.70)	1.32	(9.30)	-0.48	(1.24)	20	55.58

Appendix Exhibit C.17. Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD)—Within 30 Days

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.20	(0.22)	6.49***	(1.49)	-1.69***	(0.27)	20	70.18
Main sample: Model 2 – robustness check; most parsimonious model	0.21	(0.18)	6.03***	(1.17)	-1.65***	(0.27)	20	70.18
FFS	0.14	(0.23)	4.64**	(1.97)	-1.35***	(0.32)	20	73.46
MCO	0.39	(0.24)	7.69***	(2.40)	-1.45***	(0.29)	20	64.92
Dual	0.25	(0.26)	8.50**	(3.10)	-1.72***	(0.49)	20	71.79
Non-Dual	0.17	(0.23)	5.80***	(1.83)	-1.63***	(0.34)	20	69.65
Pregnant	0.65	(0.83)	14.82	(13.91)	-3.76	(2.71)	20	69.45
Not Pregnant	0.20	(0.23)	6.45***	(1.52)	-1.70***	(0.30)	20	70.33
Justice Involved	0.28	(0.92)	-6.44	(13.72)	-0.68	(2.54)	20	69.62
Not Justice Involved	0.18	(0.22)	7.12***	(1.61)	-1.72***	(0.28)	20	70.24
Disability	0.12	(0.27)	2.13	(2.49)	-0.62	(0.36)	20	77.32
No Disability	0.38	(0.27)	9.01**	(3.05)	-2.36***	(0.48)	20	63.55
SMI/SED with Co-occurring SUD	-0.09	(0.25)	9.08***	(2.68)	-0.98**	(0.34)	20	68.88
SMI/SED without Co-occurring SUD	0.42*	(0.23)	4.44**	(1.68)	-2.19***	(0.28)	20	71.61
State Defined SMI/SED with Co-occurring SUD	-0.09	(0.25)	9.08***	(2.68)	-0.98**	(0.34)	20	68.88
State Defined SMI/SED without Co-occurring SUD	0.42*	(0.23)	4.44**	(1.68)	-2.19***	(0.28)	20	71.61
State Defined SMI/SED with Co-occurring Physical Condition	0.13	(0.27)	5.06**	(2.01)	-1.04**	(0.35)	20	71.74

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.43*	(0.21)	3.06	(1.90)	-2.12***	(0.22)	20	76.11
OUD	-0.32	(0.33)	-3.02	(7.02)	-0.03	(1.22)	20	72.46
No OUD	0.27	(0.28)	6.83***	(1.83)	-1.78***	(0.37)	20	69.93
Age<21	0.78	(1.08)	17.43	(10.30)	-2.37	(1.69)	20	60.08
Age21-44	0.45	(0.33)	4.93**	(2.18)	-2.16***	(0.42)	20	67.72
Age45-64	-0.16	(0.25)	7.97***	(2.15)	-0.90**	(0.41)	20	73.75
Age>=65	1.17	(0.71)	4.37	(7.36)	-1.64	(1.01)	20	71.04
Ward01	0.79	(0.66)	-4.66	(8.67)	-3.21	(1.95)	20	68.59
Ward02	0.51	(0.80)	0.56	(11.06)	-2.25	(1.98)	20	63.04
Ward03	0.12	(0.98)	-18.82	(22.17)	-2.18	(4.83)	20	67.17
Ward04	0.37	(0.26)	5.63*	(2.92)	-1.06*	(0.56)	20	71.58
Ward05	-0.53	(0.48)	8.86*	(4.15)	0.52	(0.92)	20	70.71
Ward06	0.35	(0.46)	10.14	(9.16)	-2.78**	(1.24)	20	72.39
Ward07	0.20	(0.50)	6.69	(5.59)	-1.69**	(0.71)	20	70.98
Ward08	0.17	(0.28)	7.20*	(3.45)	-1.96**	(0.65)	20	72.65
Ward99, 00, or missing	0.42	(0.66)	8.84	(6.54)	-2.56**	(1.09)	20	65.25

Appendix D. SUD Goals—Regression Results Tables

Goal 1: Increased rates of identification, initiation, and engagement in treatment for SUD.

Research question 1.1. Was there an increase in the identification and initiation of treatment for beneficiaries with SUD?

Appendix Exhibit D.1. Newly Initiated SUD Treatment/Diagnosis (Number of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-25.55***	(5.47)	-45.11	(54.92)	23.72**	(9.67)	60	1,145.28
Main sample: Model 2 – robustness check; most parsimonious model	-29.10***	(5.09)	-0.46	(45.88)	20.31**	(9.42)	60	1,145.28
FFS	-7.24***	(2.02)	13.31	(24.92)	-32.47***	(4.09)	60	513.50
MCO	-18.30***	(4.29)	-58.43	(52.96)	56.19***	(10.06)	60	631.81
Dual	-0.60	(0.84)	-15.47	(10.67)	1.08	(1.66)	60	148.83
Non-Dual	-24.94***	(4.94)	-29.63	(47.46)	22.64**	(8.51)	60	996.44
Pregnant	-1.59***	(0.28)	2.49	(3.59)	1.00*	(0.50)	60	29.89
Not Pregnant	-23.95***	(5.35)	-47.60	(54.25)	22.72**	(9.54)	60	1,115.39
Justice Involved	-0.96**	(0.45)	-10.55**	(4.71)	-1.72**	(0.73)	60	51.75
Not Justice Involved	-24.59***	(5.35)	-34.56	(54.59)	25.45**	(9.81)	60	1,093.53
Disability	-7.27***	(1.63)	-22.38	(20.73)	4.03	(3.12)	60	348.33
No Disability	-18.27***	(4.24)	-22.72	(40.51)	19.69**	(7.62)	60	796.94
SMI/SED with Co-occurring SUD	-25.53***	(5.47)	-45.32	(54.93)	23.73**	(9.67)	60	1,145.25
SMI/SED without Co-occurring SUD	-0.02	(0.01)	0.21	(0.13)	-0.00	(0.01)	60	0.03

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED with Co-occurring SUD	-1.68	(1.92)	11.40	(23.73)	3.29	(4.80)	60	441.17
State Defined SMI/SED without Co-occurring SUD	-0.01	(0.00)	0.17	(0.12)	-0.01	(0.01)	60	0.00
State Defined SMI/SED with Co-occurring Physical Condition	-1.52	(1.66)	2.35	(19.03)	2.46	(3.74)	60	346.50
State Defined SMI/SED without Co-occurring Physical Condition	-0.17	(0.51)	9.22	(6.63)	0.82	(1.33)	60	94.67
OUD	-3.70***	(0.94)	-2.03	(16.67)	3.67	(2.76)	60	197.25
No OUD	-21.85***	(5.11)	-43.08	(45.78)	20.05**	(8.01)	60	948.03
Age<21	-4.34***	(0.52)	4.27	(5.67)	4.39***	(0.90)	60	52.67
Age21-44	-11.93***	(3.60)	-18.28	(32.37)	12.67**	(5.99)	60	531.03
Age45-64	-9.97***	(2.27)	-34.32	(21.83)	6.96*	(3.65)	60	504.11
Age>=65	0.68	(0.42)	3.23	(8.39)	-0.29	(1.30)	60	57.47
Ward01	-1.46**	(0.55)	-3.97	(6.03)	2.19**	(1.01)	60	71.69
Ward02	-3.26***	(0.40)	-2.91	(3.87)	2.74***	(0.83)	60	61.72
Ward03	-0.01	(0.27)	-4.66	(2.91)	1.26**	(0.62)	60	18.47
Ward04	-2.42***	(0.54)	-4.00	(7.53)	2.78**	(1.32)	60	85.72
Ward05	-3.75***	(0.81)	-2.44	(10.12)	4.24***	(1.51)	60	164.36
Ward06	-2.77***	(0.72)	5.00	(9.43)	0.28	(1.61)	60	125.83
Ward07	-5.31***	(1.48)	-4.30	(16.65)	3.15	(3.02)	60	245.19
Ward08	-5.20*	(2.60)	-29.48	(22.36)	6.89*	(3.51)	60	301.83
Ward99, 00, or missing	-1.38***	(0.39)	1.66	(5.27)	0.19	(0.74)	60	70.44

Appendix Exhibit D.2. Newly Initiated SUD Treatment/Diagnosis (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-0.01***	(0.00)	-0.00	(0.02)	0.00	(0.00)	60	0.45
Main sample: Model 2 – robustness check; most parsimonious model	-0.01***	(0.00)	0.02	(0.02)	0.00	(0.00)	60	0.45
FFS	-0.01**	(0.00)	0.01	(0.03)	-0.03***	(0.01)	60	0.80
MCO	-0.01***	(0.00)	-0.01	(0.02)	0.02***	(0.00)	60	0.33
Dual	-0.00	(0.00)	-0.04	(0.04)	-0.00	(0.01)	60	0.61
Non-Dual	-0.01***	(0.00)	0.00	(0.02)	0.00	(0.00)	60	0.43
Pregnant	-0.03***	(0.01)	0.07	(0.09)	0.02	(0.01)	60	0.67
Not Pregnant	-0.01***	(0.00)	-0.00	(0.02)	0.00	(0.00)	60	0.45
Justice Involved	-0.02	(0.02)	0.09	(0.22)	-0.08**	(0.03)	60	1.95
Not Justice Involved	-0.01***	(0.00)	0.00	(0.02)	0.00	(0.00)	60	0.43
Disability	-0.01***	(0.00)	-0.05	(0.06)	0.01	(0.01)	60	0.90
No Disability	-0.01***	(0.00)	0.00	(0.02)	0.00	(0.00)	60	0.37
SMI/SED with Co-occurring SUD	-0.06*	(0.03)	0.18	(0.43)	0.06	(0.07)	60	7.25
SMI/SED without Co-occurring SUD	-0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)	60	0.00
State Defined SMI/SED with Co-occurring SUD	-0.01	(0.04)	-0.30	(0.44)	-0.05	(0.09)	60	10.22
State Defined SMI/SED without Co-occurring SUD	-0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)	60	0.00
State Defined SMI/SED with Co-occurring Physical Condition	-0.04***	(0.01)	0.27	(0.17)	0.00	(0.03)	60	3.96

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	-0.01*	(0.01)	-0.06	(0.06)	-0.02*	(0.01)	60	1.21
OUD	-0.07***	(0.02)	-0.02	(0.35)	0.11*	(0.06)	60	4.02
No OUD	-0.01***	(0.00)	-0.00	(0.02)	0.00	(0.00)	60	0.38
Age<21	-0.00***	(0.00)	0.01	(0.01)	0.00***	(0.00)	60	0.06
Age21-44	-0.01***	(0.00)	0.00	(0.03)	0.00	(0.01)	60	0.59
Age45-64	-0.01***	(0.00)	-0.03	(0.04)	-0.00	(0.01)	60	0.89
Age>=65	0.00	(0.00)	0.03	(0.05)	-0.01	(0.01)	60	0.37
Ward01	-0.01**	(0.00)	-0.01	(0.03)	0.00	(0.00)	60	0.33
Ward02	-0.01***	(0.00)	-0.01	(0.03)	0.00	(0.01)	60	0.49
Ward03	0.00	(0.01)	-0.07	(0.05)	0.01	(0.01)	60	0.35
Ward04	-0.01***	(0.00)	-0.00	(0.02)	0.01	(0.00)	60	0.27
Ward05	-0.01***	(0.00)	0.01	(0.03)	0.01	(0.00)	60	0.47
Ward06	-0.01***	(0.00)	0.04	(0.04)	-0.01	(0.01)	60	0.54
Ward07	-0.01***	(0.00)	0.00	(0.03)	0.00	(0.01)	60	0.49
Ward08	-0.01**	(0.00)	-0.03	(0.04)	0.01	(0.01)	60	0.49
Ward99, 00, or missing	-0.01***	(0.00)	0.07*	(0.04)	-0.00	(0.01)	60	0.53

Research question 1.3b. Was there an increase in the utilization of specific SUD treatment services?

Appendix Exhibit D.3. Any SUD Treatment (Number of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-14.33	(9.09)	-165.18*	(94.66)	6.20	(14.99)	60	4,363.44
Main sample: Model 2 – robustness check; most parsimonious model	-19.40**	(9.04)	-113.50	(86.87)	2.50	(16.14)	60	4,363.44
FFS	-2.55	(4.96)	167.86	(155.51)	-258.38***	(25.79)	60	2,406.33
MCO	-11.78	(8.98)	-333.05*	(196.00)	264.58***	(33.56)	60	1,957.14
Dual	8.38***	(1.41)	-43.63*	(22.59)	-24.21***	(3.32)	60	694.28
Non-Dual	-22.71***	(8.11)	-121.54	(79.36)	30.41**	(13.22)	60	3,669.17
Pregnant	-2.34***	(0.30)	2.61	(3.85)	1.27**	(0.51)	60	59.06
Not Pregnant	-11.99	(9.00)	-167.79*	(93.60)	4.93	(14.83)	60	4,304.39
Justice Involved	-0.62	(0.75)	-8.64	(8.19)	-13.68***	(1.48)	60	157.53
Not Justice Involved	-13.71	(8.73)	-156.54*	(92.56)	19.88	(15.18)	60	4,205.92
Disability	-13.06***	(3.20)	-24.95	(48.47)	-24.48***	(6.52)	60	1,910.94
No Disability	-1.27	(6.57)	-140.23**	(60.86)	30.68**	(11.52)	60	2,452.50
SMI/SED with Co-occurring SUD	-14.16	(9.11)	-165.74*	(94.03)	4.94	(14.89)	60	4,355.78
SMI/SED without Co-occurring SUD	-0.17	(0.17)	0.56	(1.93)	1.25***	(0.33)	60	7.67
State Defined SMI/SED with Co-occurring SUD	9.83**	(4.33)	29.88	(44.34)	8.80	(9.18)	60	1,839.81
State Defined SMI/SED without Co-occurring SUD	-0.11	(0.11)	0.43	(1.38)	0.43*	(0.22)	60	3.00
State Defined SMI/SED with Co-occurring Physical Condition	8.73*	(4.36)	-5.43	(43.60)	-13.90	(8.62)	60	1,378.19

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.99	(1.11)	35.73*	(20.97)	23.13***	(3.29)	60	464.61
OUD	0.47	(2.68)	127.68***	(39.04)	-54.87***	(6.25)	60	2,392.33
No OUD	-14.79*	(7.64)	-292.86***	(64.81)	61.07***	(10.88)	60	1,971.11
Age<21	-6.38***	(0.62)	3.76	(5.10)	8.04***	(0.87)	60	74.50
Age21-44	-3.15	(5.15)	-89.90**	(42.13)	23.22***	(7.40)	60	1,238.00
Age45-64	-17.95***	(4.32)	-82.68	(51.37)	-7.73	(7.98)	60	2,718.11
Age>=65	13.14***	(0.61)	3.64	(10.36)	-17.33***	(1.53)	60	332.83
Ward01	-1.49*	(0.87)	-5.99	(9.96)	2.13	(1.35)	60	296.42
Ward02	-9.14***	(0.81)	-12.37	(7.98)	5.70***	(1.35)	60	282.61
Ward03	0.80**	(0.31)	-6.83**	(3.32)	1.64**	(0.74)	60	85.31
Ward04	0.47	(0.77)	-19.21*	(9.96)	-1.01	(1.71)	60	306.39
Ward05	-2.32*	(1.23)	-33.09**	(14.11)	-0.09	(2.24)	60	644.94
Ward06	-2.09*	(1.06)	16.46	(11.16)	-3.31*	(1.97)	60	515.83
Ward07	-1.35	(2.21)	-40.60*	(23.87)	-0.72	(4.11)	60	870.17
Ward08	-2.30	(3.75)	-57.28*	(32.44)	5.33	(4.98)	60	1,058.11
Ward99, 00, or missing	3.10***	(0.74)	-6.27	(9.01)	-3.47**	(1.33)	60	303.67

Appendix Exhibit D.4. Any SUD Treatment (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-0.01*	(0.00)	0.01	(0.03)	-0.02***	(0.01)	60	1.71
Main sample: Model 2 – robustness check; most parsimonious model	-0.01**	(0.00)	0.03	(0.03)	-0.02***	(0.01)	60	1.71
FFS	0.01*	(0.01)	0.27	(0.18)	-0.33***	(0.03)	60	3.76
MCO	-0.01**	(0.00)	-0.08	(0.08)	0.08***	(0.01)	60	1.03
Dual	0.03***	(0.01)	-0.09	(0.09)	-0.14***	(0.01)	60	2.84
Non-Dual	-0.01***	(0.00)	0.01	(0.03)	-0.01**	(0.00)	60	1.59
Pregnant	-0.04***	(0.01)	0.08	(0.09)	0.02	(0.01)	60	1.33
Not Pregnant	-0.01*	(0.00)	0.00	(0.04)	-0.02***	(0.01)	60	1.72
Justice Involved	0.01	(0.02)	1.70***	(0.39)	-0.66***	(0.06)	60	5.96
Not Justice Involved	-0.01*	(0.00)	0.00	(0.03)	-0.02***	(0.01)	60	1.67
Disability	-0.00	(0.01)	0.02	(0.13)	-0.08***	(0.02)	60	4.97
No Disability	-0.00	(0.00)	-0.01	(0.02)	-0.01	(0.00)	60	1.13
SMI/SED with Co-occurring SUD	0.32***	(0.07)	0.96	(0.83)	-0.33**	(0.13)	60	27.68
SMI/SED without Co-occurring SUD	-0.00	(0.00)	0.00	(0.00)	0.00***	(0.00)	60	0.00
State Defined SMI/SED with Co-occurring SUD	0.35***	(0.07)	-1.70**	(0.78)	-0.40***	(0.13)	60	42.66
State Defined SMI/SED without Co-occurring SUD	-0.00	(0.00)	0.00	(0.01)	0.00*	(0.00)	60	0.02
State Defined SMI/SED with Co-occurring Physical Condition	-0.01	(0.03)	0.92***	(0.28)	-0.27***	(0.05)	60	15.76

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	-0.04***	(0.01)	-0.36***	(0.11)	0.02	(0.02)	60	5.92
OUD	0.07	(0.07)	3.07***	(0.90)	-0.65***	(0.15)	60	48.75
No OUD	-0.01**	(0.00)	-0.08***	(0.02)	0.01***	(0.00)	60	0.79
Age<21	-0.01***	(0.00)	0.01	(0.01)	0.01***	(0.00)	60	0.08
Age21-44	-0.00	(0.00)	-0.03	(0.04)	-0.01	(0.01)	60	1.37
Age45-64	-0.00	(0.01)	0.07	(0.09)	-0.11***	(0.01)	60	4.83
Age>=65	0.07***	(0.00)	0.09	(0.06)	-0.15***	(0.01)	60	2.13
Ward01	-0.01	(0.00)	0.03	(0.05)	-0.02**	(0.01)	60	1.37
Ward02	-0.01**	(0.01)	0.03	(0.08)	-0.04***	(0.01)	60	2.26
Ward03	0.02***	(0.01)	-0.05	(0.06)	-0.03***	(0.01)	60	1.65
Ward04	0.00	(0.00)	-0.02	(0.03)	-0.02***	(0.00)	60	0.99
Ward05	-0.01***	(0.00)	-0.02	(0.04)	-0.03***	(0.01)	60	1.84
Ward06	-0.00	(0.00)	0.17***	(0.05)	-0.06***	(0.01)	60	2.22
Ward07	-0.01	(0.00)	-0.03	(0.04)	-0.02***	(0.01)	60	1.76
Ward08	-0.01*	(0.01)	-0.04	(0.05)	-0.01	(0.01)	60	1.74
Ward99, 00, or missing	0.01**	(0.01)	0.16**	(0.07)	-0.04***	(0.01)	60	1.95

Goal 2: Increased adherence to and retention in SUD treatment.

Research question 2.1a. Did the demonstration increase adherence to SUD treatment?

Appendix Exhibit D.5. Initiation of alcohol and other drug dependence treatment (IET-AD)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.34	(0.30)	2.96	(1.95)	-0.21	(0.41)	20	30.34
Main sample: Model 2 – robustness check; most parsimonious model	0.36	(0.26)	2.93**	(1.24)	-0.21	(0.33)	20	30.34
FFS	0.39	(0.23)	1.60	(1.31)	0.65**	(0.28)	(0.00)	34.93
MCO	0.26	(0.35)	2.53	(2.50)	0.16	(0.46)	(0.00)	26.36
Dual	0.41*	(0.22)	0.12	(2.39)	0.21	(0.35)	(0.01)	36.10
Non-Dual	0.30	(0.32)	3.76	(2.20)	-0.32	(0.46)	(0.00)	29.20
Pregnant	0.68	(0.75)	-4.08	(7.17)	0.20	(0.93)	(0.01)	28.37
Not Pregnant	0.33	(0.30)	3.24	(2.08)	-0.24	(0.43)	(0.00)	30.30
Justice Involved	0.48	(0.42)	13.61*	(6.80)	-0.88	(1.08)	(0.01)	32.38
Not Justice Involved	0.33	(0.31)	2.85	(2.09)	-0.19	(0.43)	(0.00)	30.19
Disability	0.34	(0.27)	4.02*	(2.03)	-0.43	(0.40)	(0.00)	34.95
No Disability	0.33	(0.32)	2.59	(2.15)	-0.07	(0.45)	(0.00)	27.82
SMI/SED with Co-occurring SUD	0.36	(0.32)	3.60	(2.18)	-0.27	(0.45)	(0.00)	31.05
SMI/SED without Co-occurring SUD	0.28**	(0.12)	-0.84	(1.80)	-0.01	(0.26)	(0.00)	15.90
State Defined SMI/SED with Co-occurring SUD	0.16	(0.30)	3.07	(1.99)	-0.42	(0.49)	(0.01)	43.35
State Defined SMI/SED without Co-occurring SUD	0.17	(0.23)	-5.48	(3.68)	0.22	(0.62)	(0.01)	19.35
State Defined SMI/SED with Co-occurring Physical Condition	0.48	(0.28)	2.85	(2.28)	-0.50	(0.57)	(0.01)	45.68

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	-1.01***	(0.31)	3.04	(2.40)	0.37	(0.40)	(0.00)	28.23
OUD	0.67**	(0.26)	3.19*	(1.72)	-1.75***	(0.38)	(0.00)	51.97
No OUD	0.26	(0.29)	2.96	(1.99)	0.11	(0.41)	(0.00)	25.43
Age<21	1.29	(0.77)	-5.18	(10.64)	-0.69	(1.34)	(0.01)	23.66
Age21-44	0.22	(0.35)	4.14	(2.35)	-0.05	(0.45)	(0.00)	24.32
Age45-64	0.33	(0.25)	2.51	(1.94)	-0.29	(0.43)	(0.01)	35.30
Age>=65	0.56*	(0.28)	1.69	(3.08)	-0.13	(0.39)	(0.01)	37.65
Ward01	0.13	(0.26)	4.69*	(2.55)	-0.46	(0.51)	(0.01)	33.45
Ward02	0.37**	(0.14)	-0.30	(3.05)	0.55	(0.41)	(0.00)	35.38
Ward03	0.03	(0.57)	2.22	(11.87)	0.63	(1.53)	(0.02)	32.61
Ward04	0.66*	(0.31)	-1.00	(3.36)	-0.87	(0.58)	(0.00)	31.83
Ward05	0.43	(0.34)	0.37	(2.78)	0.13	(0.59)	(0.01)	31.09
Ward06	0.40	(0.23)	3.03	(2.29)	-0.34	(0.35)	(0.00)	32.25
Ward07	-0.04	(0.29)	8.07***	(1.75)	-0.25	(0.40)	(0.00)	27.60
Ward08	0.63	(0.52)	1.52	(3.39)	-0.33	(0.64)	(0.01)	28.92
Ward99, 00, or missing	0.22	(0.35)	1.69	(4.61)	0.00	(0.66)	(0.01)	31.26

Appendix Exhibit D.6. Engagement of Alcohol and Other Drug Dependence Treatment (IET-AD)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.09	(0.05)	1.48*	(0.79)	-0.34**	(0.14)	20	5.11
Main sample: Model 2 – robustness check; most parsimonious model	0.11*	(0.05)	1.32**	(0.51)	-0.32***	(0.11)	20	5.11
FFS	0.00	(0.09)	1.80	(1.22)	-0.21	(0.21)	20	6.07
MCO	0.17***	(0.05)	0.79	(0.49)	-0.30***	(0.09)	20	4.52
Dual	0.08	(0.07)	-0.43	(0.85)	0.03	(0.13)	20	4.88
Non-Dual	0.10	(0.06)	1.79*	(0.83)	-0.41**	(0.15)	20	5.28
Pregnant	0.17	(0.19)	-0.45	(1.98)	0.06	(0.35)	20	1.83
Not Pregnant	0.09	(0.06)	1.50*	(0.76)	-0.35**	(0.14)	20	5.31
Justice Involved	0.15	(0.16)	6.79***	(1.69)	-0.96**	(0.36)	20	7.04
Not Justice Involved	0.09	(0.06)	1.31	(0.78)	-0.31**	(0.14)	20	5.17
Disability	-0.06	(0.10)	3.28***	(0.81)	-0.39**	(0.14)	20	6.09
No Disability	0.18***	(0.06)	0.51	(0.91)	-0.31*	(0.14)	20	4.76
SMI/SED with Co-occurring SUD	0.11*	(0.06)	1.70**	(0.76)	-0.39**	(0.14)	20	5.40
SMI/SED without Co-occurring SUD	-0.03	(0.13)	-1.39	(1.21)	0.27	(0.15)	20	2.16
State Defined SMI/SED with Co-occurring SUD	0.10	(0.08)	2.91**	(1.27)	-0.61**	(0.24)	20	8.17
State Defined SMI/SED without Co-occurring SUD	-0.19	(0.16)	-1.08	(1.82)	0.65*	(0.34)	20	2.88
State Defined SMI/SED with Co-occurring Physical Condition	0.14	(0.08)	3.29**	(1.46)	-0.63*	(0.30)	20	8.50

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	-0.13	(0.13)	0.89	(1.75)	-0.12	(0.20)	20	5.48
OUD	0.42***	(0.11)	4.64	(2.86)	-1.99***	(0.38)	20	18.46
No OUD	0.02	(0.04)	0.68	(0.48)	0.02	(0.10)	20	2.28
Age<21	0.10	(0.13)	-0.61	(1.21)	0.14	(0.27)	20	1.11
Age21-44	0.11***	(0.03)	1.27***	(0.37)	-0.25***	(0.07)	20	3.58
Age45-64	0.08	(0.10)	2.00	(1.41)	-0.48*	(0.23)	20	6.98
Age>=65	0.05	(0.08)	-0.46	(0.62)	0.08	(0.10)	20	5.08
Ward01	0.29*	(0.15)	2.87	(2.07)	-1.13***	(0.23)	20	5.74
Ward02	0.12	(0.13)	1.26	(1.92)	-0.37	(0.35)	20	5.71
Ward03	-0.22	(0.19)	0.65	(3.43)	0.44	(0.58)	20	5.09
Ward04	0.20*	(0.10)	2.04	(1.46)	-0.76**	(0.27)	20	5.58
Ward05	0.08	(0.09)	0.92	(1.20)	-0.08	(0.20)	20	5.01
Ward06	0.12**	(0.05)	1.55	(1.52)	-0.29	(0.29)	20	5.59
Ward07	0.08	(0.10)	1.05	(1.85)	-0.22	(0.27)	20	5.13
Ward08	0.05	(0.08)	1.31*	(0.69)	-0.31**	(0.14)	20	4.54
Ward99, 00, or missing	-0.03	(0.09)	2.82**	(0.95)	-0.28	(0.19)	20	5.20

Research question 2.1b. Did the demonstration increase retention in SUD treatment?

Appendix Exhibit D.7. Continuity of Pharmacotherapy for Opioid Use Disorder (Number of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	19.20***	(1.96)	42.25	(30.43)	-27.34***	(5.64)	20	420.25
Main sample: Model 2 – robustness check; most parsimonious model	18.61***	(1.99)	54.89*	(27.33)	-28.41***	(5.60)	20	420.25
FFS	6.82**	(2.81)	83.65	(79.50)	-63.34***	(12.63)	20	277.25
MCO	13.12***	(2.62)	-34.42	(83.06)	33.39*	(15.72)	20	150.67
Dual	0.15	(0.32)	-2.90	(3.70)	0.07	(0.54)	20	8.17
Non-Dual	19.13***	(1.89)	46.00	(29.30)	-27.65***	(5.56)	20	412.50
Pregnant	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Not Pregnant	19.16***	(1.98)	43.78	(30.70)	-27.28***	(5.64)	20	419.00
Justice Involved	1.57***	(0.34)	9.11*	(4.57)	-6.42***	(0.80)	20	16.58
Not Justice Involved	17.95***	(1.97)	34.43	(31.92)	-22.12***	(6.06)	20	407.50
Disability	4.14***	(0.91)	18.61*	(10.41)	-10.85***	(1.99)	20	245.33
No Disability	15.72***	(1.53)	18.13	(22.32)	-17.22***	(3.97)	20	180.50
SMI/SED with Co-occurring SUD	19.20***	(1.96)	42.25	(30.43)	-27.34***	(5.64)	20	420.25
SMI/SED without Co-occurring SUD	0.86***	(0.20)	1.97	(3.53)	-2.43***	(0.54)	20	9.00
State Defined SMI/SED with Co-occurring SUD	9.39***	(1.25)	22.19	(26.97)	-13.84**	(5.13)	20	266.75
State Defined SMI/SED without Co-occurring SUD	0.10	(0.07)	0.69	(1.29)	-0.34*	(0.16)	20	2.50
State Defined SMI/SED with Co-occurring Physical Condition	7.36***	(0.80)	7.68	(17.89)	-10.98**	(3.63)	20	230.33

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	2.82***	(0.72)	23.89	(26.50)	-2.10	(4.05)	20	89.25
OUD	18.84***	(1.86)	31.75	(22.75)	-33.24***	(4.76)	20	413.83
No OUD	1.47**	(0.57)	-0.29	(6.45)	7.17***	(1.36)	20	19.58
Age<21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Age21-44	4.26***	(0.45)	-5.30	(4.52)	-3.86***	(1.02)	20	53.75
Age45-64	14.69***	(1.74)	46.39	(26.29)	-23.94***	(4.79)	20	362.58
Age>=65	0.35***	(0.11)	1.42	(2.18)	0.32	(0.33)	20	4.83
Ward01	0.88**	(0.29)	0.00	(2.85)	-1.35**	(0.45)	20	29.75
Ward02	0.79**	(0.35)	2.75	(3.10)	-1.78**	(0.65)	20	25.75
Ward03	0.49**	(0.21)	-4.66	(3.45)	-0.14	(0.47)	20	9.00
Ward04	1.08***	(0.35)	3.02	(5.06)	-1.74**	(0.65)	20	23.25
Ward05	2.36***	(0.32)	-1.99	(3.97)	-2.86**	(0.94)	20	67.50
Ward06	3.83***	(0.51)	16.07**	(5.68)	-8.68***	(0.91)	20	60.67
Ward07	2.13***	(0.31)	13.93**	(6.25)	-3.10**	(1.26)	20	83.67
Ward08	6.42***	(0.87)	9.18	(10.46)	-5.77***	(1.85)	20	96.42
Ward99, 00, or missing	1.22***	(0.18)	3.96**	(1.52)	-1.92***	(0.27)	20	24.25

Note. N/A means regression analysis is not applicable due to the small number of observations for this subgroup.

Appendix Exhibit D.8. Continuity of Pharmacotherapy for Opioid Use Disorder (Percentage of Beneficiaries)

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	0.17	(0.27)	1.70	(3.09)	-0.33	(0.55)	20	53.21
Main sample: Model 2 – robustness check; most parsimonious model	0.11	(0.31)	3.20	(2.28)	-0.46	(0.49)	20	53.21
FFS	-0.31	(0.36)	2.42	(8.24)	-2.06	(1.34)	20	59.51
MCO	1.07**	(0.48)	0.69	(4.34)	-0.24	(0.85)	20	43.26
Dual	0.63	(0.82)	-12.43	(7.88)	1.00	(1.45)	20	28.09
Non-Dual	0.10	(0.30)	2.16	(3.44)	-0.30	(0.62)	20	53.80
Pregnant	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Not Pregnant	0.18	(0.27)	1.83	(3.14)	-0.36	(0.56)	20	53.23
Justice Involved	0.40	(0.56)	18.68**	(7.14)	-6.68***	(1.24)	20	37.30
Not Justice Involved	0.19	(0.29)	1.31	(3.28)	-0.34	(0.57)	20	53.81
Disability	0.28*	(0.15)	-2.34	(2.66)	-0.04	(0.45)	20	63.29
No Disability	0.75	(0.44)	2.98	(4.08)	-0.97	(0.72)	20	43.00
SMI/SED with Co-occurring SUD	0.17	(0.27)	1.78	(3.06)	-0.34	(0.55)	20	53.21
SMI/SED without Co-occurring SUD	0.76	(0.80)	10.56	(11.13)	-4.48***	(1.35)	20	25.86
State Defined SMI/SED with Co-occurring SUD	0.01	(0.30)	-1.86	(3.19)	0.04	(0.62)	20	53.98
State Defined SMI/SED without Co-occurring SUD	-0.85	(0.55)	0.12	(15.09)	0.11	(1.96)	20	30.76
State Defined SMI/SED with Co-occurring Physical Condition	0.04	(0.23)	-3.92	(2.52)	0.31	(0.47)	20	54.75

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.15	(0.48)	-1.61	(5.84)	-0.04	(1.00)	20	48.32
OUD	0.22	(0.26)	1.67	(2.83)	-0.51	(0.49)	20	53.27
No OUD	0.25	(0.74)	3.11	(8.35)	1.73	(1.19)	20	34.40
Age<21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Age21-44	0.22	(0.46)	1.26	(3.64)	-0.44	(0.80)	20	36.10
Age45-64	0.27	(0.28)	0.87	(3.17)	-0.30	(0.53)	20	57.46
Age>=65	1.90**	(0.78)	-4.13	(8.46)	-0.39	(1.50)	20	34.05
Ward01	-0.30	(0.59)	-5.86	(4.48)	0.64	(0.74)	20	55.71
Ward02	0.19	(0.51)	9.05	(7.19)	-0.89	(1.32)	20	55.79
Ward03	-1.49*	(0.78)	-5.07	(16.58)	2.78	(2.24)	20	57.81
Ward04	-0.51	(0.69)	8.27	(6.37)	-0.06	(0.85)	20	45.81
Ward05	0.68**	(0.29)	-6.89**	(2.86)	0.40	(0.73)	20	54.42
Ward06	1.15***	(0.37)	0.15	(2.60)	-3.17***	(0.47)	20	56.15
Ward07	-0.74**	(0.28)	6.65	(4.75)	0.28	(0.88)	20	54.84
Ward08	0.66	(0.41)	1.97	(4.76)	-0.13	(0.75)	20	49.55
Ward99, 00, or missing	-0.48	(0.59)	3.95	(4.90)	-0.20	(0.73)	20	55.44

Note. N/A means regression analysis is not applicable due to the small number of observations for this subgroup.

Goal 4: Reduced utilization of hospital emergency departments and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum of care services.

Research question 4.1a. Was there a reduction in ED or inpatient utilization for beneficiaries with SUD?

Appendix Exhibit D.9. Inpatient Stays for SUD per 1,000 Medicaid Beneficiaries

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-0.02**	(0.01)	0.62***	(0.08)	-0.03*	(0.02)	60	2.24
Main sample: Model 2 – robustness check; most parsimonious model	-0.03**	(0.01)	0.61***	(0.10)	-0.03*	(0.02)	60	2.24
FFS	-0.02	(0.03)	2.07***	(0.33)	-0.40***	(0.05)	60	5.34
MCO	-0.02***	(0.01)	0.07	(0.15)	0.14***	(0.02)	60	1.20
Dual	0.02	(0.02)	0.21	(0.18)	-0.02	(0.03)	60	3.48
Non-Dual	-0.03***	(0.01)	0.66***	(0.08)	-0.03**	(0.02)	60	2.11
Pregnant	-0.05	(0.04)	1.08*	(0.63)	-0.05	(0.11)	60	2.91
Not Pregnant	-0.02**	(0.01)	0.61***	(0.09)	-0.03*	(0.02)	60	2.23
Justice Involved	-0.34**	(0.13)	11.45***	(2.12)	-1.02***	(0.33)	60	12.21
Not Justice Involved	-0.02**	(0.01)	0.55***	(0.08)	-0.02	(0.02)	60	2.14
Disability	-0.06*	(0.03)	2.10***	(0.32)	-0.16***	(0.06)	60	6.56
No Disability	-0.01*	(0.01)	0.34***	(0.09)	0.00	(0.02)	60	1.47
SMI/SED with Co-occurring SUD	0.17	(0.19)	12.11***	(1.95)	-0.38	(0.35)	60	36.26
SMI/SED without Co-occurring SUD	-0.00***	(0.00)	0.01***	(0.00)	0.00	(0.00)	60	0.00
State Defined SMI/SED with Co-occurring SUD	-0.05	(0.37)	22.34***	(3.33)	-2.28***	(0.62)	60	89.50
State Defined SMI/SED without Co-occurring SUD	-0.01***	(0.00)	0.11***	(0.03)	0.01	(0.01)	60	0.04
State Defined SMI/SED with Co-occurring Physical Condition	-0.26	(0.16)	15.97***	(2.14)	-1.07***	(0.38)	60	41.05

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	-0.24***	(0.06)	0.64	(0.48)	0.12	(0.08)	60	3.57
OUD	-0.97***	(0.28)	18.15***	(3.25)	0.58	(0.57)	60	44.77
No OUD	-0.00	(0.01)	0.24***	(0.05)	-0.02*	(0.01)	60	1.41
Age<21	-0.00	(0.00)	0.00	(0.02)	-0.00	(0.00)	60	0.12
Age21-44	-0.01	(0.01)	0.67***	(0.12)	-0.02	(0.02)	60	2.15
Age45-64	-0.06**	(0.03)	1.58***	(0.26)	-0.15***	(0.05)	60	5.87
Age>=65	0.05***	(0.01)	0.88***	(0.21)	-0.11***	(0.03)	60	2.26
Ward01	-0.01	(0.02)	0.38	(0.24)	-0.04	(0.04)	60	1.92
Ward02	-0.04	(0.03)	0.88**	(0.41)	-0.14**	(0.07)	60	3.49
Ward03	-0.01	(0.03)	0.14	(0.28)	0.12**	(0.05)	60	1.88
Ward04	0.01	(0.01)	0.31***	(0.10)	-0.08***	(0.01)	60	1.45
Ward05	-0.05***	(0.01)	0.82***	(0.14)	-0.02	(0.03)	60	2.29
Ward06	-0.03	(0.02)	1.03***	(0.34)	-0.11*	(0.06)	60	3.07
Ward07	-0.03***	(0.01)	0.67***	(0.16)	-0.04	(0.02)	60	2.12
Ward08	-0.01	(0.02)	0.40**	(0.17)	0.02	(0.03)	60	2.16
Ward99, 00, or missing	-0.04	(0.03)	1.23***	(0.28)	-0.04	(0.05)	60	2.74

Appendix Exhibit D.10. Emergency Department (ED) Utilization for SUD per 1,000 Medicaid Beneficiaries

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-0.18***	(0.03)	0.50*	(0.25)	-0.03	(0.04)	60	6.47
Main sample: Model 2 – robustness check; most parsimonious model	-0.19***	(0.03)	0.54**	(0.23)	-0.04	(0.04)	60	6.47
FFS	-0.16***	(0.05)	1.01	(0.78)	-0.98***	(0.12)	60	14.25
MCO	-0.17***	(0.02)	0.28	(0.35)	0.32***	(0.06)	60	3.85
Dual	-0.21***	(0.04)	0.44	(0.30)	-0.02	(0.05)	60	8.01
Non-Dual	-0.18***	(0.03)	0.51*	(0.27)	-0.04	(0.04)	60	6.30
Pregnant	-0.23**	(0.09)	1.06	(1.38)	0.08	(0.20)	60	6.56
Not Pregnant	-0.18***	(0.02)	0.49**	(0.24)	-0.04	(0.04)	60	6.47
Justice Involved	-1.32***	(0.39)	6.37	(4.31)	-2.52***	(0.61)	60	46.28
Not Justice Involved	-0.16***	(0.02)	0.54**	(0.24)	-0.01	(0.04)	60	6.05
Disability	-0.35***	(0.06)	0.64	(0.75)	-0.21*	(0.11)	60	17.15
No Disability	-0.13***	(0.02)	0.44*	(0.24)	0.01	(0.04)	60	4.56
SMI/SED with Co-occurring SUD	-1.39***	(0.44)	12.30**	(4.86)	-0.95	(0.83)	60	104.10
SMI/SED without Co-occurring SUD	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	60	0.00
State Defined SMI/SED with Co-occurring SUD	-2.14***	(0.60)	16.08**	(7.53)	-5.31***	(1.13)	60	190.02
State Defined SMI/SED without Co-occurring SUD	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	60	0.00
State Defined SMI/SED with Co-occurring Physical Condition	-2.01***	(0.26)	17.28***	(4.77)	-1.67**	(0.72)	60	86.23

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.05	(0.07)	-0.16	(0.71)	-0.66***	(0.10)	60	8.58
OUD	-2.32***	(0.40)	7.52*	(3.80)	2.45***	(0.56)	60	87.05
No OUD	-0.13***	(0.02)	0.31	(0.22)	-0.05	(0.03)	60	4.88
Age<21	-0.02***	(0.01)	0.03	(0.05)	0.02**	(0.01)	60	0.35
Age21-44	-0.20***	(0.05)	0.83	(0.50)	-0.09	(0.07)	60	7.75
Age45-64	-0.30***	(0.05)	0.67	(0.51)	-0.19**	(0.08)	60	14.76
Age>=65	-0.13***	(0.03)	1.13***	(0.36)	-0.09	(0.06)	60	5.30
Ward01	-0.07**	(0.04)	0.79**	(0.36)	-0.23***	(0.06)	60	4.94
Ward02	-0.37***	(0.07)	1.45**	(0.69)	0.03	(0.10)	60	9.35
Ward03	-0.17**	(0.07)	-0.06	(0.62)	0.14	(0.11)	60	5.14
Ward04	-0.06**	(0.03)	0.35	(0.23)	-0.14***	(0.04)	60	3.93
Ward05	-0.20***	(0.03)	1.09***	(0.30)	-0.07	(0.06)	60	6.46
Ward06	-0.14***	(0.04)	0.65	(0.43)	-0.24***	(0.06)	60	8.14
Ward07	-0.21***	(0.03)	0.53	(0.35)	0.03	(0.06)	60	6.31
Ward08	-0.19***	(0.06)	-0.16	(0.50)	0.08	(0.08)	60	6.53
Ward99, 00, or missing	-0.21***	(0.06)	1.01	(0.78)	-0.02	(0.12)	60	9.53

Goal 5: Fewer readmissions to the same or higher level of care where the readmission is preventable or medically inappropriate.

Research question 5.1. Was there a decrease in preventable or medically inappropriate readmissions to the same or higher level of care for beneficiaries with SUD?

Appendix Exhibit D.11. Readmissions Among Beneficiaries With SUD

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and seasonality as control variables	-0.16	(0.12)	0.48	(1.71)	0.18	(0.22)	20	20.92
Main sample: Model 2 – robustness check; most parsimonious model	-0.18	(0.11)	0.74	(1.39)	0.16	(0.20)	20	20.92
FFS	-0.09	(0.16)	-1.11	(3.73)	-0.41	(0.46)	20	23.76
MCO	-0.29	(0.16)	1.33	(2.08)	1.24***	(0.39)	20	15.90
Dual	-0.17	(0.16)	-1.27	(2.55)	0.55*	(0.31)	20	10.28
Non-Dual	-0.12	(0.12)	0.33	(1.58)	0.10	(0.21)	20	23.22
Pregnant	-0.12	(0.97)	-3.34	(10.32)	2.06	(2.57)	20	25.75
Not Pregnant	-0.16	(0.12)	0.54	(1.76)	0.14	(0.22)	20	20.94
Justice Involved	-0.26	(0.50)	0.07	(6.03)	0.29	(1.21)	20	24.32
Not Justice Involved	-0.16	(0.11)	0.50	(1.58)	0.19	(0.21)	20	20.82
Disability	-0.29	(0.17)	2.43	(2.60)	-0.25	(0.34)	20	24.56
No Disability	-0.03	(0.14)	-1.25	(1.49)	0.57**	(0.23)	20	17.71
SMI/SED with Co-occurring SUD	-0.16	(0.11)	0.89	(1.87)	0.16	(0.23)	20	21.16
SMI/SED without Co-occurring SUD	-0.12	(0.28)	-1.97	(2.05)	0.00	(0.52)	20	19.77
State Defined SMI/SED with Co-occurring SUD	-0.19	(0.12)	0.69	(1.94)	0.01	(0.22)	20	23.63
State Defined SMI/SED without Co-occurring SUD	0.12	(0.39)	-1.69	(3.25)	-0.29	(0.47)	20	19.73
State Defined SMI/SED with Co-occurring Physical Condition	-0.25	(0.15)	0.93	(2.05)	0.04	(0.22)	20	24.26

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
State Defined SMI/SED without Co-occurring Physical Condition	0.35*	(0.19)	-5.09**	(1.83)	0.03	(0.28)	20	10.45
OUD	-0.24	(0.19)	-0.29	(2.16)	0.49	(0.30)	20	23.25
No OUD	-0.10	(0.13)	0.73	(1.74)	-0.01	(0.21)	20	19.83
Age<21	1.23**	(0.46)	-9.57*	(5.11)	-1.72**	(0.69)	20	22.86
Age21-44	-0.37***	(0.09)	1.35	(2.13)	0.68**	(0.26)	20	22.85
Age45-64	-0.07	(0.16)	0.75	(1.62)	-0.24	(0.24)	20	21.37
Age>=65	-0.11	(0.24)	0.18	(1.95)	0.78*	(0.38)	20	8.11
Ward01	0.30	(0.35)	-0.84	(3.32)	-0.70	(0.58)	20	22.82
Ward02	0.39	(0.23)	1.06	(6.90)	-0.94	(0.84)	20	26.35
Ward03	0.55	(0.42)	-12.79*	(5.95)	0.73	(0.97)	20	20.97
Ward04	0.37	(0.30)	1.34	(3.95)	-0.59	(0.53)	20	18.00
Ward05	-0.50	(0.37)	-0.34	(2.75)	0.62	(0.53)	20	18.06
Ward06	-0.53**	(0.18)	5.11**	(2.22)	0.02	(0.34)	20	22.03
Ward07	-0.12	(0.26)	-3.77	(2.40)	0.69*	(0.33)	20	20.14
Ward08	-0.26	(0.29)	3.51	(2.94)	0.28	(0.45)	20	20.64
Ward99, 00, or missing	-0.23	(0.27)	-2.01	(6.50)	0.51	(0.85)	20	22.08

Goal 6: Improved access to care for physical health conditions among beneficiaries with SUD.

Research question 6.1a. Was there an increase in access to care for physical health conditions among beneficiaries with SUD?

Appendix Exhibit D.12. Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries With SUD

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
Main sample: Model 1 – with COVID deaths and	0.58***	(0.10)	-0.71	(0.96)	-1.09***	(0.15)	20	62.49

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
seasonality as control variables								
Main sample: Model 2 – robustness check; most parsimonious model	0.53***	(0.12)	-0.31	(1.04)	-1.12***	(0.19)	20	62.49
FFS	0.27***	(0.07)	-0.68	(1.30)	-0.81***	(0.19)	20	69.11
MCO	0.78***	(0.14)	-1.72	(1.83)	-0.58**	(0.25)	20	55.84
Dual	0.27	(0.17)	-6.04	(4.97)	-0.55	(0.66)	20	76.68
Non-Dual	0.58***	(0.11)	0.61	(1.01)	-1.18***	(0.17)	20	59.71
Pregnant	0.34	(0.22)	0.03	(2.65)	-0.66	(0.41)	20	76.09
Not Pregnant	0.59***	(0.10)	-0.76	(1.00)	-1.11***	(0.15)	20	62.20
Justice Involved	1.19***	(0.22)	4.07	(2.73)	-3.45***	(0.47)	20	40.64
Not Justice Involved	0.54***	(0.09)	-0.87	(0.99)	-1.08***	(0.15)	20	63.42
Disability	0.19**	(0.07)	-0.53	(1.75)	-0.82***	(0.22)	20	72.59
No Disability	0.78***	(0.12)	-0.89	(1.05)	-1.13***	(0.17)	20	56.76
SMI/SED with Co-occurring SUD	0.64***	(0.11)	-1.09	(1.03)	-1.11***	(0.14)	20	64.06
SMI/SED without Co-occurring SUD	0.47***	(0.11)	-1.35	(1.11)	-0.82***	(0.23)	20	62.40
State Defined SMI/SED with Co-occurring SUD	0.56***	(0.07)	-2.96**	(1.12)	-1.29***	(0.16)	20	77.66
State Defined SMI/SED without Co-occurring SUD	0.09	(0.11)	-1.69	(1.31)	-0.94***	(0.15)	20	77.84
State Defined SMI/SED with Co-occurring Physical Condition	0.48***	(0.08)	-1.48*	(0.72)	-0.95***	(0.11)	20	85.98
State Defined SMI/SED without Co-occurring Physical Condition	0.34***	(0.09)	-2.69**	(1.20)	-1.09***	(0.19)	20	67.85
OUD	0.93***	(0.10)	-2.23*	(1.19)	-1.74***	(0.17)	20	74.21

	Time (continuous)		Demonstration period		Demonstration period * Time (continuous)		Number of observations	Baseline mean
No OUD	0.40***	(0.11)	-1.25	(0.97)	-0.66***	(0.16)	20	58.77
Age<21	0.90***	(0.20)	-4.09	(3.35)	-1.08	(0.69)	20	48.63
Age21-44	0.60***	(0.16)	0.43	(1.29)	-1.08***	(0.21)	20	51.14
Age45-64	0.49***	(0.04)	-0.78	(0.53)	-0.98***	(0.10)	20	69.85
Age>=65	0.16	(0.22)	-5.69	(5.08)	-0.57	(0.65)	20	77.97
Ward01	0.42**	(0.15)	-0.30	(1.31)	-0.99***	(0.26)	20	65.97
Ward02	0.69***	(0.16)	-0.03	(1.80)	-1.41***	(0.34)	20	64.13
Ward03	0.29	(0.21)	0.18	(1.86)	-0.99*	(0.48)	20	68.82
Ward04	0.48***	(0.09)	0.18	(0.81)	-0.74***	(0.12)	20	62.69
Ward05	0.51***	(0.07)	-0.55	(0.56)	-1.02***	(0.09)	20	63.32
Ward06	0.45***	(0.08)	-0.22	(1.25)	-0.79***	(0.18)	20	63.20
Ward07	0.61***	(0.13)	-1.68	(1.32)	-1.07***	(0.18)	20	62.58
Ward08	0.65***	(0.17)	-0.57	(1.71)	-1.35***	(0.23)	20	60.74
Ward99, 00, or missing	0.78***	(0.21)	-1.56	(2.16)	-1.13***	(0.31)	20	60.14

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