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THE PACIFIC HEALTH POLICY GROUP

# State of New Hampshire Substance Use Disorder Treatment and Recovery Access Section 1115 Medicaid Demonstration 11-W-00321/1

## Draft Interim Evaluation Report

## Submitted to CMS June 24, 2022

# TABLE OF CONTENTS


Executive Summary ..... 1

I. General Background Information ..... 4

History and Magnitude of Issues Addressed Under the Demonstration ..... 4

Demonstration Approval and Evaluation Period ..... 5

Demonstration Description ..... 5

Demonstration Implementation ..... 6

Demonstration Population ..... 10

II. Evaluation Questions and Hypotheses ..... 11

Quantifiable Targets and Driver Diagrams ..... 11

Evaluation Questions and Hypotheses ..... 14

Demonstration Alignment with Title XIX Objectives ..... 15

III. Methodology ..... 16

Evaluation Design ..... 16

Target and Comparison Populations ..... 16

Evaluation Period ..... 20

Evaluation Measures ..... 20

Data Sources, Cleaning and Validation ..... 20

Analytic Methods ..... 22

Methodological Limitations ..... 24

IV. Results ..... 26

Evaluation Question 1 (Access) ..... 26

Evaluation Question 2 (Quality) ..... 29

Evaluation Question 3 (Cost) ..... 45

Exploratory Expenditure Analysis ..... 47

V. Conclusion ..... 54

Interpretations, Policy Implications and Interactions with Other State Initiatives ..... 60

Lessons Learned and Recommendations ..... 60

## List of Abbreviations

| | |
|---|---|
| **ANOVA** | Analysis of Variance |
| **AOD** | Alcohol and Other Drug |
| **ASAM** | American Society of Addiction Medicine |
| **BN** | Budget Neutrality |
| **CMS** | Centers for Medicare and Medicaid Services |
| **CY** | Calendar Year |
| **DHHS** | New Hampshire Department of Health and Human Services |
| **DSRIP** | Delivery System Reform Incentive Program |
| **DY** | Demonstration Year |
| **ED** | Emergency Department |
| **FFS** | Fee-for-Service |
| **HCPCS** | Healthcare Common Procedure Coding System |
| **HEDIS** | Healthcare Effectiveness Data and Information Set |
| **IDN** | Integrated Delivery Network |
| **IET** | Initiation and Engagement in Treatment |
| **IMD** | Institution for Mental Diseases |
| **IP** | Inpatient |
| **LTC** | Long Term Care |
| **MAT** | Medication Assisted Treatment |
| **MCO** | Managed Care Organization |
| **MMIS** | Medicaid Management Information System |
| **NCQA** | National Committee for Quality Assurance |
| **NPI** | National Provider Identifier |
| **OUD** | Opioid Use Disorder |
| **PAP** | Premium Assistance Program |
| **PHE** | Public Health Emergency |
| **PHPG** | Pacific Health Policy Group |
| **PMPM** | Per Member Per Month |
| **SAMHSA** | Substance Abuse and Mental Health Services Administration |
| **SFY** | State Fiscal Year |
| **STC** | Special Terms and Conditions |
| **SUD** | Substance Use Disorder |

## EXECUTIVE SUMMARY

CMS approved the New Hampshire Substance Abuse Treatment and Recovery Access Section 1115 Demonstration on July 10, 2018, for a five-year term ending June 30, 2023. The New Hampshire Demonstration is designed to maintain critical access to opioid use disorder (OUD) and other substance use disorder (SUD) treatment services and continue delivery system improvements to support coordinated and comprehensive OUD/SUD treatment for Medicaid enrollees. The Demonstration authorizes New Hampshire to provide high-quality, clinically appropriate SUD treatment services for short-term stays in residential and inpatient treatment settings that qualify as Institutions for Mental Disease (IMDs).

The SUD Demonstration was developed to encourage growth in SUD residential treatment capacity (IMD and non-IMD), to build on existing efforts to improve models of care that focus on supporting enrollees in their homes and communities, and to strengthen the New Hampshire continuum of SUD services. The Department of Health and Human Services (DHHS) identified three overarching goals for the SUD Demonstration:

1. Improve access to OUD and other SUD services;
2. Improve the quality of the SUD treatment delivery system to provide high-quality coordinated and comprehensive OUD/SUD treatment for Medicaid enrollees; and
3. Maintain budget neutrality.

Evaluation questions, hypothesis and performance measures are associated with each of the overarching goals of Demonstration. This is the Interim Evaluation report as required by the SUD Demonstration's Special Terms and Conditions (STC 36). The evaluation was performed in accordance with the approved Evaluation Design for Demonstration Years One through Three (July 1, 2018 - June 30, 2021), with an established baseline period of July 1, 2017 - June 30, 2018.

The approved evaluation design examines service utilization (Emergency Department and IMD) and engagement in treatment for Medicaid members with an SUD. In addition, adults receiving treatment in an IMD were identified to provide a focus on the utilization trends and outcomes for those members receiving IMD services specifically authorized under the Demonstration.

Overall, the New Hampshire SUD Treatment and Recovery Access Demonstration is associated with improved access to care for those beneficiaries with intensive SUD treatment needs. In all years, ED use declined in the 90 days following IMD discharge as compared to the 90 days period prior to admissions. IMD services for those meeting criteria may contribute to stabilization and continuity of care post discharge. This is further evidenced by the percent of members who have a claim for SUD treatment in the 45, 90, 135 and 180 days following IMD discharge.

Results from the first year of the Demonstration indicate that SUD treatment utilization had increased, and overall use of ED had declined. However, the onset of the Public Health Emergency in the second year of the Demonstration makes it difficult to draw strong associations between the Demonstration and continued reductions in ED use.

An exploratory analysis of expenditures for adults who received IMD services shows a similar pattern with lower per member per month costs during the Demonstration period. However, the influence of the Public Health Emergency on service use may be suppressing utilization and masking the true need for SUD treatment services in the coming years.

Exhibit ES-1 provides an overall summary of the interim evaluation findings.

***Exhibit ES-1: Evaluation Findings***

| Hypotheses | Measures | Interim Findings |
|---|---|---|
| **Evaluation Question 1: What are the impacts of the Demonstration on access to SUD residential treatment services for Demonstration enrollees?** | | |
| A. Adult enrollees will have better access to residential SUD treatment services. | 1. Percent of enrollees ages 12-64 with an SUD claim for treatment in an IMD with a discharge date during the year | Statistically significant increases in access to IMD services were seen in each year of the Demonstration when compared to the baseline year. |
| | 2. The total number of licensed beds for Medicaid enrolled SUD residential treatment providers each year | Licensed bed capacity for Medicaid-enrolled residential treatment facilities increased from 554 beds at baseline to 697 beds in DY3. |
| **Evaluation Question 2: What are the impacts of the Demonstration on quality of care for Medicaid enrollees with an SUD diagnosis?** | | |
| A. Enrollees will have fewer ED visits for SUD | 1. The total number of ED visits for SUD per 1,000 Demonstration enrollees | • ED use declined over baseline (both for total ED visits and SUD-related ED).<br>• There was a slight increase in total ED use for adolescents with an SUD in DY3. |
| B. Enrollees will have fewer total ED visits | 1. The total number of ED visits for any reason per 1,000 Demonstration enrollees | |
| C. Enrollees will have fewer ED visits post discharge from an SUD IMD | 1. ED use 90 days prior to IMD admission and 90 days post discharge | • DY2 and DY3 showed a statistically significant decline in ED visits in the 90 days following IMD discharge as compared to |

| Hypotheses | Measures | Interim Findings |
|---|---|---|
| | | the 90 days prior to admission.<br>• ED use may have been influenced by the PHE. |
| D. Enrollees will have improved rates of initiation and engagement in treatment | 1. Percentage of enrollees who initiated treatment within 14 days of diagnosis | • There was a statistically significant increase in DY1 and DY3. |
| | 2. Percentage of enrollees who engage in treatment within 34 days of initiation | • There was a statistically significant increase in DY2 and DY3. |
| E. Enrollees will have lower IMD readmission rates | 1. The percent of IMD stays followed by a readmission within 30 days | • Readmissions increased in DY1 and DY2, before declining in DY3. |
| F. Enrollees will have improved rates of treatment retention | 1. The percent of enrollees who had SUD treatment visits 45, 90, 135, and 180 days following IMD discharge | • There was a statistically significant increase over baseline in each year of the Demonstration. |
| Evaluation Question 3: Will the Demonstration maintain or reduce spending in comparison to what would have been spent absent the demonstration? | | |
| A. The Demonstration will be cost neutral | 1. PMPM trends and per capita costs by Medicaid Eligibility Groups identified in the STCs. | • At the end of DY3, the Demonstration was showing a cumulative surplus. |

## I. GENERAL BACKGROUND INFORMATION

Section I provides an overview of the SUD Demonstration and general background information. The overview includes: the magnitude of the problem and the rationale for the Demonstration request; a summary of the SUD Demonstration and its implementation history; and a description of the population groups impacted by the SUD Demonstration.

### HISTORY AND MAGNITUDE OF ISSUES ADDRESSED UNDER THE DEMONSTRATION

At the time of the State's application to the Centers for Medicare and Medicaid Services (CMS) for its SUD Demonstration, New Hampshire was experiencing one of the most significant public health crises in its history. New Hampshire had the third highest overdose death rate in the country (39 per 100,000).

The number of overdose deaths had increased dramatically, from 192 in 2013 to 488 in 2017. Between 2013 and 2017, the number of times emergency medical personnel administered Narcan more than doubled, from 1,039 to 2,774 and emergency department visits rose by 9.8 percent from 2016 to 2017. The escalation of opiate use and opioid misuse impacted individuals, families, and communities throughout the State.

The scope of the State's crisis extended beyond individuals with SUD to include family members. New Hampshire was seeing a significant rise in neonatal abstinence syndrome, with the rate reaching 24.4 per 1,000 live births in 2015. Babies born with neonatal abstinence syndrome require more complex medical care, with average hospital stays of twelve days.

The incidence of neonatal abstinence syndrome was higher among Medicaid enrollees than other groups. In 2013, Medicaid paid for 78 percent of neonatal abstinence syndrome births. In 2015, the DHHS Division for Children, Youth, and Families reported that it received 504 reports of children born drug-exposed, representing an increase of 37 percent from 2014.

In addition to the high rate of opioid use among the adult population, the State ranked among the top five for binge drinking among persons ages 12 to 20 years. According to the 2015-2016 National Survey on Drug Use and Health, illicit drug use among individuals ages 12 to 17 in New Hampshire was higher than in the broader New England region and the United States. In 2015-2016, 8.98 percent (95 percent confidence interval: 7.32-10.96) of New Hampshire's adolescents (ages 12 to 17) reported illicit drug use in the past month.

In response to the opioid crisis, New Hampshire invested more than $30 million in the years prior to its SUD Demonstration application to build service capacity and support a full continuum of care to treat individuals with SUD. These investments included those that maintain existing prevention, treatment, and recovery capacity, while also expanding access to medication assisted treatment (MAT), peer recovery support services, direct prevention services, and coordination of care through a statewide crisis hotline.

The State also established nine regional treatment "Hubs" to serve as 24/7 access points to addiction treatment. The Hubs provide screening, evaluation, care management, social service referral and addiction treatment services across the state.

These investments were made in support of a robust, resiliency- and recovery-oriented system of care for individuals with SUD. Although capacity for services increased, the limited availability of treatment in all settings, particularly residential treatment, was challenging.

The State implemented the New Hampshire Substance Use Disorder Treatment and Recovery Access Demonstration (SUD Demonstration) to: address critical unmet needs for residential SUD treatment; improve quality of SUD treatment; and maintain or reduce cost of care for Medicaid enrollees with an SUD.

## DEMONSTRATION APPROVAL AND EVALUATION PERIOD

CMS approved the New Hampshire Substance Abuse Treatment and Recovery Access Section 1115 Demonstration on July 10, 2018, for a five-year term ending June 30, 2023. Clarifying, non-substantive revisions were approved on August 3, 2018. On June 16, 2021, an amendment was approved by CMS to update the Demonstration's budget neutrality terms and conditions. CMS agreed to prospectively adjust the State's hypothetical budget neutrality limits to reflect actual expenditures more accurately. Additionally, CMS updated Sections III, XI, and XII of the Special Terms and Conditions (STCs) to align with recent CMS requirements for 1115(a) Demonstration approvals.

The Demonstration's Evaluation Design was approved by CMS on May 22, 2019. This is the first Interim Evaluation report as required in STC 36. Preliminary findings are offered, based on the approved Evaluation Design, for the baseline period (July 1, 2017-June 30, 2018) through DY3 (June 30, 2021).

## DEMONSTRATION DESCRIPTION

New Hampshire's Demonstration is designed to maintain critical access to opioid use disorder (OUD) and other (SUD) treatment services and continue delivery system improvements to support coordinated and comprehensive OUD/SUD treatment for Medicaid enrollees. The Demonstration authorizes New Hampshire to provide high-quality, clinically appropriate SUD treatment services for short-term stays in residential and inpatient treatment settings that qualify as Institutions for Mental Disease (IMDs).

The Demonstration also was designed to encourage growth in SUD residential treatment capacity (IMD and non-IMD) and build on existing efforts to improve models of care focused on supporting enrollees in their homes and communities and strengthen the New Hampshire continuum of SUD services.

New Hampshire's statutes and rules require that treatment decisions and delivery system innovations be based on the use of the American Society of Addiction Medicine (ASAM) criteria and other nationally recognized assessment and placement tools that reflect evidence-based clinical treatment guidelines making the CMS SUD IMD Demonstration requirements a good fit for the State. DHHS identified three overarching goals of the Demonstration:

1. To improve access to OUD and other SUD services;
2. To improve the quality of the SUD treatment delivery system to provide high-quality coordinated and comprehensive OUD/SUD treatment for Medicaid enrollees; and
3. To maintain budget neutrality.

The CMS-defined goals for all Section 1115 SUD Demonstrations include:

- Increased rates of identification, initiation, and engagement in treatment;
- Increased adherence to, and retention in, treatment;
- Reduced overdose deaths, particularly those due to opioids;
- Reduced utilization of emergency department and inpatient hospital settings for treatment where the utilization is preventable or medically inappropriate, through improved access to other continuum of care services;
- Reduced readmissions to the same or higher level of care, where the readmission is preventable or medically inappropriate; and
- Improved access to care for physical health conditions among beneficiaries.

## DEMONSTRATION IMPLEMENTATION

The Demonstration was effective as of July 10, 2018. At the outset of the Demonstration, New Hampshire's existing service array, program requirements, and delivery system were in alignment with many of the milestones identified by CMS for SUD IMD Section 1115 Demonstrations. DHHS also anticipated enhancements to the State oversight structure and in residential capacity for youth. An overview of implementation activities is provided below.

### REGULATORY ENHANCEMENTS

In the first year of the Demonstration, the New Hampshire Medicaid program's SUD coverage rule and Bureau of Health Facilities' licensing rule for residential SUD treatment facilities were revised and updated to:

- Align the rules with each other and to support ASAM, Substance Abuse and Mental Health Services Agency (SAMHSA) and other evidence-based practices, including explicit ASAM level of care staffing and service expectations;
- Update the New Hampshire Health Facilities Licensing Rule for SUD providers to include specific staffing, physical space, program design, and compliance requirements, including annual compliance audits;

- Explicitly require MAT access for enrollees served in residential SUD treatment facilities; and
- Expand requirements regarding best practices in discharge planning to all SUD treatment providers.

### ADOLESCENT RESIDENTIAL CAPACITY

Under the SUD Demonstration, the State planned capacity at the Sununu Youth Services Center for a 36-bed residential SUD treatment facility available for adolescents under 18 years old. Services included both low and medium-intensity residential treatment for adolescents ages 12 to 18 years who qualify for such levels of care using the ASAM patient placement criteria.

In June of 2019 (the end of DY1), the Legislature adopted Senate Bill 14-FN (an act relating to child welfare). This legislation supported enhancements in the children's behavioral health system, which included: expanding Case Management Entity requirements to create a new system of transitional support and oversight; developing a single statewide behavioral health assessment tool; redesigning and contracting for the youth residential treatment array; expanding the eligible population for wraparound services; establishing children's mobile crisis services; developing a plan to address infant mental health; creating a parent information clearinghouse and online treatment and support locator; implementing the Prevention/First Episode Psychosis program; and providing Evidenced-Based Practice Technical Assistance and training support.

In addition, the federal Families First Prevention Services Act made residential treatment options - historically available to youth in State's custody or through school districts - increasingly accessible to all youth who require that level of care, without the necessity of entering the child welfare system. This work involves a large-scale transformation of New Hampshire's residential treatment system with the goal of providing effective short-term treatment and stabilization, while diverting as many youths as possible from State custody, hospital emergency departments, and inpatient psychiatric hospitalizations.

In June of 2020, the adolescent SUD treatment program at the Sununu Youth Services Center closed when DHHS terminated its contract with the vendor. New levels of integrated behavioral health care have been developed to ensure in-state resources for children and youth with a wide range of stabilization and treatment needs. The expanded array outlines five levels of care, with level 1 being the least intensive, with more community based and supportive living options and 5 being the most intensive (e.g., accredited Psychiatric Residential Treatment Facility). DHHS has begun work to clearly articulate the desired future state of residential treatment.

As discussed in more detail in Section III, the closure of the Sununu adolescent treatment program resulted in an insufficient population size related to IMD services. DHHS and the evaluation team are assessing options for better identifying and evaluating co-occurring mental

health and SUD adolescent services as part of a revised Evaluation Design following the SUD Demonstration renewal.

## BUDGET NEUTRALITY

During implementation, DHHS identified utilization trends and other factors that were adversely impacting the original Budget Neutrality (BN) calculation. In addition, provider rate increases occurring each year following approval and other payment changes impacted BN.

DHHS followed up with CMS by providing an impact analysis completed by the State's actuary. Impacts were analyzed for: actual enrollment experience; retroactive coverage; provider rate changes; and changes in the Sununu Youth Center timelines.

On August 21, 2020, DHHS submitted an amendment request to CMS as part of its Corrective Action Plan to adjust the BN limits. The request identified adjustments for the following items, not originally anticipated during Demonstration development.

***Unanticipated retroactive enrollment under Fee-For-Service (FFS)***. Due to the small size of the FFS population, the IMD costs incurred during the retroactive eligibility period distorted the Per Member Per Month (PMPM) expenditure values.

***Enrollment Experience***. Actual experience with IMD enrollment showed that the mix of individuals in IMDs are more heavily weighted than originally assumed within higher cost rate cells.

***Provider Rate Increases***. The Legislature approved the following rate increases to ensure access to SUD and other treatment services:

- Effective January 1, 2019, DHHS increased reimbursement for high-intensity residential treatment services for adults (H0018) from $162.60 to $247.82 per day. As of January 1, 2021, the per diem is $255.50.
- Effective July 1, 2019, DHHS increased reimbursement for residential sub-acute detoxification (H0010) from $230.00 to $340.32 per day. As of January 1, 2021, the per diem is $350.87.
- Effective January 1, 2020, New Hampshire House Bill 4 required a 3.1 percent provider rate increase applicable to nearly all Medicaid services. Rates were increased by another 3.1 percent on January 1, 2021.

***Hospital-directed payments***. Effective July 1, 2020, the Medicaid Managed Care capitation rates included a hospital-directed payment to promote access to high-quality acute care services provided by critical access hospitals across New Hampshire.

On June 16, 2021, CMS approved a prospective adjustment to the State's hypothetical budget neutrality limits to more accurately reflect actual expenditure data reported under the SUD Demonstration.

## DEMONSTRATION POPULATION

Medicaid beneficiaries with an SUD requiring residential treatment, based on ASAM placement criteria, are eligible for the Demonstration.

## II. EVALUATION QUESTIONS AND HYPOTHESES

Section II describes how the State's Demonstration goals are translated into quantifiable targets for improvement, including the CMS-approved driver diagrams that depict the rationale behind Demonstration activities and intended outcomes. This section also includes descriptions of the State's evaluation questions and hypotheses, as well as the alignment of evaluation questions and hypotheses with the goals of the Demonstration. A discussion of how the Demonstration promotes the objectives of Title XIX also is provided.

### QUANTIFIABLE TARGETS AND DRIVER DIAGRAMS

The New Hampshire SUD Demonstration is specifically designed to maintain and enhance access to treatment for enrollees with an SUD, support high quality care, and to maintain budget neutrality. The evaluation is designed to examine the Demonstration's impact in each of these areas.

It is hypothesized that access to residential care will improve for both adults and adolescents under the Demonstration. The SUD Demonstration is expected to maintain and encourage growth in adult capacity.

It also is hypothesized that the quality of care will improve under the Demonstration as evidenced by: fewer Emergency Department (ED) admissions, both in total use and for SUD related visits; improved rates of initiation and engagement in alcohol and other drug dependence treatment; lower hospital and IMD readmission rates; and improved rates of treatment retention.

New Hampshire's residential SUD treatment system is a critical component of the overall ASAM level of care framework in the State. Maintaining and enhancing capacity under the Demonstration is expected to support treatment success resulting in improved health outcomes.

Residential providers are also expected to assess the comprehensive needs of participants and use the results in the development of high-quality discharge plans for enrollees. As such, residential SUD treatment providers are responsible for: supporting enrollee referral and engagement with community-based SUD treatment providers, including Medication Assisted Treatment; PCP engagement; recovery supports (e.g., Alcoholics/Narcotics Anonymous and peer recovery support specialist) and relapse prevention plans. It is expected that maintaining and enhancing access to residential SUD treatment under this Demonstration will support high quality care and improve health outcomes for enrollees.

To further enhance the quality of residential treatment, the Demonstration's SUD Implementation Plan (STC Attachment D) included revisions to New Hampshire rules to clarify SUD provider program expectations and licensing requirements, including additional specificity

in the use of ASAM criteria and best practices in discharge planning across all levels of SUD treatment. Rule changes included:

- Medicaid Substance Use Disorder Treatment and Recovery Support Services rule (He-W 513), effective November 15, 2018.
- Bureau of Health Facility SUD Residential Provider licensing rule, effective November 1, 2018.
- BDAS SUD Treatment Provider rule (to be completed by the close of the Demonstration).

Improvements in quality expected to result from rule changes will be examined through structured provider interviews and surveys in the final year of the Demonstration.

Related to cost of care, the State is expected to maintain or reduce spending in comparison to what would have been spent absent the Demonstration.

Exhibit II-1 below and Exhibits II-2 and II-3 on the following page provide a visual depiction, from the approved Evaluation Design, of the relationship between the Demonstration's purpose, the primary drivers that contribute to realizing that purpose and the secondary drivers that are necessary to achieve the primary drivers.

***Exhibit II-1: Access Driver Diagram***

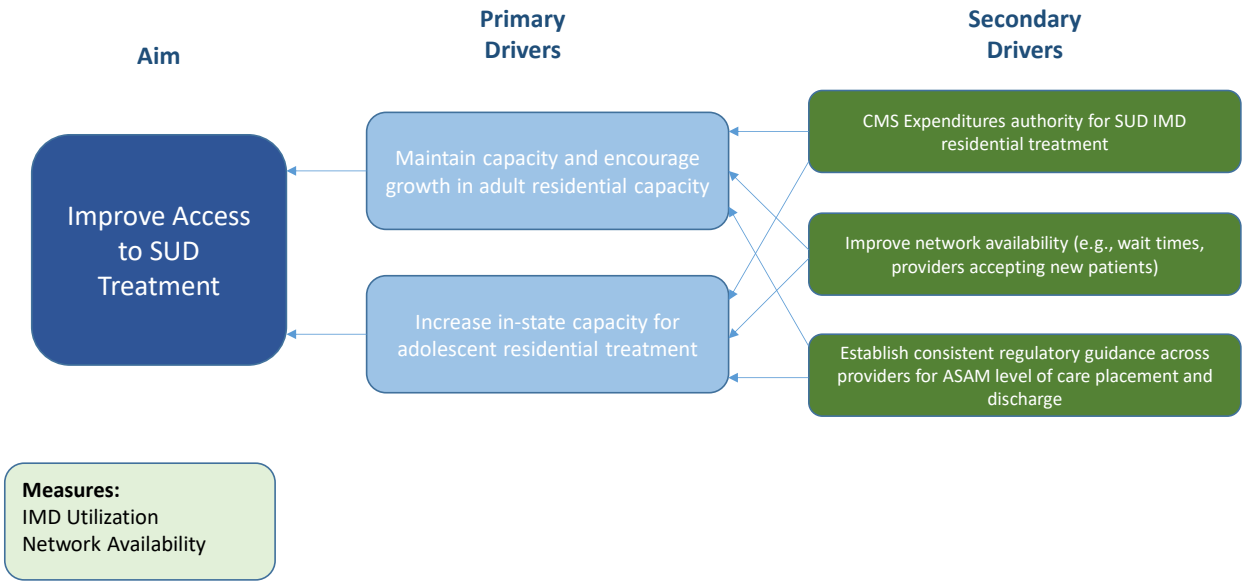


***Exhibit II-2: Quality Driver Diagram***

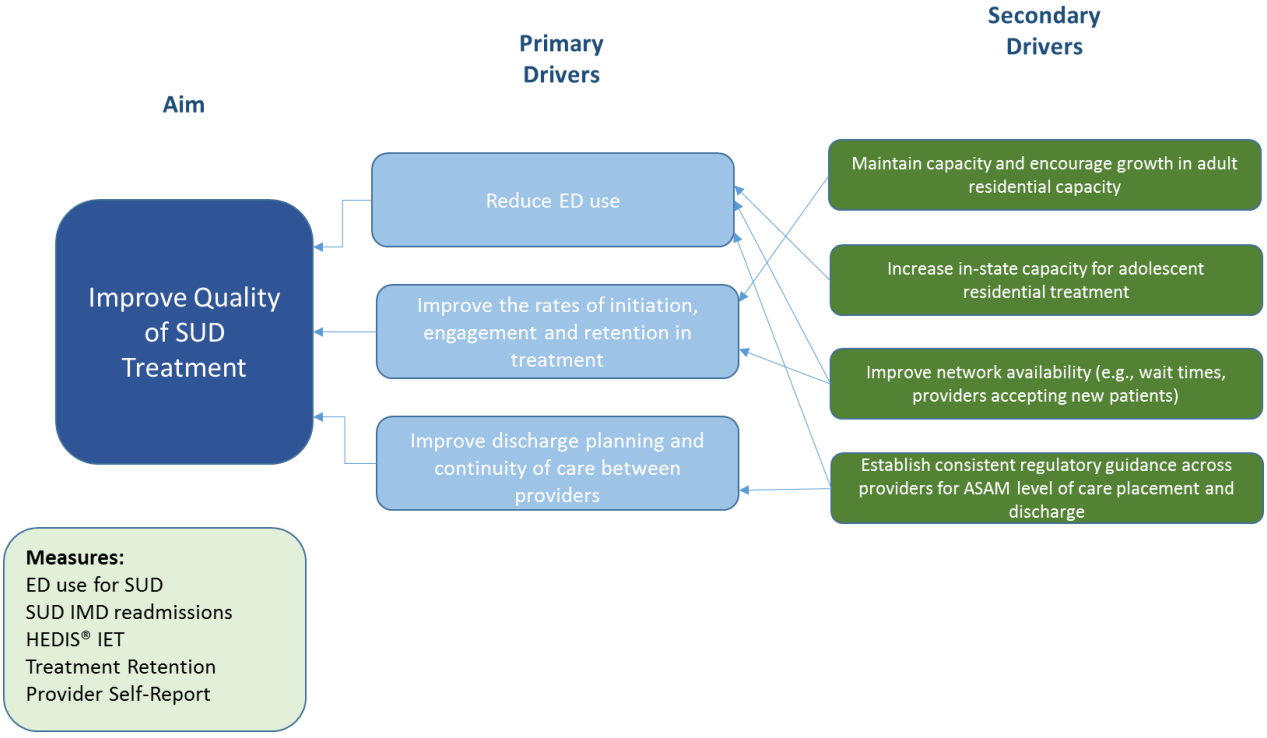
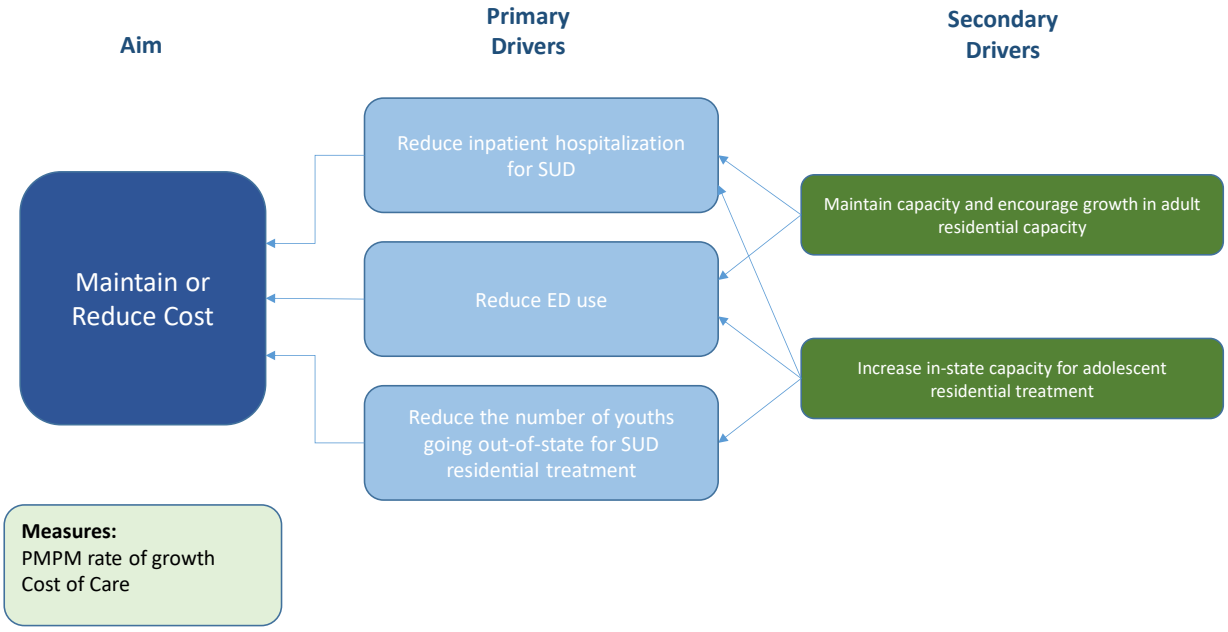



***Exhibit II-3: Cost Driver Diagram***



## EVALUATION QUESTIONS AND HYPOTHESES

The evaluation is designed to study the impact of the Demonstration on participation in SUD treatment and specifically IMD treatment services. Exhibit II-4 offers an overview of evaluation questions, hypotheses, and study groups. As noted elsewhere in the report, hypotheses related to the adolescent IMD study group were not included in this interim analysis.

***Exhibit II-4: Evaluation Questions and Hypotheses***

| Evaluation Question | Hypothesis | Study Group |
|---|---|---|
| Demonstration Goal 1. To improve access to OUD and other SUD services | | |
| 1. What are the impacts of the Demonstration on access to SUD residential treatment services for Demonstration enrollees? | A. Adult enrollees will have better access to residential SUD treatment services | Enrollees with an SUD |
| | B. Adolescent enrollees will have better access to in-state residential SUD treatment services | Suspended due to program changes |
| Demonstration Goal 2. To improve the quality of the SUD treatment delivery system to provide high-quality coordinated and comprehensive OUD/SUD treatment for Medicaid enrollees | | |
| 2. What are the impacts of the Demonstration on quality of care for Medicaid enrollees with an SUD diagnosis? | A. Enrollees with SUD will have fewer ED visits for SUD | Enrollees with an SUD; and adult IMD service recipients |
| | B. Enrollees with SUD will have fewer total ED visits | |
| | C. Enrollees with SUD will have fewer ED visits post discharge from an SUD IMD | Adult IMD service recipients |
| | D. Enrollees with SUD will have improved rates of initiation and engagement in alcohol and other drug treatment | Enrollees with an SUD |
| | E. Enrollees with SUD will have lower IMD readmission rates | Adult IMD service recipients |
| | F. Enrollees with SUD will have improved rates of treatment retention | Adult IMD service recipients |
| Demonstration Goal 3. To maintain budget neutrality | | |
| 3. Will the Demonstration maintain or reduce spending in comparison to what would have been spent absent the demonstration? | A. The Demonstration will be cost neutral | IMD Service Recipients |
| | B. The cost of adolescent residential SUD treatment services will be reduced | Suspended due to program changes |
| Exploratory Analysis | | |
| Expenditure Trends | A. What are the PMPM trends related to Medicaid payments for SUD IMD enrollees, including breakouts for SUD-related and non-SUD-related services and age groups? | Adult IMD service recipients |

## DEMONSTRATION ALIGNMENT WITH TITLE XIX OBJECTIVES

The SUD Demonstration supports the federal Medicaid program in its core mission: to meet the health and wellness needs of our nation's vulnerable and low-income individuals and families. Demonstration goals align with the Title XIX objectives: to improve access to high-quality, person-centered services that produce positive health outcomes for individuals.

# III. METHODOLOGY

Section III provides an overview of the evaluation methodology, including the evaluation design, target and comparison populations, evaluation period, evaluation measures, data sources and analytic methods. This section also offers a summary of methodological and data limitations identified by the evaluator during data collection and validation and how they were addressed, where applicable, during the implementation of the CMS approved Evaluation Design.

## EVALUATION DESIGN

The approved Evaluation Design includes both quantitative and qualitative design techniques. Per the approved Design, qualitative techniques will be employed in the final year of the Demonstration and are not included in this Interim Evaluation Report. As a result of not having a viable comparison group (discussed below), the evaluation utilizes a quasi-experimental pre-test/post-test design with annual observation points. The pre/post design was selected to characterize differences over time for participants. The length of the pre-intervention period was twelve months.

The quantitative analysis (described in more detail below) utilized logistic and linear regressions and t-tests to measure the significance of change for each year of the Demonstration. Due to the nature of the target group and construction of evaluation measures, there are no applicable national benchmarks for comparison.

## TARGET AND COMPARISON POPULATIONS

The approved Evaluation Design does not include comparison groups. Prior to conducting the planned analysis, the independent evaluator reviewed the evaluation methodology with the State and confirmed that a viable comparison group was not available.

Enrollees with an SUD were identified using the criteria for SUD Monitoring Protocol Metric #4 (Medicaid members with an SUD annually) found in the Mathematica Policy Research Manual developed specifically for CMS (1115 Substance Use Disorder Demonstrations: Technical Specifications for Monitoring Metrics Version 4, August 2021). This includes Medicaid members who were enrolled in Medicaid for at least one month (30 consecutive days) during the measurement period and who had a claim for service with an SUD diagnosis and an SUD-related treatment service during the measurement period and/or in the 12 months preceding the period. Diagnosis from any of the following HEDIS 2020 Value Sets were included:

- Alcohol Abuse and Dependence;
- Opioid Abuse and Dependence; and
- Other Drug Abuse and Dependence.

SUD Demonstration enrollees were further stratified into subgroups as outlined in Exhibit III-1.

***Exhibit III-1: SUD Evaluation Enrollee Study Groups***

| Group | Definition | Population Size | | | |
|---|---|---|---|---|---|
| | | Baseline | DY1 | DY2 | DY3 |
| Adults w/SUD | Individuals who are ages 18 through 64 at any time in the measurement period | 25,478 | 27,363 | 27,520 | 27,331 |
| Adolescents w/SUD | Individuals who are between the ages of 12 through 17 on the first and last day of measurement period | 357 | 383 | 399 | 384 |
| SUD IMD Recipients | Adults ages 18 to 64 who have at least one IMD discharge during the measurement period | 1,674 | 2,350 | 2,372 | 2,152 |
| | Adolescents ages 12 to 17 who have at least one IMD discharge during the measurement period | * | * | * | * |

All Demonstration enrollees who met measurement criteria were included in the analyses. The evaluation did not employ random sample, representative sample, or other sampling methods.

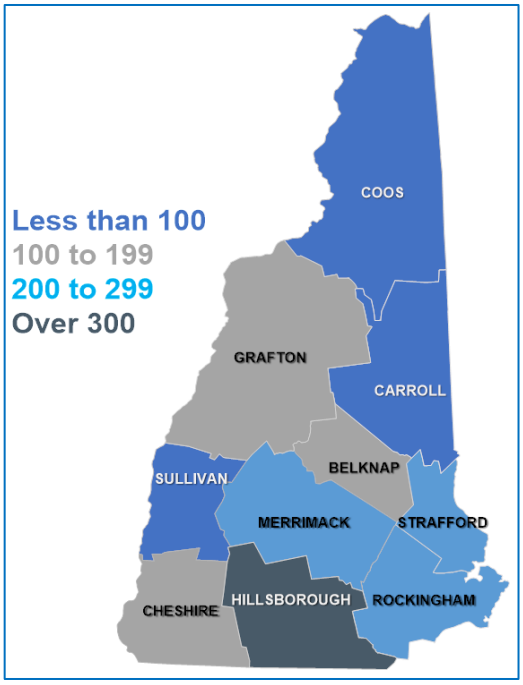
As noted in the approved Design, population size was a concern for certain measures and analyses. The identification of the adolescent IMD group yielded a population size of fewer than ten participants annually. The evaluation team explored the feasibility of revising the adolescent IMD sub-group definition by looking at individuals served in an IMD for SUD who were ages twenty-one and under (in alignment with Early Periodic Screening Diagnosis and Treatment age criteria). However, population sizes for the 12-21 age group ranged only from 37 to 62 enrollees annually.

Given the implementation plan changes identified in Section III and small population sizes, the adolescent IMD subgroup measures and analysis were not included in this analysis.

### ADULT IMD STUDY GROUP

Several measures examine service utilization and engagement in treatment for Medicaid members with an SUD. In addition, adults receiving IMD were identified to provide a focus on the trends and outcomes for those members receiving IMD services specifically authorized under the Demonstration.

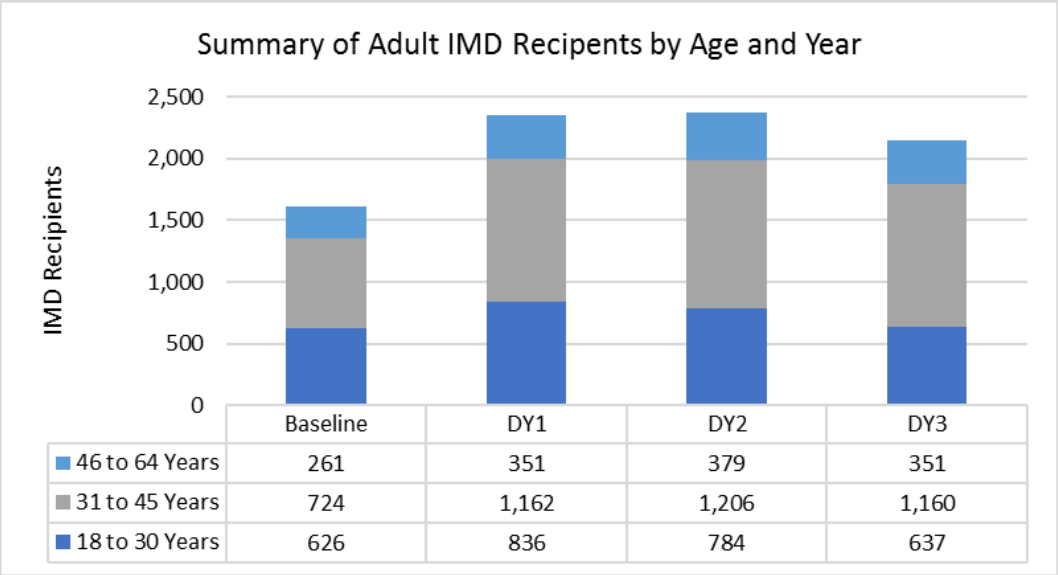
In Demonstration Year 3 (SFY21), more than 800 individuals who received IMD treatment services resided in Hillsborough County, representing nearly 40 percent of IMD service recipients statewide. Between 200 and 299 individuals in Merrimack, Rockingham and Strafford County received IMD treatment services. Between 100 and 199 IMD participants resided in Grafton, Belknap, and Cheshire County, while less than 100 participants reside in Coos, Carroll, and Sullivan County.




Adults using IMD services were 94 percent white, two percent Black or African American, one percent American Indian or Alaskan Native, and three percent "other" or more than two races.

Most of the members using IMD services were between the ages of 31 to 45 years, with 724 members at baseline, 1,162 during DY1, 1,206 during DY2 and 1,160 during DY3. The second largest age group was 18 to 30 years with 626 members at baseline, 836 members during DY1, 784 during DY2 and 637 during DY3. Members ages 46 to 64 years were the smallest group with 261 at baseline, 351 in DY1, 379 during DY2, and 351 during DY3. Exhibit III-2 provides a summary of IMD recipients by Age and Demonstration Year.

***Exhibit III-2: Summary of Adult IMD Recipients by Age and Year***




| | Baseline | DY1 | DY2 | DY3 |
|---|---|---|---|---|
| 46 to 64 Years | 261 | 351 | 379 | 351 |
| 31 to 45 Years | 724 | 1,162 | 1,206 | 1,160 |
| 18 to 30 Years | 626 | 836 | 784 | 637 |

Adults using IMD services included more males than females in each year of the Demonstration and in each age group. Males represented 58 percent of participants ages 18 to 30 years old, over 62 percent of members ages 31 to 45 and 70 percent of members ages 46 to 64 years old.

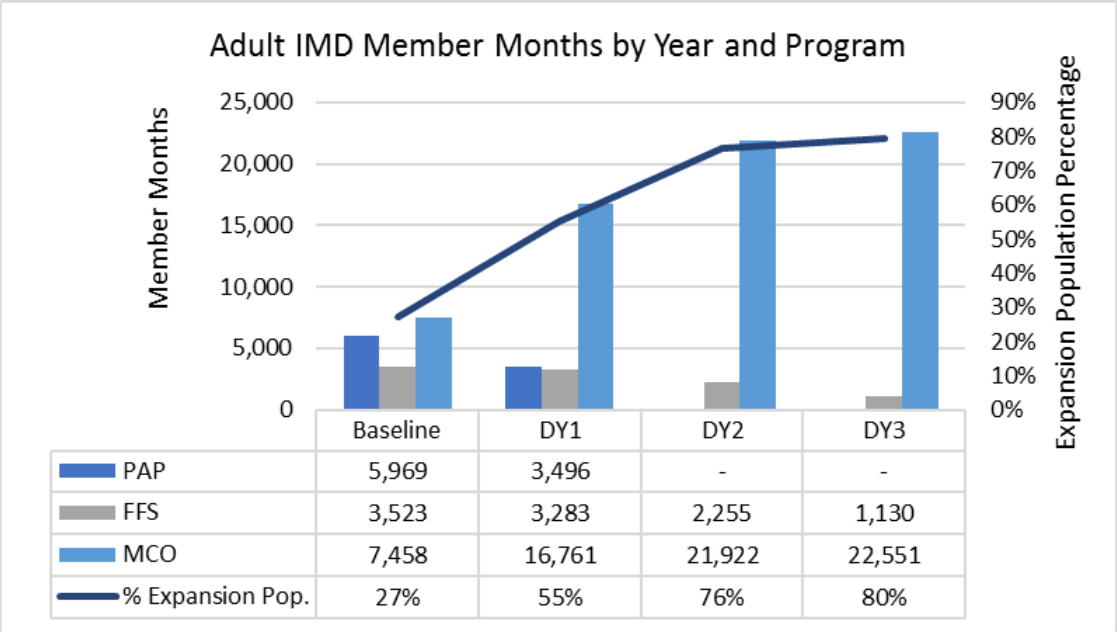
***Exhibit III-3: Summary of IMD Recipients by Age and Gender***

| Age Range | Gender | Baseline | DY1 | DY2 | DY3 | Total |
|---|---|---|---|---|---|---|
| 18 to 30 Years | F | 309 | 348 | 311 | 247 | 1215 |
| | M | 317 | 488 | 473 | 390 | 1668 |
| 31 to 45 Years | F | 319 | 433 | 435 | 409 | 1596 |
| | M | 405 | 729 | 771 | 751 | 2656 |
| 46 to 64 Years | F | 88 | 106 | 97 | 109 | 400 |
| | M | 173 | 245 | 282 | 242 | 942 |

Members using IMD services were largely served in MCO programs in each year of the Demonstration. MCO member months ranged from 7,458 at baseline to 16,761 in the first year of the Demonstration and rose to 22,551 in DY3 after the transition of the premium assistance program (PAP) into the MCO framework.

As the PAP program terminated halfway through DY1, (December 31, 2018) the member months for beneficiaries in the Adult Expansion population increased from 27 percent of the total at baseline to 55 percent in DY1 and to 80 percent in DY3. Exhibit III-4 provides a summary of participation by program.

***Exhibit III-4: Summary of Member Months by Program***




| | Baseline | DY1 | DY2 | DY3 |
|---|---|---|---|---|
| PAP | 5,969 | 3,496 | - | - |
| FFS | 3,523 | 3,283 | 2,255 | 1,130 |
| MCO | 7,458 | 16,761 | 21,922 | 22,551 |
| % Expansion Pop. | 27% | 55% | 76% | 80% |

## EVALUATION PERIOD

The evaluation spans the Demonstration approval period (July 10, 2018 - June 30, 2023) with a baseline period beginning one year prior to the Demonstration (July 1, 2017 - June 30, 2018). This Interim Evaluation Report presents preliminary findings from July 1, 2017 - June 30, 2021.

## EVALUATION MEASURES

The measure specifications for Initiation and Engagement are derived from the Mathematica Policy Research Manual developed specifically for CMS 1115 Substance Use Disorder Demonstrations (Technical Specifications for Monitoring Metrics, Version 4, August 2021). The original design anticipated that the measure would be calculated on a Calendar Year basis. After discussion with the evaluation team, all measures were calculated using the Demonstration Year as the measurement period. This revision allows for findings to draw upon the same populations, measurement periods, data sets and service delivery context.

One measure, retention in treatment, was originally developed by DHHS as an extension to the initiation and engagement measurement framework. Since the CMS approval of the Evaluation Design, DHHS was asked by NCQA not to use the framework of the HEDIS metrics to design new performance metrics. The evaluation team worked with DHHS to develop a state-specific measure of retention that focuses on continuity of treatment following an IMD discharge. This measure is described in detail as part of the findings.

In addition to hypothesis testing, the evaluation monitors the impact of IMD stays on total Medicaid expenditures for Demonstration enrollees. Cost of care measures not associated with a hypothesis are examined for year-over-year change and utilization trends and relative to drivers, such as ED utilization, inpatient hospitalization, and pharmacy services.

As noted earlier, the adolescent subgroup measures and analyses were not included due to insufficient population size and changes in the SUD program implementation for the adolescent group.

## DATA SOURCES, CLEANING AND VALIDATION

The quantitative evaluation measures rely on New Hampshire Medicaid claims and managed care encounter data stored in the Medicaid Management Information System (MMIS). Fee-for-service data for members previously enrolled in the New Hampshire Health Protection Program/Premium Assistance Program (PAP) were extracted from the State's premium assistance program encounter database for dates of service between July 1, 2016, and December 31, 2018. After the first six months of the Demonstration, PAP members were transitioned to the MCO program. Information on member characteristics (e.g., category of eligibility, eligibility start and end dates, race/ethnicity, county of residence) was obtained through the State eligibility and enrollment system maintained by DHHS.

DHHS provided the evaluation team with Medicaid data extracts for each year. Extracts contained member eligibility data, fee-for-service claims data and encounter data for Medicaid members enrolled for the period July 1, 2016, through December 31, 2021. PHPG removed claims with dates of service outside of the evaluation period. Enrollees who did not receive full Medicaid benefits were also removed from the data set.

DHHS provided the evaluation team with the methodology to identify residential and IMD services. The methodology includes identifying residential providers using a list of National Provider Identifiers (NPI) for New Hampshire residential SUD treatment facilities and their status as an IMD. The evaluation team identified claims with a primary diagnosis of SUD from each IMD provider. A secondary check was completed using DHHS specific billing, revenue, and modifier codes as illustrated in Exhibit III-5.

***Exhibit III-5: DHHS Medicaid SUD Residential Billing, Revenue and Claims Modifier Codes***

| New Hampshire Billing Code | Billing Code Type | Informational IMD Code | Informational Code Type |
|---|---|---|---|
| H0010 - Alcohol and/or drug services; sub-acute detoxification (residential addiction program inpatient) | HCPCS | V1 | Procedure Modifier |
| H0018 - Behavioral health; short-term residential (non-hospital residential treatment program), without room and board, per diem | | | |
| H2034 - Alcohol and/or drug abuse halfway house services, per diem | | | |
| T1006 - Specialty Residential Services for Pregnant & Parenting Women | | | |
| 0116 - Detox | Revenue | A3 | Condition |
| 0126 - Detox | | | |
| 0136 - Detox | | | |
| 0146 - Detox | | | |
| 0156 - Detox | | | |
| 1002 - Residential treatment – chemical dependency | | | |

Preliminary member counts and utilization results were validated against data reports produced independent of the evaluation (e.g., SUD Monitoring Protocol, DHHS quality monitoring reports and HEDIS audited results).

Bed counts for Medicaid-enrolled SUD residential treatment providers were obtained through a combination of MMIS provider enrollment files and the DHHS Bureau of Health Facilities licensing reporting system. The total number of beds were recorded for Medicaid-enrolled facilities as of July 1 of each year. PHPG validated residential SUD treatment provider NPIs against claims detail (type of services billed each SFY). In addition, a licensing report was obtained that included provider name, date of the provider's initial license, and bed counts for each residential SUD treatment provider regardless of Medicaid enrollment status. The list was cross walked to the MMIS list and served as another source of validation.

## ANALYTIC METHODS

The data analysis included exploratory and descriptive strategies and incorporated causal inference methods for the observational data. Descriptive statistics were used to describe the basic features of the data and what they depict, and to provide simple summaries about the sample and the measures. The causal inference methods included univariate and multivariate regressions, t-test, and analysis of variance (ANOVA).

Outcomes were calculated annually for the baseline period and for Demonstration Years 1-3. Regression models accounting for members in more than one year (clustering) were used to assess the rate of change over time in evaluation outcomes. To assess change over time, the evaluation used ANOVA for the utilization measures and logistic regression for the quality measures. Age and gender were controlled for in the models examining cost and ED utilization measures. To address concerns of multiple hypothesis testing, the evaluation used either a Bonferroni adjustment or ANOVA instead of multiple t-tests on the same data series. Statistically significant results are reported based on $p \leq 0.05$, with adjustments made when necessary to address concerns around multiple hypothesis testing.

The evaluators estimated a binary (Bernoulli) response variable Y here (i.e., whether the patient received the care, follow up, or visit of interest), which is denoted as $p = P(Y = 1)$. Assuming a linear relationship between the predictor variable (year) and the log-odds of the event Y= 1, the relationship is denoted as:

$$l = \log_b \frac{p}{1-p} = \beta_0 + \beta_1(year)$$

which when solved algebraically for p comes out to:

$$p = \frac{1}{1 + b^{-(\beta_0 + \beta_1(year))}}$$

Where $l =$ log odds, $b =$ base of the logarithm (we default to natural log), and $\beta_i's$ are the parameters for the predictors.

The evaluators estimated a linear response between a response, Y, and multiple explanatory variables (age, gender, year). For explanatory variables that take on a finite number of discrete levels, the evaluators one-hot encoded the responses. For example, for "gender," the evaluators have two factors: "gender male" and "gender female" which can take on only values of 0 and 1. Each patient can only be one gender and the gender reported will take on the value "1" and the other one will take on the value "0." The relationship is denoted as for all years as follows:

$$Y = \beta_0 + \beta_1(age) + \beta_2(gender\_F) + \beta_3(year19) + \beta_4(year20) + \beta_5(year21)$$

Doorway services, available to all New Hampshire residents, began in DY2. When controlling for Doorway services for Demonstration enrollees in DY2 (SFY20) and DY3 (SFY21) the relationship is denoted as:

$$Y = \beta_0 + \beta_1(age) + \beta_2(gender\_F) + \beta_3(year21) + \beta_4(Doorway\_Y)$$

Where age represents age in years, and gender_F, year19, year20, year 21 and Doorway_Y are all binary variables that take on value 1 when true and value 0 when not true.

Note that gender_M and year_18 are left out from the first linear estimation equation (just as year_20, gender_M and Doorway_N are left out of the second one) because they are perfectly correlated and collinear with the other variables. Given that one of the assumptions of Ordinary Least Squares is no multicollinearity, these variables are dropped to avoid multicollinearity and because they cannot otherwise be estimated.

### Isolation from Other Initiatives

Three initiatives ran concurrent with the SUD demonstration. These included the State Opioid Response Grant; the transition of the Medicaid expansion group from premium assistance to MCOs; and the final years of the DHHS Delivery System Reform Incentive Program (DSRIP) Demonstration, entitled Building Capacity for Transformation. Methods for isolating the impact of each initiative, where possible, are described below.

The Doorway (State Opioid Response Plan): The State of New Hampshire implemented a State Opioid Response Program, the Doorway, funded through SAMHSA, on January 1, 2019. Nine Doorway providers across the State began offering a combination of services, based on population and service system priorities in each region. These services included, but were not limited to:

- SUD screening and evaluation;
- SUD treatment services, including MAT;
- Prevention and harm reduction services (e.g., naloxone distribution);
- Recovery services and supports; and
- Peer recovery services.

The Doorway providers may receive reimbursement for Medicaid enrollees when a covered service is provided. The evaluation team controlled for the State Opioid Response Plan by identifying Medicaid members with a claim from one of the nine Doorway providers. Results were calculated with and without Doorway recipients to assess the potential program impact on the Demonstration. However, members may receive Doorway services that are not Medicaid reimbursable, limiting the extent to which the impact of these programs can be isolated from the SUD Demonstration results.

Where feasible, a linear regression was performed to control for members who received Medicaid reimbursable Doorway services. The evaluators one-hot encoded the Doorway

(binary) variable and estimated the coefficient of receiving Doorway services (i.e., Doorway-yes) versus not receiving Doorway services to control for the impact of a member being in the Doorway program. The analysis of Doorway services is limited to SFY20 and SFY21; the 12-month periods concurrent with SUD Demonstration Years 2 and 3.

Expansion Group Transition: On December 31, 2018, DHHS terminated the State's Premium Assistance Program (PAP) for the Medicaid Expansion population. Subsidies for Medicaid Expansion enrollees to purchase a Qualified Health Plan on the marketplace were eliminated and enrollees were transitioned to one of two existing Medicaid MCOs operating in New Hampshire. (This rose to three MCOs in September 2019 following the State's managed care re-procurement.) The SUD Demonstration was developed with the understanding that many of the service recipients would be in the Medicaid expansion population. Adult IMD enrollees in the expansion population represented nearly 80 percent of member months by DY2 and 3.

Delivery System Reform Incentive Program (DSRIP): The DSRIP Demonstration was authorized January 5, 2016, through December 31, 2020. The project period ran concurrent with SUD Demonstration for two- and one-half years, July 1, 2018 – December 31, 2020. DSRIP project activities spanned the health care delivery system and were not exclusive to SUD programs. However, the program included a focus on the integration of physical and behavioral health and building capacity for SUD treatment across the State.

The DSRIP project supported the formation of community partnerships known as Integrated Delivery Networks (IDN), IT infrastructure and direct services to address local service gaps and population health needs. The IDN host agencies were not expected to identify or track services received by individual Medicaid members, nor did the DSRIP evaluation design include provisions to isolate the impact of services rendered by IDN members. While it is likely SUD Demonstration enrollees benefited from local IDN activities, it is not possible to isolate the impact between the two Demonstrations.

## METHODOLOGICAL LIMITATIONS

The SUD Demonstration evaluation is limited by several factors, including:

Lack of true experimental comparison groups: IMD facilities in New Hampshire serve residents from across the State. Thus, regional comparison groups are not available. In addition, residential placement decisions are made based on nationally recognized ASAM level of care guidelines; thus, individuals admitted to a residential SUD program have a clinically different profile and level of care need than those who are not admitted. These clinical differences eliminate the possibility of matched sample of enrollees who received services versus those who did not. Lastly, all Medicaid enrollees who meet SUD criteria are eligible for the Demonstration.

The approved Evaluation Design recognizes this limitation and utilizes a pre/post design with annual observation points. Where the outcome variable is not binary, the evaluators also used

multivariate linear regression that includes demographic factors (age and gender) to account for additional variances attributable to those factors and not the Demonstration.

Continuity of Services: New Hampshire residential SUD IMD treatment facilities are existing statewide providers who have been delivering care to Medicaid enrollees prior to the implementation of the SUD demonstration. The approved Evaluation Design recognizes this limitation and utilizes a logistic regression model to analyze the significance of change for each year against the baseline period. Therefore, these findings are longitudinal and should not be interpreted as causal evidence for the impacts of the demonstration.

Reliance on Administrative Data: The evaluation may be limited by its reliance on claims and diagnostic codes to identify the beneficiary population with SUD. These codes may not capture all participants especially if the impact or severity of the SUD is not evident on initial assessment. For example, an ED visit for a broken arm due to inebriation may not be coded as SUD related if the member does not present as inebriated, the ED provider has not ascertained causation, or the member fails to disclose the cause. This type of limitation is inherent in claims-based analysis. However, the potential for missing data is random. There is no reason to believe that any given Demonstration group is more or less likely to have missing data.

Population Size: The evaluation may be limited by the small size of the New Hampshire SUD Demonstration population and IMD capacity. This limitation is especially apparent as it relates to creating sub-populations for adolescents and IMD recipients. Due to the small population size and the changes in Demonstration implementation related to adolescent programs, the evaluation team eliminated the adolescent IMD study group from the analyses.

Public Health Emergency (PHE). In additional to recognizing the limitations above in the design stage, the evaluation findings are impacted by the novel coronavirus pandemic and the State's PHE response. The pandemic began 18 months after the start of the Demonstration and had not dissipated by the end of DY3. As disease surges persist and the virus moves to an endemic phase, it is expected to have a continual impact on service delivery and member behavior. This limits the ability of the evaluators to study a before/after impact on the Demonstration during this interim report period. The evaluators will revisit potential design adjustments and analytic methods in the summative report.

# IV. RESULTS

This section presents the findings for the New Hampshire SUD Treatment and Recovery Access Demonstration by evaluation question and hypothesis. Many of the New Hampshire residential SUD IMD treatment facilities were existing statewide providers at the outset of the Demonstration. Most residential SUD treatment facilities had been delivering care to Medicaid enrollees prior to the implementation of the SUD Demonstration. Therefore, these findings are longitudinal and should not be interpreted as causal evidence for the impacts of the Demonstration.

The remainder of this section provides detailed findings, including the statistical analyses used for each evaluation measure.

## EVALUATION QUESTION 1 (ACCESS)

Evaluation Question One asks, "What are the impacts of the Demonstration on access to SUD residential treatment services for Demonstration enrollees?" Exhibit IV-1 provides an overview of the hypothesis and measures associated with Evaluation Question One.

***Exhibit IV-1. Evaluation Question 1 Hypotheses and Measures***

| Hypotheses | Measures |
|---|---|
| A. Adult enrollees will have better access to residential SUD treatment services. | 1. Percent of enrollees ages 12-64 with an SUD claim for treatment in an IMD with a discharge date during the year |
| | 2. The total number of licensed beds for Medicaid enrolled SUD residential treatment providers each year |

### Measure 1.A.1. Percent of enrollees ages 12-64 with an SUD claim for treatment in an IMD with a discharge date during the year.

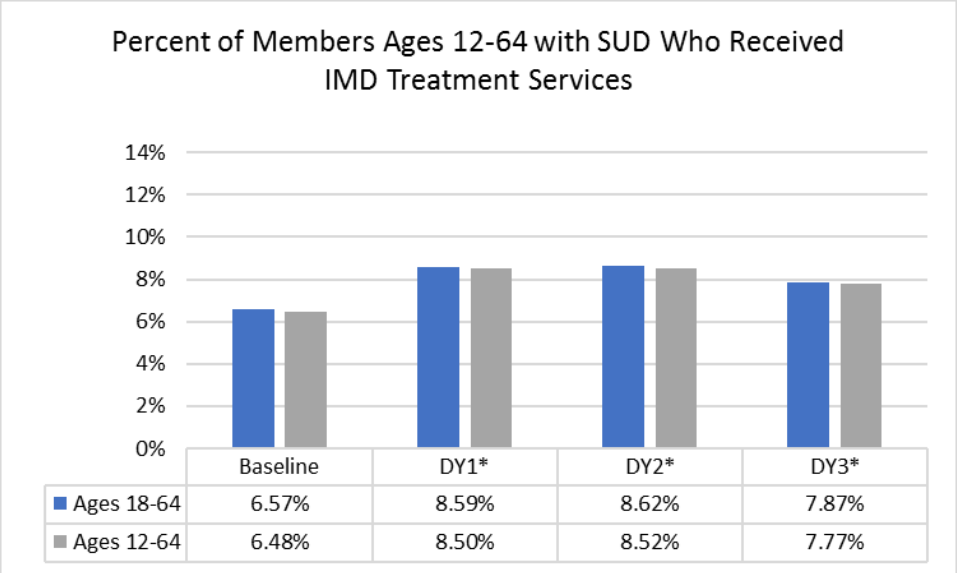
**Measure Description**: This measure follows the SUD Monitoring Protocol methodology for Metric #4 (Medicaid Beneficiaries with SUD diagnosis annually). The number of unique beneficiaries with full benefits enrolled in Medicaid for at least one month (30 days) who receive Medication Assisted Treatment (MAT) or have a qualifying facility claim, provider or pharmacy claim with an SUD diagnosis and an SUD related treatment service during the measurement period and/or in the 12 months before the measurement period were included in the denominator. The numerator was created by counting enrollees with an IMD discharge date during the measurement period using the DHHS list of SUD residential providers designated as IMDs.

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Logistic Regression

**Findings**: During the baseline period, 6.48 percent of all members ages 12 to 64 and 6.57 percent of adult members (ages 18 to 64) received IMD treatment services. Members ages 12 to 64 with an SUD receiving IMD services rose above baseline to 8.50 percent in DY1, 8.52 percent in DY2, and 7.77 percent in DY3. The adult age group showed a similar increase above baseline to 8.59 percent in DY1, 8.62 percent in DY2, and 7.87 percent in DY3. Although the DY3 rates fell slightly from the prior year in both age groups, the increase over baseline was statistically significant in each year of the Demonstration.

***Exhibit IV-2: Percentage of Members with SUD Receiving IMD Treatment Services***




| | Baseline | DY1* | DY2* | DY3* |
|---|---|---|---|---|
| Ages 18-64 | 6.57% | 8.59% | 8.62% | 7.87% |
| Ages 12-64 | 6.48% | 8.50% | 8.52% | 7.77% |

**Statistically significant change from baseline period*

**Measure 1.A.2 The total number of licensed SUD treatment beds for Medicaid Enrolled SUD residential treatment providers each year.**

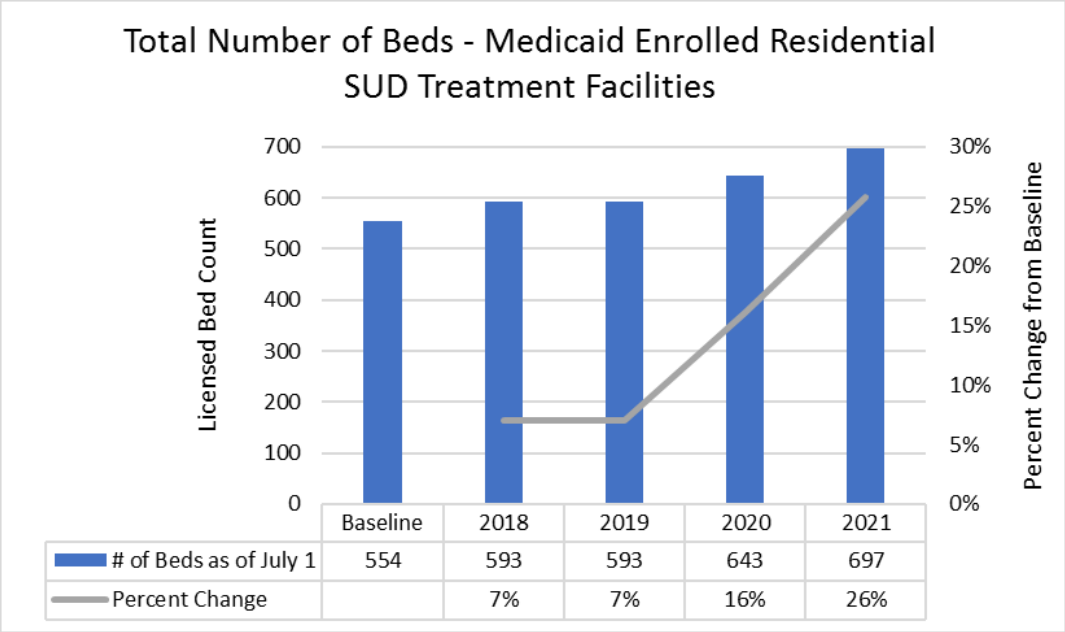
**Measure Description**: This measure was calculated using a licensed bed count and MMIS provider enrollment detail for all Medicaid enrolled residential SUD treatment programs as of July 1 of each year. Total beds were summed annually and the percent change year over year calculated.

**Data Source and Time Period**: MMIS provider enrollment files; Bureau of Health Care Licensing SUD Facility Reports as of July 1 of each year.

**Analytical Approach**: Descriptive

**Findings**: New Hampshire results show that residential SUD treatment capacity has increased over time. On July 1, 2018, at the start of the Demonstration, there were 593 Medicaid enrolled beds; in 2019 there were 593 beds; in 2020 there were 643 beds. By 2021 the residential SUD treatment capacity rose to 697, a 26 percent increase over baseline.

***Exhibit IV-3: Bed Capacity for Medicaid-Enrolled Residential Treatment Providers***



## EVALUATION QUESTION 2 (QUALITY)

Evaluation Question Two asks, "What are the impacts of the Demonstration on quality of care for Medicaid enrollees with an SUD diagnosis?" Exhibit IV-4 provides an overview of six hypotheses and seven measures associated with Evaluation Question Two.

***Exhibit IV-4: Evaluation Question 2 Hypotheses and Measures***

| Hypotheses | Measures |
|---|---|
| A. Enrollees with SUD will have fewer ED visits for SUD | 1. The total number of ED visits for SUD per 1,000 SUD Demonstration enrollees |
| B. Enrollees with SUD will have fewer total ED visits | 1. The total number of ED visits for any reason per 1,000 SUD Demonstration enrollees |
| C. Enrollees with SUD will have fewer ED visits post discharge from an SUD IMD | 1. The frequency and rate of ED use, for enrollees receiving SUD IMD services, 90 days prior to their IMD admission and 90 days post their IMD discharge |
| D. Enrollees with SUD will have improved rates of initiation and engagement in alcohol and other drug treatment | 1. Percentage of enrollees who initiated treatment within 14 days of diagnosis |
| | 2. Percentage of enrollees who initiated treatment and who had two or more additional AOD services or MAT within 34 days of the initiation visit |
| E. Enrollees with SUD will have lower IMD readmission rates | 1. The percent of SUD IMD stays during the measurement period followed by an SUD IMD readmission for SUD within 30 days |
| F. Enrollees with SUD will have improved rates of treatment retention | 1. The percent of enrollees who had SUD treatment visits 45, 90, 135 and 180 days following IMD discharge |

### Measure 2.A.1. The total number of ED visits for SUD per 1,000 SUD Demonstration enrollees.

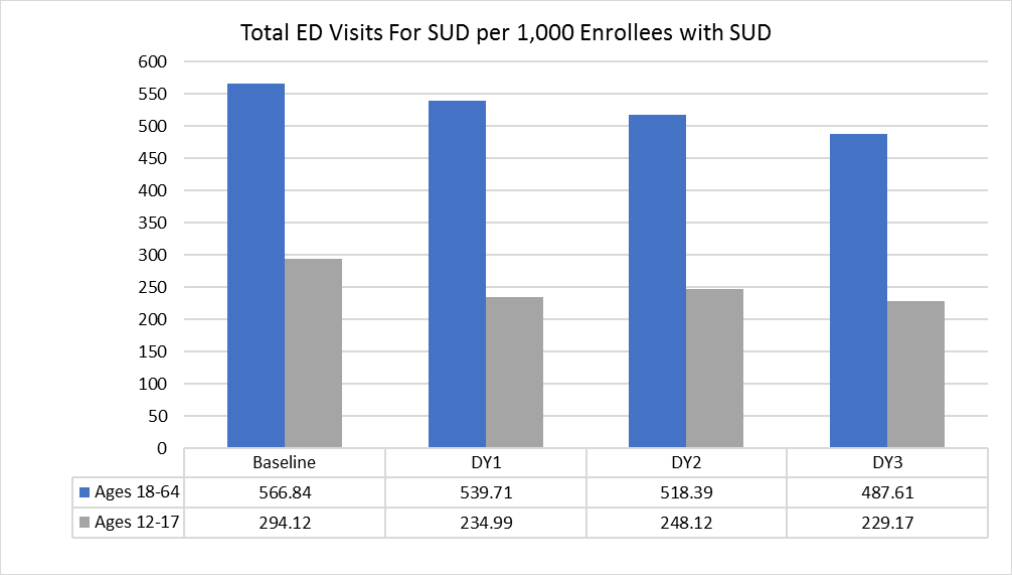
**Measure Description**: This measure follows the SUD Monitoring Protocol methodology for Metric #23 (ED visits for SUD per 1,000 enrollees). The measure was stratified for the adult and adolescent SUD sub-groups and the adult IMD study group.

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Linear Regression for the IMD Study Group

**Findings**: ED visits for SUD have been declining since the baseline level of 566.84 visits per 1,000 adult enrollees with an SUD and 294.12 visits per 1,000 adolescent enrollees with an SUD. ED visits for SUD per 1,000 adult enrollees in DY1 declined to 539.71. During the onset of the PHE, the adult rate of ED visits for SUD declined further to 518.39 in DY2 and 487.61 in DY3. ED visits for SUD among adolescents dropped from 294.12 visits per 1,000 at baseline to 234.99 ED visits for SUD in DY1. During the onset of the PHE, adolescent ED visits for SUD rose to 248.12 in DY2 before declining to 229.17 in DY3.

***Exhibit IV-5: Emergency Department (ED) Utilization for Enrollees with SUD***

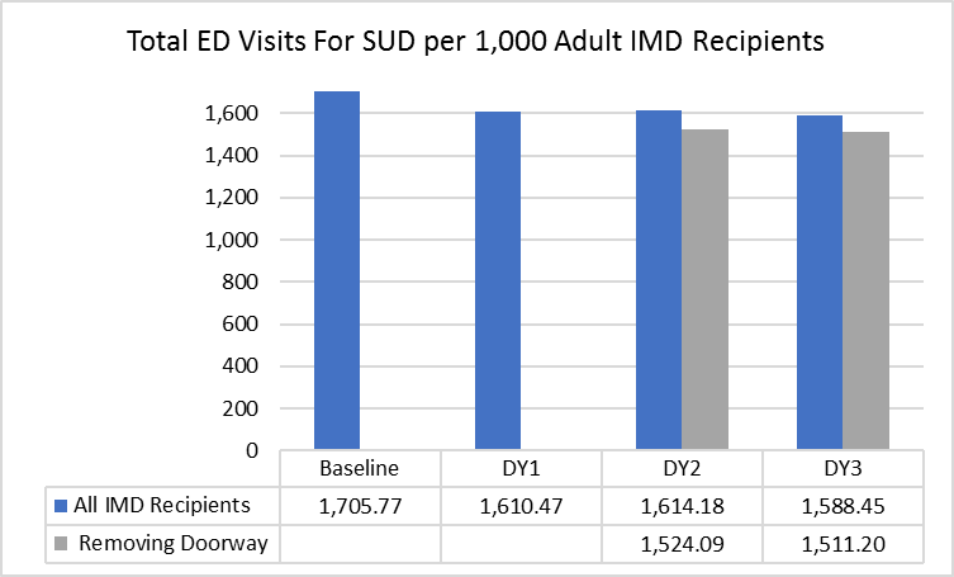



ED visits for the adult IMD study group were also examined. This group represents individuals requiring the most intensive level of SUD treatment, including medically managed and medically monitored detoxification services, intensive residential treatment, and inpatient care.

ED visits for SUD among adult IMD service recipients declined from a baseline of 1,705.77 per 1,000 IMD enrollees to 1,610.47 ED visits for SUD per 1,000 IMD enrollees during DY1. During the onset of the PHE, the IMD enrollee rate of ED visits for SUD rose slightly to 1,614.88 ED visits for SUD before declining to 1,588.45 during DY3. When Doorway program recipients were

removed from the IMD study group, the positive trend in change over baseline was maintained for DY2 and DY3.

***Exhibit IV-6: Emergency Department (ED) Utilization for IMD Recipients***




A linear regression controlling for age and gender for the IMD study group was performed. Statistical significance suggests the likelihood of the variable having an impact, while the coefficient estimate measures the size and direction of the potential effect. The intercept represents the baseline (mean values) before accounting for differences due to member demographics or measurement year.

Age and gender accounted for the some of the variation seen across years with ED use increasing with age and females being less likely than males to use ED services. The Demonstration Year did not have statistically significant explanatory power for the variation in the data. Regression coefficients for the IMD study group are summarized in Exhibit IV-7.

***Exhibit IV-7: Regression Coefficients - ED visits for SUD, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 1.753e-03 | 2.590e-04 | 6.767 | 1.48e-11*** | Yes |
| Age | 4.129e-05 | 5.912e-06 | 6.983 | 3.30e-12 *** | Yes |
| Gender (Female) | -2.887e-04 | 1.197e-04 | -2.412 | 0.0159 * | Yes |
| Year (DY1) | -6.546e-05 | 1.707e-04 | -0.383 | 0.7015 | No |
| Year (DY2) | -3.651e-05 | 1.710e-04 | -0.214 | 0.8309 | No |
| Year (DY3) | -2.095e-04 | 1.737e-04 | -1.206 | 0.2279 | No |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In addition, a linear regression controlling for age, gender and Doorway participation was performed. Results show that age and Doorway participation accounted for some of the variation seen in DY2 and DY3 (the first full years of Doorway overlap with the Demonstration).

ED use increased with age and with Doorway program services. Demonstration Year did not have statistically significant explanatory power for the variation in the data.

Regression coefficients for DY3 and Doorway services are summarized in Exhibit IV-8.

***Exhibit IV-8: Regression Coefficients ED visits for SUD, Controlling for Doorway Service Recipients DY2-DY3***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 1.528e-03 | 3.522e-04 | 4.339 | 1.49e-05*** | Yes |
| Age | 4.420e-05 | 8.748e-06 | 5.052 | 4.70e-07 *** | Yes |
| Gender (Female) | -3.194e-04 | 1.760e-04 | -1.815 | 0.06969 † | No |
| Year (DY3) | -2.116e-04 | 1.688e-04 | -1.253 | 0.21023 | No |
| Doorway Service | 5.715e-04 | 2.133e-04 | 2.680 | 0.00741 ** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

### 2.B.1. The total number of ED visits for any reason per 1,000 SUD Demonstration enrollees.

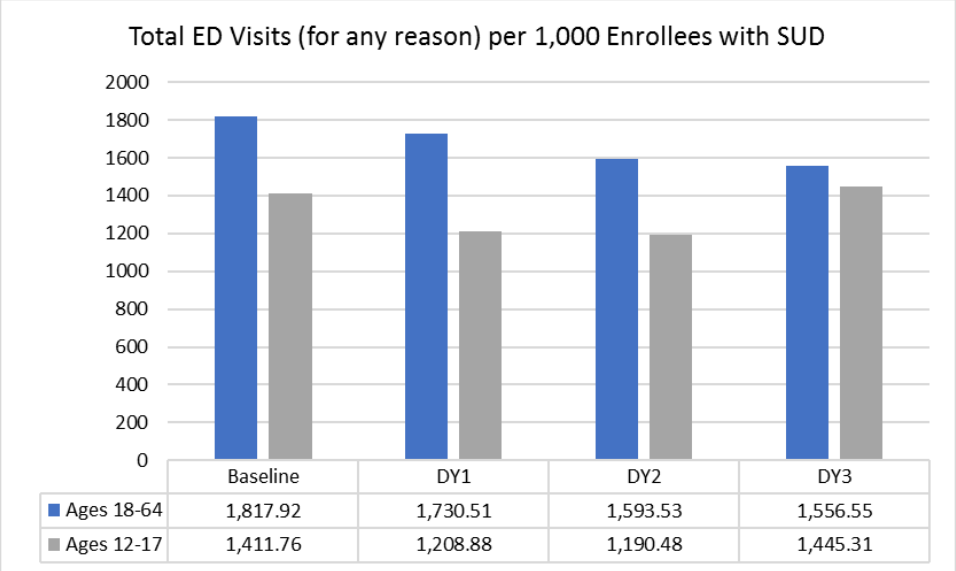
**Measure Description**: This measure is an adaptation of the CMS measure Ambulatory Care: Emergency Department (ED) Visits from the Medicaid Health Home Core Set. The metric was adapted to include those only enrollees identified with an SUD under the Demonstration. The measure was stratified for the adult and adolescent SUD sub-groups and the adult IMD study group.

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Linear Regression for the IMD Study Group

**Findings**: ED visits for any reason have been declining since the baseline level of 1,817.92 visits per 1,000 adult enrollees with an SUD. ED visits per 1,000 adult enrollees in DY1 declined to 1,730.51. During the onset of the PHE, the adult rate of ED visits declined further to 1,593.53 in DY2 and 1,556.55 in DY3. ED visits for any reason among adolescents dropped from 1,411.76 visits per 1,000 at baseline to 1,208.88 in DY1. During the onset of the PHE, adolescent ED visits declined to 1,190.48 before increasing in DY3 to 1,445.31.

***Exhibit IV-9: Emergency Department (ED) Utilization for Enrollees with SUD***




| | Baseline | DY1 | DY2 | DY3 |
|---|---|---|---|---|
| Ages 18-64 | 1,817.92 | 1,730.51 | 1,593.53 | 1,556.55 |
| Ages 12-17 | 1,411.76 | 1,208.88 | 1,190.48 | 1,445.31 |

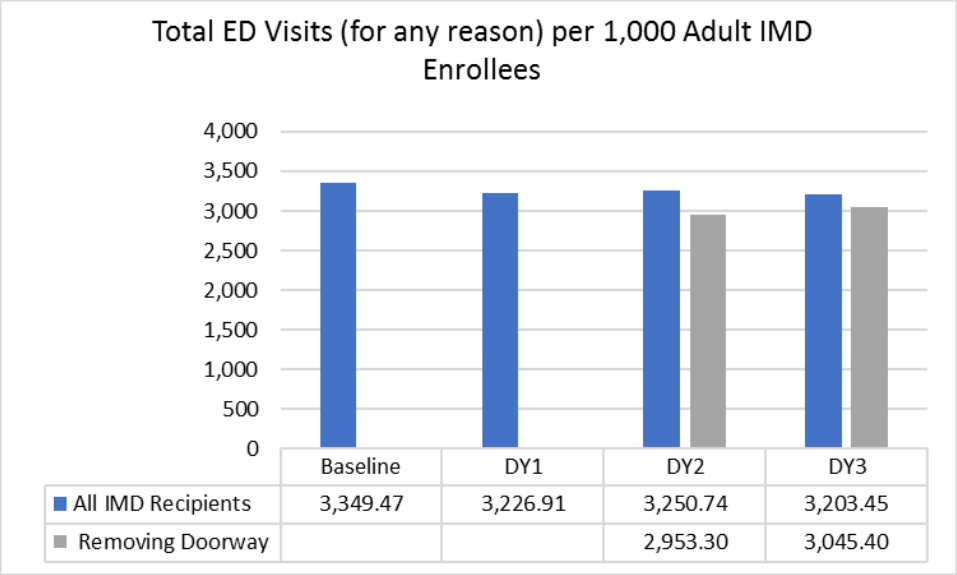
ED visits for the adult IMD study group were also examined. This group represents individuals requiring the most intensive level of SUD treatment including medially managed and medically monitored detoxification services, intensive residential treatment, and inpatient care.

ED visits for any reason among adult IMD service recipients declined from a baseline of 3,349.97 per 1,000 IMD enrollees to 3,226.91 ED visits per 1,000 IMD enrollees during DY1.

During the onset of the PHE, the IMD enrollee rate of ED visits was 3,250.74 in DY2 and 3,203.45 during DY3.

When Doorway program recipients were removed from the IMD study group, the positive trend in change over baseline was maintained for DY2-DY3.

***Exhibit IV-10: Emergency Department (ED) Utilization, All Reasons***




A linear regression controlling for age, gender for the IMD study group was performed. Statistical significance suggests the likelihood of the variable having an impact, while the coefficient estimate measures the size and direction of the potential effect. The intercept represents the baseline (mean values) before accounting for differences due to member demographics or measurement year.

Age accounted for some of the variation seen across years with ED use increasing in older enrollees. Gender and year did not have significant explanatory power to account for the variation seen across years. Regression coefficients for the IMD study group are summarized in Exhibit IV-11.

***Exhibit IV-11: Regression Coefficients ED visits, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 3.002852 | 0.302903 | 9.914 | < 2e-16*** | Yes |
| Age | 0.039975 | 0.007025 | 5.690 | 1.33e-08 *** | Yes |
| Gender (Female) | -0.096879 | 0.137489 | -0.705 | 0.481 | No |
| Year (DY1) | -0.096291 | 0.197780 | -0.487 | 0.626 | No |
| Year (DY2) | -0.031689 | 0.197989 | -0.160 | 0.873 | No |
| Year (DY3) | -0.229070 | 0.201118 | -1.139 | 0.255 | No |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In addition, a linear regression controlling for age, gender and Doorway participation was performed. Results show that age and Doorway recipients accounted for some of the variation seen in DY2 and DY3 (the first full years of Doorway overlap with the Demonstration). ED use increased with age and with Doorway program services. No other variables had statistically significant explanatory power for the variation in the data. Regression coefficients for the DY2-DY3 and Doorway services are summarized in Exhibit IV-12.

***Exhibit IV-12: Regression Coefficients ED visits, Controlling for Doorway Service Recipients DY2-DY3***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 2.54772 | 0.41800 | 6.095 | 1.22e-09*** | Yes |
| Age | 0.04542 | 0.01053 | 4.315 | 1.64e-05 *** | Yes |
| Gender (Female) | -0.07081 | 0.20330 | -0.348 | 0.728 | No |
| Year (DY3) | -0.27546 | 0.19582 | -1.407 | 0.160 | No |
| Doorway Service | 1.32574 | 0.24845 | 5.336 | 1.01e-07 *** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

### 2.C.1. The frequency and rate of ED use, for enrollees receiving SUD IMD services, 90 days prior to their IMD admission and 90 days post their IMD discharge.

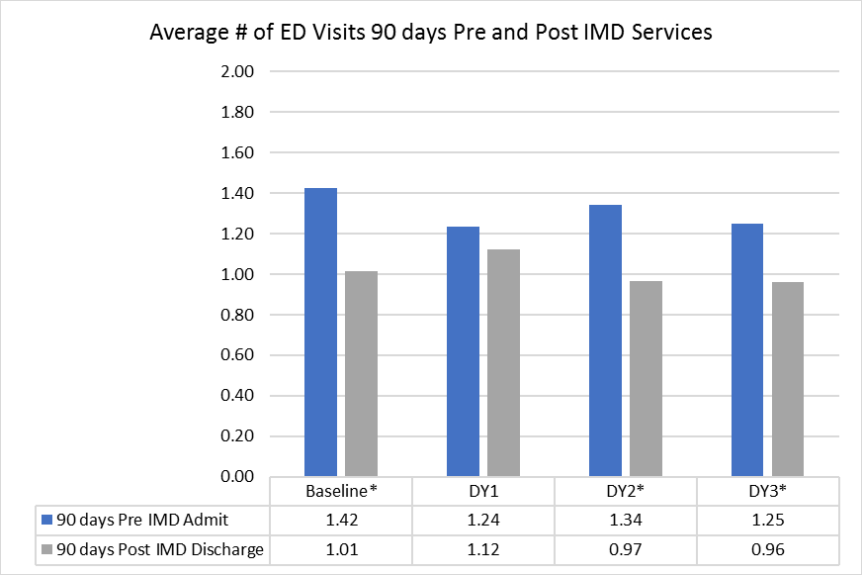
**Measure Description**: IMD service recipients were identified using the DHHS methodology previously described. The frequency and rate of ED use 90 days prior to their IMD admission and 90 days post IMD discharge was calculated. ED visits were defined and counted using the ED visit specifications from measure 2.B.1 above.

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Welch Two Sample T-test (unequal variance), individual year and pooled years.

**Findings**: The average number of ED visits in the 90 days prior to an IMD admission was 1.42 during the baseline period, 1.24 in DY1, 1.34 in DY2 and 1.25 in DY3. For each year of the interim evaluation period, IMD enrollees showed fewer visits in the 90 days following discharge. During the baseline period, the average number of visits in the 90 days following discharge was 1.01, in DY1 the average was 1.12 and during the onset of the PHE the average in DY2 was 0.97, and 0.96 in DY3. A pooled t-test for all years yielded a statistically significant difference in the rate of ED visits pre/post IMD services, with a reduction seen post IMD services. In assessing each year individually, the reduction in the average number of ED visits post IMD stay were statistically significant during the baseline period, DY2 and DY3.

***Exhibit IV-13: Average Number of Emergency Department (ED) Visits Before and After IMD Stay***

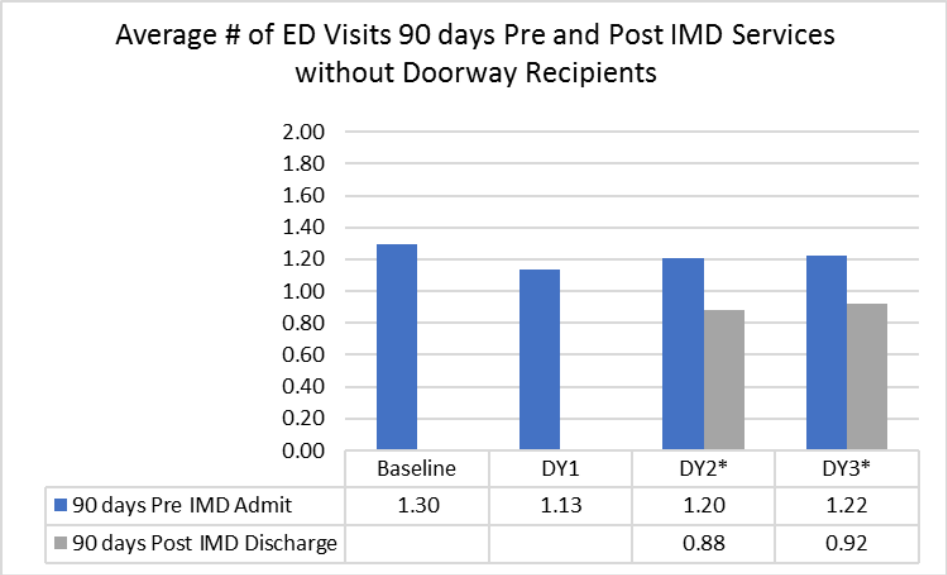



| | Baseline* | DY1 | DY2* | DY3* |
|---|---|---|---|---|
| 90 days Pre IMD Admit | 1.42 | 1.24 | 1.34 | 1.25 |
| 90 days Post IMD Discharge | 1.01 | 1.12 | 0.97 | 0.96 |

**Statistically significant change in the ED visit rate post IMD services*

When Doorway program recipients were removed from the IMD study group, the reduction in ED visits post IMD discharge was maintained for DY2-DY3. A pooled t-test for all years yielded a statistically significant difference in the rate of ED visits pre/post IMD services, with an overall reduction in ED use seen post IMD services in each year. In assessing each year individually, the reduction in the average number of ED visits post IMD stay remained statistically significant during DY2 and DY3.

***Exhibit IV-14: Average Number of Emergency Department (ED) Visits Before and After IMD Stay, without Doorway Recipients***




**Statistically significant change in the ED visit rate post IMD services*

### 2.D.1. The percentage of enrollees who initiated treatment within 14 days of diagnosis.

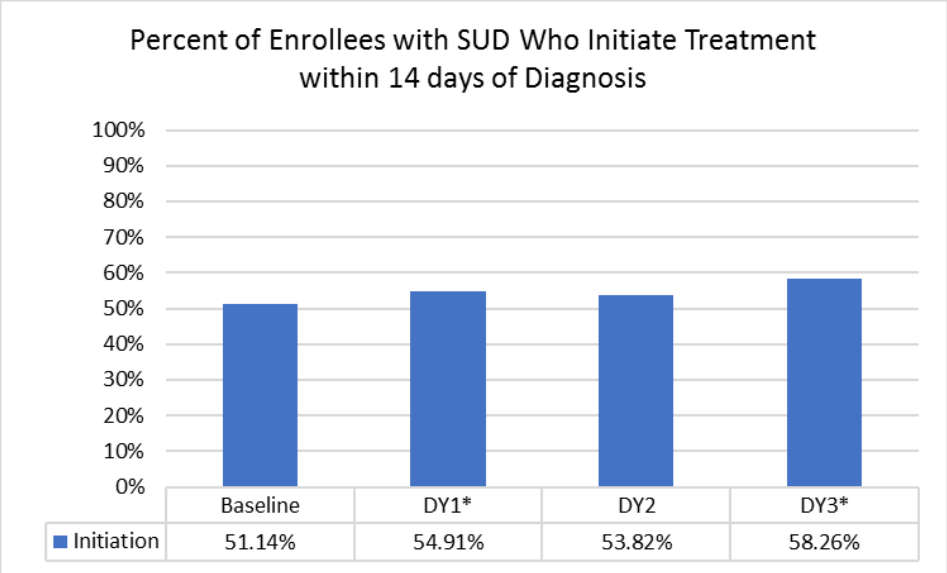
**Measure Description**: This measure follows the HEDIS methodology for Initiation and Engagement in Treatment. The results represent members with an SUD who initiated treatment within fourteen days of their diagnosis.

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Logistic Regression.

**Findings**: The percent of enrollees with an SUD has been increasing over the baseline of 51.14 percent. In DY1, 54.91 percent initiated treatment; in DY2, 53.82 percent initiated treatment, and in DY3 58.26 percent initiated treatment. Results in the most recent evaluation period (DY3) represent a 14 percent increase over baseline. Differences compared to baseline were statistically significant in DY1 and DY3.

***Exhibit IV-15: Percentage of Enrollees with SUD Who Initiate Treatment***




**Statistically significant change from baseline period*

### 2.D.2. The percentage of enrollees who initiated treatment and who had two or more additional AOD services or MAT within 34 days of the initiation visit.

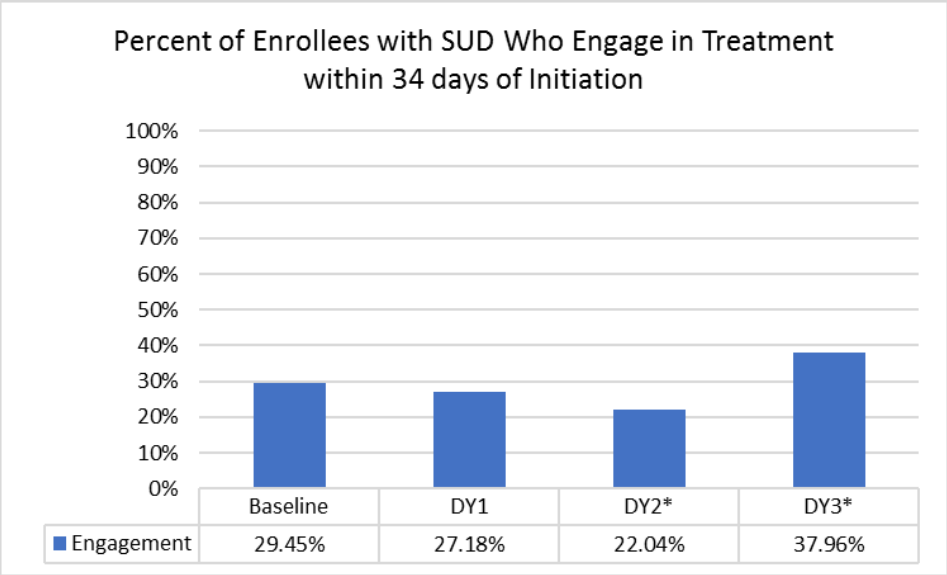
**Measure Description**: This measure follows the HEDIS methodology Initiation and Engagement in Treatment. The results represent the percentage of enrollees who engage in treatment within 34 days of their initiation visit (identified in measure 2.D.1 above).

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Logistic Regression.

**Findings**: The percent of enrollees who engaged in treatment following the initiation visit declined from 29.45 percent at baseline to 27.18 percent in DY1 and 22.04 percent in DY2 before increasing above baseline levels to 37.96 percent in DY3. Results in the most recent evaluation period (DY3) represent a 28.90 percent increase over baseline. Differences compared to baseline were statistically significant in DY2 and DY3.

***Exhibit IV-16: Percentage of Enrollees with SUD Who Engage in Treatment within 34 Days***




**Statistically significant change from baseline period*

### 2.E.1. The percent of SUD IMD stays during the measurement period followed by an SUD IMD readmission for SUD within 30 days.

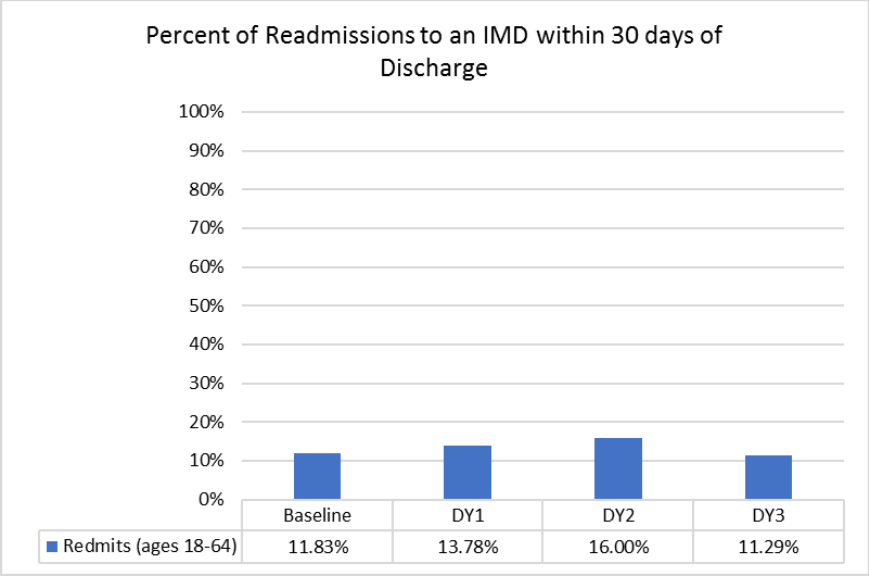
**Measure Description**: The denominator represents the total number of IMD discharges during the measurement period. The numerator represents the number of readmissions to an IMD that occurred within 30 days of the discharge date.

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Linear Regression.

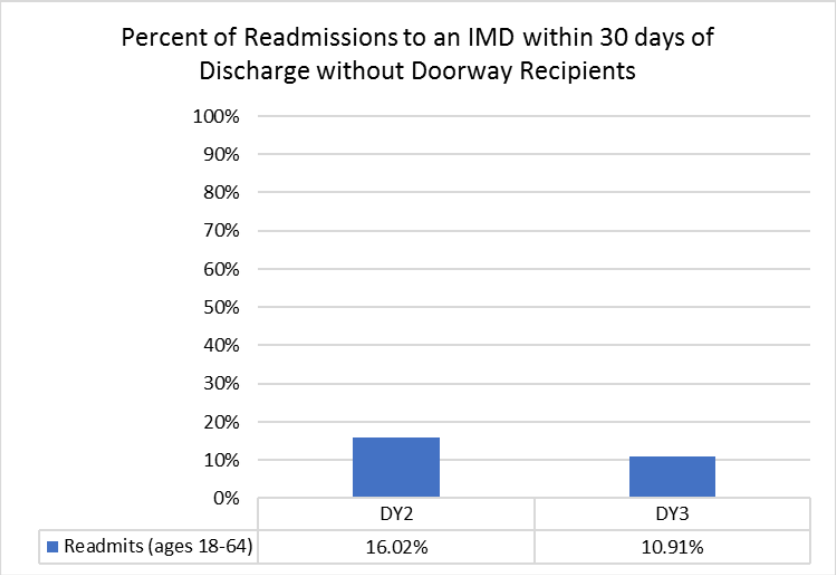
**Findings**: The percent of readmissions to an IMD rose from a baseline of 11.83 percent to 13.78 percent in DY1 and 16 percent in DY2 before declining to 11.29 percent in DY3. The percent of readmission for the most recent year of the evaluation is 4.57 percent lower than the baseline year.

***Exhibit IV-17: IMD Readmissions within Thirty Days of Discharge***



When Doorway program recipients were removed from the IMD study group, the group showed the same trend with an increase over baseline in DY2 followed by a decrease over baseline for DY3.

***Exhibit IV-18: IMD Readmissions within Thirty Days of Discharge, without Doorway Recipients***




A linear regression controlling for age, gender for the IMD study group was performed. Statistical significance suggests the likelihood of the variable having an impact, while the coefficient estimate measures the size and direction of the potential effect. The intercept represents the baseline (mean values) before accounting for differences due to member demographics or measurement year.

Neither age nor gender had significant explanatory power to account for the variation seen across years in the percent of members with an IMD readmission. Regression coefficients for the IMD study group are summarized in Exhibit IV-19.

***Exhibit IV-19: Regression Coefficients IMD Readmissions***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 0.4538263 | 0.0176754 | 25.676 | < 2e-16*** | Yes |
| Age | 0.0006387 | 0.0004158 | 1.536 | 0.1248 | No |
| Gender (Female) | 0.0052412 | 0.0078977 | 0.664 | 0.5071 | No |
| Year (DY1) | 0.0048362 | 0.0116955 | 0.414 | 0.6793 | No |
| Year (DY2) | -0.0003420 | 0.0114051 | -0.030 | 0.9761 | No |
| Year (DY3) | -0.0237865 | 0.0122033 | -1.949 | 0.0515 | No |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In addition, a linear regression controlling for age, gender and Doorway participation was performed. Results show that age, year, and Doorway services accounted for some of the variation seen in readmissions for DY2 and DY3 (the first full years of Doorway overlap with the Demonstration). Readmissions increased with age and decreased for members who had Doorway program services. Regression coefficients for DY2-DY3 Doorway analysis are summarized in Exhibit IV-20.

***Exhibit IV-20: Regression Coefficients IMD Readmissions, Controlling for Doorway Service Recipients DY2-DY3***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 0.4192523 | 0.0217321 | 19.292 | < 2e-16*** | Yes |
| Age | 0.0017667 | 0.0005859 | 3.015 | 0.00267 ** | Yes |
| Gender (Female) | 0.0088076 | 0.0107971 | 0.816 | 0.41494 | No |
| Year (DY3) | -0.0220716 | 0.0104660 | -2.109 | 0.03533 * | Yes |
| Doorway Service | -0.0332684 | 0.0125926 | -2.642 | 0.00844 ** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

### 2.F.1. The percent of enrollees who had SUD treatment visits at 45, 90, 135 and 180 days following IMD discharge.

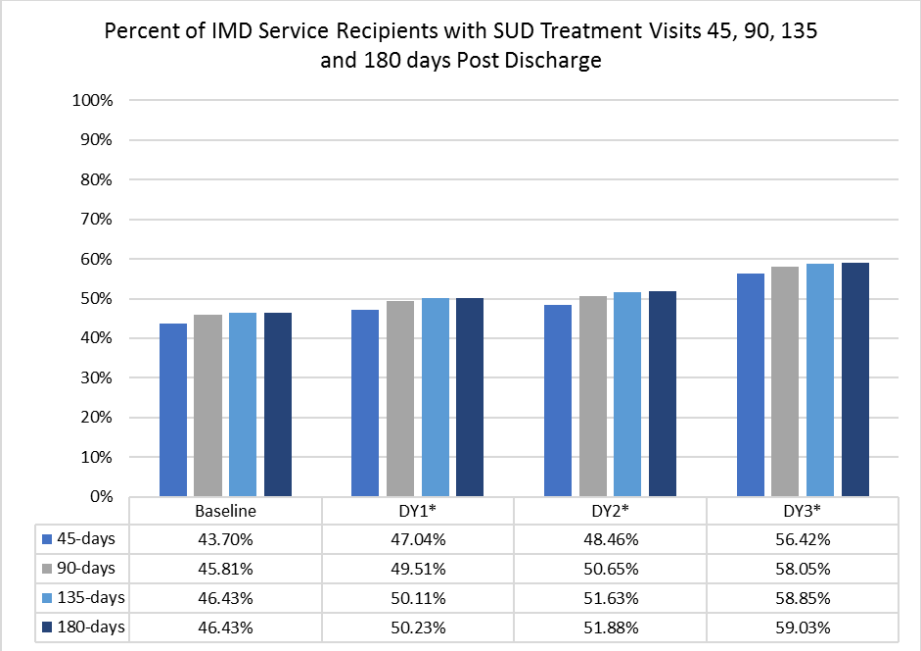
**Measure Description**: The denominator represents the total number of enrollees who were discharged from an IMD during the measurement period. The numerator represents those enrollees who had SUD treatment visits in the 45, 90, 135 and 180 days following the IMD discharge. All claims and encounters with a primary diagnosis of SUD were included in the numerator regardless of treatment setting (e.g., Intensive Outpatient, IMD, and hospital services). Results are cumulative (i.e., the 90-day period includes the 45-day period).

**Data Source and Time Period**: PAP and MMIS paid claims, and MCO encounters SFY2017-21.

**Analytical Approach**: Logistic Regression.

**Findings**: During the baseline period, the percent of recipients receiving a treatment service within 45 days was 43.70 percent, within 90 days was 45.81, within 135 days was 46.43 percent and within 180 days was 46.43. During DY1, the percent rose to 47.04 within 45 days, 49.51 within 90 days, 50.11 within 135 days and 50.23 within 180 days. In DY2, the percentage increased to 48.46 within 45 days, 50.65 within 90 days, 51.63 within 135 days and 51.88 within 180 days. In DY3, the percentages continued to increase over baseline with 56.42 of enrollees receiving SUD treatment services within 45 days, 58.05 within 90 days, 58.85 within 135 days and 59.03 within 180 days. Change over baseline was statistically significant in each year of the evaluation period.

***Exhibit IV-21: Percentage of IMD Service Recipients with Follow-Up SUD Treatment***

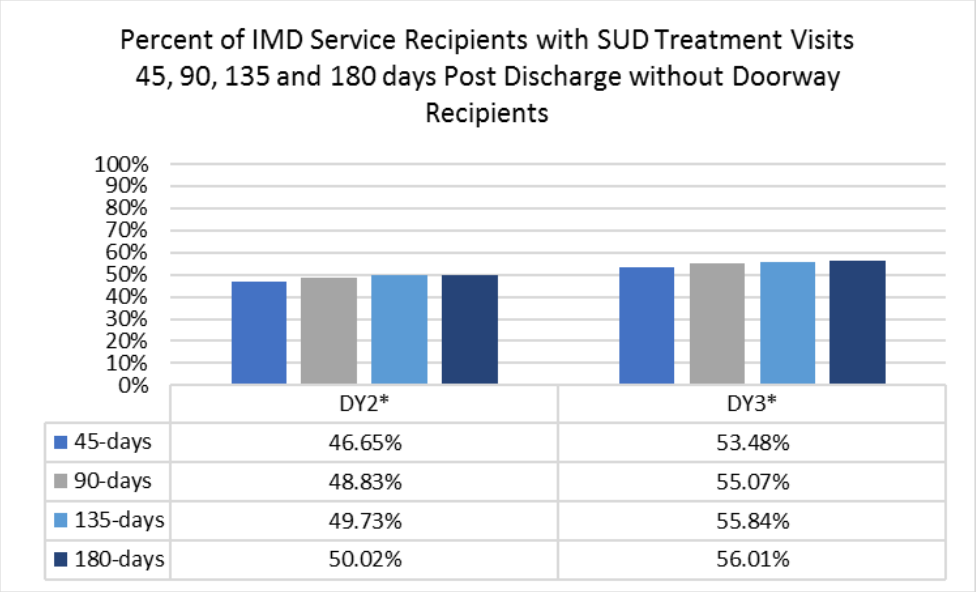



| | Baseline | DY1* | DY2* | DY3* |
|---|---|---|---|---|
| 45-days | 43.70% | 47.04% | 48.46% | 56.42% |
| 90-days | 45.81% | 49.51% | 50.65% | 58.05% |
| 135-days | 46.43% | 50.11% | 51.63% | 58.85% |
| 180-days | 46.43% | 50.23% | 51.88% | 59.03% |

**Statistically significant change from baseline period*

When Doorway program recipients were removed from the IMD study group, the group showed the same trend in DY2-DY3 with improvements in the percent of IMD recipients who received treatment services at 45-, 90-, 135- and 180-days post discharge.

***Exhibit IV-22: Percentage of IMD Service Recipients with Follow-Up SUD Treatment, without Doorway Recipients***




| | DY2* | DY3* |
|---|---|---|
| 45-days | 46.65% | 53.48% |
| 90-days | 48.83% | 55.07% |
| 135-days | 49.73% | 55.84% |
| 180-days | 50.02% | 56.01% |

**Statistically significant change from baseline period*

## EVALUATION QUESTION 3 (COST)

Evaluation Question 3 asks: "Will the Demonstration maintain or reduce spending in comparison to what would have been spent absent the Demonstration?"

Exhibit IV-23 provides an overview of the hypothesis and measure associated with Evaluation Question 3.

***Exhibit IV-23: Evaluation Question 3 Hypotheses and Measures***

| Hypotheses | Measures |
|---|---|
| A. The Demonstration will be cost neutral | The PMPM trend rates and per capita cost estimates for each eligibility group defined in STC 60 for each year of the demonstration. |

### 3.A.1. The PMPM trend rates and per capita cost estimates for each eligibility group defined in STC 60 for each year of the Demonstration.

**Measure Description**: This measure examines the actual PMPM rates against the CMS approved PMPM limits for each of the approved Medicaid Eligibility Groups under the Demonstration. CMS considers these PMPM limits as part of a hypothetical spending cap, representing what may have been spent absent the Demonstration. In alignment with the DHHS budget neutrality reporting methodology, the adolescent group for this measure includes Demonstration participants who are ages 18-21.

**Data Source and Time Period**: DHHS budget neutrality workbook as submitted to CMS annually through the first quarter of DY4.

**Analytical Approach**: Descriptive

**Findings**: New Hampshire's Budget Neutrality cap was adjusted at the end of DY2 as the result of the Demonstration amendment. The hypothetical PMPM limits (i.e., the estimate of what may have been spent absent the Demonstration) were readjusted by CMS and are no longer considered for DY1 and DY2 as part of the hypothetical spending cap. At the end of DY3, DHHS was meeting the budget neutrality requirements. Actual expenditures through Demonstration in DY3 were $2,551,780 below the hypothetical cap set by CMS. After the first three quarters of DY4, the Demonstration is maintaining this trend with actual expenditures $4,767,259 below the cap set by CMS (cumulatively).

***Exhibit IV-24: Summary of Budget Neutrality Status***

| Medicaid Eligibility Group | DY3 | DY4 Through Q3 |
|---|---|---|
| **Without Waiver Limit** | | |
| Medicaid Adults | $1,003,300 | $797,046 |
| Expansion Adults | $6,056,909 | $4,400,698 |
| Adolescents | $27,638 | $17,904 |
| Total | **$7,087,846** | **$5,215,648** |
| | | |
| **Actual Expenditures** | **DY 3** | **DY4 Through Q3** |
| Medicaid Adults | $1,304,468 | $971,327 |
| Expansion Adults | $3,211,248 | $2,009,887 |
| Adolescents | $20,350 | $18,955 |
| **Total** | **$4,536,066** | **$3,000,169** |
| | | |
| **Hypothetical Savings** | | |
| Annual Surplus (Deficit) | **$2,551,780** | **$2,215,479** |
| Cumulative Surplus (Deficit) | **$2,551,780** | **$4,767,259** |

## EXPLORATORY EXPENDITURE ANALYSIS

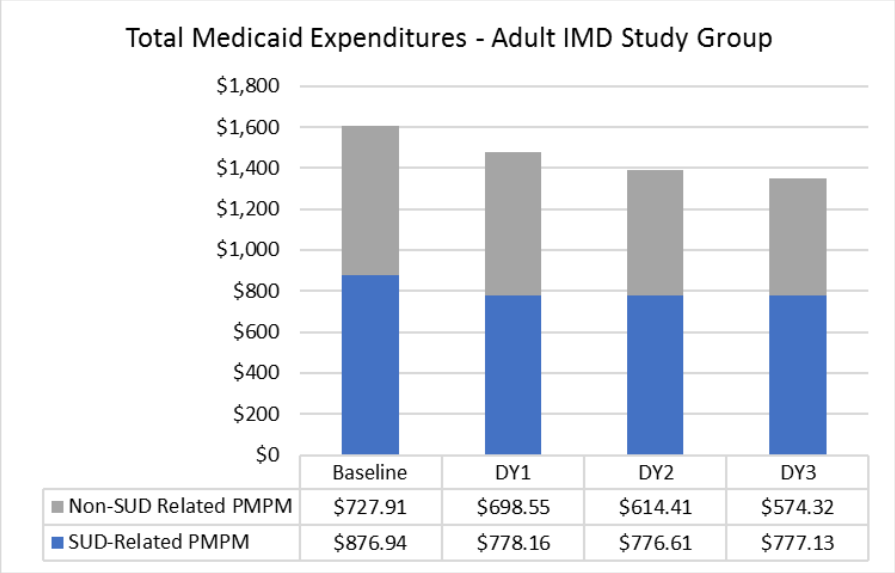
An exploratory analysis of expenditures for the adult IMD study group was performed; these measures capture all costs for the measurement year and are not associated with a hypothesis or with budget neutrality reporting.

Total Cost of Care

The total cost of care was calculated for all adult enrollees who received IMD services during the measurement period. Expenditures were stratified into SUD-related and non-SUD health care services. SUD-related services were defined as claims with a primary diagnosis of SUD. Total costs are expressed as per member per month, with breakouts for cost drivers such as SUD-IMD, SUD-non IMD residential, ED, inpatient, pharmacy, and long-term care (LTC) services.

Total Medicaid expenditures show a steady decline during the Demonstration period, with the PMPM for SUD-related treatment services being slightly higher than the non-SUD related services. Total PMPM during the baseline period was $1,604.85; DY1 resulted in nearly an eight percent decline to $1,476.71; DY2 showed a decline of over 13 percent below baseline with a total PMPM of $1,391.02; DY3 continued the decline with nearly a 16 percent drop over baseline to a PMPM of $1,351.44.

***Exhibit IV-25: Total Medicaid Expenditures***




| | Baseline | DY1 | DY2 | DY3 |
|---|---|---|---|---|
| Non-SUD Related PMPM | $727.91 | $698.55 | $614.41 | $574.32 |
| SUD-Related PMPM | $876.94 | $778.16 | $776.61 | $777.13 |

A linear regression of costs was performed. Statistical significance suggests the likelihood of the variable having an impact, while the coefficient estimate measures the size and direction of the potential effect. The intercept represents the baseline (mean values) before accounting for differences due to member demographics or measurement year.

Age accounted for some of the variation seen with SUD-related PMPM costs increasing with age. DY3 was also statistically significant in explaining some of the variation. DY1, DY2 and gender did not have statistically significant explanatory power for the variation in SUD-related cost when the total PMPM was examined. Regression coefficients are summarized in Exhibit IV-26, on the following page.

***Exhibit IV-26: Regression Coefficients SUD-Related PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 909.576 | 44.315 | 20.525 | < 2e-16*** | Yes |
| Age | 2.254 | 1.046 | 2.155 | 0.0312 * | Yes |
| Gender (Female) | -7.002 | 20.346 | -0.344 | 0.7307 | No |
| Year (DY1) | -15.811 | 29.063 | -0.544 | 0.5864 | No |
| Year (DY2) | 29.810 | 29.022 | 1.027 | 0.3044 | No |
| Year (DY3) | 89.004 | 29.659 | 3.001 | 0.0027 ** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In examining non-SUD related expenditures, age and gender accounted for the some of the variation in the total non-SUD related PMPM. Costs increased with age and women were associated with more non-SUD related costs. DY2, which aligned with the onset of the PHE, showed some statistical power in explanatory lower costs. DY1 and DY3 did not have statistically significant explanatory power for the variation in the non-SUD related PMPM. Regression coefficients are summarized in Exhibit IV-27.

***Exhibit IV-27: Regression Coefficients Non-SUD PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 335.994 | 56.216 | 5.977 | 2.37e-09*** | Yes |
| Age | 12.322 | 1.322 | 9.323 | < 2e-16 *** | Yes |
| Gender (Female) | 108.279 | 25.731 | 4.208 | 2.60e-05 *** | Yes |
| Year (DY1) | 10.506 | 36.901 | 0.285 | 0.7759 | No |
| Year (DY2) | -72.993 | 36.847 | -1.981 | 0.0476 * | Yes |
| Year (DY3) | -69.496 | 37.621 | -1.847 | 0.0647 † | No |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

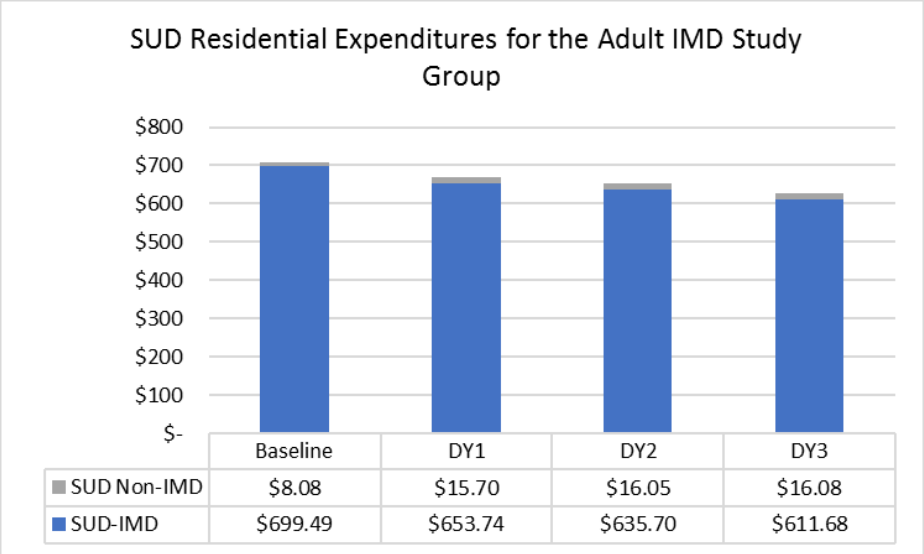
<u>SUD Residential Treatment Services</u>

Expenditures were examined as they related to SUD-residential services (IMD and non-IMD). Increases were seen in spending for non-IMD residential services; however, they remain a small portion of the residential treatment spending. SUD-IMD service spending declined over baseline, despite an uptick in service utilization in each year of the Demonstration and Medicaid rate increases.

During the baseline year the SUD-IMD PMPM was $699.49. The PMPM declined from baseline by 6.5 percent to $653.74 in DY1; DY2 PMPM declined from baseline by over nine percent to a

PMPM of $635.70; DY3 declined from baseline by over 12.5 percent to $611.68. Non-IMD residential spending increased from a baseline PMPM of $8.09 to $15.70 in DY1 and $16.05 in DY2 and $16.08 in DY3.

***Exhibit IV-28: SUD Residential Expenditures***




In a linear regression examining SUD IMD residential costs, neither age, gender nor DY provided statistically significant power in explaining the variation in the SUD-IMD residential treatment PMPM. Regression coefficients are summarized in Exhibit IV-29.

***Exhibit IV-29: Regression Coefficients SUD-IMD Residential PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 829.3158 | 40.1769 | 20.642 | < 2e-16*** | Yes |
| Age | -0.1515 | 0.9476 | -0.160 | 0.8730 | No |
| Gender (Female) | -30.9104 | 18.4507 | -1.675 | 0.0939 † | No |
| Year (DY1) | 3.1785 | 26.3758 | 0.121 | 0.9041 | No |
| Year (DY2) | 27.4165 | 26.3314 | 1.041 | 0.2978 | No |
| Year (DY3) | 24.4795 | 26.9000 | 0.910 | 0.3628 | No |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In examining the non-IMD residential PMPM, women were less likely to be associated with non-IMD residential costs. No other variable had statistically significant explanatory power for the variation.

Regression coefficients are summarized in Exhibit IV-30, on the following page.

***Exhibit IV-30: Regression Coefficients SUD-Residential PMPM (Non-IMD), IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 640.763 | 196.013 | 3.269 | 0.00121** | Yes |
| Age | -1.628 | 4.167 | -0.391 | 0.69639 | No |
| Gender (Female) | -181.886 | 77.617 | -2.343 | 0.01980 * | Yes |
| Year (DY1) | 116.216 | 133.827 | 0.868 | 0.38591 | No |
| Year (DY2) | 50.314 | 131.123 | 0.384 | 0.70148 | No |
| Year (DY3) | -80.329 | 128.297 | -0.626 | 0.53175 | No |

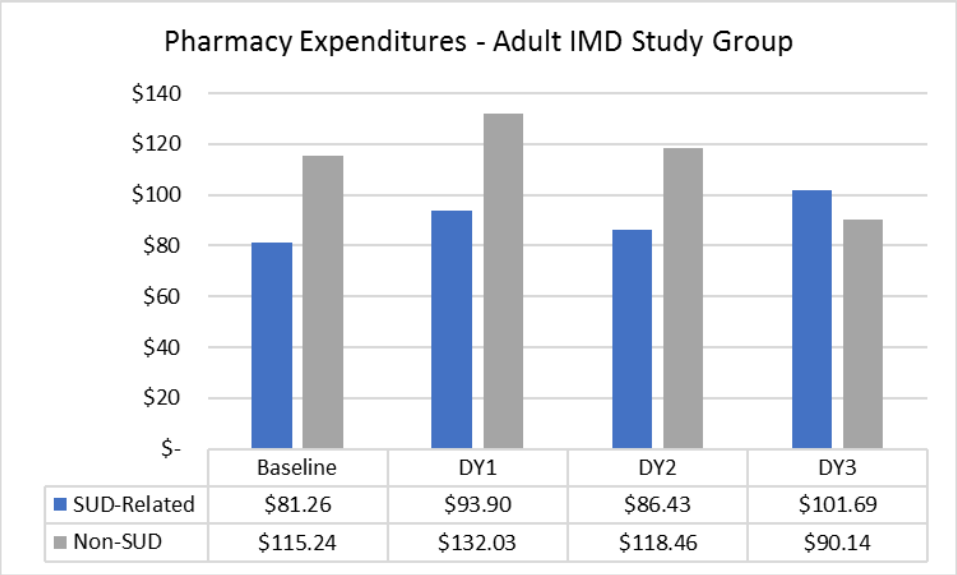
*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

Pharmacy

SUD-related pharmacy costs were classified using the HEDIS (measurement year 2020) AOD Medication Treatment Value Set, Alcohol Use Disorder Treatment Medication Lists, and Opioid Use Disorder Treatment Medication Lists, in alignment with the methodology identified in CMS SUD Monitoring Protocol Metric 28 (Medicaid SUD Spending).

Total pharmacy expenditures rose nearly 15 percent over the baseline PMPM of $196.50 to a DY1 PMPM of $225.93. DY2 pharmacy costs declined slightly to $204.89 PMPM (just over four percent above baseline) before declining in DY3 to $191.83 PMPM (2 percent under baseline levels). SUD-related pharmacy rose from a baseline of $81.26 PMPM to $93.90 in DY1; $86.43 in DY2; and $101.69 in DY3. SUD-related pharmacy costs remained lower that non-SUD related pharmacy costs apart from DY3.

***Exhibit IV-31: Pharmacy Expenditures***



In a linear regression examining non-SUD-related pharmacy costs, age was the only variable with statistically significant explanatory power. Older recipients were associated with more non-SUD pharmacy costs. Regression coefficients are summarized in Exhibit IV-32.

***Exhibit IV-32: Regression Coefficients Non-SUD Related Pharmacy PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 30.3994 | 28.8863 | 1.052 | 0.2927 | No |
| Age | 2.7669 | 0.6723 | 4.115 | 3.91e-05 *** | Yes |
| Gender (Female) | 21.5867 | 13.0935 | 1.649 | 0.0993 † | No |
| Year (DY1) | 20.0650 | 19.0405 | 1.054 | 0.2920 | No |
| Year (DY2) | -1.9438 | 18.9290 | -0.103 | 0.9182 | No |
| Year (DY3) | -8.4436 | 19.3136 | -0.437 | 0.6620 | No |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In a linear regression examining SUD-related pharmacy costs, DY3 was the only variable with statistically significant explanatory power. DY3 was associated with more SUD-related pharmacy costs. Regression coefficients are summarized in Exhibit IV-33.

***Exhibit IV-33: Regression Coefficients SUD-related Pharmacy PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 151.40941 | 15.37529 | 9.848 | < 2e-16*** | Yes |
| Age | 0.08946 | 0.37789 | 0.237 | 0.812865 | No |
| Gender (Female) | -5.62694 | 6.54848 | -0.859 | 0.390227 | No |
| Year (DY1) | 7.79098 | 9.84316 | 0.792 | 0.428679 | No |
| Year (DY2) | -4.49749 | 9.77472 | -0.460 | 0.645452 | No |
| Year (DY3) | 35.67182 | 9.98567 | 3.572 | 0.000357 *** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

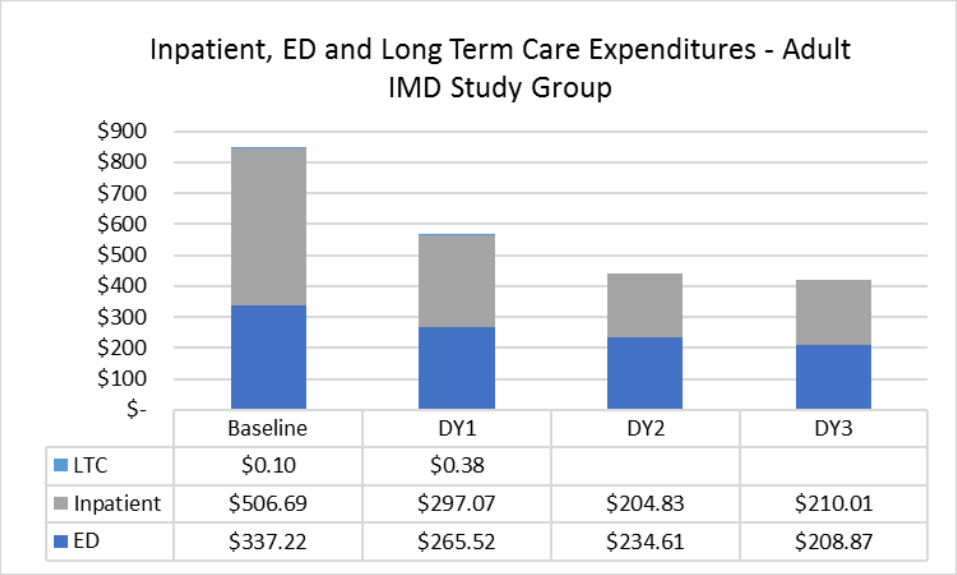
ED, Inpatient, and Long-Term Care

PMPM trends for ED and inpatient use also declined over the baseline year for the adult IMD study group. At baseline, the PMPM for inpatient treatment was $506.69. During DY1 the inpatient PMPM dropped to $297.07, in DY2 the PMPM dropped to $204.83, followed by a slight increase to $210.01 in DY3.

The PMPM for ED showed a similar trend, decreasing from a baseline of $337.22 PMPM to $265.52 in DY1, $234.61 in DY2 and $208.87 in DY3.

Long-Term Care spending was minimal with a PMPM of $0.10 at baseline and $0.38 in DY1. No LTC spending was seen in DY2 and 3.

***Exhibit IV-34: Long-Term Care, Inpatient Hospital and Emergency Department Expenditures***




In a linear regression of ED expenditures, age was associated with increased ED cost. Each year of the Demonstration also was associated statistically significant explanatory power for lower ED cost. DY2 and 3 align with the onset of the PHE. Regression coefficients are summarized in Exhibit IV-35.

***Exhibit IV-35. Regression Coefficients ED PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 219.064 | 41.802 | 5.240 | 1.65e-07*** | Yes |
| Age | 7.940 | 0.969 | 8.194 | 3.04e-16 *** | Yes |
| Gender (Female) | -28.601 | 19.273 | -1.484 | 0.137861 | No |
| Year (DY1) | -72.220 | 27.588 | -2.618 | 0.008871 ** | Yes |
| Year (DY2) | -105.975 | 27.578 | -3.843 | 0.000123 *** | Yes |
| Year (DY3) | -141.936 | 28.030 | -5.064 | 4.23e-07 *** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

In a linear regression of the inpatient expenditures, age was associated with increased cost. Each year of the Demonstration was associated statistically significant explanatory power for lower inpatient cost. Women were also associated with lower inpatient costs. DY2 and 3 align with the onset of the PHE.

Regression coefficients are summarized in Exhibit IV-36.

***Exhibit IV-36: Regression Coefficients Inpatient PMPM, IMD Study Group***

| Variable | Coefficient Estimate | Standard Error | t-value | Pr(>\|t\|) | Statistical Significance |
|---|---|---|---|---|---|
| Intercept | 836.653 | 82.698 | 10.117 | < 2e-16*** | Yes |
| Age | 5.539 | 1.985 | 2.790 | 0.00529 ** | Yes |
| Gender (Female) | -114.347 | 39.783 | -2.874 | 0.00407 ** | Yes |
| Year (DY1) | -114.384 | 52.942 | -2.161 | 0.03080 * | Yes |
| Year (DY2) | -215.086 | 55.544 | -3.872 | 0.00011 *** | Yes |
| Year (DY3) | -268.485 | 54.667 | -4.911 | 9.48e-07 *** | Yes |

*Significance codes: "***" = 0.001; "**" =.01; "*" = 0.05; "†" = 0.1*

The long-term care PMPM included fewer than ten observations. Due to the small number a linear regression was not performed.

# V. CONCLUSION

The interim evaluation examined three research questions and eight hypotheses. In general, the Demonstration is achieving its intended goals. A discussion of each evaluation question and interim findings is presented below.

***Evaluation Question 1. What are the impacts of the Demonstration on access to SUD residential treatment services for Demonstration enrollees?***

It is hypothesized that access to residential SUD services will increase under the Demonstration. The percent of enrollees with an SUD diagnosis who received IMD services increased in each year of the Demonstration. Enrollees with an IMD service rose from a baseline of 6.5 percent to 8.5 percent in DY 2. In DY 3, as the pandemic moved into an endemic phase, 7.7 percent of enrollees with an SUD received an IMD service. Utilization increased from baseline by just over 30 percent for DY1 and 2 and just under 20 percent in DY3. Differences over baseline were statistically significant in each year of the Demonstration.

The SUD Demonstration also is expected to maintain and encourage growth in adult capacity. In examining the number of Medicaid enrolled SUD residential providers, the evaluation tracked the number of licensed SUD residential treatment beds as of July 1 of each year, regardless of IMD status.

At the onset of the Demonstration there were sixteen licensed residential treatment facilities for individuals with an SUD, fourteen of which were Medicaid enrolled. By DY3, there were nineteen SUD treatment facilities licensed in the State, sixteen of which were Medicaid enrolled. Of the remaining facilities, two were not Medicaid enrolled and one was in the process of becoming enrolled. The licensed bed count for the Medicaid enrolled residential SUD treatment facilities was 554 in the year before the Demonstration; by DY3 that number rose to 697.

The Demonstration is associated with better access to residential SUD treatment services.

***Evaluation Question 2. What are the impacts of the Demonstration on quality of care for Medicaid enrollees with an SUD diagnosis?***

The evaluation examined the impact of the Demonstration on ED utilization, IMD readmissions and initiation, engagement, and retention in treatment. It was hypothesized

A. Enrollees with SUD will have fewer ED visits for SUD
B. Enrollees with SUD will have fewer total ED visits
C. Enrollees with SUD will have fewer ED visits post discharge from an SUD IMD
D. Enrollees with SUD will have improved rates of initiation and engagement in alcohol and other drug treatment

E. Enrollees with SUD will have lower IMD readmission rates
F. Enrollees with SUD will have improved rates of treatment retention

Conclusions related to each hypothesis are summarized below.

A. Enrollees with SUD will have fewer ED visits for SUD
B. Enrollees with SUD will have fewer total ED visits

The results showed that number of ED visits for SUD declined over baseline in each year of Demonstration. For the overall population of enrollees with an SUD, there was a 20 percent decline in DY1, nearly a 16 percent decline in DY2 and a 22 percent decline in DY3.

The adult IMD study group showed a decline in ED use for SUD over baseline of 5.6 percent in DY1, 5.4 percent in DY2 and nearly 7 percent in DY3. A linear regression showed that age was associated with more ED visits as was having a Doorway service. Being female was associated with fewer ED visits for SUD.

A similar trend was seen when examining ED visits for any reason for DY1 and DY2. ED visits for enrollees with an SUD declined from baseline by just over 14 percent in DY1 and by just over 15 percent in DY2. In DY3, visits were up from baseline by just over 2 percent.

For the adult IMD study group the decline in ED use for any reason over baseline was 3.7 percent in DY1, nearly 3 percent in DY2 and 4.4 percent in DY3. A linear regression showed that age was associated with more ED visits as was having a Doorway service.

In all the regressions, the coefficient estimates were small. Statistical significance suggests the likelihood of the variable having an impact, while the coefficient estimate measures the size of the potential effect. A small coefficient estimate indicates small effect size meaning that while the variables studied (e.g., age, gender, or the 12-month Demonstration period) may be statistically significant (as indicated by p-values) they only play a small part in explaining the results. When the Demonstration period (e.g., DY1, DY2, DY3) and Doorway variable show no significance or show a statistically significant yet a small regression coefficient, we cannot attribute the changes year over year to activities that may have occurred under the Doorway program or Demonstration.

Results show that ED use had declined over baseline in the first year of the Demonstration (pre-pandemic). However, with the onset of the PHE part way through DY2, it is possible that the reductions seen in DY2 and DY3 are impacted the State's PHE response and enrollee concerns with potential exposure to the novel coronavirus in an ED setting. Having a Doorway service was associated with higher ED use. While available to anyone with an SUD, the Doorway is particularly focused on individuals with an opiate addiction, a population with historically high risk of overdose and other health incidents requiring ED services. In some cases, Doorway providers also offer MAT induction in the ED, as they serve as a gateway to other community-

based OUD and SUD treatment and recovery services. In addition, hospital-based providers host Doorway programs, in some cases services are housed on the hospital campus.

C. Enrollees with SUD will have fewer ED visits post discharge from an SUD IMD

In each year of the Demonstration, including baseline, enrollees had fewer ED visits in the 90 days following an IMD discharge as compared to the 90 days prior to admission. In DY1 ED use was over 9 percent lower following an IMD stay, in DY2 ED use was 28 percent lower and DY3 ED use was 23.36 percent lower. While the evaluation findings suggest that ED use post IMD discharge is traditionally lower when compared to use pre-admission, it is likely that the statistically significant drop in ED use post IMD discharge in DY2 and DY3 is also influenced by the State's PHE response.

D. Enrollees with SUD will have improved rates of initiation and engagement in alcohol and other drug treatment

In examining the percent of enrollees who initiated in treatment within 14 days of their diagnosis, DY1 showed a 7.3 percent increase over baseline, DY2 showed a 5.2 percent increase over baseline and DY3 showed a 13.9 percent. The difference from baseline was statistically significant in DY1 and DY3. The percent of enrollees who engaged in additional treatment visits in 34 days after the initiation visits declined in DY1 by nearly 8 percent and in DY2 by over 25 percent before increasing nearly 29 percent over the baseline period. The difference from baseline was statistically significant in DY2 and DY3. It is possible that the decline in engagement after the initial visit was negatively impacted by the onset the PHE and providers suspending operations as quarantine and other emergency actions were implemented. The uptick in engagement in DY3 may be in response to improved access to telehealth, the reinstatement of in-person program operations, and pent-up demand for SUD treatment services.

E. Enrollees with SUD will have lower IMD readmission rates

Readmissions to IMD facilities rose above baseline levels by over 16 percent in DY1 and 35 percent in DY2 before dropping below baseline levels by 4.6 percent in DY3. Unstable living conditions can contribute to SUD relapse and potentially higher readmission rates. DHHS noted that a 1915(i) Supportive Housing waiver was requested from CMS June 21, 2021, for a July 1, 2022, effective date. If approved, hard to reach populations, including Medicaid members with an SUD may be eligible for housing supports. Should the State receive CMS approval, the evaluation will consider its impact in the final year of the SUD Demonstration.

Having a Doorway service was associated with lower rates in DY2 and DY3; older recipients were associated with more readmissions. DY3 showed statistically significant explanatory power for the variation in readmissions. However, in all comparisons the coefficient estimates were small. The coefficient estimates in a regression can be thought of as effect sizes. A small coefficient estimate indicates that while participating in Doorway programs and being older had

a statistically significant impact it played a small part in explaining the differences in results year over year. This makes it difficult to attribute the changes year over year to activities that may have occurred under the Doorway program.

F. Enrollees with SUD will have improved rates of treatment retention

The percent of enrollees who had SUD treatment visits in the six months following IMD discharge was examined at 45-, 90-, 135- and 180-days post discharge. The percent of enrollees with and SUD treatment visit, of any type, in the six months following IMD discharge is consistently increasing year over year. In the first year of the Demonstration, enrollees who had services at each interval increased from 7.6 percent to 8.0 percent over the baseline period. In DY2 the increase in enrollees who had services at each interval ranged from 10.0 percent to 11.7 percent. In DY3 the increase in enrollees who had services at each interval ranged from 26.7 percent to just over 29.0 percent.

Service utilization in DY2 and DY3 was influenced by the onset the PHE. The uptick in members who accessed services post discharge may be related to improvements in discharge planning across all service providers, improved access to telehealth, the reinstatement of in-person program operations, and pent-up demand for SUD treatment services.

***Evaluation Question 3. Will the Demonstration maintain or reduce spending in comparison to what would have been spent absent the demonstration?***

It was hypothesized that the Demonstration will be cost neutral. To track performance CMS and the State agree to a hypothetical cap (i.e., a PMPM limit) on spending. Performance at the end of DY3 showed that the Demonstration expenditures were $2,931,666 below the hypothetical spending cap. After the first quarter of DY4, the Demonstration continues to show positive results with actual expenditures $3,016,609 below the hypothetical cap.

In an exploration of total cost of care and cost drivers, the PMPM trends for the adult IMD study group appear to be declining across all categories of service. However, it is likely that expenditures were impacted by the PHE. Additional years of data are needed to assess the trends more fully.

Overall, the SUD Demonstration is associated with meeting its goals including:

1. To improve access to OUD and other SUD services;
2. To improve the quality of the SUD treatment delivery system to provide high-quality coordinated and comprehensive OUD/SUD treatment for Medicaid enrollees; and
3. To maintain budget neutrality.

Exhibit V-1, on the following page, provides an overall summary of the interim evaluation findings for Evaluation Question One.

***Exhibit V-1: Question One Findings***

| Evaluation Question 1: What are the impacts of the Demonstration on access to SUD residential treatment services for Demonstration enrollees? | | |
|---|---|---|
| **Hypotheses** | **Measures** | **Interim Findings** |
| A. Adult enrollees will have better access to residential SUD treatment services. | 1. Percent of enrollees ages 12-64 with an SUD claim for treatment in an IMD with a discharge date during the year | Statistically significant increases in access to IMD services were seen in each year of the Demonstration. |
| | 2. The total number of licensed beds for Medicaid enrolled SUD residential treatment providers each year | Licensed bed capacity for Medicaid enrolled residential treatment facilities increased from 554 beds at baseline to 697 beds in DY3. |

Exhibit V-2 provides an overall summary of the interim evaluation findings for Evaluation Question Two.

***Exhibit V-2: Question Two Findings***

| Evaluation Question 2: What are the impacts of the Demonstration on quality of care for Medicaid enrollees with an SUD diagnosis? | | |
|---|---|---|
| **Hypotheses** | **Measures** | **Interim Findings** |
| A. Enrollees will have fewer ED visits for SUD | 1. The total number of ED visits for SUD per 1,000 Demonstration enrollees | • ED use declined over baseline (both for total ED visits and SUD-related ED).<br>• There was a slight increase in total ED use for adolescents with an SUD in DY3. |
| B. Enrollees will have fewer total ED visits | 1. The total number of ED visits for any reason per 1,000 Demonstration enrollees | |
| C. Enrollees will have fewer ED visits post discharge from an SUD IMD | 1. ED use 90 days prior to IMD admission and 90 days post discharge | • DY2 and DY3 showed a statistically significant decline in ED visits in the 90 days following IMD discharge as compared to the 90 days prior to admission.<br>• ED use may have been influenced by the PHE. |
| D. Enrollees will have improved rates of initiation and engagement in treatment | 1. Percentage of enrollees who initiated treatment within 14 days of diagnosis | • There was a statistically significant increase in DY1 and DY3. |
| | 2. Percentage of enrollees who engage in treatment within 34 days of initiation | • There was a statistically significant increase in DY2 and DY3. |
| E. Enrollees will have lower IMD readmission rates | 1. The percent of IMD stays followed by a readmission within 30 days | • Readmissions increased in DY1 and DY2 before declining in DY3. |

| Evaluation Question 2: What are the impacts of the Demonstration on quality of care for Medicaid enrollees with an SUD diagnosis? | | |
|---|---|---|
| Hypotheses | Measures | Interim Findings |
| F. Enrollees will have improved rates of treatment retention | 1. The percent of enrollees who had SUD treatment visits 45, 90, 135, and 180 days following IMD discharge | • There was a statistically significant increase over baseline in each year of the Demonstration. |

Exhibit V-3 provides an overall summary of the interim evaluation findings for Evaluation Question Three.

***Exhibit V-3: Evaluation Question Three Findings***

| Evaluation Question 3: Will the Demonstration maintain or reduce spending in comparison to what would have been spent absent the demonstration? | | |
|---|---|---|
| A. The Demonstration will be cost neutral | 1. PMPM trends and per capita costs by Medicaid Eligibility Groups identified in the STCs. | • At the end of DY3 the Demonstration is showing a cumulative surplus. |

Overall, the New Hampshire SUD Treatment and Recovery Access Demonstration is associated with improved access to care for those beneficiaries with intensive SUD treatment needs. In all years, ED use declined in the 90 days following IMD discharge as compared to the 90 days period prior to admissions. IMD services for those meeting criteria may contribute to stabilization and continuity of care post discharge. This is further evidenced by the percent of members who have a claim for SUD treatment in the 45, 90, 135 and 180 days following IMD discharge.

Results from the first year of the Demonstration indicate that SUD treatment utilization had increased, and overall use of ED had declined. However, the onset of the PHE in the second year of the Demonstration makes it difficult to draw strong associations between the Demonstration and continued reductions in ED use.

An exploratory analysis of expenditures for adults who received IMD services shows a similar pattern with lower per member per month costs during the Demonstration period. However, the influence of the PHE on service use may be suppressing utilization and masking the true need for SUD treatment services in the coming years.

## INTERPRETATIONS, POLICY IMPLICATIONS AND INTERACTIONS WITH OTHER STATE INITIATIVES

Prior to the beginning of the Demonstration, New Hampshire began developing a full continuum of care for individuals with SUD. This included maintaining existing prevention, treatment, and recovery capacity while also expanding access to medication assisted treatment (MAT), peer recovery support services, harm reduction initiatives and the coordination of care through a statewide crisis hotline. The SUD system of care also included the development of nine regional treatment Hubs (the Doorways) to serve as 24/7 access points to addiction treatment. The Doorways began operation six months after the start of the Demonstration.

In linear regression models of ED use, SUD Demonstration participants who also had claims from Doorway providers accounted for some of the variation seen in utilization during DY2 and DY3. Individuals with Doorway claims also account for some reduction in IMD readmission rates in DY2 and DY3. However, it is difficult to draw strong conclusions regarding the Doorway's impact on the Demonstration for the following reasons:

- Regression coefficients were small which indicates that the magnitude of impact was also small.
- Individuals may have received a Doorway service that was not reimbursed by Medicaid, making a claims-based method imprecise.
- A priority population for Doorway programs are individuals with OUD. Members with an OUD are more likely to suffer from overdoses and other complications from their addiction that require emergency care.
- Doorway providers offer MAT induction in the ED.
- DY2 and DY3 represent the onset of the PHE, making it difficult to draw strong conclusions regarding service utilization.

A more precise study of the pandemic's impact will require more years of study and larger data sets to better understand how the PHE changed member behavior and their use of health care services.

As noted earlier, DHHS requested a 1915(i) Supportive Housing waiver from CMS June 21, 2021, for a July 1, 2022, effective date. If approved by CMS, the evaluation will consider its impact in the final year of the SUD Demonstration.

## LESSONS LEARNED AND RECOMMENDATIONS

The New Hampshire Substance Use Disorder Treatment and Recovery Access Demonstration was necessary to address critical unmet needs for residential SUD treatment. Prior to the start of the Demonstration, New Hampshire's statutes and rules required that treatment decisions and delivery system innovations be based on the use of the American Society of Addiction Medicine criteria and other nationally recognized assessment and placement tools that reflect

evidence-based clinical treatment guidelines, making the CMS SUD IMD Demonstration requirements a good fit for the State.

Best practice in SUD treatment for children and adolescents supports the delivery of highly integrated mental health and SUD treatment services and family supports. After further evaluation of the child and adolescent service system, the State of New Hampshire concluded that creating a separate SUD treatment facility was not warranted. Instead, the State is transforming its residential care and treatment system for children and adolescents to support a full continuum of integrated, co-occurring mental and physical health and SUD treatment.