

# An Evaluation of Medication Regimen Changes Pre- and Post-Inpatient Non-Fatal Overdose Among a Medicaid Population

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## INTRODUCTION

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- Both opioids and benzodiazepines (BZDs) have risks of abuse, misuse, and addiction which can lead to overdose or death, especially when used together.
- Despite regulatory efforts, such as black box warnings by the Food and Drug Administration, opioids and BZDs are commonly prescribed.
- The rate of opioid-related overdose (OD) deaths in Massachusetts has increased at a rate of 3% per year on average between 2015 (25.6 per 100,000 people) to 2022 (33.6 per 100,000 people).
- In 2021, approximately 2.5 million adults were diagnosed with opioid use disorder within the previous year. However, only 36% of these individuals underwent any form of substance use treatment, and 22% were prescribed medications specifically for opioid use disorder.<sup>2</sup>
- Post-overdose, medication regimen changes, such as dose reduction and deprescribing, are actions to reduce the risk for another overdose.
- Few studies have examined medication changes related to prescription opioids, BZDs, and medication-assisted treatment (MAT) post-overdose in individuals with Medicaid insurance. There is also limited literature in terms of non-fatal ODs requiring hospital admission, with majority of reported ODs being linked to emergency department and outpatient visits.

### **OBJECTIVE**

To evaluate changes in prescribing patterns of opioids, BZDs, and MAT after a non-fatal overdose inpatient hospitalization



### **METHODS**

- Design: Cross-sectional, retrospective, pre-post study
- Study period: Index hospitalizations were identified in 2022
- Data source: Medical and pharmacy claims, encounter data, and enrollment data for Massachusetts Medicaid (MassHealth) Primary Care Clinician (PCC)/Primary Care Accountable Care Organization (ACO)/ Managed Care Organization (MCO) members
- Member cohort: Members 18 to 64 years of age (as of Dec. 1, 2022) with an inpatient claim related to a non-fatal overdose, and continuous MassHealth enrollment for ≥90 days pre- and post-OD event
- Inpatient claims for a non-fatal OD were utilized to identify and evaluate complex cases to assess medication regimen changes post hospital discharge.
- For members with multiple ODs within the study period, the most recent OD was used as the index event.
- Overdoses were identified using International Classification of Diseases 10<sup>th</sup> revision diagnosis codes and were inclusive of all specified and unspecified ODs.
- **Medication use:** Pharmacy claims were identified during the 90 days pre- and post-OD for three medication classes: opioids, BZDs, and MAT (i.e., methadone, buprenorphine products, and naltrexone)
- Analysis: Descriptive statistics were calculated, including frequencies and percentages

# RESULTS

Figure 1. Member Cohort Table 1. Characteristics of Members Who Experienced a Non-Fatal OD

Hospitalization (N= 1,537)

Characteristic	N (%)
Age (years)	
18 to 29	260 (16.9)
30 to 39	470 (30.6)
40 to 49	390 (25.4)
50 to 64	417 (27.1)
Sex	
Female	626 (40.7)
Male	911 (59.3)

Table 2. Prescription Medication Regimen Patterns per Member Prior to a Non-Fatal OD Hospitalization (N= 1,537)

Prescription Use	N (%)
Opioid Use Pre-OD	131 (8.5)
BZD Use Pre-OD	386 (25.1)
MAT Use Pre-OD	307 (20.0)

Figure 2. Medication Regimen Patterns in the 90 days after a Non-Fatal OD Hospitalization
Among Members with Prescription Use at Baseline

Members with an OD-associated inpatient

encounter in 2022

N= 2,183

Members 18 to 64 years of age

N= 1,715

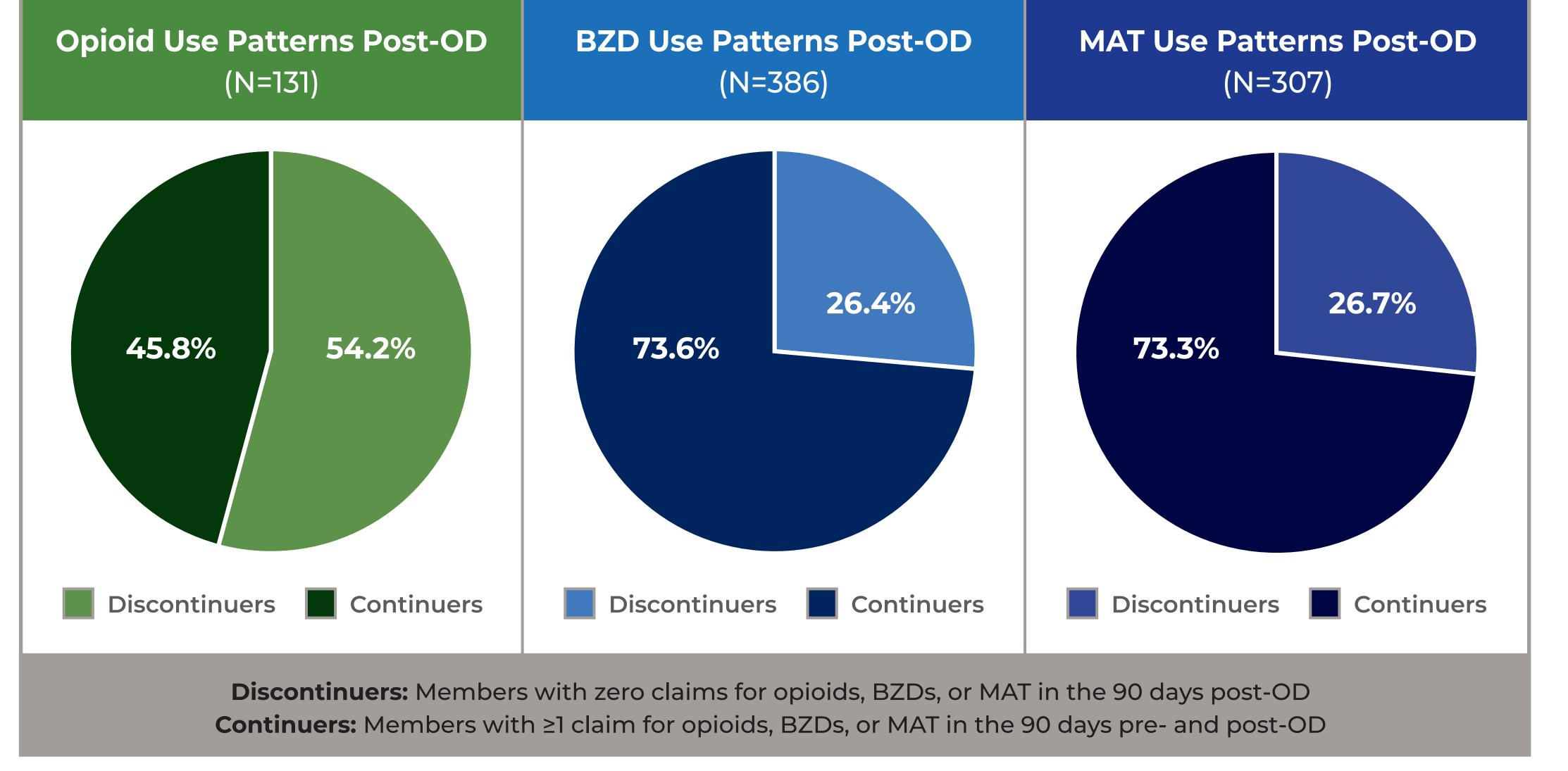
Members with a non-fatal OD

N= 1,605

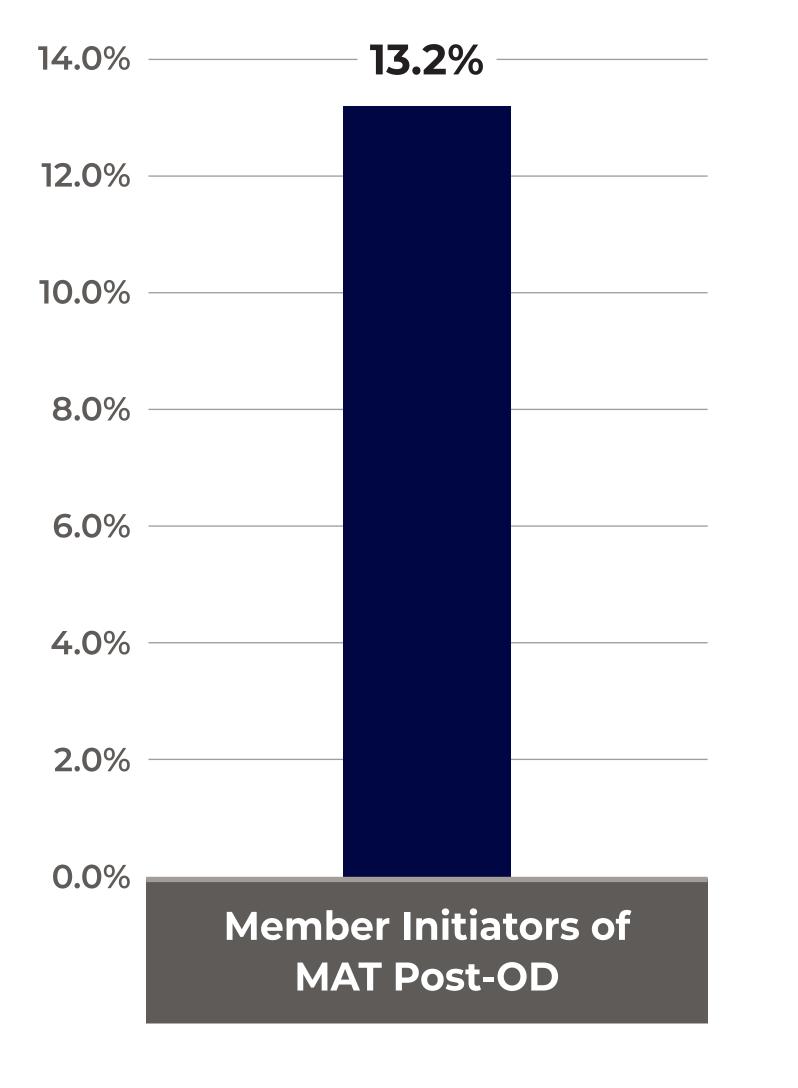
Members continuously enrolled in

MassHealth for ≥90 days pre- and post-OD

N= 1,537



# Figure 3. Percent of Members that Initiated MAT After Non-Fatal OD Hospitalization



### DISCUSSION

- Among members with a non-fatal OD hospitalization of any cause, 59.3% were men and 83.1% were in between the ages of 30 and 64 years.
- Less than 1 in 10 members used prescription opioids before and after a hospitalized OD event.
- In the 90 days after a non-fatal overdose event, 54.2% of members who used opioids before hospitalization had zero claims for opioids and 26.4% of members who used BZDs before hospitalizations had zero claims for BZDs.
- A total of 13.2% of members began MAT after experiencing a non-fatal overdose event, and 73.3% of members previously on MAT continued treatment after the overdose event.
- The differing outcomes across opioids, BZDs, and MAT groups highlight the importance of tailoring interventions to address specific substance use patterns and individual patient needs.

### LIMITATIONS

- The use of administrative data may potentially capture billing inaccuracies and coding errors.
- All overdoses, regardless of cause, were included in the analysis.
- This analysis only evaluated members who were hospitalized after an OD; however, many patients with an OD are not necessarily admitted to the hospital.
- Only pharmacy claims were used to identify prescribed medication regimens, therefore MAT use in medical claims was not captured.
- Medication use was only evaluated by the presence of claims for opioids, BZDs, and MAT. Changes in drugs, doses, or frequency of use was not evaluated.
- The findings may not apply universally to populations covered by other payers or other state Medicaid programs.

### CONCLUSIONS

- Among users of opioids and BZDs before a non-fatal OD, this analysis found that opioid and BZD utilization decreased, and MAT utilization increased following a non-fatal OD hospitalization event.
- Future evaluations should assess the total patient risk profile, including recurrence of overdoses in all settings, polypharmacy and dose reduction approaches, and medication regimen changes.
- Further studies need to evaluate appropriate interventions to establish those with meaningful impact and improved outcomes overall.

### **REFERENCES**

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### DISCLOSURES/ACKNOWLEDGMENTS

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