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The Department of Pharmacy Practice

# Patient Factors Associated with Hospital Discharge on Buprenorphine Versus Methadone

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## INTRODUCTION

- Opioid use disorder (OUD) hospitalizations have increased by over 60% since 2005. Only 25% of hospitals offer to initiate medications for OUD (MOUD) during admission and only 17% offer support for linkage to outpatient treatment, increasing overdose risk post-discharge.[1,2]
- The OUD Medication Assisted Recovery (MAR) service was started at the University of Illinois Hospital and Health Sciences System (UIH) on 7/1/2022 to assist primary medical teams with managing patients with OUD.
- OUD MAR Service workflow:
  - Pharmacist: Evaluate patients' withdrawal symptoms, treatment goals and history with MOUD, assess barriers to continue MOUD upon discharge, and facilitate warm-handoff to opioid treatment programs (OTP)
  - Attending physician: Collaborate with pharmacist to develop a plan for MOUD treatment during patient admission

## METHODS

- Single-center, retrospective cohort study via chart review
- Patient factors collected:
  - ❖ Current and past MOUD use
  - ❖ Age
  - ❖ Gender
  - ❖ Race
  - ❖ Insurance coverage
  - ❖ History of intravenous drug use
  - ❖ History of overdose
  - ❖ QTc interval at admission
  - ❖ Length of stay
  - ❖ Admitting diagnosis
  - ❖ Housing status
  - ❖ Presence of comorbid pain, respiratory disorders, and psychiatric conditions
  - ❖ Concurrent use of benzodiazepines

**Inclusion criteria**

- Patients with an encounter at UIH between 7/1/2022 and 6/30/2024
- Patients seen by OUD MAR service and discharged on MOUD

**Exclusion criteria**

- OUD MAR consult for pain management support

**Data analysis (IBM SPSS Statistics Ver. 30.0)**

- Logistic regression to examine the association of patient factors on the decision to initiate buprenorphine or methadone
- Chi-squared tests to analyze nominal predictors
- Independent t-tests and Wilcoxon rank sum tests to compare continuous predictors

## RESULTS

**Figure 1: OUD MAR Encounters between 7/1/2022 and 6/30/2024**

**Table 1: Patient Demographics by MOUD Selection (n=429)**

| | | BUP, n (%) [n=105] | MTD, n (%) [n=324] | Total, n (%) [n=429] |
|---|---|---|---|---|
| **Age**, years (mean ± STD) | | 52.3 ± 13.2 | 52.3 ± 12.6 | 52.3 ± 12.9 |
| **Race/Ethnicity** | Black/African American | 60 (57.1) | 189 (58.3) | 249 (58.0) |
| | White | 21 (20.0) | 94 (29.0) | 115 (26.8) |
| | Hispanic/Non-White | 20 (19.0) | 32 (9.98) | 52 (12.1) |
| | Other | 2 (1.90) | 4 (1.23) | 6 (1.40) |
| | Unknown | 2 (1.90) | 5 (1.54) | 7 (1.63) |
| **Gender** | Male | 68 (64.8) | 209 (64.5) | 277 (64.6) |
| | Female | 37 (35.2) | 115 (35.5) | 152 (35.4) |

**Table 2: Bivariate Analysis of Factors Associated with Discharge on Buprenorphine or Methadone (n=429)**

| Variable | BUP, n (%) | MTD, n (%) | Test Statistic | P-value |
|---|---|---|---|---|
| MOUD at admission = MTD | 4 (0.932) | 174 (40.6) | $X^2$=167.7 | <0.001 |
| MOUD at admission = BUP | 46 (10.7) | 5 (1.17) | | |
| Not taking MOUD at admission | 49 (11.4) | 145 (33.8) | | |
| Past MOUD MTD only | 15 (3.50) | 65 (15.2) | $X^2$=10.0 | 0.018 |
| Past MOUD BUP only | 20 (4.66) | 27 (6.29) | | |
| Past MOUD of MTD and BUP | 19 (4.43) | 60 (14.0) | | |
| No history of MOUD | 51 (11.9) | 172 (40.1) | | |
| Presence of comorbid psychiatric condition | 26 (6.06) | 45 (10.5) | $X^2$= 6.79 | 0.008 |
| No comorbid psychiatric condition | 79 (18.4) | 279 (65.0) | | |

**Table 3: Logistic Regression Predicting Buprenorphine Use**

| Variable | Odds Ratio (95% CI) | P-value |
|---|---|---|
| MOUD at admission = BUP | 8121.8 (726.0, 90855.7) | <0.001 |
| No MOUD at admission | 174.8 (26.4, 1154.2) | <0.001 |
| Past MOUD BUP only | 10.1 (2.42, 41.9) | 0.002 |
| No history of MOUD | 5.79 (1.40, 23.9) | 0.015 |
| History of overdose | 2.82 (1.09, 7.32) | 0.033 |

(Past: greater than 30 days since last prescribed dose; MOUD at admission: last prescribed dose within 30 days of admission)

## CONCLUSION

**Discussion**

- There were significant associations with specific patient factors and the selection of methadone or buprenorphine including history of MOUD and current MOUD.
- Factors including race/ethnicity, age, gender, presence of respiratory comorbidities, having a prolonged QTc interval, and housing instability were not significantly associated with either MOUD option.
- Results align with clinical experiences since patients choosing buprenorphine often express discontent with logistical restrictions of OTPs and those choosing methadone report a history of precipitated withdrawal after taking buprenorphine.

**Limitations**

- Occasionally, circumstances prevent the pharmacist from determining a patient's MOUD history. In these cases, there is reliance on EMR data with unreliable accuracy.
- The data collection tool and note template have evolved over the course of two years. Certain data may be unavailable for all patients.

**Future Directions**

- Interprofessional teams can use these results to focus their patient conversations on medication counseling and MOUD experiences. Results can also be used as a starting point to identify other patient factors (e.g. concurrent cocaine use, education level, attitudes towards the healthcare system) that may contribute to the selection of MOUD while hospitalized.

## AUTHORS & DISCLOSURES

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