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Inpatient Management of Medication-Assisted Therapies for Opioid Use Disorder

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Inpatient Management of Medication-Assisted Therapies for Opioid Use Disorder

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Background

- Medication-assisted therapies (MAT) for opioid use disorder (OUD) increases success with maintaining abstinence.[1] Managing acute pain in patients with OUD can bring additional challenges given changes in baseline pain sensitivity, variation in pain relief when given opioids, and clinical hesitancy and uncertainty regarding approach to managing patients taking MAT.[1]
- Some providers may discontinue MAT to treat acute pain; however, this can be done unnecessarily and lead to withdrawal, or may not be restarted prior to discharge which can disrupt OUD management outpatient. Guidelines also recommend consultation with a clinician experienced in pain care and addiction treatment to ensure adequate pain and MAT management, but how often this is done in practice is unclear.[1]
- The 2022 National Drug Control Strategy calls for access to medications for OUD for any person with OUD by 2025, which emphasizes the importance for providers to know how to appropriately manage these patients.[2] Hospitalizations can be an opportunity for engaging and supporting patients with substance use disorder, and pharmacists can play a unique role in assisting with the management of acute pain and MAT in the inpatient setting by acting as stewards.

Objectives:

- Review and analyze prescriber practice around management of admitted patients with OUD on buprenorphine or methadone
- Identify gaps in inpatient management of MAT to create intervention strategies for pharmacists

Methods

Study design

- Medication use evaluation
- Common-cause analysis
- Data collected by retrospective, manual chart review using Epic™ software
- Morphine equianalgesic dosages converted using ClinCalc™

Inclusion criteria

- All adult patients admitted to the Medical-surgical unit (MS) or the intensive care unit (ICU) with opioid use disorder taking either methadone or buprenorphine (including buprenorphine-naloxone products) from February 28th, 2021 – February 28th, 2023

Exclusion criteria

- No primary diagnosis of OUD (i.e., chronic pain, opioid dependence)
- Reported not taking MAT prior to admission
- Induction of MAT during current inpatient stay

Primary outcome

- Frequency of inpatient MAT discontinuations

Secondary outcomes

- Whether MAT was continued at prior to admission dose, reduced dose, or altered dose
- Documented reason for MAT discontinuation
- Whether MAT was restarted prior to discharge
- Whether an outpatient or inpatient addiction specialist was consulted during admission
- Average admission pain scores
- Daily oral morphine milliequivalents (OME) during inpatient stay

Results

Baseline Characteristics

	Buprenorphine MS (n=17)	Methadone MS (n=12)	Buprenorphine ICU (n=10)	Methadone ICU (n=13)
Age (years) – mean ± SD	49.5 ±11.1	48 ±9.9	43.3 ±10.7	47.8 ±14
Sex – no. (%)				
Female:	9 (52.9)	4 (33.3)	4 (40)	8 (61.5)
Male:	8 (47.1)	8 (66.7)	6 (60)	5 (38.5)
Race – no (%)				
Caucasian or White:	16 (94.1)	11 (91.7)	10 (100)	11 (84.6)
Other:	-	1 (8.3)	-	-
Unknown:	1 (5.9)	-	-	2 (15.4)
Mean Admission Duration (Days)	6.1	18.3	7.3	16.3
Reason for Hospitalization – no (%)				
Infection:	10 (58.8)	7 (58.3)	2 (20)	4 (30.8)
Psychiatric:	1 (5.9)	2 (16.7)	1 (10)	3 (23.1)
Respiratory:	1 (5.9)	1 (8.3)	1 (10)	3 (23.1)
Gastrointestinal:	4 (23.5)	0 (0)	1 (10)	0 (0)
Other:	1 (5.9)	2 (16.7)	5 (50)	3 (23.1)

Table 1. Demographic and baseline characteristics.

Primary Outcome

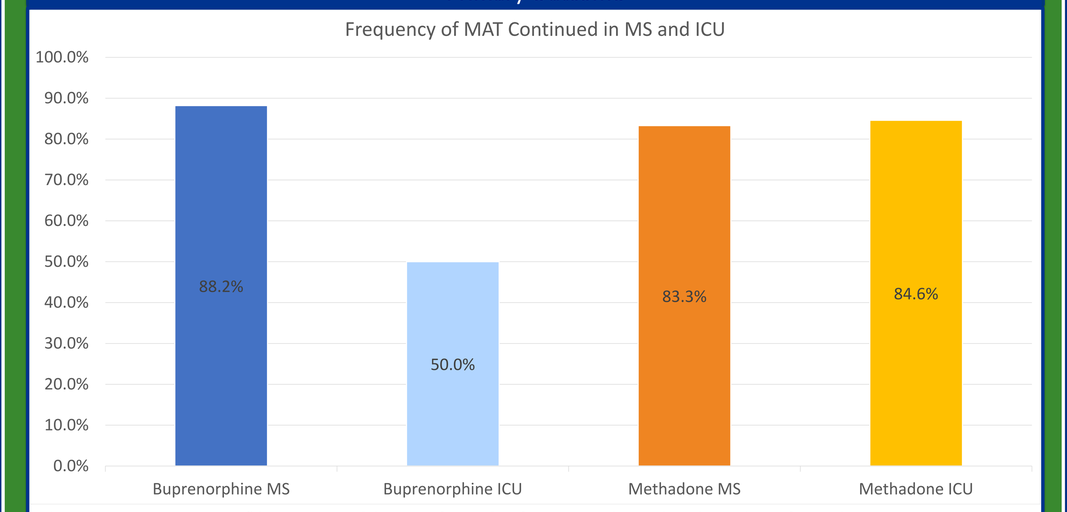

Figure 1. Frequency of buprenorphine and methadone continuation in MS and ICU by percentage. Frequency was similar across groups with exception for patients in the ICU on buprenorphine.

Secondary Outcomes

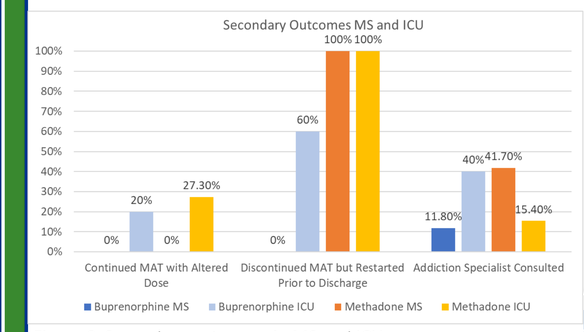

Figure 2. Secondary outcomes in MS and ICU.

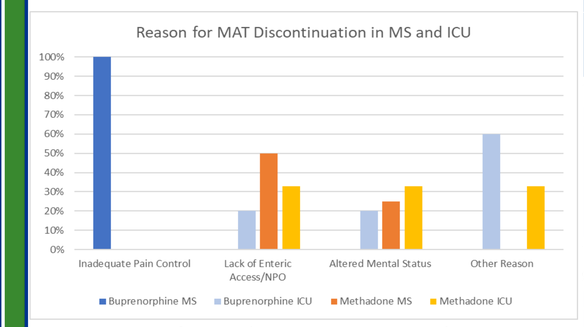

Figure 3. Reasons for MAT discontinuation in MS and ICU.

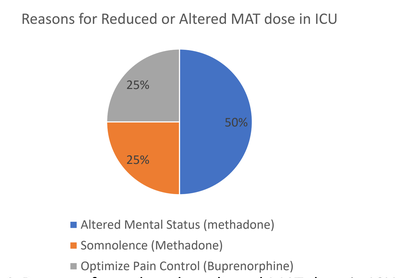

Figure 4. Reasons for reduced or altered MAT dose in ICU.

MAT Continued	MS – no (%)	ICU – no (%)
Buprenorphine		
Yes	2 (11.8)	1 (10)
No	0 (0)	3 (30)
Methadone		
Yes	4(33.3)	1 (7.7)
No	1(8.3)	1 (7.7)

Table 2. Inpatient addiction medicine consults completed.

MAT Continued	MS – Mean ±SD	ICU – Mean ±SD
Buprenorphine		
Yes	21.6 ±17.9	27.5 ±22.5
No	71.9 ±4.9	40.8 ±39
Methadone		
Yes	28 ±11.8	25.6 ±19.4
No	3.7 ±1.7	32 ±10.7

Table 3. Mean oral morphine equivalents in mg/day ± standard deviation (SD).

MAT Continued	MS – Mean ±SD	ICU – Mean ±SD
Buprenorphine		
Yes	4.5 ±1.9	6.7 ±1.6
No	4.3 ±0.6	4.6 ±1.3
Methadone		
Yes	5.9 ±1.3	4.9 ±1.8
No	6.3 ±0.7	7.4 ±0

Table 4. Mean pain score ± standard deviation (SD).

Discussion

Discussion

MAT was discontinued with similar frequency between MS and ICU (~80%) with exception of patients on buprenorphine in the ICU (50%). Patients in the ICU and on buprenorphine did not have MAT discontinued due to inadequate pain management but instead discontinued due to altered mental status, lack of enteric access/NPO status, or other reasons such as critical illness. Some patients in ICU had altered doses of buprenorphine in attempt to maximize its analgesic potential.

Only patients admitted to MS and on buprenorphine prior to admission had MAT discontinued due to acute pain. These patients did not have buprenorphine restarted prior to discharge and restarting was deferred to the PCP. Daily OME were higher on average for patients whose buprenorphine was discontinued. Chemical dependency consults were not sought for these patients.

When methadone was discontinued in MS or ICU it was not due acute pain but due to altered mental status or somnolence, lack of enteric access or NPO status, prolonged QT, or critical illness. Patients with critical illness in the ICU were on continuous sedation and receiving other opioids. Methadone was restarted prior to discharge for all patients.

Inpatient addiction specialists who were consulted when MAT was discontinued typically restarted MAT for patients that were wanting to. Outpatient addiction specialists were not consulted for inpatient management but did have contact with pharmacy regarding verification of methadone doses.

Data Limitations

- Sample size was small
- Sample included primarily Caucasian/white patients
- Study design was retrospective chart review
  - Information recorded in charts may have been incomplete or missing.
  - Pain scores were difficult to assess given inconsistencies in documentation. MS more regularly documented pain scores compared to ICU; however, ICU was more limited in ability to adequately assess pain given critical condition.
- Some patients had longer durations of admission which may have confounded mean daily oral morphine milliequivalents.

Going Forward

- Buprenorphine should be restarted in all patients prior to discharge to prevent gaps in OUD management. Would recommend chemical dependency consult be considered in any patient whose MAT is discontinued or adequate pain control is of concern.
- It was unclear if providers or social work were facilitating transitions of care. Would recommend transitions of care team be made aware of patients who are admitted and on MAT to facilitate better transitions of care.
- Methadone policy exists for pharmacist management of methadone orders but does not include guidance for managing buprenorphine. Recommend including all MAT in the policy. Specifically, recommend pharmacists are checking PDMP to verify buprenorphine doses prior to verification.

References

1. Cunningham, C., Edlund, M. et al. American Society of Addiction Medicine (ASAM). National Practice Guideline for the Treatment of Opioid Use Disorder. 2020 Focused Update 2018.
2. The White House. National Drug Control Strategy. Whitehouse.gov. Retrieved April 5, 2023, from https://www.whitehouse.gov/wp-content/uploads/2022/04/National-Drug-Control-2022Strategy.pdf?emci=6104c04c-b8c1-ec11-997e-281878b83d8a&emdi=03d89441-c3c1-ec11-997e-281878b83d8a&ceid=8795995
3. Kane SP. Equivalent opioid calculator. Opioid (Opiate) Equianalgesic Conversion Calculator - ClinCalc.com. https://clincalc.com/Opioids/. Accessed April 11, 2023.