Increasing Access to MOUD in Patients Hospitalized with Severe Injection Related Infections: A Single Center Experience

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Background

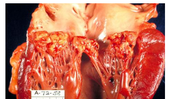

Figure 1: mitral valve vegetations in a patient with infective endocarditis
Source: CDC.gov

- Hospitalizations for serious injection related infections (SIRI) are often complicated by unplanned hospital discharge, incomplete antibiotic treatment and subsequent readmission[1]
- Inadequate treatment of opioid withdrawal/cravings is frequently cited by patients as the primary reason for unplanned discharge[2]

- Several retrospective studies have shown treatment with MOUD to be associated with reductions in unplanned hospital discharge and subsequent re-admission in patients with SIRI[3,4]
- In early 2022, our institution adopted an Expanded Access Initiative for MOUD with the goal of increasing access to guideline-based care for opioid use disorder (OUD)
- **Our study aims to quantify the effect of this initiative on pertinent clinical outcomes in patients with OUD who are hospitalized with SIRI**

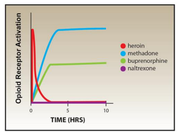

Figure 2: Opioid receptor agonism and duration of action for heroin, methadone, buprenorphine and naltrexone

Source: drugabuse.gov

Expanded Access Initiative for MOUD

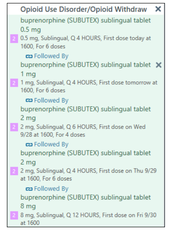

Figure 3: Opioid withdrawal order set including micro-induction protocol

Goal #1: Eliminate unnecessary restrictions on inpatient use of MOUD

- X-waiver no longer required when treating inpatients with a primary diagnosis other than OUD (such as acute infection)
- Time limit on inpatient use of methadone eliminated (previously 72h)

Goal #2: Remove logistical barriers for treatment in MOUD naïve patients

- New order set implemented with buprenorphine dose automatically titrated to COWS scores
- Multiple dosage options provided (including a micro-induction protocol) with guidance for individualized care
- Streamlined referral process established for follow-up within 7 days

Methods

- We utilized a quasi-experimental study design to assess the impact of our initiative on pertinent clinical outcomes: MOUD utilization, unplanned hospital discharge, and 30-day readmission
- All SIRI hospitalizations from January 2019 – June 2021 were included in the pre-intervention group, while the intervention group consisted of SIRI hospitalizations from January 2022 – June 2022
- We excluded hospitalizations from the intervening 6-month time period during which different portions of the expanded access initiative were sequentially introduced (July 2021 – December 2021)
- All charts were identified using ICD codes, then manually reviewed to ascertain clinical datapoints
- Admissions ending in an in-hospital death were excluded from assessments of unplanned hospital discharge and 30-day readmission

Results

Table 1: Admission characteristics for all hospitalizations before and after implementation of MOUD expanded access initiative

	Control Group (n = 133)	Intervention Group (n = 31)	p-value
Age	35.87 ± 9.71	38.77 ± 8.90	0.13
Female	75 (56.4%)	11 (35.5%)	0.04
Race/Ethnicity			0.01
Non-hispanic black	22 (16.5%)	1 (3.2%)	
Non-hispanic white	101 (75.9%)	22 (71.0%)	
Hispanic	7 (5.3%)	7 (22.6%)	
Infection			
Endocarditis and/or bacteremia	78 (58.7%)	10 (32.3%)	0.01
Osteoarticular infection	35 (26.3%)	14 (45.2%)	0.04
Skin/soft tissue infection	55 (41.4%)	16 (51.6%)	0.30
Staphylococcus aureus infection	72 (54.1%)	14 (45.2%)	0.37

References

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3. Marks LR, Munigala S, Warren DK, Liss DB, Liang SY, Schwarz ES, Durkin MJ. A Comparison of Medication for Opioid Use Disorder Treatment Strategies for Persons Who Inject Drugs With Invasive Bacterial and Fungal Infections. J Infect Dis. 2020 Sep 2;222(Suppl 5):S513-S520. doi: 10.1093/infdis/jiz516. PMID: 32877547; PMCID: PMC7566615.
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Results, cont.

Table 2: Admission outcomes for all patients before and after implementation of MOUD expanded access initiative

	Control Group (n = 133)	Intervention Group (n = 31)	OR (95% CI)	p-value
Received MOUD	41 (30.8%)	21 (67.7%)	4.71 (2.08 - 11.30)	< 0.001
New induction	12 (9.02%)	16 (51.61%)	10.76 (4.35 - 27.76)	< 0.001
AMA discharge[1]	63 (48.8%)	4 (13.3%)	0.16 (0.05 - 0.44)	0.001
30-day readmission[1]	29 (22.5%)	3 (10.0%)	0.38 (0.09 - 1.19)	0.14
In-hospital mortality	4 (3.01%)	1 (3.23%)	1.08 (0.05 - 7.60)	0.95
MOUD type				<0.001
Buprenorphine	19 (46.3)	20 (95.2%)		
Methadone	22 (53.7)	1 (4.7%)		

MOUD, medication for opioid use disorder; AMA, against medical advice; OR, odds ratio.
[1] Those with an in-hospital death were removed from comparison.

Table 3: Admission outcomes for MOUD naïve patients before and after implementation of MOUD expanded access initiative

	Control (n = 104)	Intervention (n = 26)	OR (95% CI)	p-value
Received MOUD	12 (11.54%)	16 (61.54%)	12.27 (4.66 - 34.43)	<0.001
AMA discharge[1]	55 (54.5%)	4 (16.0%)	0.16 (0.05 - 0.46)	0.002
30-day readmission[1]	25 (24.8%)	2 (8.0%)	0.26 (0.04 - 0.98)	0.08
In-Hospital Mortality	3 (2.9%)	1 (3.9%)	1.35 (0.07 - 11.03)	0.80
Induction Type (n = 28)				0.02
Buprenorphine standard dose	8 (66.7%)	12 (75.0%)		
Buprenorphine micro-induction	0 (0%)	4 (25.0%)		
Methadone rapid taper	4 (33.3%)	0 (0%)		

MOUD, medication for opioid use disorder; AMA, against medical advice; OR, odds ratio.
[1] Those with an in-hospital death were removed from comparison.

Conclusions

- Receipt of MOUD increased significantly after implementation of our expanded access initiative (OR 10.76; 95% CI 2.08 – 11.30), particularly amongst MOUD naïve patients (OR 12.27; 95% CI 4.66 – 34.43)
- Our initiative was associated with significant reductions in AMA discharge (OR 0.16; 95% CI 0.05 – 0.44) and a trend towards lower 30-day readmission that did not reach the threshold for statistical significance
- Although numbers in the intervention group were low (n=31), data collection is ongoing with initial results supporting the need for expanded MOUD access in patients hospitalized with SIRI