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Variability in Opioid Use Disorder Clinical Presentations and Treatment in the Emergency Department: A Mixed-Methods Study

Sophia Faude, MD¹, M. Kit Delgado, MD, MS², Jeanmarie Perrone, MD², Rachel McFadden, RN², Ruiying Aria Xiong, MS⁵, Nicole O'Donnell², Christian Wood⁴, Gabrielle Solomon⁵, Margaret Lowenstein, MD, MPhil, MSHP³

¹Department of Emergency Medicine, Grossman School of Medicine, New York University Langone Health, New York, NY, United States of America

²Department of Emergency Medicine, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, United States of America

³Division of General Internal Medicine, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, United States of America

⁴Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, United States of America

⁵School of Arts and Sciences, University of Pennsylvania, Philadelphia, PA, United States of America

Abstract

Background: There is strong evidence for emergency department (ED)-initiated treatment of opioid use disorder (OUD). However, implementation is variable, and ED management of OUD may differ by clinical presentation. Our aim was to use mixed methods to explore variation in ED-based OUD care by patient clinical presentation and understand barriers and facilitators to ED implementation of OUD treatment across scenarios.

Corresponding author: Margaret Lowenstein margaw@penmedicine.upenn.edu.

Author contributions

Study concept and design: SF, MKD, ML

Acquisition of the data: ML, MKD

Analysis and interpretation of the data: SF, MKD, RAX, CW, GS, ML

Drafting of the manuscript: SF, ML

Critical revision of the manuscript for important intellectual content: MKD, JP, RM, NO

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Methods: We analyzed treatment outcomes in OUD-related visits within three urban, academic EDs from 12/2018 to 7/2020 following the implementation of interventions to increase ED-initiated OUD treatment. We assessed differences in treatment with medications for OUD (MOUDs) by clinical presentation (overdose, withdrawal, others). These data were integrated with results from 5 focus groups conducted with 28 ED physicians and nurses January to April 2020 to provide a richer understanding of clinician perspectives on caring for ED patients with OUD.

Results: Of the 1339 total opioid-related visits, there were 265 (20%) visits for overdose, 123 (9%) for withdrawal, and 951 (71%) for other OUD-related conditions. 23% of patients received MOUDs during their visit or at discharge. Treatment with MOUDs was least common in overdose presentations (6%) and most common in withdrawal presentations (69%, $p<0.001$). Buprenorphine was prescribed at discharge in 15% of visits, including 42% of withdrawal visits, 14% of other OUD-related visits, and 5% of overdose visits ($p<0.001$). In focus groups, clinicians highlighted variation in ED presentations among patients with OUD. Clinicians also highlighted key aspects necessary for successful treatment initiation including perceived patient receptivity, provider confidence, and patient clinical readiness.

Conclusions: ED-based treatment of OUD differed by clinical presentation. Clinician focus groups identified several areas where targeted guidance or novel approaches may improve current practices. These results highlight the need for tailored clinical guidance and can inform health system and policy interventions seeking to increase ED-initiated treatment for OUD.

Keywords

opioid use disorder; medication for opioid use disorder; implementation; emergency department; substance use disorder

1. INTRODUCTION

Opioid use disorder (OUD) and opioid-related morbidity and mortality continue to rise rapidly in the United States, with annual drug overdose deaths exceeding 100,000 in recent years.¹ Medications for OUD (MOUDs), particularly opioid agonist therapy with buprenorphine or methadone, reduce overdose and all-cause mortality, illicit drug use, and transmission of infectious diseases as well as improving treatment retention and quality of life.²⁻⁴ Use of MOUDs is also associated with reduced opioid-related acute care visits compared with other treatment strategies.^{5,6} However, there is a large evidence-to-practice gap, with a minority of patients receiving any treatment for OUD and even fewer receiving treatment with MOUDs.⁷

Emergency departments (EDs) are increasingly recognized as a critical touchpoint for MOUD initiation. OUD-related ED visits are increasing,⁸ and the ED is a place where out-of-treatment patients seek substance use assessments as well as receive care following overdose or for complications of drug use. Randomized control trials have shown ED-initiated buprenorphine more than doubles treatment engagement at 30 days compared with referral alone and is cost-effective.^{9,10} Recent guidelines have advocated for ED-initiated buprenorphine to become standard of care, and some EDs have developed pathways for MOUD initiation and harm reduction strategies like naloxone distribution.¹¹⁻¹³

While MOUDs are the gold standard of treatment, treatment initiation is not a one-size-fits all approach, and guidelines and protocols for clinical management may require adaptation depending on the clinical scenario. In the ED setting, buprenorphine is the most commonly used MOUD because it can be both administered on-site in the ED and prescribed at discharge by anyone with a DATA 2000 waiver (“X-waiver”). However, standard buprenorphine initiation typically is done when patients are experiencing mild to moderate opioid withdrawal, limiting the ability to administer buprenorphine during an ED stay for patients who are not in withdrawal. There is a great deal of heterogeneity in OUD-related ED visits, including presentations for overdose, acute withdrawal, or associated medical complications. In prior work, we have seen a high degree of provider-level variability in buprenorphine prescribing among clinicians in the ED¹⁴ and in other settings.¹⁵ However, less is known about how care differs based on clinical presentation or strategies for tailoring treatment implementation across clinical scenarios. A better understanding of the presentation-specific barriers and facilitators to buprenorphine initiation may help develop clinical care pathways strategies that are flexible enough to meet the needs of heterogeneous patients.

In prior work, our team reported on outcomes following implementation of multi-component strategy in three urban, academic EDs that included X-waiver training and education, automated consultation to peer recovery specialists, and culture change approaches. These interventions resulted in significant increases in buprenorphine administration and prescribing, but missed opportunities remained. For this study, we sought to understand how patient clinical factors were associated with differences in MOUD treatment with the goal of identifying targets for subsequent care pathways or interventions. Our aim was to use mixed methods to explore variability in ED care based on clinical presentation for OUD and explore barriers and facilitators to ED-initiated OUD treatment from clinician perspectives.

2. METHODS

We used a mixed methods approach to describe variation in treatment for OUD based on ED clinical presentation and barriers and facilitators to management across clinical scenarios. This is a secondary analysis of previously collected data describing the impact of a multi-component strategy for increasing implementation of ED-initiated treatment of OUD. Details of that intervention have been published previously.¹⁴ For the current study, we analyzed outcomes among a cohort of patients with OUD presenting to three urban, academic EDs following the implementation of our interventions of describing variability in OUD treatment by clinical presentation. Quantitative data were then integrated with results from focus groups conducted among a sample of ED physicians and nurses from the same institution to provide a richer understanding of clinician perspectives on caring for patients with OUD across varying clinical presentations.

2.1 Study setting

The study was conducted in a large, urban, academic health system in Philadelphia, Pennsylvania, which has one of the highest overdose death rates of any large U.S. city.¹⁶ We analyzed patient visits from EDs in three academic hospitals, including a tertiary

referral center, a level 1 trauma center, and another hospital with a psychiatric crisis center. Together, these 3 EDs receive approximately 120,000 visits annually and more than 2000 visits for patients with OUD each year. Early in the study period, the study EDs implemented OUD treatment guidelines and a program to incentivize physicians to obtain their DATA 2000 waiver (“X-waiver”), resulting in more than 90% of physicians being credentialed to prescribe buprenorphine.¹⁷ Study EDs also incorporated a team of peer recovery specialists to support treatment and referral for patients presenting for OUD-related concerns, and patients are referred for OUD follow-up to primary care and specialty substance use treatment providers within and outside the health system for longitudinal buprenorphine treatment.¹⁴ The multi-component strategy resulted in increases of 20% on total buprenorphine use, including 13% increase buprenorphine administration in the ED and 14% increase in buprenorphine prescriptions at discharge. However, there was still substantial variability across prescribers and patients.

2.2 Selection of Patient Cohort

For our quantitative analysis, we included visits with an OUD-related ICD-10 code from adult patients (≥ 18 years old) seen and discharged from the study EDs between December 2018 and July 2020. OUD-related encounters were identified using ICD-10 codes for opioid use disorder and overdose (Appendix).¹⁴ All health system data were obtained from the electronic health record (EHR) via Clarity, a reporting database for Epic (Hyperspace 2017; Epic Systems Corporation, Verona, WI).

2.3 Patient and Visit Characteristics

We characterized patient encounters in terms of presentation type: overdose, withdrawal, and other based on ICD-10 codes (Appendix). Within each group, we assessed several measures of ED-based OUD treatment. First, we analyzed the rate of MOUD treatment per opioid-related ED encounter, a composite metric that included both buprenorphine or methadone administration in the ED and/or a buprenorphine prescription at discharge. We also assessed proportions of patients receiving MOUD administered in ED (methadone and/or buprenorphine), a buprenorphine prescription at discharge, and a naloxone prescription at discharge for overdose prevention. We also measured ED length-of-stay (LOS), 30-day ED revisits and 30-day hospital readmissions and extracted patient demographic and clinical characteristics including age, sex, race/ethnicity, and insurance status as well as calculating Charlson Comorbidity Index (CCI) based on previously coded diagnoses in patient records.

2.4 Quantitative Data Analysis

We used descriptive statistics to characterize the sample and compared differences in variables between the 3 presentation subgroups using chi-squared tests for categorical variables, Kruskal-Wallis for ordinal variables, and analysis of variance for quantitative normal variables. Analyses were conducted using Stata (Version 15.1; StataCorp, College Station, TX) and R statistical software.¹⁸

2.5 Focus Group Design

Between January and April 2020, we conducted five focus groups with ED physicians and nurses from two of the study EDs. The interview guide focused on participant experiences caring for patients with OUD in the ED, including: 1) typical clinical presentation of patients with OUD, 2) impact of clinical presentation on identification and treatment, and 3) barriers and facilitators to treatment based on clinical scenario. Participants were also asked for feedback on several strategies to help identify and treat patients with OUD; these results are reported elsewhere.¹⁹

We recruited participants by email. The first two focus groups were conducted in person and final three were conducted via videoconferencing platform due to pandemic restrictions. After obtaining informed consent from each participant, focus groups were moderated by trained clinician members of the research team (RM, MKD, ML) who did not work directly with participants. We collected demographic and other participant characteristics through a short survey. Sessions lasted approximately an hour, and participants received a \$50 incentive.

2.6 Qualitative Data Analysis

Focus groups were audio recorded and transcribed by a professional transcription service. Each transcript was independently coded by two trained research assistants (CW, GS) using Dedoose qualitative analysis software,²⁰ and any disagreements were resolved through discussion with a third team member (ML). We analyzed the transcripts using thematic content analysis using a combined inductive and deductive approach that incorporated prespecified and emergent themes.²¹ Results from the thematic analysis of the patient presentations are reported here.

Integration of quantitative and qualitative data was done during analysis and manuscript preparation, using a constant comparative method, by key team members. The study was approved by the Institutional Review Board of the University of Pennsylvania.

3. RESULTS

3.1 Patient Characteristics

There were a total of 1339 OUD-related visits over the study period (Table 1). This included 265 visits for drug overdose (20%), 123 for opioid withdrawal (9%), and 951 for other conditions (71%). The majority of patients were male, middle-aged, and publicly insured. 53% of patients identified as White and 36% identified as Black.

3.2 Visit and Treatment Characteristics by Clinical Presentation

Overall, 23% of patients over the study period received MOUDs during or after their ED visit (Table 2). The most common MOUD was buprenorphine. 21% received buprenorphine during or after their ED visit, with 15% being administered buprenorphine in the ED and 15% receiving a prescription at discharge. MOUD receipt differed significantly by presentation type; treatment with MOUDs was least common with overdose presentations (6%), followed by other presentations (21%), and most common in presentations for

withdrawal (69%; $p < 0.001$). 63% of patients with withdrawal presentations received either buprenorphine or methadone in the ED. Buprenorphine was prescribed at discharge in 15% of visits overall, including for 42% of withdrawal visits, 14% of other OUD-related visits, and 5% of overdose visits ($p < 0.001$). Participants prescribed naloxone at discharge in 31% of visits, including 45% of overdose visits, 37% of withdrawal visits, and 27% of other visits ($p < 0.001$).

ED length of stay averaged 5.3 hours and did not significantly differ by presentation type. 35% of patients had an ED revisit and 6.6% had a hospital readmission within 30 days of the of the index visit, with these rates differing across presentations ($p < 0.001$). Revisits and readmissions were most common among those in the “other” category.

3.3 Qualitative Analysis

We supplemented quantitative data with qualitative data from focus groups with ED physicians and nurses. Participants included 28 clinicians in two of the study EDs, including attending physicians ($n=9$), resident physicians ($n=10$), and nurses ($n=9$) (Table 3). Focus group participants were primarily male (57%) and white (82%) 72% of participants had ordered (physicians) or administered (nurses) buprenorphine in the ED. Of the physicians, all attending physicians had obtained an X-waiver, and 24% reported prescribing buprenorphine at ED discharge to one or more patients. Several themes emerged regarding OUD treatment across clinical presentation in terms of barriers and facilitators to identification and treatment.

3.3.1 Overdose Presentations—Participants expressed comfort identifying patients with opioid overdose, mentioning both the clinical acuity and large volume of patients presenting with overdose as facilitators. Participants reported high levels of comfort and motivation to discuss OUD with patients following overdose, both because the diagnosis felt obvious and the gravity created a reachable moment. One participant noted:

“It’s easy when they’ve just had an overdose and they’ve nearly died.”

(Attending physician)

Despite perceived receptivity, participants noted that overdose survivors were rarely clinically ready to start MOUDs, particularly buprenorphine. One reported experiencing this barrier in initiating treatment for a patient following an overdose:

“I wanted to help, [but] unfortunately he was still high... you have to wait for them to start withdrawing.”

(Attending physician)

Another echoed patient clinical status as a barrier to MOUD initiation:

“Do we start talking about a long-term – a good plan? The times I have, they’re genuinely not interested or very defensive because they’re not in withdrawal. They’re not really seeking help for that.”

(Attending physician)

Finally, one participant shared:

“I go months without seeing one of these patients that’s perfect for buprenorphine.”

(Resident physician)

Participants also highlighted heterogeneity among patients presenting with overdose and indicated that patients who have had multiple overdoses may not be as receptive to treatment as those who overdosed for the first time.

“I find that a lot of my older patients in their 50’s who have had near or multiple overdoses are just ‘I’ve been through this song and dance before. I don’t want to talk to you about it.’ And it’s hard to get through to them, and it’s hard for social work to get through to them. So, I find that it’s the first-time overdose, the 20-year-old that I find to make a big impact.”

(Attending physician)

Overall, participants expressed confidence in identifying and treating opioid overdose, although initiation of MOUDs was limited by participant assessment of patients’ clinical readiness. Despite feeling like overdose was a potentially reachable moment, participants reported barriers in engaging with patients in treatment, especially after repeated overdose.

3.3.2 Withdrawal Presentations—Participants also expressed high levels of comfort in recognizing opioid withdrawal. Well-described clinical signs and symptoms as well as overt patient disclosure facilitated diagnosis. However, non-specific presentations such as undifferentiated abdominal pain were mentioned as less readily identifiable. In addition, participants described mixed success in MOUD initiation for this population. Participants felt relatively confident in offering MOUDs for patients in withdrawal because they provide symptomatic relief and patients were receptive to treatment. In reference to engaging patients in long term treatment, one participant noted:

“I feel like we make a difference...[in] the ones that come in obviously saying I’m here because I’m in withdrawal”

(Attending physician)

However, participants still cited barriers. For patients who presented for medical workup, there were challenges in forming a therapeutic alliance and having meaningful conversations regarding treatment. This was exacerbated by inadequate symptom control or non-specific presentations that delayed identification.

“Usually by the time you get to the end of doing the medical workup, they’re so disgruntled by the fact that you’ve allowed to be withdrawal that long that they’re a much harder population to help.”

(Attending physician)

Participants also spoke extensively about patients who were interested in treatment but whose withdrawal was not severe enough to safely initiate buprenorphine. This led to long waits and eventually resulted in patients leaving due to the extensive time commitment and physical discomfort of increasing withdrawal.

“It’s rare that I - at least personally - that I have a patient who is withdrawing enough to start on bup[renorphine]. Most of them, unfortunately, I feel come in and are still not somebody you would initiate the bup[renorphine]”

(Attending physician)

Overall, participants felt most confident in starting buprenorphine in patients presenting with withdrawal and recognized that these visits as an opportunity to initiate treatment. However, the physical discomfort of withdrawal and initial lack of adequate withdrawal symptoms were still substantial barriers to care.

3.3.3 Patients with Other Presentations—Among those patients with OUD-related visits not related to overdose or withdrawal, presentations and participant experiences were variable. Some patients came specifically seeking help, either for inpatient treatment services or MOUD initiation. Others presented with medical complications of their opioid use such as infection. Participants highlighted different management challenges for each group.

When patients who came seeking substance use treatment, including short- or long-term inpatient treatment, participants described increased motivation and ease in supporting them. One shared:

“...some are very explicit. Like I have opioid use disorder and I need help, and I’m super collaborative and I get excited about using my X-waiver and I do it in house and discharge and connect them.”

(Attending physician)

However, many participants indicated that efforts to link to inpatient treatment were limited by a lack of resources and patient social needs. One shared an illustrative example of a typical patient challenge:

“...and then like you can come back in the morning, use our phone if you need to call this number, or you can go to somewhere else, but we don’t have detox available here. It’s the middle of the night. They say well, I don’t have a phone. How am I going to get back?”

(Nurse)

While interested in connecting patients to resources, participants felt frustrated by limitations and the differences between available resources and patient expectations. Notably, participants perceived that many patients were primarily seeking inpatient detox or long-term residential treatment and less interested in outpatient MOUDs.

Participants also described many patients presenting with complications of OUD such as skin and soft tissue infections. They noted that this group of patients would frequently be admitted, and while life-threatening complications were a motivator to engage with medical care and substance use treatment, participants reported challenges in management of acute pain in patients with OUD. Participants expressed significant ambivalence around acute pain treatment, particularly those with repeat presentations. One shared:

“...people that constantly come in and out of the ED, how do we help them by not just giving them tons of drugs and then sending them on their way”

(Nurse)

There was also uncertainty about how to provide care for patients with OUD and acutely painful conditions and a recognition that this could be a source of anxiety and mistrust among patients seeking care. One participant reported:

“They’re here for another medical reason and [OUD] part of their medical history, but not why they’re here, which can be challenging because historically, I don’t think the medical system has done a great job of caring for these patients...And so, they’re here for their ankle fracture and they’re worried about how they’ll be perceived and treated and how that part of their care will be managed.”

(Attending physician)

Participants noted that for many patients with OUD, mistrust in the medical system and participant uncertainty on how to adequately manage OUD concurrently with other medical problems lead to decreased patient engagement in discussions of long-term care as well as patient-directed discharges.

3.3.4 Patients with Chronic Pain—Another challenging area reported by focus group participants was patients where an OUD diagnosis was less clear, such as those with chronic pain or treated with long-term opioid therapy. Given the evolving nature of chronic pain treatment and the sometimes unclear line between chronic opioid use and OUD, participants often felt unprepared to broach the subject. One reported:

“I have been finding there’s a broader population there, or a little grayer and fuzzier about whether we bring it up, whether we intervene, whether we do something. We see just coming in for some sort of chronic pain.”

(Attending physician)

Several participants felt that some chronic pain conditions were not legitimate, or perceived patients on chronic opioids to be drug seeking. One shared:

“I think you have a lot of very significant people who use a previous excuse of whatever the source for the chronic pain is as a crutch to stay on the medicine, and that’s a difficult patient population.”

(Attending physician)

Others recognized the impact of participant stigma on management decisions for this population and advocated for a more proactive approach. One reported:

“A lot of what I see is more of the labeling as drug seeking and not properly trying to get them into different pain management programs that can better manage their pain other than opioids or the like.”

(Nurse)

Conversations aimed at diagnosing OUD versus opioid dependence in patients on long-term opioid therapy were viewed as time-consuming and challenging, and participants

often avoided these conversations amidst other competing priorities. Given the sometimes uncertain diagnosis of OUD, there was also discomfort in broaching OUD treatment in this patient population. One participant shared,

“It’s a lot more difficult if they’re there for back pain and you perceive that the real issue may be opioid dependence to mount the enthusiasm and the time that it takes to really sit down and have that conversation with somebody. Because otherwise, those are pretty quick encounters.”

(Attending physician)

Participants who were able to engage in these conversations cited the importance of being open and honest with patients and would ask them directly about their own interest in reducing opioid use.

“I’m pretty honest with patients like hey, I looked through your chart. I saw this on your chart. What’s the status of that?”

(Nurse)

Participants advocated for clearer guidelines and resources for treatment of chronic pain in patients on long term opioid therapy who present to the ED. There was a recognition that some patients might benefit from OUD treatment but lacked clarity on how to determine this and which patients would be appropriate.

“What are the resources that we have that we can use for the chronic - the cancer patient on chronic opioids versus the patient who might be a candidate and may be a willing candidate for treatment for OUD, and maybe having two separate pathways or different pathways to be able to go down for those.”

(Resident physician)

4.0 DISCUSSION

In this mixed methods study focused on variability in ED OUD care, we found significant variability in ED-initiated treatment based on the patient’s clinical presentation. We saw missed opportunities for MOUD initiation across all presentations, particularly those presenting after non-fatal overdose. Focus group discussions contextualized findings, and we found variability in clinician confidence, patient readiness, and clinician-perceived patient receptivity to treatment across clinical scenarios. This study demonstrates that ED OUD treatment is not a one-size-fits-all approach. Prior studies have described numerous barriers to ED-initiated buprenorphine including patient engagement, clinician comfort with medication, perceived patient motivation for treatment, and linkage to next stages of care.^{22,23} Our results suggest that incorporating tailored guidance based on clinical scenarios, such as treatment of opioid withdrawal, management of acute pain, or initiating buprenorphine in patients not in withdrawal in the ED – might further mitigate some of the variability and close the gaps in treatment.

These results add to the literature in several keys ways. First, we found that while OUD treatment varied by clinical presentation, there were still missed opportunities across all scenarios. Prior work has demonstrated that fewer than 5% of commercially insured patients

had a claim for an MOUD within 90 days of an ED-visit for a nonfatal overdose.²⁴ Although rates in this study were higher than those reported in national data, there were still substantial treatment gaps, especially given the 5% mortality rate in the year following a non-fatal overdose.^{25,26} Participants noted varying degrees of confidence in a range of important aspects of OUD care including patient identification, communication, and management based on clinical presentation. Some of these differences may be explained by patient factors, such as interest in treatment or social context. However, prior studies have shown substantial variability among clinicians, suggesting that participants approach these same clinical scenarios differently.¹⁴ Proposed strategies to reduce variability include implementing recovery coaches or navigators to facilitate patient engagement, tailored electronic health record clinical decision support, more comprehensive screening and identification, or other design approaches to influence ED clinician behavior.^{14,19,27,28} Our findings suggest that strategies for ED OUD treatment may be most effective if they can incorporate the variability in clinical management described.

In addition, our data suggest that clinicians may not always recognize opportunities to initiate treatment. Participants described challenges finding the “perfect patient” even when they felt confident and motivated to treat patients with OUD. In particular, overdose visits were perceived as reachable moments, yet we saw low rates of treatment initiation and heard that patients were not clinically ready for buprenorphine inductions. Similarly, participants expressed frustration with lack of outpatient resources for patients seeking detox services but may not have recognized this population as potential candidates for ED buprenorphine. One potential strategy to overcome this gap in care is wider implementation of home or off-site induction from the ED.²⁹ This practice is safe, effective, and commonly used in outpatient treatment settings.^{30,31} Participant education, best-practice guidelines, and institutional protocols are needed to support off-site inductions when patients are not clinically ready in the ED.

Additionally, ED clinicians can consider novel strategies such as low-dose or ultra-low dose inductions,^{32,33} sometimes called microinductions, in which low doses of buprenorphine are initiated for patients not yet in withdrawal.^{34,35} There are also high-dose inductions, in which higher starting doses of buprenorphine are used than for traditional induction strategies, that have been shown to be safe and well-tolerated in an ED context.³⁶ While low-dose approaches have not been well-studied in ED or outpatient populations, future studies should consider testing this approach in ED patients presenting for care who are not clinically ready for buprenorphine induction using traditional methods. Alternative induction strategies are increasingly relevant given reports that fentanyl, the dominant opioid in the U.S. drug supply, is creating challenges with buprenorphine inductions following standard approaches.^{37,38} Finally, although much of the focus has been on ED-initiated buprenorphine, there is increasing interest in ED-initiation of methadone. While outpatient methadone can only be provided in licensed opioid treatment programs (OTPs),³⁹ short-term methadone administration can be done in ED and hospital settings under the “72-hour rule” and then patients can be handed off to OTPs.³⁹ Although this is rarely done in practice, exploratory studies have found ED initiation of methadone to be desired by patients,⁴⁰ and the practice was feasible from a hospital-based bridge clinic.⁴¹ Further work developing, implementing, and testing ED-initiated methadone treatment and direct OTP referral may be

a promising avenue to create more patient-centered models of care and overcome some of the challenges associated with buprenorphine.

Another key finding was the challenge of managing acute and chronic pain conditions in the context of potential OUD. Participants felt ill-equipped to discuss the intersection of OUD and chronic pain and poorly prepared to manage acute pain in patients with OUD. Prior studies have cited unmanaged pain as a driver of patient-directed discharges in patients with OUD,⁴² and despite the existence of guidelines,⁴³ clinicians may feel ill-equipped to manage acute pain in patients with OUD, especially if pain management involves opioid agonist treatment. Further, while chronic pain is a common driver of ED visits,⁴⁴ it is not always prioritized by ED clinicians.⁴⁵ Our results suggest that implementation and dissemination efforts for ED-initiated OUD treatment may need to include explicit guidance around discussing and managing pain in patients with OUD. This may need to include the use of short-acting opioids for treatment of pain and withdrawal given some of the limitations of MOUDs for rapid, effective pain and withdrawal management.^{46,47}

Our study has several limitations. First, we use ICD-10 to identify and categorize OUD diagnoses, which may not accurately capture all patients with OUD.⁴⁸ Second, study EDs are highly engaged and well-resourced for OUD treatment compared to many settings and results are based on local context and drug supply at the time the study was conducted, so findings may not generalize to all locations or settings. Finally, although participants discuss perceptions of patient perspectives, our study lacks the important perspective of patients themselves.

5. CONCLUSIONS

In conclusion, we found high rates of variability in ED-initiated OUD care based on clinical presentation and highlight nuances in ED-initiated OUD treatment. These results highlight the need for tailored clinical guidance and can inform health system and policy interventions seeking to increase ED-initiated treatment for OUD.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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HIGHLIGHTS

- There are missed opportunities to treat opioid use disorder (OUD) in the ED
- Treatment was most common for withdrawal and uncommon after overdose
- Focus groups of ED clinicians highlighted variability in treatment practices
- Targeted guidance by clinical presentation may increase ED-initiated OUD treatment

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Table 1:

Patient Characteristics

Patient Characteristics	Overall n=1339
Age, mean (SD)	40.86 (14.18)
Male Gender, n (%)	907 (68%)
Race, n (%)	
White	703 (53%)
Black/African American	488 (36%)
Other/Unknown	68 (5%)
Hispanic Ethnicity, n (%)	80 (6%)
Insurance Status, n (%)	
Medicaid	863 (65%)
Commercial	207 (16%)
Medicare	159 (12%)
Other/Uninsured	110 (8%)
Charlson Comorbidity Index, mean (SD)	0.85 (1.9)
ED visits in prior 12 months, mean (SD)	3.2 (8.9)
Hospital admissions in prior 12 months, mean (SD)	0.45 (1.6)
Presentation	
Overdose	265 (20%)
Withdrawal	123 (9%)
Other	951 (71%)

ED = Emergency department

Table 2:

Differences in Treatment by Clinical Presentation

	Overall n=1339	OVERDOSE n=265	WITHDRAWAL n=123	OTHER n=951	p-value
Total MOUD, n (%)	302 (23%)	16 (6%)	85 (69%)	201 (21%)	<0.001
Any MOUD administered in the ED, n (%)	215 (16%)	4 (1.5%)	78 (63%)	133 (14%)	<0.001
Total buprenorphine, n (%)	282 (21%)	15 (6%)	81 (66%)	186 (20%)	<0.001
Buprenorphine administered in the ED, n (%)	195 (15%)	3 (1%)	74 (60%)	118 (12%)	<0.001
Buprenorphine prescribed at discharge, n (%)	202 (15%)	14 (5%)	51 (42%)	127 (14%)	<0.001
Methadone administered in the ED, n (%)	20 (1.5%)	1 (0.4%)	4 (3%)	15 (1.6%)	0.087
Naloxone administered in the ED, n (%)	63 (4.7%)	27 (10%)	0 (0%)	36 (4%)	<0.001
Naloxone prescribed at discharge, n (%)	417 (31%)	120 (45%)	45 (37%)	252 (27%)	<0.001
ED LOS in hours, mean (SD)	5.3 (4.8)	5.3 (3.8)	5.3 (5.1)	5.3 (5.0)	0.972
ED Revisit within 30 days, n (%)	467 (35%)	63 (24%)	44 (36%)	360 (38%)	<0.001
Hospital readmission within 30 days, n (%)	87 (6.5%)	8 (3%)	1 (0.8%)	78 (8.2%)	<0.001

MOUD = Medication for opioid use disorder; ED = Emergency department; LOS = length of stay

Table 3:

Focus Group Participant Characteristics

Participant Characteristics	n, %
Professional Group	
Attending Physician	9 (32%)
Resident Physician	10 (35%)
Nurse	9 (32%)
Age	
<30	9 (32%)
30–39	12 (43%)
40–49	6 (21%)
>50	1 (4%)
Gender	
Female	12 (43%)
Male	16 (57%)
Race	
White	23 (82%)
Black/AA	1 (4%)
Asian/Pacific Islander	3 (14%)
Hispanic/Latino Ethnicity	
	1 (4%)
Years since graduation from medical or nursing school	
1–4	12 (43%)
5–9	7 (25%)
10–14	3 (11%)
15+	6 (21%)
Percent time spent in clinical care	
<20	1 (4%)
20–50	1 (4%)
51–75	3 (11%)
75+	23 (82%)
Has X-waiver (physicians)	
Yes	7 (37%)
No	9 (47%)
Completed training, no DEA *	3 (16%)

* Resident physicians do not all have a DEA number