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Perspectives on and experiences of emergency department–initiated buprenorphine among clinical pharmacists: A multi-site qualitative study

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Abstract

Introduction: Clinical pharmacists are well positioned to enhance efforts to promote emergency department (ED)-initiated buprenorphine to treat opioid use disorder (OUD). Among clinical pharmacists in urban EDs, we sought to characterize barriers and facilitators for ED-initiated buprenorphine to inform future implementation efforts and enhance access to this highly effective OUD treatment.

Methods: This study was conducted as a part of Project ED Health (CTN-0069, NCT03023930), a multisite effectiveness-implementation study aimed at promoting ED-initiated buprenorphine that was conducted between April 2017 and July 2020. Data collection and analysis were grounded in the Promoting Action on Research Implementation in Health Services (PARIHS) framework to assess perspectives on the relationship between 3 elements: **evidence** for

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buprenorphine, the ED **context**, and **facilitation** needs to promote ED-initiated buprenorphine. The study used an iterative coding process to identify overlapping themes within these 3 domains.

Results: The study conducted eight focus groups/interviews across four geographically disparate EDs with 15 pharmacist participants. We identified six themes. Themes related to evidence included (1) varied levels of comfort and experience among pharmacists with ED-initiated buprenorphine that increased over time and (2) a perception that patients with OUD have unique challenges that require guidance to optimize ED care. Clinical pharmacists identified: (3) their ability to clarify scope of ED care in the context of unique pharmacology, formulations, and regulations of buprenorphine to ED staff, and that (4) their presence promotes successful program implementation and quality improvement. Participants identified facilitation needs including: (5) training to promote practice change and (6) ways to leverage already existing pharmacy resources outside of the ED.

Conclusion: Clinical pharmacists play a unique and critical role in the efforts to promote ED-initiated buprenorphine. We identified 6 themes that can inform pharmacist-specific interventions that could aid in the successful implementation of this practice.

Keywords

Opioid use disorder; Buprenorphine; Emergency department; Pharmacist

1. Introduction

Recent provisional data from the Center for Disease Control (CDC) National Center for Health Statistics estimates that more than 100,000 overdose-related deaths occurred in the United States during the 12 month period ending in April 2021, a 28.5% increase from the year prior.[1] Medications for opioid use disorder (MOUD), including buprenorphine and methadone, are associated with reduced morbidity and mortality for individuals with OUD.[2–6] A 2015 clinical trial found that ED patients with OUD who were randomized to receive ED-initiated buprenorphine with primary care follow-up were twice as likely to be engaged in treatment at 30 days than those receiving a referral only or a brief intervention with a facilitated referral to OUD treatment.[7] The ED has emerged as a critical setting to initiate buprenorphine, but despite its proven efficacy, the initiation of buprenorphine in the ED is highly underutilized.[8]

To optimize adoption and sustainability of ED-initiated buprenorphine, key stakeholders have emphasized the importance of multidisciplinary treatment teams including the involvement of clinical pharmacists. Broadly, clinical pharmacists have contributed to the care of patients with OUD through monitoring opioid prescribing practices, pharmacy-based harm reduction efforts, such as naloxone distribution and syringe service programs, and assistance in the dispensation of MOUD in health care settings.[9,10]

In the ED, clinical pharmacists play a critical role in ensuring that patients' medication needs are met through dissemination of medication information to medical providers, contribution to resuscitation efforts, involvement in delivery of high-alert medications, medication procurement and preparation, medication reconciliation, documentation, and

transitions of care.[11] Pharmacists also have vital administrative responsibilities as exemplified by their involvement in quality improvement projects, interdisciplinary education efforts, and ED-based research and scholarly activity.[11] Additionally, the 2020 report by the American Society of Health-System Pharmacists identifies "providing structure to opioid crisis services" as a potential area for further emergency medicine pharmacist collaboration.[11]

Because of this, clinical pharmacists are well positioned to influence the adoption of new clinical practices, including ED-initiated buprenorphine. Our team has found that attitudes toward buprenorphine initiation are highly variable among ED clinicians, often due to gaps in clinical knowledge, experience, and understanding of the evidence.[12] Because of such gaps and the critical role of clinical pharmacists in EDs, we sought to characterize the perceived barriers and facilitators to ED-initiated buprenorphine among ED pharmacists in four urban, academic EDs across the United States. With such efforts, we aimed to improve delivery of MOUD by identifying opportunities for multidisciplinary collaboration involving ED pharmacists in the process of ED-initiated buprenorphine.

2. Methods

2.1 Overview of Project ED Health

Our investigation is part of a larger study, Project ED Health, a National Institute on Drug Abuse Clinical Trials Network–funded effectiveness-implementation trial conducted between April 2017 and July 2020. This project aimed to evaluate the effect of implementation-facilitation (IF) strategies to promote the uptake of ED-initiated buprenorphine with referral to ongoing MOUD treatment in four urban, academic EDs.[13] The Western Institutional Review Board approved the study.

We grounded our interview guide and analysis in the Promoting Action on Research and Implementation Health Services (PARIHS) framework.[14] This framework focuses on successful implementation of a particular clinical practice as being impacted by the dynamic relationship among three elements: evidence, context, and facilitation. More specifically, evidence includes stakeholders' perception of research, clinical experience, patient experiences, and local data related to the implementation of the evidence-based practice of ED-initiated buprenorphine. Context refers to the leadership and culture within the setting in which the intervention is to be implemented. Facilitation refers to the processes necessary to implement the evidence-based practice. A rapid assessment process among investigators was iteratively conducted throughout the study, in which fieldnotes from focus groups and stakeholder meetings were reviewed as a team and organized into matrices used to inform external IF activities.[15]

2.2 Study design and setting

2.2.1 Selection of participants: We conducted in-depth, semi-structured focus groups and interviews with ED clinical pharmacists who worked in the ED and had been employed by their respective hospitals for at least six months prior to study onset. For this project, the study team conducted focus groups and interviews at four large academic, urban

EDs in Baltimore, Maryland; New York City, New York; Cincinnati, Ohio; and Seattle, Washington, during a baseline evaluation period before IF, during the IF period, and during a post-IF evaluation period. Research staff recruited participants. The study offered snacks but provided no financial compensation.

2.2.2 Data collection and measurements: Focus groups or interviews were conducted between April 2018 and July 2020 across 3 time points, corresponding to the baseline evaluation period (n=3), the IF period (n=2) and the post-IF evaluation period (n=3) (See Table 1). In some cases (site B and site C), participants were not engaged across all three timepoints. Some participants may have participated in multiple focus groups across time points, but the study did not collect any identifying information. Study authors (EJE, GD, DAF, PGO, KFH), who are emergency and internal medicine physicians with addiction medicine training from an outside institution, facilitated focus groups and interviews. Group facilitators identified as both male and female and had training and experience in conducting qualitative research. No pre-existing relationships between facilitators and interviewees existed.

Focus groups and interviews were in-person, semi-structured, occurred in a nonclinical space and lasted 30 minutes to one hour. The emergence of the COVID-19 pandemic led one interview (site D, July 2020) to occur over the Zoom online platform rather than in person. Facilitators used a previously published interview guide with prompts grounded in the PAHRIS framework.[13] Prompts were designed to elicit participants' perspectives on prior experiences with treating OUD, the evidence supporting ED-initiated buprenorphine, contextual factors related to ED-initiated buprenorphine, and strategies to facilitate the adoption of this practice. We then audio recorded, transcribed verbatim using a professional transcription service, and uploaded interview and focus group transcripts to Nvivo software (version 12).

2.3 Data analysis:

At least two of the three members of the coding and analysis team (MAJ, EJE, KFH) independently reviewed each transcript. Using a codebook previously developed for Project ED Health, the coding team discussed the first 4 transcripts line-by-line after individual review, adding new codes as they emerged from the data.[12] An iterative coding process used the constant comparison model to refine the codebook until we reached thematic saturation. We maintained an audit trail. After all transcripts had been coded, the analysis team identified ideas that were found to be common across transcripts and sorted them into themes. Data were triangulated with matrices developed during the rapid assessment process and research team members who were not part of the coding team conducted member checking.

3. Results

3.1 Participant characteristics:

A total of 15 individuals participated in 8 focus groups or interviews (range 1–3 pharmacists; Table 1). The study conducted six focus groups and two interviews.

3.2 Themes:

Investigators identified six themes in accordance with the PAHRIS framework (Table 2). Evidence themes included (1) varied levels of comfort and experience among ED pharmacists with ED-initiated buprenorphine that increased over time and (2) a perception that patients with OUD have unique challenges that are relevant to ED care that can be addressed through guidance. Context themes included ED pharmacists' ability to (3) clarify scope of ED care in the context of unique pharmacology, formulations, and regulations of buprenorphine, and that (4) clinical pharmacists streamline local processes necessary for successful program implementation. Facilitation themes included (5) a need for local training to promote practice change and (6) a need to leverage already existing pharmacy resources outside of the ED.

3.2.1 Theme 1: Experience with ED-initiated buprenorphine varied among ED pharmacists and increased over time (Evidence)—

Clinical pharmacists described understanding the overall pharmacology of buprenorphine and other MOUD across all time points. However, they also reported that their absence of clinical experience, as well as an unfamiliarity with the literature supporting ED-initiated buprenorphine, contributed to a lack of comfort with the use of buprenorphine in their EDs.

> I think, from the standpoint of knowing how it works, the pharmacology, I'm very comfortable. In terms of understanding the literature that's out there for using it in the ER and rapid induction or that kind of thing, I'm a little less familiar just because I myself haven't read all the literature. Pharmacologically, I get it. (Site C/Pre-IF/p1)

Initially, though pharmacists identified the high prevalence of OUD in their EDs, they generally cited lack of existing protocols and experience with using buprenorphine in the ED as a barrier to treating OUD when compared to other chronic conditions.

> I liken it to a CHF exacerbation. We probably see opioid withdrawal on the same order as CHF exacerbation, but I know how to handle a CHF exacerbation without having to think about it as much. I don't feel that level of comfort with withdrawal patients. (Site B/ Pre-IF/p1)

Over the course of the study period, and as EDs developed and implemented protocols to promote buprenorphine use, clinical pharmacists described increasing comfort with the use of buprenorphine. They also detailed their ability to support the practice both in real time and through quality improvement. One pharmacist described an overall increase in comfort among prescribers once a departmental protocol was established, noting the importance of 24-hour pharmacy support to facilitate this.

> The [buprenorphine administrations] that I've looked over, they've been fine. They've all unfortunately been times where there wasn't a pharmacist available. However, we just started having pharmacists on overnight last week. That should help with that. I think it's a pretty order set-driven process, which they can do very independently. I think they've all gotten good education. I'm sure there'll be questions as things come up. (Site A/IF/p1)

Another pharmacist described the implementation and growth of ED-initiated buprenorphine in their ED as evolving over time, with initial concerns and reservations mitigated by the existence of a clear protocol and a change in culture.

> It's pretty clear that we are definitely going in the right direction. From my end, I know that we are definitely prescribing more buprenorphine for patients…I think it's almost like autopilot now for us, whereas, before, it was more of a "Oh my god, we're really doing this… In the beginning, what I saw was a little bit of… resistance… it was a pain for them. But once everyone got on board and it was just normal for us, it wasn't a big deal. (Site D/post-IF/p1)

3.2.2 Theme 2: Patients with OUD have unique challenges relevant to ED care that can be managed with guidance or protocols (Evidence)—In pre-IF focus groups and interviews, clinical pharmacists identified unique barriers for initiating buprenorphine treatment in patients with OUD. These barriers included the absence of protocols to guide patient selection, a lack of existing infrastructure to support referral to outpatient care, and limited medication access. Some clinical pharmacists described concerns about patient readiness to engage in care. Additionally, clinical pharmacists reported concerns about patients' ability to obtain medication and participate in care following discharge from the ED. They also conveyed concern that patients' access to ongoing care following discharge might be limited given the complicated social situations that many patients with OUD face.

> I'm just worried, at night, if somebody came in and they wanted to discharge a patient on buprenorphine*, and [the patient is] uninsured or homeless, then right now we don't have a way to make sure we can help get that. (Site A/pre-IF/p1) [*Trade name replaced]

Moreover, pharmacists noted that they faced unique challenges when attempting to treat pain in patients with OUD, highlighting the need for additional education on the appropriate analgesia. They also stated that staff members' stigma surrounding OUD often prevented patients' concerns with pain from adequately being addressed.

> I think we try to treat pain, but there's definitely, obviously, some educational opportunities for pharmacists and providers to know about the best way to treat their pain… I think that there are always some comments of well, "they're a heroin addict, they're going to be difficult to control their pain. Or they're on buprenorphine*, so maybe the pharmacist will recommend using a different analgesic." (Site A/pre-IF/p1)

Because of pain management concerns, as well as perceived complexities of prescribing, pharmacists indicated that the lack of ED buprenorphine–related prescribing protocols hindered implementation. Despite the lack of protocols, many desire to participate and support the practice.

> I think it depends on how it's set up and if everybody has a defined role. I feel like that really impacts flow. Everyone has to know what the purpose is and have a

> defined process… I feel like, if you have it set up to run smoothly, then it will work. (Site C/pre-IF/p1)

Participants described the importance of setting up an order-driven pathway to clarify questions and support clinical practice, even in the absence of real-time pharmacist support.

3.2.3 Theme 3: Pharmacists have the ability to clarify scope of ED care in the context of unique pharmacology, formulations, and regulations of buprenorphine to ED staff members (Context)—

Early on, clinical pharmacists relayed a sense of unease around the complicated processes related to initiating buprenorphine in the ED. Despite this, ED pharmacists indicated that they felt uniquely positioned to address these concerns, in part due to their constant presence in the ED, which differed from other clinicians.

> An attending may be here four or five times a month. They'll come to us and say, "What have you been doing? How do I do this? I haven't done this before." …That's our strength is that we are the consistent people, day in and day out… we'll get the volume in terms of seeing a lot of bup patients. (Site B/IF/p3)

Multiple pharmacists reported clinician uncertainty surrounding different buprenorphine formulations but acknowledged their ability to address such gaps in knowledge.

> Providers get confused, all the time, of like what the difference between suboxone, Subutex, Zubsolv. (Site B/post-IF/p2)

In addition, pharmacists were keenly aware of impending policy changes and were often heavily involved in the dissemination of such information. Pharmacists highlighted their role as an on-the-ground real-time resource to ED staff for medication protocols, as well as regulatory and clinical policies.

> If there's a policy change and a legal change, and if it's a policy involving a drug, then we're going to be involved in it… I would say any of our policies that involve drug dosing or use or anything like that, we do get super involved with, especially at a teaching institution, because that's a large percentage of questions that we get. "What do we do here?" (Site A/pre-IF/p2)

In some cases, they even worked to obtain documentation that answered questions surrounding the legality of the practice, further clarifying scope of care.

> We actually have a letter on file from the DEA clarifying all of that, so that if there is any pushback, ever, we can say oh, actually, there you go. (Site A/IF/p1)

3.2.4 Theme 4: Pharmacists help to streamline local processes necessary for successful program implementation (Context)—

Clinical pharmacists described their role as integral to the adoption of buprenorphine initiation in ED settings. More specifically, they described working to ensure smooth implementation of the practice through deliberate collaboration with ED staff members. Importantly, they acknowledged their role as a trusted resource to ED staff, including to nurses who may be new to or uncomfortable with administering buprenorphine.

> I had to walk a nurse through the guideline and explain why we were doing what we were doing… cause [the physician] wanted to give another dose, which is clinically appropriate to do, and the nurse is like, "I'm not giving it," and so I was like, "Okay, well, let's talk through your concerns. We'll talk through why this is appropriate." At the end, she was fine. (Site B/post-IF/p2)

In many cases, clinical pharmacists played an important role in facilitating direct medication access for patients by completing administrative tasks, such as prior authorizations and other paperwork for medication assistance programs.

> The pharmacy medication assistance team initiates the prior authorization. A lot of times, I'll request them, and I'll work with the team. We'll do the prior authorization. (Site A/IF/p2)

Additionally, pharmacist-led quality improvement (QI) initiatives were important in monitoring frequency of buprenorphine prescriptions and were used to gauge success of program implementation.

> We have a dashboard that we can monitor for lots of different things related to opioid prescribing, and one of them is buprenorphine prescribing… We can narrow it down to our department based on who's X-waivered, how many prescriptions they're writing per month, per year—whatever the timeframe we want it to be. (Site B, Post-IF, p1)

Pharmacists also played an important role in the implementation of naloxone programs. In one ED, pharmacists developed a policy for how to identify high-risk patients in need of naloxone prescriptions and created naloxone-related educational material for patients. Pharmacists were also key drivers of QI initiatives to improve naloxone distribution.

> One of the things that I'm working on right now is somehow getting Epic to trigger an automatic naloxone prescription when any opioid is prescribed. Even if somebody's being discharged from trauma or something. (Site A/IF/p2)

3.2.5 Theme 5: Need for local training to promote practice change (Facilitation)—

Most pharmacists were highly motivated to engage in the implementation of ED-initiated buprenorphine but reported a need for additional training early on. More specifically, during early implementation, pharmacists called for training in an outpatient setting to help them gain experience with and clarify their role in buprenorphine initiation.

> From a pharmacy perspective, we're having a little bit of difficulty finding our place in the process. We really want to be intimately involved... but we want to be in that outpatient follow-up setting... We want to see how those practitioners can troubleshoot because we might be getting similar types of questions in the ED. We want that real-life hands-on experience, and we've had difficulty setting that up. (Site B/IF/p3)

Additionally, they identified a desire to be offered the same training (e.g., DATA 2000 X-waiver training) as prescribers to allow for uniformity in understanding the practice.

> I think whatever education and training we're giving our provider colleagues, it would be helpful if we had it as well, not only for our learning purposes but also to ensure that they are interpreting what they're learning. (Site B/Pre-IF/p1)

Over time, the importance of streamlining access to training resources and protocols was broadly recognized as necessary for success. Multiple pharmacists noted the importance of "making it easy".

> It needs to be as easy as possible, I think, for the providers and the nurses just because, if it seems like a lotta work, I think people won't do it. But when you show them that someone else has already developed these resources, you just have to implement and use them and post them for hospital-wide use, I think it's much more easily accepted. (Site D/Post-IF/p1)

3.2.6 Theme 6: Interdepartmental collaboration among pharmacists supported program development (Facilitation)—

A need for collaboration with clinical pharmacists from other departments was another common theme. This need was of particular importance when addressing patients' presentations and treatment strategies with which ED pharmacists had limited experience, such as during early program implementation.

> I definitely tap my pain and palliative care pharmacist colleague, friends, to say, "Hey, what would you do here? We're not quite familiar with this." (Site B/Pre-IF/p1)

They also noted that pharmacists within other departments were similarly interested in buprenorphine initiation and that working with these pharmacists could improve organizational efforts.

> We have pain and palliative care specialists who are actually heading this opioid clinical community, so it is very much in the forefront of their minds… it's just a matter of getting the disciplines from a medical standpoint all in the same room. (Site B/Post-IF/p1)

Over time, ED clinical pharmacists described increasing comfort with the use of buprenorphine in the ED, such that they perceived themselves to be a hospital-wide resource on the use of buprenorphine.

> Because we're the only ones that really see it as much as we do. I think our general sense is that this is a great— it's a very effective tool, and it's being implemented. (Site D/Post-IF/p1)

4. Discussion

To our knowledge, this is the first qualitative study that examines the facilitators and barriers to the adoption of ED-initiated buprenorphine with ED pharmacists in an effort to help inform implementation strategies. Key barriers to practice implementation include variance in initial pharmacist experience with provision of buprenorphine that increased over time, perceptions that improved protocols may address specific challenges of implementing these

programs, and the absence of clinical pharmacist presence during certain times within the ED. Our findings also highlighted the ability of pharmacists to effectively assist in education and implementation of novel practices based on their unique role in ED settings, and point to opportunities to further facilitate pharmacists' involvement in the implementation of ED-initiated buprenorphine through additional pharmacist training and interdepartmental collaboration among pharmacists.

The American College of Emergency Physicians, the American Academy of Emergency Medicine, and the American College of Medical Toxicology have endorsed the administration of buprenorphine within the ED as a bridge to ongoing OUD treatment.[16,17,18] Additionally, these groups have emphasized the critical role that pharmacists play in multidisciplinary ED care.[19] Despite this, our study found that pharmacists initially reported varied levels of comfort with ED-initiated buprenorphine, and cited ED staff perceptions of patient-specific factors as barriers to adoption of the practice. This finding is consistent with previous literature that has similarly reported discomfort with the practice among ED clinicians as a result of limited experience and perceived lack of treatment engagement within patients with OUD following discharge.[12,20,21] This discomfort may reflect underlying stigma that has dominated the narrative of treating patients with OUD within the health care system, and future efforts should focus on implementation of additional department-wide educational opportunities to allow for cultural shifts within the ED to better implement buprenorphine.

Clinical pharmacists also cited lack of pre-existing department-wide protocols to aid in ED-initiated buprenorphine as a barrier to comfort with the practice. This finding is in alignment with prior literature among ED clinicians, which has demonstrated the ways in which increased protocols not only helps to increase ease of prescribing, but also signals buy-in from departmental leadership about using evidence-based practices to treatment of individuals with OUD.[12] As such, implementation of clear and specific protocols for ED buprenorphine through integrating the Clinical Opiate Withdrawal Scale (COWS) and subsequent algorithm for prescribing guidelines within the electronic medical record system may encourage practice change by both signaling practice support from key stakeholders and reducing the cognitive load necessary to successfully carry out the practice.

Additionally, participants cited the lack of continuous pharmacist presence in the ED as a barrier to successful implementation of ED-initiated buprenorphine. As such, our results further support calls by the American College of Medical Toxicology for 24-hour staffing of dedicated ED pharmacists to optimize medication administration and improve outcomes within the ED.[22] This is of particular interest given the current landscape of growing staffing shortages within EDs, and the ways in which the presence of pharmacists has the potential to address such gaps in care.[19]

Our study also demonstrates the ways in which clinical pharmacists can provide educational and regulatory guidance to staff members, and play an important role in the implementation of processes to treat OUD within the ED. These finding underscore and expand the well-established benefit of ED pharmacists in optimizing timely patient care and improving clinical outcomes. For example, in the treatment of acute ischemic stroke, research has

shown that pharmacists' presence leads to a reduction in door-to-recombinant tissue plasminogen activator (rtPA) time by twenty minutes.[23] Additionally, pharmacists play an important role in antimicrobial stewardship, and research has shown that they optimize antimicrobial therapy regimens, reduce time to review of previous laboratory and culture results, and reduce ED readmission rates following culture review.[24–26] Their presence also improves outcomes in trauma resuscitations and decreases time to postintubation sedative and analgesic use.[27]

Our findings add to the existing body of knowledge that demonstrates significant contributions by clinical pharmacists in the use of buprenorphine and the treatment of substance use disorders.[10,28,29] We found that pharmacists often initiated QI projects, including those aimed at improving EHR clinical pathways targeting naloxone distribution and buprenorphine prescribing. Pharmacists' involvement in naloxone distribution is an effective strategy to expand overdose treatment, as exemplified by the near 100-fold increase in retail pharmacy naloxone prescriptions from 2007 to 2016 that resulted from the passage of naloxone access laws.[30] Pharmacist-led naloxone-based harm-reduction initiatives have served as an important community resource to provide overdose education and increase naloxone uptake among individuals with OUD.[31] Moreover, pharmacy distribution of nonprescription needles through syringe service programs has been associated with a decrease in syringe sharing behavior.[32,33] Additionally, a recent open-label feasibility trial in which participants' buprenorphine care was transferred from their office-based buprenorphine treatment (OBBT) physician to a community pharmacist demonstrated the potential for collaborative practice agreements to expand the role of clinical pharmacists in ongoing buprenorphine treatment. As evidenced by their involvement in QI projects expanding access to harm reduction measures, pharmacists are well positioned to be local champions for ED-initiated buprenorphine, and have a nuanced understanding of pharmacology, policies and protocols, and regulatory knowledge that is helpful in this process.

Finally, our study puts forth suggestions for future strategies that can be adopted to better engage ED pharmacists in the implementation of ED-initiated buprenorphine. Additional training of ED based clinical pharmacists in an outpatient setting could help to clarify the role of pharmacists in this process, as well as help to troubleshoot common roadblocks to buprenorphine initiation that they face in the ED. For example, pharmacists could gain additional experience and training in office-based opioid treatment (OBOT) and opioid treatment programs (OTP) that prescribe buprenorphine. Pharmacists also called for parallel training with other clinicians to allow for them to provide better staff education, specifically related to DATA 2000 waiver training.

Increased access to clinical training for pharmacists is in alignment with a 2022 American Pharmacists' Association policy calling for "pharmacists' independent prescriptive authority of medications indicated for opioid use disorders (MOUDs)… to expand patient access to treatment".[34] Moreover, entering into collaborative practice agreements with and removing DEA-mandated prescribing limitations imposed on community pharmacists could further expand the clinical pharmacist's role in transitions of care to outpatient buprenorphine treatment following discharge from the ED.[10,35] Finally, collaboration with pharmacists

from other departments, such as palliative care, psychiatry, and pain management, could provide additional education opportunities to facilitate implementation of ED-initiated buprenorphine.

4.1 Limitations

As is the case with qualitative research, findings from this study may not be generalizable to all pharmacists or EDs. Our focus group sizes were limited by the number of clinical pharmacists who staff the ED at each institution, along with their availability. Although our study size is small, prior work supports a high likelihood of reaching thematic saturation within 3 to 6 focus groups among a homogenous group of participants using a semi-structured interview guide.[36] Further, our findings were consistent with other data sources collected as part of the Rapid Assessment Process that was conducted during the parent study. Focus group facilitators and interviewers were physicians, which could potentially increase the presence of social desirability bias among participants; although, this was mitigated by interviewers being from outside institutions. Since we conducted the study in an urban, academic setting, findings may not be generalizable to community and rural EDs, and in particular those without real-time ED pharmacist support. Moreover, applicability of study findings may vary by ED characteristics such as patient volume and hours of ED clinical pharmacy services. Finally, bias may arise as a result of two group facilitators (KFH, EJE) also participating in the coding process. However, the lead study author, who also participated in the coding, did not facilitate any focus groups. To enhance transparency of our study and findings, we used the Standards for Reporting Qualitative Research (SQSR).[37]

5. Conclusion

This study's findings suggest that pharmacists are well positioned to play a role in facilitating the adoption of ED-initiated buprenorphine. Specific strategies to achieve this goal include facilitating clinical experience with buprenorphine for pharmacists who support ED staff through training in outpatient settings, exposure to shared protocols from other institutions and interdepartmental collaboration among pharmacists. Future efforts to implement such initiatives have the potential to optimize ED care and improve the treatment of patients with OUD.

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Highlights:

- Pharmacists are well-positioned to promote ED-initiated buprenorphine
- Interdepartmental collaboration among pharmacists improves this practice
- Protocolization improves uptake of ED-initiated buprenorphine among pharmacists
- Pharmacists contribute to ED-initiated buprenorphine quality improvement efforts

Table 1.

Designations of interviewees by site

Site		IF Timepoint	Participant Number	Role	Designation
Site A		Pre-IF	1	Pharmacist	Site A/PreIF/p1
			2	Pharmacist	Site A/PreIF/p2
		IF	1	Pharmacist	Site A/IF/p1
			2	Pharmacist	Site A/IF/p2
Site B		Pre-IF	1	Pharmacist	Site B/Pre-IF/p1
			2	Pharmacist	Site B/Pre-IF/p2
			3	Pharmacist	Site B/Pre-IF/p3
		IF	1	Pharmacist	Site B/IF/p1
			2	Pharmacist	Site B/IF/p2
			3	Pharmacist	Site B/IF/p3
		Post-IF	1	Pharmacist	Site B/Post-IF/p1
			2	Pharmacist	Site B/Post-IF/p1
Site C		Pre-IF	1	Pharmacist	Site C/Pre-IF/p1
		Post-IF	1	Social Worker	
			2	Pharmacist	Site C/Post-IF/p1
Site D		Post-IF	1	Pharmacist	Site D/Post-IF/p1

Table 2.

Themes organized according to three domains outlined in PAHRIS framework

Domain	Theme
Evidence: research, clinical experience, local data	1. Experience with ED-initiated buprenorphine varied among ED pharmacists and increased over time
	2. Patients with OUD have unique challenges that require guidance to optimize ED care
Context: culture, leadership, evaluation	3. Pharmacists can clarify scope of ED care in the context of unique pharmacology, formulations, and regulations of buprenorphine to ED staff members
	4. Pharmacists help streamline local processes necessary for successful program implementation
Facilitation: purpose, role, skills, attributes	5. Need for local training to promote practice change
	6. Interdepartmental collaboration among pharmacists supported program development