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Implementation Science Communications (2024) 5:104
https://doi.org/10.1186/s43058-024-00649-x

Implementation Science Communications

SHORT REPORT

Open Access

Emergency department buprenorphine program: staff concerns and recommended implementation strategies

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Abstract

Background Patients presenting to Emergency Departments (ED) with opioid use disorder may be candidates for buprenorphine treatment, making EDs an appropriate setting to initiate this underused, but clinically proven therapy. Hospitals are devoting increased efforts to routinizing buprenorphine initiation in the ED where clinically appropriate, with the greatest successes occurring in academic medical centers. Overall, however, clinician participation in these efforts is suboptimal. Hospitals need more information to inform the standardized implementation of these programs nationally. Using an implementation science framework, we investigated ED providers' concerns about ED buprenorphine programs and their willingness to prescribe buprenorphine in the ED.

Methods We conducted Consolidated Framework for Implementation Research (CFIR)-informed interviews with 11 ED staff in Nevada and analyzed the transcripts using a six-step thematic approach. Results were organized within the CFIR 1.0 domains of inner setting, outer setting, intervention characteristics, and individual characteristics; potential implementation strategies were recommended.

Results Physicians expressed that the ED is a suitable location for prescribing buprenorphine. However, they expressed concerns about: information gaps in the prescribing protocols (inner setting), patient outcomes beyond the ED, buprenorphine effectiveness and appropriate timing of treatment initiation (intervention characteristics), and their own competence in managing opioid withdrawal (individual characteristics). Some were anxious about patients' outcomes and continuity of care in the community (outer setting), others desired access to prospective data that demonstrate buprenorphine effectiveness. Additional concerns included a lack of availability of the required support to prescribe buprenorphine, a lack of physicians' experience and competence, and concerns about opioid withdrawal. Recommended implementation strategies to address these concerns include: designating personnel at the ED to bridge the information gap, engaging emergency physicians through educational meetings, creating a community of practice, facilitating mentorship opportunities, and leveraging existing collaborative learning platforms.

Conclusion Overall, physicians in our study believed that implementing a buprenorphine program in the ED is appropriate, but had concerns. Implementation strategies could be deployed to address concerns at multiple levels to increase physician willingness and program uptake.

Keywords Buprenorphine, Emergency Department Physicians, Staff Concerns, Persons

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Contributions to literature

- Our study established that barriers to prescribing buprenorphine in the emergency department (ED) are rooted in physicians' concerns about information gaps in prescribing protocols, patient outcomes beyond the ED, and buprenorphine effectiveness.
- Physicians also worry about the appropriate timing of treatment initiation and doubt their competence in managing opioid withdrawal.
- Implementation strategies that could increase the uptake of ED buprenorphine include: designating personnel at the ED to bridge the information gap, engaging emergency physicians through educational meetings, creating a community of practice, facilitating mentorship opportunities, and leveraging existing collaborative learning platforms.

Background

The high burden of opioid overdose deaths and emergency department (ED) encounters for opioid overdoses in the United States over the last decade has been largely attributed to synthetic opioids [1, 2]. Opioid overdoses and deaths may be prevented with medications for opioid use disorder (MOUD), such as buprenorphine and methadone [3].

One MOUD with the potential for use in ED is buprenorphine, a highly effective treatment for opioid use disorder (OUD) in office-based settings [3–5]. Recently, randomized controlled trials revealed buprenorphine induction in the ED to be promising for persons with OUD (PWOUD), but this did not translate to further engagement in substance use disorder treatment for survivors of opioid overdose [6, 7]. These PWOUD are at higher risk of death within the next year than other ED patients and could benefit from buprenorphine initiation at the ED [6, 8, 9]. ED providers are uniquely positioned to prescribe buprenorphine to interested patients, and aspects of the ED setting might facilitate the delivery of this treatment to motivated patients [8, 10, 11].

The regulatory environment for buprenorphine prescription is complex and has evolved over the last 20 years, beginning with the Drug Addiction Treatment Act of 2000 (DATA 2000), which allowed physicians to prescribe buprenorphine in outpatient treatment settings after meeting training and licensing requirements [12–14]. The practice guidelines for buprenorphine prescription have rapidly changed in recent years. In 2021 and 2023, respectively, the training and X-waiver licensing requirements were removed [15–17]. Currently, emergency physicians can prescribe buprenorphine without restriction [15, 17, 18].

Increasingly, pharmacists are supportive of ED buprenorphine programs [19]. They are cognizant of the ED buprenorphine regulations, and the unique challenges with OUD care, thereby facilitating the optimization of ED care [20]. Pharmacists have been key contributors to the successful implementation of ED buprenorphine programs in academic centers on the East Coast of the U.S. [20]. However, the perspectives of ED pharmacists about ED buprenorphine programs in non-academic centers in the Western United States are unknown.

Given the promising evidence, changing regulatory landscape, and removal of restrictions on buprenorphine prescribing, some hospitals are making efforts to routinize the prescription of buprenorphine in EDs. However, little progress has been made outside academic medical centers [21–23]. In academic medical centers, the lack of experience with treating opioid use disorder is a barrier to initiating ED-buprenorphine treatment for OUD while support from departmental leadership is a facilitator [10]. Although these individual and structural factors provide some insight, a systematic understanding of how the perspectives of emergency physicians influence decision-making related to prescribing buprenorphine is still lacking [10]. Understanding these perspectives is essential for targeting implementation strategies that can increase the uptake of the intervention at a national scale. In this study, conducted prior to the elimination of the X-waiver, we examined (1) What ED providers think about ED buprenorphine programs and (2) How their perspectives influence their willingness to participate in ED buprenorphine prescribing.

Methods

Study setting

This study was carried out in two large hospitals currently scaling up buprenorphine prescribing in the ED in Nevada from April 1 to June 25, 2022. Hospital A, in Northern Nevada, commenced prescribing in November 2021. Hospital B, in Southern Nevada, commenced buprenorphine prescribing in May 2021.

Theoretical background

Our implementation science-based research questions cut across different implementation levels, namely, intervention, provider, and system levels. We used the robust, multi-level, determinant Consolidated Framework for Implementation Research (CFIR 1.0) [24] to assess barriers and facilitators of implementing an intervention. The CFIR is organized into a series of domains, each containing multiple constructs. We explored perspectives of buprenorphine prescribing across four CFIR 1.0 domains: intervention (i.e., buprenorphine prescribing), inner setting (i.e., the ED), outer setting (i.e., the hospital

and broader clinical environment), and individual characteristics (i.e., characteristics of the providers). We reviewed the literature for multi-level implementation strategies that would facilitate the participation of ED providers in buprenorphine prescribing (the intervention) and enhance the program's sustainability. We determined the recommended intervention strategies based on the Expert Recommendations for Implementing Change (ERIC) [25]. ERIC-informed strategies are clearly defined strategies for addressing multi-level concerns and enhancing the sustainment of these strategies in routine clinical settings [26].

Data collection

Participant recruitment

Physicians and pharmacists working in the two hospitals were eligible for the study. Emergency physician respondents were eligible if they had encountered PWOUD. IRB-approved recruitment flyers were displayed on the entrance doors to the ED pod and placed in break rooms. Electronic copies were circulated to potential respondents through contacts within the hospitals and front desk staff. Additionally, information about the study was circulated by word of mouth and through the email listserv of emergency physician groups. Some respondents were recruited using a snowball approach, in which interviewees were asked to refer other potential participants [27]. Participants were interviewed until conceptual saturation was achieved, and no new information or themes emerged [28]. Generally, 6–12 participants are required to achieve saturation on a research objective [28]. In this case, conceptual saturation was achieved at the 11th participant, and data collection was concluded.

The lead author, who holds MD and MPH degrees and was enrolled in a PhD program in Public Health at the time of data collection, interviewed the participants using a semi-structured interview guide. The creation of the guide was informed by a review of findings from earlier informational interviews of an emergency physician and an ED pharmacist who were not included in the study, and a literature review of potential barriers and facilitators to ED buprenorphine prescribing. Based on these formative data, the interview questions were conceptualized using the CFIR 1.0 domains and constructs of inner setting, outer setting, intervention, and individual characteristics [25]. We selected CFIR 1.0 rather than CFIR 2.0 because the domains and corresponding constructs in CFIR 1.0 were more closely aligned with the way the intervention (buprenorphine program) was conceptualized [25, 29]. CFIR 1.0 includes a concept of "intervention" defined as a single practice or program to facilitate change [30]. CFIR 2.0 describes the concept of "innovation" as the new clinical treatment or service being implemented [29, 31, 32]. ED buprenorphine prescribing has progressed from an innovation implemented in a clinical trial setting in an academic center to an implemented intervention in the EDs in private and community hospitals [6, 21–23], and therefore CFIR 1.0 is the better choice than CFIR 2.0 [29, 32]. Cosmopolitanism (defined as the degree to which an organization is networked with other external organizations) was removed from CFIR 1.0 and replaced with "policies and laws" in CFIR 2.0 [29, 32]. However, given the significance of access to follow-up beyond the ED, the cosmopolitanism concept was particularly important for our analysis, therefore, we stuck with CFIR 1.0.

The interview guide asked participants to discuss their willingness to prescribe buprenorphine (CFIR 1.0 domain: Individual characteristics, CFIR 1.0 construct: other personal attributes), their perspectives on the ED buprenorphine program (CFIR 1.0 domain: individual characteristics, CFIR 1.0 construct: individual stage of change), and potential influencing factors such as knowledge about the intervention (CFIR 1.0 domain: individual characteristics, CFIR 1.0 construct: knowledge and beliefs about the intervention), concerns about precipitated withdrawal (CFIR 1.0 domain: intervention characteristics, CFIR 1.0 construct: complexity), patient follow-up after ED discharge (CFIR 1.0 domain: outer setting, CFIR 1.0 construct: cosmopolitanism), and practice guidelines (CFIR 1.0 domain: inner setting, CFIR 1.0 construct: readiness for implementation and CFIR 1.0 sub-construct: access to knowledge and information). For pharmacists, we also asked questions about their experiences with dispensing buprenorphine (CFIR 1.0 domain: individual characteristics, CFIR 1.0 construct: knowledge and beliefs about the intervention). See interview guides in files 1 and 2.

Each interview lasted between 30 and 45 min. Interviews were audio-recorded and transcribed by the first author (OA) and a research assistant. OA took additional field notes during the interviews that contextualized the perspectives of the study participants during the analysis of the interview transcripts.

Data analysis

Using reflexive thematic analysis [33, 34], the first author (OA) coded the interview transcripts inductively. The transcripts were uploaded and coded using NVivo version 12.0. After each interview, OA read the transcripts and labeled pertinent information with a word or short set of words to describe their meaning. The initial set of codes was created and documented in a codebook after reading the first three interview transcripts. Codes were revised iteratively as the remainder of the interviews were coded, and new codes were added as they emerged

Table 1 Concerns about ED buprenorphine program, CFIR 1.0 domains and constructs, and ERIC-informed implementation strategies

Concerns	CFIR 1.0 domain	CFIR construct	Implementation strategy
1. Availability of the required support to prescribe buprenorphine	Inner setting	Access to knowledge and information	Designate responsible personnel at the ED to provide informational support on buprenorphine prescribing
2. Anxiety about patients' continuity of care beyond the ED	Outer setting	Cosmopolitanism	Create a community of practice for peer-to-peer conversation with office-based opioid treatment (OBOT) providers as a feedback mechanism to the ED phase of care
3. Desire for prospective data demonstrating buprenorphine effectiveness	Intervention characteristics	Evidence strength and quality	Conduct educational meetings (e.g., webinars, and presentations at Nevada American College of Emergency Physicians' meetings)
4. Withdrawal concerns	Intervention characteristics	Complexity	Provide clinical supervision Shadow other experts
5a. Physicians' experience	Individual characteristics	Knowledge and beliefs about the intervention	Leverage existing collaborative learning platforms (e.g., SAMHSA-endorsed Providers Clinical Support System)
5b. Physicians' competence	Individual characteristics	Self-efficacy	Provide clinical supervision Shadow other experts

from the data and in consultation with the last author (KW). Additionally, memos were written to document emerging concepts and assist with mapping findings onto the CFIR 1.0 domains and constructs. After all the interviews were coded, relevant quotes were selected to illustrate each theme. The findings were then mapped onto the corresponding CFIR 1.0 domains and constructs and the relevant ERIC implementation strategies [26] (Table 1).

Results

Participants included six emergency physicians and five pharmacists (n = 11). The median age was 37 years (IQR: 34 – 40) and five (41.7%) were female Most participants were non-Hispanic White (8/11 [72.7%]) consistent with Nevada's ED workforce, which lacks racial and ethnic diversity. We do not report detailed race and ethnicity categories to protect the respondents' confidentiality as it would be too easy to re-identify study participants with that level of detail.

Generally, respondents expressed the belief that the ED is a suitable location for prescribing buprenorphine. However, some disagreed on the rationale that patients in the ED may not be receptive to an intervention to treat their substance use disorder (SUD). The concept of presentation in the ED as a "reachable" or "teachable" moment has been used as justification for the scale-up of many ED-based interventions for PWOUD, including the initiation of buprenorphine [11, 35]. However, some of our respondents described the ED as an environment that is meant for stabilizing a patient after an acute emergency for eventual discharge, or for admission to the hospital for further care. This understanding of the ED as an acute-care setting where people are presenting for reasons *other than their SUD* underpins an opinion expressed by some respondents that patients would refuse an offer of SUD treatment in the ER: *"If they made a decision to come here, they are here, you know, without making a decision to end that problem, and then, we are saying they should go into treatment, I think they will say No. You know… So, that is it, the patient populations in the ER are so very different."* (R3, 38y, Pharmacist).

However, other respondents felt the ED is the right place for prescribing buprenorphine**.** These respondents viewed interactions in the ED as an opportunity to offer patients resources and to educate them about treatment services. A respondent stated:

> *"Yeah, So, if someone comes in with an opioid issue typically, I'll talk to them. I'll encourage them to quit, try to kind of bolster their confidence in their ability to quit and I offer them, you know, nurses or social workers to see them if we can get them into a rehabilitation program" (R8, 36y, physician).*

Some respondents had concerns that could affect the implementation of buprenorphine program.

The next section presents the six concerns with illustrative quotes and described within the CFIR 1.0 domains and constructs: availability of the required support to prescribe buprenorphine, anxiety about patients' continuity of care beyond the ED, desire for prospective data demonstrating buprenorphine effectiveness, withdrawal concerns, physicians' experience, and physicians' competence. Finally, we present the main results summarily

juxtaposed with the potential implementation strategies in Table 1.

Availability of required support to prescribe buprenorphine (CFIR 1.0 domain: inner setting)

Most respondents expressed some degree of willingness to prescribe buprenorphine. However, some were worried about the consequences of administering buprenorphine incorrectly and requested more information and support to ensure compliance with the regulations and protocols. Desired support included step-by-step guidance to meet legal prescribing requirements and to avoid prescribing it incorrectly. In the quote below, provided before the removal of the X-waiver requirement, one physician describes his need for support:

> *"The hurdle for me would be someone to basically give me a step-by-step. Hey? Here's how you get your X-waiver and here's, how to make sure you don't get in trouble with your X-waiver. That would be, I think, the way to get over the hurdle. Most concerned about doing, you know if I do, do my x-waiver. If I'll put the prescription wrong or you know having too many patients under the roster, …I just don't understand it very well yet." (R8, 36y).*

While the X-waiver is no longer a requirement as of January 12, 2023 [17, 36], concerns related to regulatory compliance and the need for detailed and timely guidance on how to prescribe the medication may still be valid, especially as the information about the regulatory changes is still being disseminated.

Anxiety about patients' continuity of care beyond the ED (CFIR 1.0 domain: outer setting)

ED buprenorphine prescribing can be considered a "bridge" to ongoing treatment in the outpatient community-based setting. Ideally, ED buprenorphine programs should have a connection between the ED and outpatient care. Physicians in our sample were concerned about potential gaps in connecting patients to the next step of care in the community. Their worry that participants would not remain engaged in buprenorphine treatment after their initial 3-day prescription from the ED ran out appeared to influence their willingness to prescribe buprenorphine in the ED. Physicians' anxiety about what becomes of the patients after they leave the ED has the potential to limit their intention to prescribe buprenorphine, as seen here:

> *"You know, you want to be able to provide, you know, appropriate treatment until there's time for follow up. And, you know, frankly, that's, in most cases, just not going to happen the next day." (R1, 43y, physician)*

Desire for prospective data demonstrating buprenorphine effectiveness (CFIR 1.0 domain: Intervention characteristics)

Though physicians were interested in the buprenorphine program, they were skeptical of its effectiveness. They desired evidence from patients' follow-up data to indicate that buprenorphine reduces the return to opiate use and results in fewer overdose-related hospital visits.

> *"I think the other piece of tracking that follow-up, is that it demonstrates to the healthcare system,…,the government, the legislation, you can see the effectiveness, both from an individual and kind of a patient-based standpoint, and that you're decreasing the impact of opioid use disorder, …and decreasing the financial impacts for these patients who are recurrently having to come to the hospital for effects of an opioid use disorder" (R1, 43y, physician)*

Pharmacists who advise physicians on medications and facilitate dispensing, have the information about buprenorphine effectiveness that the physicians desired (as indicated in the quote above), which suggests they could be an important part of the strategy for disseminating it. As a Pharmacist explained, *"If we can start treatment in the ER, studies show that patients are more likely to continue treatment versus if we just refer them to an outpatient resource, they may or may not show up."* (R7, 40y).

Withdrawal concerns (CFIR 1.0 domain: intervention characteristics)

Concerns about opioid withdrawal affected physicians' willingness to prescribe buprenorphine in the ED. Some expressed concern that buprenorphine could precipitate opioid withdrawal, making the patient uncomfortable, and as a result of this potential outcome a patient might refuse the treatment. Others were concerned about their ability to time the buprenorphine initiation correctly (i.e., when the patient is in moderate withdrawal): "*Well, well, I think a big one is you have to catch the patient at the right the right time, because if you give a patient with opioid use disorder buprenorphine and they still have opioid in their system you will push them into withdrawal."*(R2, 35y, physician). Therefore, physicians need support to be able to identify the optimal timing for initiating treatment while still attending to immediate withdrawal concerns.

Physicians' experience and competence (CFIR 1.0 domain: individual characteristics)

Some physicians expressed that experience and competence affect prescribing practices and are influenced by

the degree of clinical experience a physician has treating PWOUD. Emergency physicians who interact infrequently with PWOUD may feel less competent and confident in managing these patients and thus express unwillingness to initiate buprenorphine treatment. Additionally, physicians expressed the tool for assessing the appropriate level of opioid withdrawal to initiate buprenorphine treatment is subjective. Therefore, physicians with prior clinical experience managing PWOUD are likely to be more confident and willing to prescribe buprenorphine.

> *"Yeah. I'd say that that's, been a little more of a learning process, because I think it's, withdrawal symptoms in themselves are not too difficult to recognize. But, specifically for buprenorphine, and kind of the appropriate level of withdrawal to initiate therapy, while there are some standardized scoring systems and tools you can use for that, there's definitely some subjective assessment of those tools. So, I think, the more, the more you do it, the more experience you get with it, in training you get with it, these are the times where the definitely the kind of, I think the right level of withdrawal is still a point of learning?" (R1, 43y, physician)*

Discussion

Generally, emergency physicians in our study were willing to prescribe buprenorphine at the ED. However, we described the concerns of some physicians in the context of CFIR 1.0 and identified ERIC-informed potential implementation strategies that are largely relevant to the intervention implementation [25, 26].

Some respondents had concerns that things might go wrong because they lacked important information on the prescribing protocols and X-waiver regulatory requirements, which could limit prescribing (CFIR 1.0 domain: inner setting). Though they were willing to prescribe, they might not do so without a step-by-step guide on how to ensure compliance. The changes in training, licensing, and patient limit requirements between April 2021 and January 2023 may have created confusion in the minds of providers about who can prescribe and under what conditions [15, 17]. Therefore, designating personnel at the ED to provide clarifying information to physicians is critical [17], though it is a non-ERIC strategy.

There were concerns about potential gaps in the continuum of care beyond the ED (CFIR 1.0 domain: outer setting). Emergency physicians were thinking ahead about the link to outpatient care and a lack of knowledge about that link created anxiety that interfered with their willingness to prescribe. However, initiation of buprenorphine in the ED, even if the patients do not continue into long-term therapy, could have benefits such as reduced illicit opioid use, overdose risk, and mortality [3, 37–40], suggesting that a lack of connection to community care should not be a barrier to prescribing in the ED. Therefore, creating a community of practice for peer-to-peer conversation with Office-based Opioid Treatment (OBOT) providers as a feedback mechanism to the ED phase of care, could allay physicians' concerns about potential gaps in the treatment continuum beyond the ED. Additionally, ensuring the presence of designated personnel at the ED, for example, a peer recovery support specialist (PRSS; i.e., someone with lived experience of opioid use disorder who is currently in recovery), can provide information about available community resources for outpatient treatment continuity [41, 42].

While our respondents wished for prospective data on patients' OUD treatment outcomes and continuity of care (CFIR 1.0 domain: outer setting), note that patient data on substance use disorder treatment are protected by Federal regulations that prohibit such data sharing (42 CFR Part 2) [43]. Also, note that this concern for prospective follow-up information appears to be unique to patients with substance use disorders, and is likely quite different from the way physicians would think about other chronic conditions that result in acute presentations in the ED and require follow-up community care (e.g., unmanaged diabetes). Rather than attending to what is feasible within their scope of practice in the ED, which is to stabilize the patients, offer treatment, and discharge them to the next level of care, physicians were uniquely concerned about the immediate follow-up period and having a tracking mechanism in place for patients prescribed buprenorphine. These concerns could serve as a barrier to implementing this evidence-based practice. Here, again, locating PRSSs in the ED who can share their own experiences to address physicians' concerns about the patient's outcomes could be a promising solution [41, 44]. PRSSs can also facilitate access to community-based treatment resources to improve the likelihood of successful treatment linkage.

Physicians' desire for research data demonstrating buprenorphine effectiveness (CFIR 1.0 domain: intervention characteristics) was an unanticipated finding since the evidence base is quite robust [22, 37], but could be an opportunity to increase program uptake. Disseminating existing data on buprenorphine effectiveness in diverse settings may increase the willingness of emergency physicians to prescribe buprenorphine. As shown in our study, ED pharmacists believe buprenorphine is effective, are already championing ED buprenorphine program implementation, and remain keenly interested in contributing more to mitigating the opioid overdose crisis [19, 45]. Creating a learning collaborative and organizing clinician

implementation team meetings that will facilitate opportunities for physicians and pharmacists to talk and engage in CME together could reinforce messages about buprenorphine effectiveness [26].

Other concerns with a patient's willingness to accept buprenorphine at the time of the visit and the experience of withdrawal call for attention (CFIR 1.0 domain: intervention characteristics). Facilitated mentorship through the provision of clinical supervision and shadowing those with the required expertise could address emergency physicians' concerns about the right timing of buprenorphine initiation at the appropriate withdrawal phase [26] and also respondents' concerns about competence and confidence in managing opioid withdrawal [10, 46, 47]. Emergency physicians could participate in Providers Clinical Support System (PCSS), a SAMHSA-funded collaborative free online learning and mentorship platform, to address the inexperience from inadequate clinical exposure to managing opioid withdrawal [48]. The PCSS has convenient learning options such as an online discussion forum and an "Ask a Clinical Question" platform.

Limitations

We studied a population that is hard-to-reach in a peculiar work setting. Thus, the perspectives of the small sample might not be representative of the entire community of emergency physicians. However, we achieved conceptual saturation on the questions of interest and generated some novel findings that are transferable to other settings and could be explored more thoroughly in larger samples. The timing of this study coincided with a period of rapidly evolving regulatory landscape of buprenorphine prescribing for opioid use disorder and this may influence the applicability of our findings. Moreover, these findings are still transferable to large non-academic hospital ED settings in the Western United States. Implementation science is a rapidly evolving field, and a newer framework (CFIR 2.0) was available at the time of this analysis. However, because the older framework included constructs that were more applicable to our research, we chose to use the older framework.

Conclusion

Respondents expressed that the ED is a suitable location for prescribing buprenorphine treatment. However, they expressed concerns about information gaps in regulatory requirements, patient outcomes in the care continuum, buprenorphine effectiveness, appropriate timing of treatment initiation, and their competence in managing opioid withdrawal. We suggested four ERIC-informed implementation strategies that could be used to address those concerns, with the potential to increase participation in the ED-initiated buprenorphine program.

Abbreviations

CFIR 1.0	Consolidated Framework for Implementation Research version 1.0
CFIR 2.0	Consolidated Framework for Implementation Research version 2.0
CFR	Code of Federal Regulations
COWS	Clinical Opioid Withdrawal Scale
DATA	Drug Addiction Treatment Act
DEA	Drug Enforcement Administration
ED	Emergency Department
ERIC	Expert Recommendations for Implementing Change
IRB	Institutional Review Board
MD	Doctor of Medicine
MOUD	Medication for opioid use disorder
MPH	Master of Public Health
OBOT	Office-based Opioid Treatment
OUD	Opioid use disorder
PCSS	Providers Clinical Support System
PhD	Doctor of Philosophy
PRSS	Peer Recovery Support Specialists
PWOUD	Persons with opioid use disorder
RCT	Randomized Clinical Trial
SAMHSA	Substance Abuse and Mental Health Services Administration
SUD	Substance Use Disorder
UNR	University of Nevada, Reno

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s43058-024-00649-x.

Supplementary Material 1.

Supplementary Material 2.

Acknowledgements

A poster presentation of an aspect of this work titled "Implementing emergency department initiated buprenorphine treatment for opioid use disorder in Nevada: the barriers and facilitators" has been made at the 15th Annual Conference on the Science of Dissemination and Implementation held in Washington, DC, December 11 – 14, 2022.

Authors' contributions

OA designed the study, conducted the interviews, analyzed data, and wrote the draft manuscript. SF, MG, JL, JW, BK, and KW are members of the dissertation committee for OA and contributed to the study design. SF, MG, JL contributed to data interpretation and draft manuscript. KW: provided overall technical guidance in data analysis, data interpretation and revision of draft manuscript. All authors read and approved the final manuscript.

Funding

This study was founded by Student Development Award for Research granted to the first author (OA).

Availability of data and materials

Participants' consent for data sharing was not obtained as part of the ethical approval for the study. Thus, sharing the data publicly will violate the confidentiality statement obtained during the study. Authors would consider sharing redacted and de-identified transcripts with qualified researchers who have appropriate approvals. Requests for the study data can be made to the University of Nevada, Reno Research Integrity Office (RIO) via (775) 327–2368.

Declarations

Ethics approval and consent to participate

The study was approved by the University of Nevada, Reno (UNR), Institutional Review Board #1861327–3. Participants provided verbal informed consent to participate.

Consent for publication

Not applicable in this section.

Competing interests
The authors declare that they have no competing interests.

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Received: 31 December 2023 Accepted: 18 September 2024
Published online: 27 September 2024

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