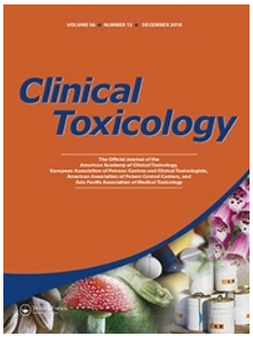

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CLINICAL RESEARCH

Physician attitudes on buprenorphine induction in the emergency department: results from a multistate survey

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ABSTRACT

Study objective: Emergency Departments (ED) are rapidly becoming an important location for initiation of buprenorphine (EDBUP) for the treatment of opioid use disorder (OUD). Previous investigations of emergency medicine physicians' perceived barriers and attitudes toward EDBUP exclusively sampled from urban, academic-affiliated physicians. We administered a multistate survey to an institutionally and geographically diverse collection of emergency medicine physicians to better understand the professional opinions of EDBUP implementation across a variety of practice settings.

Methods: This cross-sectional survey study used an online survey instrument to convenience sample emergency medicine physicians. In order to sample from various practice environments, participants were identified from (1) statewide ACEP chapters and (2) Facebook groups exclusive to emergency medicine physicians. The survey explored physicians' attitudes of EDBUP adoption and the perceived barriers to doing so.

Results: 162 emergency medicine physicians completed the survey. 76% of respondents agreed that emergency medicine physicians should offer EDBUP in the treatment of OUD. When stratified by practice setting and X-waiver status, 96% of X-waivered physicians, 73% of academic physicians, 49% of non-academic physicians, and 34% of non-X-waivered physicians felt comfortable initiating EDBUP. Lack of access to outpatient MOUD referral was the most frequently cited barrier to EDBUP across all practice settings.

Conclusions: An institutionally and geographically diverse group of emergency medicine physicians endorsed substantial support for EDBUP. Emergency medicine physicians practicing in different clinical environments endorsed similar barriers to EDBUP implementation.

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Buprenorphine; emergency department; opiate substitution treatment

Introduction

Medications for opioid use disorder (MOUD) constitute the most-effective therapy for opioid use disorder (OUD) [1], increasing abstinence from illicit opioids [2] and decreasing opioid-related mortality [3]. Opioid use disorder can lead to overdose, infection, endocarditis, constipation, and death [4,5]. Common MOUD include methadone and buprenorphine (frequently formulated with naloxone). Treatment guidelines for opioid use disorder may also refer to medication assisted therapy (MAT) which focuses on the use of MOUD in concert with therapy. Unfortunately, there exists a well-documented MOUD treatment gap [6] with more than 1 million Americans estimated to be without access [7]. In 2015 only 53% of US counties had a provider licensed to prescribe buprenorphine [8]. While this number has likely increased, there is still substantial room for improvement.

EDs are rapidly becoming settings for important public health interventions including HIV/hepatitis screening, domestic violence screening, and suicide prevention [9–12]. Similarly, many EDs now facilitate buprenorphine induction (EDBUP) and help establish linkage to outpatient MOUD treatment [13–17]. Despite emergency medicine professional organizations and institutional leaders aggressively advocating for widespread adoption of EDBUP [4,5,18], only 5% of EDs are estimated to provide EDBUP [19] while only 1% of emergency medicine physicians are estimated to be X-waivered [8]. Establishing a more thorough understanding of ED provider perceptions may help EDs more readily close the gap between EDBUP guidelines and reality.

There has been some research exploring the knowledge and attitudes of emergency medicine physicians toward EDBUP which may inform efforts to rapidly expand ED access to MOUD [20–23]. Lowenstein et al. [21] investigated emergency medicine physicians' perceived barriers to obtaining an X-waiver and providing EDBUP. Geurrero et al. [22] and Im et al. [20] examined the association between institutional and individual attitudes towards EDBUP implementation. Importantly, though, these investigations exclusively sampled emergency medicine physicians working at urban, academic-

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Supplemental data for this article can be accessed here.

affiliated medical centers. Given that much of emergency medicine is practiced in non-academic EDs and that the opioid epidemic disproportionately impacts non-urban populations [23], it is possible that the existing perceptions of EDBUP do not adequately capture the viewpoints of an institutionally diverse emergency medicine physician workforce. To better contextualize the perceptions of EDBUP by emergency medicine physicians at large, we administered a multistate survey to emergency medicine physicians in varied practice settings to examine the attitudes, experiences, and perceptual barriers relating to EDBUP adoption and implementation.

Methods

Design

A cross-sectional survey.

Subjects

A convenience sample of self-identified emergency medicine physicians. As an incentive, respondents were entered into a lottery for a $100 gift card. Our local IRB approved this study and waived informed consent.

Setting

An anonymous online survey instrument that was distributed to four statewide emergency medicine professional organizations (ACEP) and two private Facebook groups specific to emergency medicine physicians working in the United States (Emergency Medicine Forum, EM Docs). The ACEP groups of the four states sampled (CO, MS, OR, WI) ranged in size from approximately 200–900 members and the private Facebook groups have 2948 and 21,734 members respectively at the time of this writing. These states and the private Facebook groups were specifically chosen to incorporate geographic and institutional diversity into the sample.

Data collection

The survey was distributed to each ACEP chapter and Facebook group one time in November of 2019. For ACEP chapters, distribution was either *via* newsletter or email. Data was collected and stored in an online, secure REDCap database. Participation was voluntary and respondents were informed that their responses would be kept anonymous. All questions answered were included in the analysis and subjects were not required to answer all questions.

Variables

The survey instrument was created by our research team and was informed by previously published barriers to MOUD delivery [24] and our own professional experience establishing EDBUP programs across a hospital system. We collected information relating to physician demographics, practice location type, X waiver status, attitudes towards persons with OUD, bias against opioid-related therapies, and concerns about EDBUP workflow. The electronic survey link explicitly stated that the survey was only intended for licensed physicians in the United States. The survey was designed to be completed in approximately 8 min and underwent pilot testing and expert survey design review prior to launch. The survey instrument is provided in the Supplemental Appendix.

To facilitate analysis, we collapsed responses for several questions. We coded "Agree strongly" and "Somewhat agree" as "Yes" and "Disagree strongly" and "Somewhat disagree" as "No". Practices described as "Urban" or "Suburban" were categorized as "Not rural."

Data analysis

As we distributed the survey in part through online newsletters, we were unable to quantify how many physicians actually saw the ACEP newsletters and/or received the survey link within it. We were also unable to confirm the number of physicians who saw the survey link on the Facebook group feeds. As such, it is not possible to calculate an accurate response rate. Additionally, respondents were not required to answer each question. Therefore, we are reporting the number of survey responses generated for each question. Given the limitations of convenience sampling for representing the target population, we elected not to report 95% confidence intervals for our outcomes (as this would imply the confidence that our sample represented a known population) and are reporting simple proportions with corresponding percentages.

Results

162 participants completed the online survey (Table 1). 109 of these participants were directed to the survey *via* the Facebook groups while the other 53 participants were directed to the survey *via* their state ACEP chapter. Participants came from 117 unique zip codes and 34 unique states. 14 of the survey responses were incomplete, but when responses were provided the answers were included in the analysis.

Physician attitudes were generally positive towards treatment and prevention of OUD-related illness in the ED setting (Table 2). Attitudes were very positive ($95-100\%$ support) among those with an X-waiver, those with the resources of an onsite EDBUP program, and those practicing in an academic setting. Physicians were less likely to feel comfortable prescribing buprenorphine if they were without an X-waiver, were without the resources of an EDBUP program, or practiced in a non-academic setting. Emergency medicine physicians in practice for less than 5 years had more favorable attitudes toward EDBUP than physicians in practice for longer periods of time. Attitudes were similar by gender and rural/non-rural practice setting. A majority of participants indicated that someone close to them had been affected by a substance use disorder.

A majority of responding emergency medicine physicians disagreed with the notion that initiating EDBUP is not part

Table 1. Demographics.

	ACEP	Facebook	Total
Sex			
Male	43/50 (86%)	44/96 (46%)	87/146 (60%)
Female	7/50 (14%)	51/96 (53%)	58/146 (40%
Non-binary	0 (0%)	1/96 (1%)	1/146 (.1%)
Age	46 (37–61) years	38 (36–43) years	41 (36–47) years
Median (IQR)			
Rural Practice	3/50 (6%)	8/98 (8%)	11/148 (7%)
Academic	9/49 (18%)	31/98 (32%)	40/147 (27%)
Critical access	7/50 (14%)	12/98 (12%)	19/148 (13%)
Years out of training			
0–4	10/50 (20%)	29/97 (30%)	39/147 (27%)
5–10	10/50 (20%)	43/97 (44%)	53/147 (36%)
>10	30/50 (60%)	25/97 (26%)	55/147 (37%)
Obtain X waiver	10/52 (19%)	39/108 (36%)	49/160 (31%)
Buprenorphine at your hospital	9/52 (17%)	40/108 (38%)	49/160 (31%)
Affected by substance use disorder	29/50 (48%)	50/98 (51%)	79/148 (53%)

of their job irrespective of X-waiver status, gender, years in practice, or institutional practice setting (Table 3). Physicians without an X-waiver were more likely to endorse concern that buprenorphine may encourage additional opioid use and/or replace one addiction with another when compared to physicians with an X-waiver. Physicians of different demographics and practice settings shared concern about patients returning to the ED for buprenorphine refills.

Emergency medicine physicians in different practice environments identified similar barriers to EDBUP adoption (Table 4). Buprenorphine was least likely to be available in rural, critical access, and non-academic EDs. Lack of access to outpatient MOUD referral was the most frequently identified barrier across all institutional practice settings. Academic and non-academic physicians similarly ranked lack of social work resources and length of time required to initiate EDBUP. Non-academic physicians were more likely than academic physicians to consider lack of training as a significant barrier. Concerns about reimbursement were the least frequently identified barriers regardless of practice setting.

We also explored the effect of removing barriers on willingness to initiate buprenorphine. Only 4/16 (25%) of physicians who rated reimbursement as a moderate or significant barrier reported that increased personal reimbursement would increase their likelihood of initiating patients on buprenorphine. Similarly, only 5/118 (4%) who rated reimbursement as not a barrier reported that increased personal reimbursement would increase their likelihood of initiating patients on buprenorphine. Only 4/23 (17%) of physicians who rated reimbursement as a moderate or significant barrier reported that increased reimbursement for their department would increase their likelihood of initiating patients on buprenorphine. Finally, only 5/112 (4%) who rated reimbursement as not a barrier felt increased reimbursement for their department would increase their likelihood of initiating patients on buprenorphine.

Most physicians (78/111, 70%) who rated access to follow-up as a moderate or severe barrier reported that easier follow-up would increase their likelihood of initiating patients on buprenorphine. Similarly, most physicians (44/69, 70%) who rated time as a moderate or severe barrier reported that having assistance performing screening, intervention and follow-up would increase their likelihood of initiating patients on buprenorphine. 50/78 (64%) physicians who rated training as a moderate or severe barrier reported that having training would increase their likelihood of initiating patients on buprenorphine.

Discussion

This study suggests that EDBUP adoption is supported by a broad collection of emergency medicine physicians practicing in different geographic locations and with variable levels of clinical resources. In contrast to Geurrero et al. [22] which reported that only 31.8% of academic-affiliated emergency medicine attendings and residents supported EDBUP, the majority (76%) of emergency medicine physicians who responded to our survey reported that they either somewhat or strongly agree that emergency medicine physicians should offer EDBUP. Our study demonstrates that the participating emergency medicine physicians believe that buprenorphine induction is firmly within the scope of emergency medicine. Given that 73% of responding physicians do not practice at an academic medical center, our results provide additional context to those of Lowenstein et al. [21] and Im et al. [20] and suggest that enthusiasm for EDBUP programs is not exclusive to university-affiliated emergency medicine physicians and is instead shared by physicians practicing in institutionally diverse settings.

Our study also identifies numerous emergency medicine physician barriers to providing EDBUP that can be broadly categorized as [1] barriers to operationalizing EDBUP implementation and [2] educational gaps regarding buprenorphine induction in the treatment of OUD. ED operational impacts are commonly cited concerns about EDBUP implementation [25], and the responding physicians in this study largely shared these concerns––lack of social work resources, lack of time, concerns about patients returning to the ED for buprenorphine refills, and inability to effectively coordinate outpatient MOUD continuity were frequently recognized as barriers to providing EDBUP. A recent AAEM whitepaper advised that lack of access to follow up care should not dissuade EDBUP initiation; however, such policies may not affect behavior if they do not address ED physicians concerns [4]. Interestingly, our results demonstrate that emergency medicine physicians working in various practice

Table 2. Attitudes.

		X waiver		Gender		Years in practice			Related SUD		Rural		Academic		Critical Access		EDBUP program	
Attitude	Overall	Yes	No	M	F	0–4	5–10	>10	Yes	No/unsure	Yes	No	Yes	No	Yes	No	Yes	No
EM providers should offer buprenorphine to help control the symptoms of opioid withdrawal and craving	119/156 76%	49/49 100%	70/107 70%	66/87 76%	48/58 83%	35/39 90%	40/53 75%	39/55 71%	61/79 77%	54/69 78%	7/11 64%	108/137 79%	38/40 95%	76/107 71%	13/19 68%	102/129 79%	47/49 96%	67/100 67%
EM providers should offer non-opioid medications to help control symptoms of opioid withdrawal and craving	151/155 97%	47/49 96%	104/106 98%	83/87 95%	57/57 100%	37/39 95%	52/53 98%	53/54 98%	76/78 97%	67/69 97%	10/11 91%	133/136 98%	39/40 98%	103/106 97%	19/19 10%	124/128 97%	48/49 98%	96/99 97%
EM providers should talk to patients about concerning opioid use	156/156 100%	49/49 100%	107/107 100%	87/87 100%	58/58 100%	39/39 100%	53/53/ 100%	55/55 100%	79/79 100%	69/69 100%	11/11 100%	137/137 100%	40/40 100%	106/106 100%	19/19 100%	129/129 100%	49/49 100%	100/100 100%
EM providers should reduce prescribing of opioid medications	145/156 93%	46/49 94%	99/107 93%	78/87 90%	57/58 98%	37/39 95%	50/53 94%	51/55 93%	74/79 94%	64/69 93%	10/11 91%	128/137 94%	40/40 100%	97/107 91%	18/19 95%	120/129 93%	47/49 96%	92/100 92%
EM providers should prescribe home naloxone	136/155 88%	47/49 96%	89/106 84%	75/86 87%	52/58 90%	38/39 97%	44/53 83%	46/54 85%	70/79 89%	59/68 87%	10/11 91%	119/136 88%	40/40 100%	88/106 83%	17/19 89%	112/128 88%	47/49 96%	82/99 83%
EM providers should identify patients with opioid use disorder	151/156 97%	49/49 100%	102/107 95%	84/87 97%	56/58 97%	39/39 100%	53/53 100%	50/55 91%	76/79 96%	67/69 97%	11/11 100%	132/137 96%	40/40 100%	102/107 95%	17/19 89%	126/129 97%	49/49 100%	95/10 95%
I am comfortable starting buprenorphine for patients who are continuing it after discharge for the purpose of entering treatment	83/156 53%	47/49 96%	36/107 34%	51/87 59%	30/58 52%	26/39 67%	28/53 53%	27/55 49%	44/79 56%	38/69 55%	6/11 55%	76/137 56%	29/40 73%	52/107 49%	9/19 47%	73/129 57%	41/49 84%	42/100 42%
I am comfortable using buprenorphine to treat acute opioid withdrawal in the ED	89/156 57%	46/49 94%	43/107 40%	54/87 62%	33/58 57%	28/39 72%	27/53 51%	32/55 58%	50/79 63%	38/69 55%	6/11 55%	82/137 60%	31/40 78%	56/107 52%	9/19 47%	79/129 61%	43/49 88%	46/100 46%

Table 3. Type your title here.

Concern	Overall	X waiver		Gender		Years practice			Related SUD		Rural		Academic		Critical access hospital		Buprenorphine program	
		Yes	No	M	F	0–4	5–10	>10	Yes	No/unsure	Yes	No	Yes	No	Yes	No	Yes	No
I'm concerned about patients returning to the ED for refills	108/153 (78%)	26/49 (53%)	82/104 79%	60/87 (69%)	42/58 (72%)	24/39 (62%)	37/53 (70%)	42/55 (76%)	56/79 (71%)	48/69 (70%)	9/11 (82%)	95/137 (69%)	26/40 (65%)	78/107 (73%)	17/19 (89%)	87/129 (67%)	30/49 (61%)	72/98 (73%)
Buprenorphine may encourage people to use opioids	33/152 (22%)	0/49 (0%)	33/103 (32%)	18/86 (21%)	10/58 (17%)	7/39 (18%)	9/53 (17%)	14/54 (26%)	19/78 (24%)	11/69 (16%)	3/11 (27%)	27/136 (20%)	3/40 (8%)	27/106 (25%)	7/18 (39%)	23/129 (18%)	3/49 (6%)	27/97 (28%)
Initiating patient on buprenorphine is not my job	49/152 (32%)	1/49 (2%)	48/103 (47%)	29/87 (33%)	16/57 (28%)	9/39 (23%)	18/52 (35%)	20/55 (36%)	27/78 (35%)	20/69 (29%)	4/11 (36%)	43/136 (32%)	7/39 (18%)	40/107 (37%)	9/19 (47%)	38/128 (30%)	6/48 (12.5%)	39/98 (40%)
Buprenorphine just replaces one addiction with another	45/153 (29%)	2/49 (4%)	43/104 (41%)	25/87 (29%)	15/58 (26%)	7/39 (18%)	21/53 (37%)	14/55 (25%)	23/79 (29%)	19/69 (28%	2/11 (18%)	40/137 (29%	7/40 (18%)	35/107 (33%)	7/19 (37%)	35/129 (27%)	8/49 (16%)	34/98 (35%)

environments identify similar barriers to EDBUP implementation. This knowledge should help inform efforts to expand EDBUP and suggests the potential for a standardized approach across different clinical settings.

Moving forward, pragmatic EDBUP institutional designs that support providers by minimizing workflow challenges and increasing familiarity with buprenorphine induction may prove to be especially useful. Thus far, multiple academic EDs have shown the benefits of operational interventions that facilitate providers in delivering EDBUP. Ahmad et al. [10] demonstrated the clinical utility of a standardized warm hand-off to community providers, while Kelly et al. [16] described an interdisciplinary EDBUP program design that reduces physician work through a best practices advisory (BPA), Epic pathway, and increased social worker involvement. Martin et al. [17] also used a BPA and OUD badge backer. Similarly, Martin et al. [26] showed that targeted education about buprenorphine induction and X waiver requirements can enable EDBUP within an academic ED. Given their substantial clinical resources and previous experience providing EDBUP, academic EDs should continue to implement and refine innovative approaches to EDBUP delivery.

Our results also provide practical recommendations to facilitate EDBUP within other practice environments irrespective of academic affiliation. Because of the demonstrated similarities in perceived barriers shared by academic and non-academic emergency medicine physicians, many of the operational interventions described above should be studied in community practice as well. Our data suggests that interventions to decrease physician burden associated with EDBUP implementation and to provide X-waiver training may be especially effective in facilitating EDBUP in community practice. Meanwhile, changes to existing EDBUP reimbursement structures may be less so. Finally, increasing options for outpatient MOUD referral will encourage EDBUP adoption in both academic and non-academic settings alike.

Our study has important limitations. The response rate was low, limiting statistical analysis. As such, comparisons made between respondents are suggestive of trends but generalizations to emergency physicians as a whole may be limited. The demographics and professional experiences of the responding physicians differed slightly than those of emergency medicine physicians at large, and it is possible that physicians with previous exposure to EDBUP programs may have been more likely to participate. Specifically, the rate of X-waivered physicians who have administered EDBUP in our sample is higher than the national average [8]. Response bias could lead to selection of providers supportive of EDBUP. As discussed, there is an opportunity cost (including 8 h of training) to obtaining an X-waiver, suggesting possible bias towards physicians with pre-existing motivations to treating OUD. Even so, it is encouraging that physicians without X-waivers continued to support EDBUP by a substantial margin. Although we attempted to limit survey participants to emergency medicine physicians practicing in the United States, there is a possibility that some participants were not licensed as such. Additionally, perceived barriers relating to

Table 4. Type your title here.

Barrier	Overall			Rural						Academic						Critical Access					
				Yes			No			Yes			No			Yes			No		
	N	M	S	N	M	S	N	M	S	N	M	S	N	M	S	N	M	S	N	M	S
There is no reimbursement for me	132/153	86% 15/163	10% 6/153	4% 10/11	91% 1/11	9% 0/11	0% 115/135	85% 14/135	10% 6/135	4% 90/105	86% 10/105	10% 5/105	5% 35/40	88% 5/40	12.5% 0/40	0% 14/19	74% 3/19	16% 2/19	11% 111/127	87% 12/127	9% 4/127	3%
I don't have access to providers for follow up in my area	36/155	23% 56/155	36% 63/155	41% 3/11	27% 3/11	27% 5/11	46% 30/137	22% 53/137	39% 54/137	39% 10/40	25% 15/40	38% 15/40	38% 23/107	21% 40/107	37% 44/107	41% 2/19	11% 8/19	42% 9/19	47% 31/129	24% 48/129	37% 50/129	39%
There's no financial incentive for my department	123/154	80% 21/154	14% 10/155	6% 9/11	81% 1/11	9% 1/11	9% 108/136	79% 19/136	14% 9/136	7% 33/40	83% 6/40	15% 1/40	3% 84/106	79% 14/106	13% 8/106	8% 13/19	68% 5/19	26% 1/19	5% 104/128	81% 15/128	12% 9/128	7%
It takes too much of my time	76/154	49% 64/154	42% 14/154	9% 7/11	64% 3/11	27% 1/11	9% 66/136	49% 58/136	43% 12/136	9% 20/40	50% 17/40	43% 3/40	8% 53/106	50% 43/106	41% 10/106	9% 7/19	37% 12/19	63% 0/19	0% 66/129	52% 49/128	38% 12/128	10%
I don't have social work resources for screening and follow up	50/154	32% 59/154	38% 45/154	29% 4/11	36% 6/11	55% 1/11	9% 44/136	32% 52/136	38% 40/136	29% 13/40	33% 19/40	48% 8/40	20% 34/106	32% 39/106	37% 33/106	31% 5/19	26% 8/19	42% 6/19	32% 43/128	34% 50/128	39% 35/128	27%
I don't have training	65/154	42% 49/154	32% 40/154	26% 5/11	46% 3/11	27% 3/11	27% 57/136	42% 44/136	32% 35/136	26% 22/40	55% 13/40	33% 5/40	13% 39/106	37% 34/106	32% 33/106	31% 9/19	47% 3/19	16% 7/19	37% 55/128	43% 42/128	33% 31/128	24%
I don't have buprenorphine in my ED	85/155	55% 23/155	15% 47/155	30% 5/11	45% 1/11	9% 5/11	45% 76/137	55% 20/137	15% 41/137	30% 27/40	68% 6/40	15% 7/40	18% 53/107	49% 15/107	14% 39/107	36% 9/19	47% 3/19	16% 7/19	37% 72/129	56% 18/129	14% 39/129	30%

medication or resource availability may reflect a knowledge gap rather than a systemic issue.

In line with previous physician survey research distributed on professional and social media platforms [27,28], we were unable to report a response rate. Our study design was limited by financial and practical concerns that prevented us from performing a more systematic sample of emergency medicine physicians at large. Nonetheless, we believe that our survey dissemination strategy is valuable from a cost/benefit standpoint [29] and adds meaningful context to the discussion of EDBUP implementation. Our results have important implications for academic and community emergency medical centers seeking to provide EDBUP, and further research should aim to corroborate our findings through alternative survey approaches [30].

Conclusion

A geographically diverse sample of academic and non-academic emergency medicine physicians with and without X-waivers support efforts to expand EDBUP programs while also endorsing substantial operational and knowledge-based barriers to providing such services. Future research should further clarify how institutional setting can best inform successful EDBUP program implementation.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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