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Barriers and facilitators for emergency department initiation of buprenorphine: A physician survey

Implementation of evidence-based pharmacotherapy for individuals with opioid use disorder (OUD) is a cornerstone of the response to the opioid crisis [1]. ED-initiated OUD treatment with buprenorphine has been shown to increase treatment engagement at 30 days [2], but this practice has not been widely adopted [3]. To better develop strategies for implementation, we sought to 1) describe ED physician preparedness to treat OUD and 2) rank physician-perceived barriers and facilitators of ED administration of buprenorphine and obtaining a Drug Addiction Treatment Act of 2000 waiver to prescribe buprenorphine (X-waiver).

To do this, we conducted a cross-sectional survey of physicians in two urban, academic EDs assessing two domains. First, we measured self-rated levels of preparation for various aspects of OUD treatment using a 5-point Likert scale. Second, we assessed barriers and facilitators to buprenorphine administration in the ED and obtaining and X-waiver. Barriers were based on those identified in prior literature from other settings [4-9]. Barriers and facilitators were rated individually on a continuous 10-point scale, with 1 indicating "not at all a barrier" and 10 indicating "the most significant barrier." We also collected demographic and other physician characteristics. The survey was administered via the REDCap version 8.9.0 secure web platform [10], and participants received a $10 incentive. Data were analyzed using descriptive statistics, and we compared responses by X-waiver status using chi-squared tests for categorical variables and the Mann-Whitney test for continuous variables (Stata, version 15.1; StataCorp, College Station, TX). The Institutional Review Board from The University of Pennsylvania approved this study.

84 participants completed the survey (response rate 78%). Participant characteristics are shown in Table 1. Participants were primarily male (62%), white (74%), and attending physicians (55%). Characteristics were similar for the 21% who had completed X-waiver training and those who had not. 39% of physicians reported they had ordered naloxone upon discharge from the ED in the past 3 months, and 33% had ordered buprenorphine in the past 3 months, either in the ED or at discharge.

Fig. 1 shows physician self-rated preparation for OUD care. While physicians felt prepared for some aspects of care, a minority felt prepared to determine the level of care for patients with OUD (39%), connect patients to outpatient treatment (29%) or initiate buprenorphine (27%). Levels of preparation did not differ significantly by X-waiver status, with the exception of initiating buprenorphine treatment (56% of waiver trained physicians vs 20% of non-waiver trained, $p = 0.002$). Preparation also did not differ by level of training.

Fig. 2 shows physician-rated barriers and facilitators to ordering buprenorphine in the ED. Many of the highest-rated concerns related to perceived patient factors, including patient social barriers, lack of patient interest in treatment, availability of referrals for substance use treatment, and patient preference for alternative treatments (e.g. non-medication based). Other highly rated barriers related to buprenorphine – comfort in counseling, ordering, or navigating regulatory barriers – differed significantly between those who had completed the waiver training and those who had not, with a mean rating 4.9 vs 6.3 ($p = 0.030$); 3.1 vs 6.4 ($p = 0.001$); and 3.4 vs 6.4, ($p < 0.001$), respectively. The highest rated facilitators for buprenorphine ordering related to longitudinal treatment, including access to ongoing treatment services after discharge and access to a care coordinator/social worker for patients with OUD. Other highly rated facilitators related to support for ED-based treatment, including

Table 1
Participant characteristics.

	Number	X-waiver*	No X-waiver	p-Value**
Physician characterstics				
Age				
<30	24 (29%)	2	22	
30–39	35 (42%)	9	26	
40–49	15 (18%)	6	9	
50–59	7 (8%)	1	6	
Over 60	3 (4%)	0	3	p = 0.149
Sex				
Female	32 (38%)	5	27	
Male	52 (62%)	13	39	p = 0.309
Ethnicity				
Hispanic/Latino	4 (5%)	0	4	
Non-Hispanic/Latino	80 (95%)	18	62	p = 0.573
Race				
White	62 (74%)	13	49	
Black/African American	0 (0%)	0	0	
Asian	13 (15%)	4	9	
Other	9 (11%)	1	8	p = 0.561
Level of Training				
Intern	8 (10%)	0	8	
Resident	29 (35%)	4	25	
Attending	47 (56%)	14	33	p = 0.077
PGY5–9	18 (21%)			
PGY10–14	9 (11%)			
PGY15+	20 (24%)			
Percent Time in Clinical Care				
<20%	2 (2%)	1	2	
20–50%	10 (12%_	1	9	
51–75%	10 (12%_	3	7	
>75%	61 (73%)	13	48	p = 0.690
Close friend/family with SUD				
Yes	24 (29%)	6	18	p = 0.668
Practice characteristics				
X-waiver training completed				
Yes	18 (21%)	n/a	n/a	n/a
Ordered Naloxone in past 3 months				
Yes	39 (46%)	12	27	p = 0.052
Ordered Buprenorphine for a patient in past 3 months				
Yes	28 (33%)	8	20	p = 0.259

* Includes those with an X-waiver and those who had recently completed X-waiver training but had not yet obtained a waiver.
** p-value for comparison of X-waivered vs non X-waivered physicians done using chi^2 tests ($p < 0.05$).

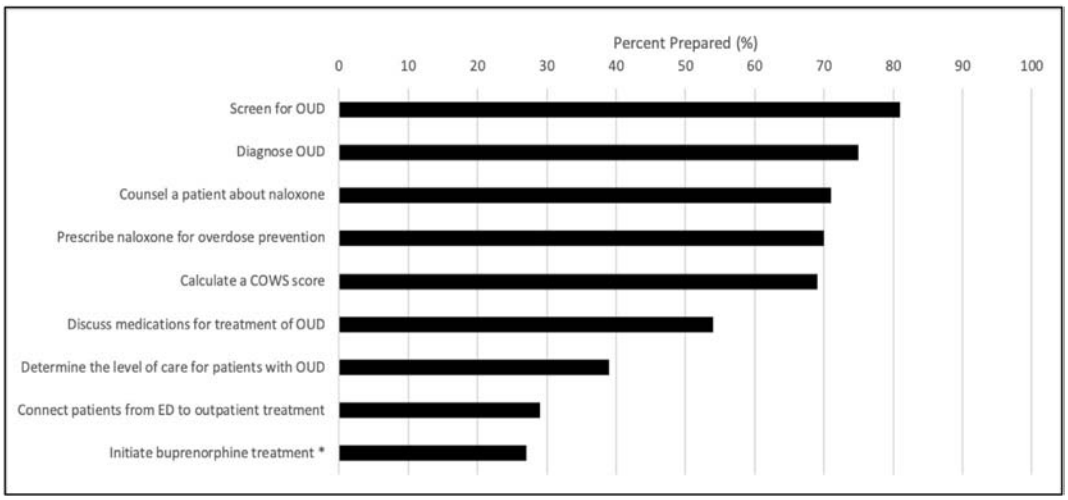

Fig. 1. Level of preparation for treatment of OUD in the emergency department Displayed are the percentage of physicians who rated that they were either "somewhat prepared" or "very prepared" to address each of the aspects of OUD care in the emergency department. The asterisk indicate those responses that significantly differed by X-waiver status. OUD: opioid use disorder; COWS: Clinical Opioid Withdrawal Scale.

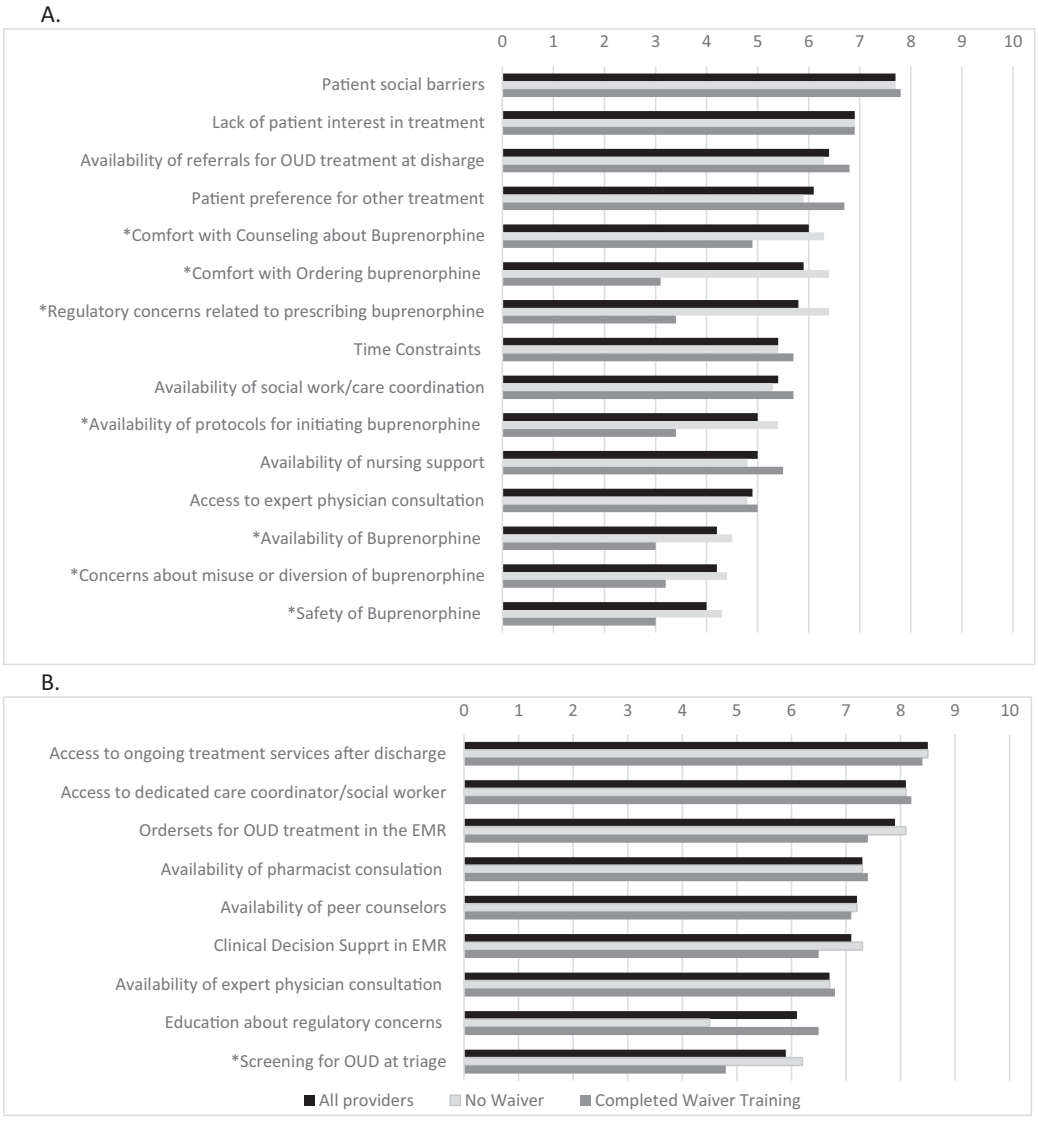

Fig. 2. Barriers and Facilitators to Ordering Buprenorphine in the Emergency Department. Panel A shows survey results for physician-rated barriers on a scale from 1-10 (10 being the most significant barrier). Panel B shows physician-rated facilitators for ordering buprenorphine in the emergency department. The asterisks indicate those responses that significantly differed by X-waiver status ($p < 0.05$). OUD: opioid use disorder; EMR: electronic medical record.

Fig. 3. Barriers and Facilitators to obtaining an X-waiver for emergency department physicians. Panel A shows survey results for physician-rated barriers to obtaining an X-waiver among those who had not completed a waiver training on a scale from 1 to 10 (10 being the most significant barrier). Panel B shows physician-rated facilitators for obtaining an X-wavier. OUD: opioid use disorder.

electronic medical record order sets, pharmacist consultation and availability of peer counselors.

Finally, we asked the 66 physicians who had not yet completed X-waiver training about barriers and facilitators to obtaining an X-waiver (Fig. 3). The highest rated barriers to obtaining an X-waiver were the inconvenience of the process and uncompensated time outside work. Top-rated facilitators included substituting training for a shift and financial incentives.

Our results contribute to translation of evidence into practice for ED-initiated addiction treatment in several key ways. First, while most physicians felt unprepared for referral and treatment with buprenorphine in the ED, X-waiver training was associated with higher self-rated preparation, suggesting that interventions to address knowledge or confidence gaps may increase buprenorphine implementation. However, the most significant physican-reported barriers to ordering buprenorphine related to perceived patient, logistical or systemic factors. These barriers did not differ by X-waiver status, suggesting that they may not be mitigated by waiver training or other educational interventions alone. Promising strategies to address these barriers and increase treatment include multidisciplinary teams with social workers and peer specialists, development of treatment and referral protocols, and other supports that address patient or system-level barriers [11]. Finally, our findings demonstrate that the burden of X-waiver training poses challenges. Incentives may be one effective strategy for overcoming barriers, but they may need to be further reduced through regulatory changes to ease the burden of the X-waiver training [12]. As ED-initiated treatment expands, it will be critical to develop interventions that address not only provider knowledge but also patient and system-level challenges.

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Lack of associations of substance use and mental health with self-reported pain scores among emergency department patients

The most common complaint among Emergency Department (ED) patients is pain [1]. Pain scores have been shown to be influenced by factors such as race, age, and gender [2-4]. Addiction disorders are frequently encountered in the ED environment [5-7].

The Addiction Severity Index (ASI) is a validated measurement tool as objectively assess addiction [8,9]. This study was undertaken to measure the prevalence and severity of addiction and its relationship to self-reported pain and mental illness among ED patients.

This prospective survey study was conducted at Miami Valley Hospital, an urban hospital emergency department. The study was approved by the Wright State University Institutional Review Board. Participants were enrolled by research assistants during June through August of 2018. Eligible participants were at least 18 years of age with a triage pain score of 1 or higher (on a 0–10 scale). Primary outcome measures included substance abuse, mental health, and self- reported pain scores. Portions of the ASI used in this study included information regarding alcohol use, drug use, and mental health.

Among 473 eligible participants, 360 consented to participate (76% participation rate). The mean age was 40 (range 18 to 85). Participants reported an average triage pain score of 7 (range 1 to 10). The current episode of pain had a mean duration of 2 days. In addition, 49.5% of participants suffered from chronic pain, including back pain (25%), migraine headache (6%), neck pain (6%), and other types of chronic pain (63%).

The most common substance reported was alcohol. Forty-one percent ($N = 146$) of participants reported some alcohol use in the past 30 days, with 8% reporting drinking to intoxication (Fig. 1). Cannabis use was also commonly reported. Twenty-seven percent ($N = 96$) of participants reported cannabis use in the past 30 days, with the majority reported use at least 3 times (78%) and a minority reporting daily use (33%) (Fig. 2). Other substances reported by participants included cocaine (3%; $N = 11$), amphetamines (2%; $N = 6$), heroin (1%; $N = 2$), other opiates (18%; $N = 64$), and other substances (11%; $N = 40$).

The prevalence of mental illness was high. Within the past 30 days, 34% ($N = 122$) of patients reported experiencing serious anxiety or tension and 27% ($N = 96$) reported difficulty understanding, concentrating, or remembering, and 22% ($N = 79$) reported serious depression. Four percent ($N = 11$) reported serious thoughts of suicide. A significant number of participants had been treated for mental health as an outpatient (28%; $N = 100$) or as an inpatient (21%; $N = 77$).

There was no association between self-reported pain scores and substance use. Anxiety was associated with higher self-reported pain scores ($p = 0.03$) (Table 1). There was no association between chronic pain and triage pain scores. Participants with chronic pain were more likely to experience higher rates of depression, anxiety, and suicidal thoughts ($p < 0.001$; Table 2).