



A content review of buprenorphine training programs for pharmacists

Scott A. Davis^{a,*}, Robyn Dryer^a, William Zule^b, Bayla Ostrach^c, Delesha M. Carpenter^a

^a Division of Pharmaceutical Outcomes and Policy, University of North Carolina Eshelman School of Pharmacy, Asheville, NC, USA

^b RTI International, Research Triangle Park, NC, USA

^c Medical Anthropology & Family Medicine, Boston University School of Medicine, USA

ARTICLE INFO

Keywords:

Buprenorphine
Training
Opioid use disorder
Communication
Dispensing barriers

ABSTRACT

Objectives: To identify and describe continuing education (CE) credit-bearing training programs for pharmacists that cover buprenorphine dispensing.

Methods: Five CE databases were searched for trainings that were in English, targeted to pharmacists, addressed use of buprenorphine for opioid use disorder treatment, not state-specific, accredited by the Accreditation Council for Pharmacy Education, and available for online registration.

Results: Twelve trainings met the inclusion criteria. The most common topics covered were background and statistical information (10 trainings) and the clinical role of buprenorphine in medication assisted therapy (9 trainings). No training covered all 10 topics assessed. Seven programs included content on prescribing barriers, but of those, only two briefly addressed buprenorphine dispensing barriers, and none addressed the widespread belief that the Drug Enforcement Administration sets limits on the amount of buprenorphine that can be ordered and stocked. A majority of the programs (75%) addressed the clinical details of treatment, but only five addressed social barriers, such as stigma.

Conclusion: Future trainings should develop and increase pharmacists' awareness of content to address the gaps identified in this study so they can supplement existing trainings, especially related to DEA and wholesaler regulations and thresholds, communication, stigma, and ways of overcoming these.

1. Introduction

Buprenorphine is an essential treatment for opioid use disorder (OUD). Most of the 1.6 million Americans with OUD do not receive effective OUD treatment.^{1,2} Although there are multiple medications to treat OUD, buprenorphine is often recommended because it can be prescribed in non-specialty primary care settings and can be dispensed at local pharmacies. Buprenorphine has higher potential to reduce overdose risk, relative to naltrexone.^{3,4}

There are more than 62,000 community pharmacies in the United States, which means that pharmacists could play a large role in ensuring access to buprenorphine, especially in rural areas.^{5,6} However, a number of factors appear to limit the amount of buprenorphine pharmacists dispense. Barriers to buprenorphine dispensing include: pharmacies not stocking buprenorphine; patient experiences of stigma and dispensing refusals; and confusion about regulations creating bottlenecks in supply, such as pharmacist perceptions that the Drug Enforcement Administration (DEA) sets limits on how much buprenorphine product can be ordered and stocked at a time.^{7–11} As described elsewhere,^{9,10} though no such DEA limits exist and any ordering thresholds are set by wholesale distributors,

research conducted directly with pharmacists and pharmacy staff indicate that this incorrect perception persists.^{2,7,9–11}

In practice, laws and policies designed to prevent prescription opioid diversion may have the effect of limiting pharmacists' willingness to dispense medications for opioid use disorder, often dispensing it only to a limited number of patients of a few trusted physicians or not stocking it at all.² A recent secret shopper study found that pharmacists were less willing to dispense buprenorphine to out-of-state patients.¹² Additionally, a survey of North Carolina pharmacists found that pharmacists were much less willing to dispense to patients with whom they were unfamiliar and that 62% of the 646 pharmacists surveyed had refused to fill a buprenorphine prescription.^{12,13} As a result, many patients often experience difficulty getting their buprenorphine prescriptions filled.^{2,10,11} Other reasons that pharmacists sometimes do not dispense buprenorphine include difficulty contacting and communicating with prescribers¹⁴ and stigma toward individuals with substance use disorders combined with mistrust of unknown prescribers and out-of-area patients.^{9,12}

To increase pharmacists' comfort and willingness to dispense buprenorphine, effective pharmacist training that addresses the barriers and misconceptions described above is critical. However, per the Drug Addiction Treatment Act of 2000 (DATA 2000), pharmacists are not required to

* Corresponding author at: University of North Carolina Eshelman School of Pharmacy, CB #2125, 1 University Heights, Asheville, NC 28804, USA.
E-mail address: sdavis81@email.unc.edu (S.A. Davis).

have any formal training in order to dispense buprenorphine for OUD. This lack of requirement means continuing education (CE) related to medications for opioid use disorder (MOUD) is done voluntarily by practicing pharmacists. To date, a comprehensive review of related trainings for pharmacists has not been published. Thus, the objective of this content review was to identify and describe CE credit-bearing training programs for pharmacists that cover buprenorphine dispensing. Specifically, we document the nature (e.g., length, cost, learning methods) of the trainings as well as the specific topics that were addressed, with a specific focus on known barriers to buprenorphine dispensing.

2. Methods

An in-depth content review was conducted by searching five CE databases on major pharmacy or healthcare organizations' websites: the American Pharmacy Association (APhA), the American Society of Health-System Pharmacists (ASHP), the College of Psychiatric and Neurologic Pharmacists (CPNP), the Providers' Clinical Support System (PCSS), and North Carolina Association of Pharmacists (NCAP). The search was conducted in July 2021. Databases were searched with the following keywords: *medication-assisted treatment (MAT)*, *opioid use disorder (OUD)*, and *buprenorphine*. Trainings were included if they were: in English, targeted to pharmacists, and addressed use of buprenorphine for OUD treatment. Trainings were excluded if they did not include buprenorphine content ($n = 9$), were only available for pharmacists in specific states ($n = 5$), not accredited by the Accreditation Council for Pharmacy Education (ACPE; $n = 3$), not available for online registration ($n = 2$), or only included content on buprenorphine used to treat chronic pain ($n = 2$).

One author (RD) reviewed the CE programs to determine which met the eligibility criteria. Before reviewing the training programs, RD discussed what information to extract with two co-authors (BO and DMC) who have published multiple papers on buprenorphine accessibility.^{9,10,12,13} After the group agreed on key information to extract, RD extracted relevant information for each training, using a uniform definition of what to extract. During the full-text review of resources that met inclusion criteria, the following data were extracted: 1) name of the resource, 2) format of training, 3) length of training, 4) target audience, 5) learning methods, 6) outcomes assessed, 7) CE hours provided, 8) cost of training (including the cost of any required memberships to access training), and 9) region of training. Additionally, trainings were assessed to determine if they covered the following topics: 1) background and statistics about OUD, 2) clinical role of buprenorphine in MOUD, 3) myths and facts about buprenorphine, 4) dosing and formulations of buprenorphine, 5) recommended treatment dose/length, 6) regulations related to prescribing buprenorphine (e.g., prescriber eligibility requirements), 7) DEA regulations related to dispensing buprenorphine (e.g., no cap or limit exists on buprenorphine order sizes), 8) DEA X-waiver process required to prescribe (e.g., "how to" obtain an X-waiver), and 9) barriers to dispensing buprenorphine (e.g., policy and social barriers). Data were tabulated in Microsoft Excel and descriptive statistics (e.g., frequencies and percentages) were calculated.

3. Results

From the five databases, seven websites hosting a total of 31 ACPE approved training programs were identified. Of those, 12 met inclusion criteria and underwent an in-depth review (Table 1). All trainings lasted one to two hours. However, half of the trainings ($n = 6$) conferred only 0.25 CE hours; one conferred 2 CE hours, and the rest ($n = 5$) conferred 1 CE hour. Although all trainings were targeted to pharmacists, five also targeted other audiences as well, including physicians, physician assistants, nurses/nurse practitioners, psychologists, social workers, and administrative staff. All trainings were free for APhA members and 10 were free for nonmembers. Trainings were initially available between October 2019 and April 2021.

In terms of learning methods, most trainings consisted of a pre-test, didactic lecture with example cases, and a post-test. The trainee outcomes

that were assessed varied significantly across trainings. Some trainings were more focused on buprenorphine and its prescribing, while others focused more on OUD treatment and communication with patients.

The most common topics covered in the trainings are shown in Table 2. Background and statistical information (10 trainings) and the clinical role of buprenorphine in medication assisted therapy (9 trainings) were the most common topics covered. No training covered all ten topics; "Buprenorphine 101" covered the most topics with eight.

In terms of content, seven programs mentioned the DEA X-waiver process required for providers to prescribe buprenorphine. The multi-step X-waiver training and application process is federally required to be completed by clinicians otherwise eligible to prescribe controlled substances, in order to prescribe buprenorphine specifically for OUD. Recent updates to the requirements allow clinicians to apply for an X-waiver without undergoing waiver training if they seek to prescribe buprenorphine for fewer than 30 patients.^{15,16} Seven programs included content on prescribing barriers, but of those, only two briefly addressed buprenorphine dispensing barriers by reviewing DEA policies and regulations, state policies and regulations, and Risk Evaluation and Mitigation Strategies (REMS). A majority of the programs (75%) addressed the clinical details of treatment, but only five addressed social barriers, such as stigma. None of the programs mentioned perceptions or the absence of a DEA ordering limit for buprenorphine. Only 33% of programs addressed communicating with patients with buprenorphine prescriptions.

4. Discussion

This content review identified 12 CE-credit bearing buprenorphine trainings that could be accessed online by pharmacists in any state. Most of the trainings were free and relatively brief, making them convenient for practicing pharmacists. However, a significant number of topics, particularly topics related to dispensing barriers, were not well-covered in the trainings.

Training on how to address social barriers, especially stigma, was lacking in the trainings that we reviewed. Pharmacist-patient communication was only addressed in one-third of the trainings. Previous studies have shown that pharmacists often feel reluctant to dispense buprenorphine to new or out-of-area patients, which increases the stigma that patients already face. Especially given increasing national and local efforts to expand the numbers of buprenorphine prescribers,^{17,18} it is critical for trainings to address how to overcome these barriers so that pharmacists are prepared to serve all patients prescribed MOUD. Pharmacists need to know how to communicate the necessary information about MOUD in a caring, non-stigmatizing manner.^{9,12}

Specifically, trainings that provide information on how to create a welcoming environment for patients with OUD, both on the phone and in-person, could help address this training gap. Including videos that model how to communicate with patients and present the patient's perspective on pharmacist interactions and the importance of being treated with respect may enhance pharmacists' understanding of the need for both improved communication and stigma reduction.

Surprisingly, buprenorphine dispensing barriers were only briefly addressed by two of the trainings. As misconceptions about dispensing regulations persist, it is important to address these so that pharmacists know how to overcome barriers.^{2,9-11} Trainings that do not address common dispensing barriers may not increase pharmacists' confidence or self-efficacy to overcome real or perceived dispensing barriers and increase buprenorphine access in their communities. Pharmacists should be made aware that DEA regulations do not limit the amount of buprenorphine they can order and stock. New trainings that provide complete and accurate information about DEA regulations (or lack thereof) are sorely needed to improve patient care. In practice, buprenorphine ordering limits can originate with wholesalers and these limits are negotiable. Thus, providing pharmacists with information about how to negotiate an order increase with a wholesaler could be a practical training tool to include for how to

Table 1

Key information about buprenorphine resources for pharmacists.

Name	Format	Length	Target Audience	Learning method	Main topics covered	CE Hours	Cost	Region
Buprenorphine 101: Physicians and Community Pharmacists Collaborating to Improve Access to Medication-Assisted Treatment (APhA)	Online	1–1.5 h	Community pharmacists and Physicians	Lecture, video, and final assessment.	1) Clinical approach to using buprenorphine for MAT 2) Differences between buprenorphine products used for MAT and pain 3) Barriers that pharmacists face dispensing buprenorphine	1	Free with APhA membership	National
Long-acting Buprenorphine Treatment for Opioid Use Disorder	Online	1–2 h	Physicians, nurse practitioners or other advanced practice nurses, PAs, psychologists, pharmacists, social workers, and healthcare teams	Reflection questions, pre-test, video lecture, handout slides, post-test, and final evaluation	1) Available long-acting buprenorphine formulations 2) FDA indications for long-acting buprenorphine products 3) Storage and handling of long-acting buprenorphine products 4) Advantages and disadvantages of different buprenorphine products	1	Free	National
Caring for Patients with Opioid Use Disorder During COVID-19	Online	1–1.5 h	Pharmacists and Physicians	Lecture video, handout, and final assessment.	1) Risk of treatment access for OUD patients during COVID-19 2) Treatment of OUD during COVID-19 3) Regulatory changes made during COVID-19	0	Free	National
Removing the Stigma of Medication for Opioid Use Disorder	Online	1 h	Pharmacists	Article and final assessment	1) Recognize the stigma and myths around OUD 2) Pathophysiology of OUD 3) Role of treatment in OUD 4) Barriers to treatment in OUD	2	Free with APhA membership and \$25 without membership	National
Team-Based Care to Address Psychiatric and Physical Health Co-morbidities in Persons with Opioid Use Disorders: Responding to Chicago's Opioid Crisis	Online	1–2 h	Administrative Staff, Nurses, Pharmacists, Physician Assistants, Physicians	Pre-test reflection, recorded lecture, post-test reflection.	1) Team-based OUD treatment 2) Opioid misuse reduction strategies 3) Community resources	1	Free	National
Treatment of Opioid Use Disorder in the Emergency Department: Should it be a Choice?	Online	1–2 h	Physicians, nurse practitioners, PAs, and pharmacists.	Pre-test reflection, recorded lecture, post-test reflection.	1) Initiating OUD treatment in the ER 2) Barriers to OUD treatment 3) Buprenorphine products	1	Free	National
Integrating Pharmacists into the Team for Pharmacotherapy for Opioid Use Disorder	Online	1–2 h	Pharmacists	Pre-test, recorded lecture, cases, and post-test.	1) Misperceptions between prescribers and community pharmacists in treating OUD 2) Factors that impact interpersonal and intrapersonal communication 3) Solutions to improve communication in the care of OUD	0.25	Free	National
Interprofessional Communication Among Prescribers and Pharmacists who Care for Patients with Opioid Use Disorder	Online	1–2 h	Pharmacists	Pre-test, recorded lecture, and post-test.	1) Misperceptions between prescribers and community pharmacists in treating OUD 2) Factors that impact interpersonal and intrapersonal communication 3) Solutions to improve communication in the care of OUD	0.25	Free	National
Medications for the Treatment of Opioid Use Disorder in the Acute Care Setting	Online	1 h	Pharmacists	Pre-test, recorded lecture, cases, and post-test.	1) Epidemiology of OUD 2) Detoxification process for patients OUD 3) Initiating therapy in patients with OUD	0.25	Free	National
Pharmacotherapy for Opioid Use Disorder	Online	2 h	Pharmacists	Pre-test, recorded lecture, cases, and post-test.	1) Pharmacokinetic and pharmacodynamic features of therapy options in OUD 2) American Society of Addiction Medicine (ASAM) levels of care 3) Treatment plans for patients with OUD	0.25	Free	National

(continued on next page)

Table 1 (continued)

Name	Format	Length	Target Audience	Learning method	Main topics covered	CE Hours	Cost	Region
Prescription Medication Diversion and Opioid Use Disorder	Online	1–2 h	Pharmacists	Pre-test, recorded lecture, cases, and post-test.	4) non-pharmacological options for patients with OUD 1) Drug diversion in the United States 2) Methods of drug diversion 3) Diversion monitoring programs 4) Strategies for drug monitoring with patients	0.25	Free	National
The Opioid Epidemic: History, Stigma, and Progress	Online	2 h	Pharmacists	Pre-test, recorded lecture, cases, and post-test.	1) Development of the opioid epidemic 2) Dangers associated with the opioid epidemic 3) Pathophysiology of OUD 4) DSM-5 diagnostic criteria of OUD 5) Methods to reduce stigma of OUD 6) Opioid treatment program regulations 7) Regulations for MAT prescribing	0.25	Free	National

overcome this barrier.⁹ Increasing ordering limits has the potential to increase patient access to buprenorphine in disadvantaged rural areas.^{7–11}

4.1. Limitations

This content review possesses several limitations. First, our search was limited to trainings that were available online to pharmacists in any state. Therefore, we excluded several trainings that were designed exclusively

for pharmacists in specific states, including a 16-h, more intensive training for pharmacists in North Carolina.¹⁹ It is possible that these trainings provided more in-depth content on how to address common buprenorphine dispensing barriers and other important knowledge gaps and are preferred by pharmacists who require trainings from their state board of pharmacy for licensure. We also excluded in-person and live webinar trainings for buprenorphine as well as trainings that did not bear ACPE credit. In addition, at the time of the initial search for trainings to review, the terms

Table 2

Buprenorphine topics covered by training resources.

Name	Background and statistical information	Clinical role of buprenorphine in MAT	Myths about MAT	Dosage forms of buprenorphine	Appropriate treatment length/doses	DEA regulations with prescribing buprenorphine	DEA regulations with dispensing buprenorphine	X-waiver process	Barriers to buprenorphine access
Buprenorphine 101: Physicians and Community Pharmacists Collaborating to Improve Access to Medication-Assisted Treatment	✓	✓	✓	✓	✓	✓	*Comments but does not provide detail	✓	✓
Long-acting Buprenorphine Treatment for Opioid Use Disorder	✓	✓		✓	✓				
Caring for Patients with Opioid Use Disorder During COVID-19		✓				✓			
Removing the Stigma of Medication for Opioid Use Disorder	✓	✓	✓	✓	✓				✓
Team-Based Care to Address Psychiatric and Physical Health Co-morbidities in Persons with Opioid Use Disorders: Responding to Chicago's Opioid Crisis	✓	✓							
Treatment of Opioid Use Disorder in the Emergency Department: Should it be a Choice?	✓	✓	✓		✓	✓		✓	✓
Integrating Pharmacists into the Team for Pharmacotherapy for Opioid Use Disorder	✓					✓			✓
Interprofessional Communication Among Prescribers and Pharmacists who Care for Patients with Opioid Use Disorder	✓		✓						✓
Medications for the Treatment of Opioid Use Disorder in the Acute Care Setting	✓	✓			✓	✓		✓	
Pharmacotherapy for Opioid Use Disorder		✓		✓	✓	✓	✓	✓	
Prescription Medication Diversion and Opioid Use Disorder	✓								
The Opioid Epidemic: History, Stigma, and Progress	✓	✓	✓	✓	✓	✓		✓	✓

“medication-assisted treatment” and “buprenorphine” were searched but not “medications for opioid use disorder.” Thus trainings that focused on other forms of MOUD in addition to buprenorphine, but that also included buprenorphine, may have been missed. Therefore this is likely not a comprehensive review of all available buprenorphine-related trainings for pharmacists.

5. Conclusion

A number of freely available online buprenorphine trainings are accessible for pharmacists. These trainings cover a range of topics and could provide a solid introductory overview to buprenorphine. Several training gaps, particularly around common buprenorphine dispensing barriers, were also identified. Future trainings should develop content to address these gaps so they can supplement existing trainings. Pharmacists should also be made aware of any newly created trainings that address identified buprenorphine dispensing gaps, especially related to DEA and wholesaler regulations and thresholds, communication, stigma, and ways of overcoming these. Dispelling misconceptions about the legal and regulatory environment, and building pharmacists' self-efficacy to communicate optimally with patients with OUD, could substantially improve access and quality of care throughout the country. Future research should explore whether credit-bearing training about specific pharmacy-related barriers to buprenorphine dispensing, and ways to overcome such barriers, will be of interest to community pharmacists.

Credit authorship contribution statement

Scott A. Davis: Writing – original draft, Writing – review & editing. **Robyn Dryer:** Conceptualization, Methodology, Formal analysis, Investigation, Visualization, Writing – original draft, Writing – review & editing. **William Zule:** Conceptualization, Methodology, Formal analysis, Writing – review & editing. **Bayla Ostrach:** Conceptualization, Methodology, Formal analysis, Writing – review & editing. **Delesha M. Carpenter:** Conceptualization, Methodology, Formal analysis, Writing – review & editing, Supervision.

Declaration of Competing Interest

The authors have no conflict of interest.

Acknowledgments

None.

References

- Shulman M, Wai JM, Nunes EV. Buprenorphine treatment for opioid use disorder: an overview. *CNS Drugs* 2019;33(6):567–580.
- Cooper HLF, Cloud DH, Young AM, Freeman PR. When prescribing isn't enough - pharmacy-level barriers to buprenorphine access. *N Engl J Med* 2020;383(8):703–705.
- Ajazi EM, Dasgupta N, Marshall SW, et al. Revisiting the X: BOT naltrexone clinical trial using a comprehensive survival analysis. *J Addict Med* 2022.
- Wakeman SE, Larochelle MR, Ameli O, et al. Comparative effectiveness of different treatment pathways for opioid use disorder. *JAMA Netw Open* 2020;3(2), e1920622.
- Hatemi P, Zorn C. Independent pharmacies in the U.S. are more on the rise than on the decline. https://www.pcmnet.org/wp-content/uploads/2020/03/FINAL_Independent-Pharmacies-in-the-U.S.-are-More-on-the-Rise-than-on-the-Dcline.pdf 2020. Accessed 06/09/2022.
- Qato DM, Zenk S, Wilder J, Harrington R, Gaskin D, Alexander GC. The availability of pharmacies in the United States: 2007–2015. *PLoS One* 2017;12(8), e0183172.
- Hill LG, Loera LJ, Evoy KE, et al. Availability of buprenorphine/naloxone films and naloxone nasal spray in community pharmacies in Texas. *USA Addict* 2021;116(6): 1505–1511.
- Loera LJ, Hill LG, Torrez SB, et al. *Availability of buprenorphine/naloxone films and naloxone nasal spray in community pharmacies in eleven U.S. states. Paper presented at: ACCP, PhARM Program*. 2021. Austin.
- Ostrach B, Potter R, Wilson CG, Carpenter D. Ensuring buprenorphine access in rural community pharmacies to prevent overdoses. *J Am Pharm Assoc* 2003;62(2):588–597.2022.
- Ostrach B, Carpenter D, Cote LP. DEA disconnect leads to buprenorphine bottlenecks. *J Addict Med* 2021;15(4):272–275.
- Cooper HL, Cloud DH, Freeman PR, et al. Buprenorphine dispensing in an epicenter of the U.S. opioid epidemic: a case study of the rural risk environment in Appalachian Kentucky. *Int J Drug Policy* 2020;85:102701.
- Trull G, Major E, Harless C, Zule W, Ostrach B, Carpenter D. Rural community pharmacist willingness to dispense Suboxone®-A secret shopper investigation in South-Central Appalachia. *Explor Res Clin Soc Pharm* 2021;100082.
- Carpenter DM, Lambert KV, Harless JC, et al. North Carolina pharmacists' buprenorphine dispensing practices and attitudes. *J Am Pharm Assoc* 2003. <https://doi.org/10.1016/j.japh.2022.04.019>. (S1544–3191(22)):00137–6–6, 2022 Apr 30 [Online ahead of print].
- Major E, Wilson CG, Carpenter DM, Harless JC, Trull G, Ostrach B. *Factors in Rural Community Buprenorphine Dispensing: Pharmacy Stakeholder Perspectives*. 2022. [In press].
- Providers Clinical Support System. MAT waiver training for MD/DOs to prescribe buprenorphine. <https://pcssnow.org/medications-for-opioid-use-disorder/waiver-training-for-physicians/> 2021. Accessed 08/27/2021.
- Health and Human Services. Practice guidelines for the administration of buprenorphine for treating opioid use disorder. <https://www.federalregister.gov/documents/2021/04/28/2021-08961/practice-guidelines-for-the-administration-of-buprenorphine-for-treating-opioid-use-disorder> 2021. Accessed 09/10/2021.
- Cabello-De la Garza A, Harless C, Ostrach B, Fagan EB. Increasing North Carolina's workforce capacity for prescribing buprenorphine products. *N C Med J* 2022;83(4):48–53.
- Texas Medication for Opioid Disorder (TxMOUD). GetWaiveredTX. <https://txmoud.org/> 2020. Accessed 02/18/2022.
- North Carolina Association of Pharmacists. Certificate training for pharmacists caring for patients with OUD. <https://www.ncpharmacists.org/certificate-training-for-pharmacists-caring-for-patients-with-oud> 2022. Accessed 02/18/2022.