
Evidence Brief: Barriers and Facilitators to Use of Medications for Opioid Use Disorder

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PREFACE

The VA Evidence Synthesis Program (ESP) was established in 2007 to provide timely and accurate syntheses of targeted healthcare topics of importance to clinicians, managers, and policymakers as they work to improve the health and healthcare of Veterans. These reports help:

- Develop clinical policies informed by evidence;
- Implement effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
- Set the direction for future research to address gaps in clinical knowledge.

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Comments on this evidence report are welcome and can be sent to Nicole Floyd, Deputy Director, ESP Coordinating Center at Nicole.Floyd@va.gov.

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EXECUTIVE SUMMARY

Key Findings

- We did not identify VHA studies on barriers or facilitators to use of medications for opioid use disorder (OUD) published since 2014. This review focuses on 16 studies that have the most VHA applicability. Most of these studies discussed buprenorphine/naloxone, but not extended-release naltrexone.
- The 4 most commonly cited categories of both patient-identified and provider-identified barriers to primarily buprenorphine use were stigma, logistics, treatment experiences and beliefs, and knowledge of OUD medications. Of these, social stigma associated with OUD and high out-of-pocket costs were the most commonly described patient-identified barriers. Among providers, logistical concerns, particularly time constraints, were the most commonly cited barriers.
- Support from peers, family, and treatment providers was the most common facilitator for patients. Among providers, limited information regarding facilitators of OUD prescribing are available and one factor did not stand out as being most important.
- We did not identify studies of systems-level barriers with applicability to VHA settings.
- No studies directly evaluated whether barriers and facilitators vary by patient or provider characteristics or setting.
- Most studies met our minimum quality criteria and findings were consistent across studies.

Mirroring national trends, the proportion of opioid overdoses among Veterans due to illicit opioids is increasing. Opioid overdose among Veterans increased from 14.5 per 100,000 person-years in 2010 to 21.1 per 100,000 person-years in 2016, mostly due to overdoses from heroin and synthetic opioids such as fentanyl rather than prescription opioids. This finding highlights the need for opioid risk reduction efforts beyond safer opioid prescribing in the healthcare setting. As a component of the Veterans Health Administration's (VHA) overall response to the crisis of opioid-related morbidity and mortality, VHA provides treatment for those with opioid use disorder (OUD), a diagnosis made based on symptoms, such as drug cravings, and behaviors, such as compulsive drug seeking and drug use despite negative consequences. Methadone, buprenorphine, and extended-release naltrexone are approved by the Federal Drug Administration (FDA) for treatment of OUD. However, these medications are underutilized within VHA and the general community despite evidence of their effectiveness and guidelines from the Veterans Affairs/Department of Defense (DoD), Centers for Disease Control & Prevention (CDC), and the

Background

The ESP Coordinating Center (ESP CC) is responding to a request from VA's Health Services Research and Development Service (HSR&D) for an evidence brief on barriers to and facilitators of use of buprenorphine and extended-release naltrexone for treatment of opioid use disorder (OUD). Findings from this evidence brief will be used to inform prioritization of questions for a September 2019 State-of-the-Art (SOTA) conference.

Methods

To identify studies, we searched MEDLINE®, PsycINFO, EMBASE and Cochrane Central Register of Controlled Trials (CCRT). We used prespecified criteria for study selection, data abstraction, and rating internal validity and strength of the evidence. See our PROSPERO protocol for our full methods.



American Society of Addiction Medicine recommending them as an option for first-line treatment for OUD.

Reasons for underutilization of OUD medications are likely due to multiple interconnected factors at the patient, provider, and systems levels. The aim of this rapid review was to synthesize the evidence on barriers and facilitators at each of these levels to help inform VHA stakeholders engaged in policy development, program planning, and OUD research. We also aimed to highlight any evidence gaps. Because buprenorphine and extended-release naltrexone can be prescribed in office-based settings (rather than specialized treatment programs) and have the most potential for widespread use, we limited our review to these 2 medications. We also limited our review to studies published since 2014, which allowed us to prioritize evidence in the context of recent VHA and federal policy changes including the addition of extended-release naltrexone to the VHA formulary in 2014, updated VA/DoD substance use disorder guidelines in 2015, and the 2016 CARA Act aimed at expanding OUD medication prescribing. We also focused our discussion on barriers that VHA has the ability to address, rather than federal regulatory barriers outside of VHA's control.

We did not identify VHA studies on barriers or facilitators to use of medications for OUD published since 2014. We included 26 studies in non-VA settings and among those prioritized evidence synthesis of 16 studies with the most relevance to VHA. Most studies evaluated buprenorphine use, and not extended-release naltrexone. Studies were based on patient and provider surveys (9 studies), interviews (5 studies), and chart review (2 studies).

Using content analysis methods, we categorized patient- and provider-identified barriers to buprenorphine into 4 main types – 1) stigma, 2) logistical barriers, 3) treatment experiences (past and present) and beliefs, and 4) knowledge gaps. These barrier types are likely overlapping and mutually reinforcing. Of these, stigma and logistical challenges related to buprenorphine were the most commonly cited barriers. Stigma manifests similarly for patients and providers as not wanting to be associated with OUD treatment, beliefs that patients on OUD medications are still addicted, and negative views of people with OUD. In terms of logistics, the most common barriers among patients were concerns about high out-of-pocket costs and access to a provider. The most common logistics barriers among providers were related to time constraints and regulatory and insurance barriers.

Support from peers, family, and treatment providers was the most common facilitator for patients. Among providers, limited information regarding facilitators of OUD prescribing are available and one factor did not stand out as being most important. Provider-identified facilitators include increased patient demand for OUD medication, mentoring and linkages to addiction medication specialists, receipt of OUD and buprenorphine training, ability to refer patients to psychosocial support services, and institutional support.

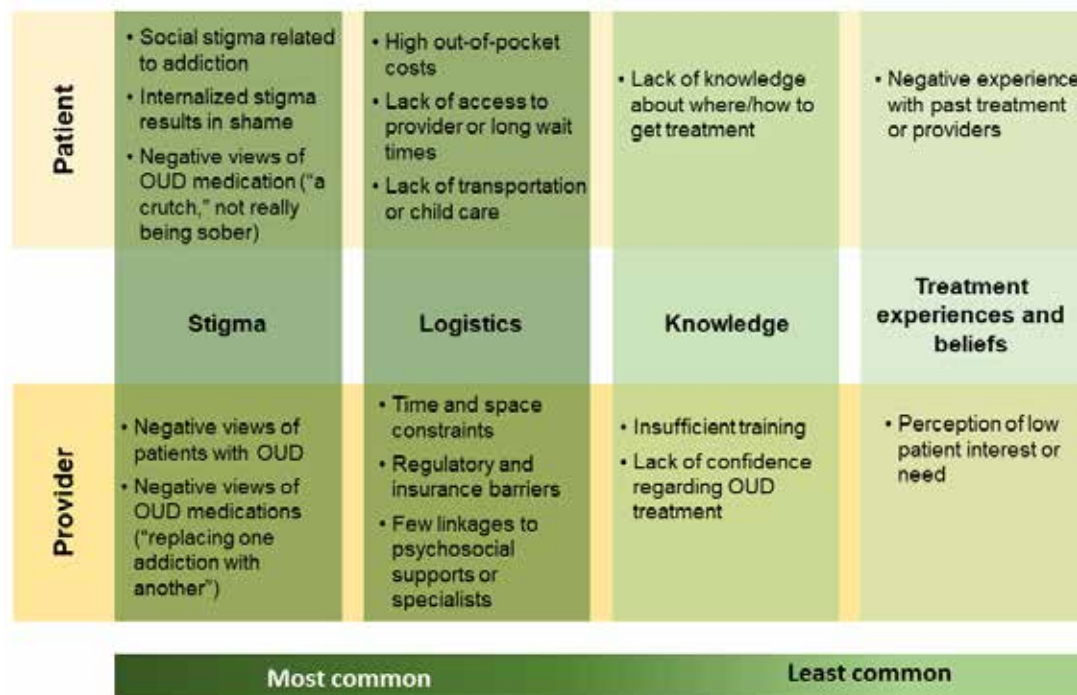
Due to study heterogeneity and lack of subgroup analyses, we were not able to draw conclusions about how patient-identified barriers and facilitators may vary among different patient groups. Indirect evidence from 3 retrospective studies that evaluated the likelihood of patients receiving buprenorphine consistently found that adults in the age range 30-50, white patients, and those who self-pay or are employed are more likely to be prescribed buprenorphine than those who are on the extremes of age and non-white. Similarly, we were not able to draw conclusions regarding how provider-identified barriers and facilitators may vary among groups, but indirect evidence

from a survey study and 2 studies based on chart review suggest that prescribing behavior reflects barriers and/or facilitators (*ie* lack of institutional support to offer buprenorphine is associated with a lower likelihood that providers will prescribe it), that barriers and facilitators may vary by region, and that when providers engage in OUD training and/or are using other OUD best practices (such as co-prescribing naloxone) they are more likely to prescribe buprenorphine.

Eleven prioritized studies met all of our minimum quality criteria and 5 did not. Common limitations of those studies that did not meet criteria included low response rates (range: 3-46%) for surveys and a lack of detailed information on participants and settings across study types. Our overall confidence in this evidence is low. Although results were generally consistent (most studies discussed similar barriers and facilitators) and precise (studies had appropriate sample sizes based on study design), the studies are indirect (not in the VHA setting) and due to the nature of qualitative methods prohibit conclusions regarding the magnitude of effects for a given barrier or facilitator (do not tell us the size or severity of a barrier or facilitator, just how commonly it was referenced).

While we do not expect that future studies in the VHA setting would uncover additional major barriers and facilitators that do not relate to one of those highlighted in this review, studies in VHA populations would increase certainty regarding which barrier and facilitator types are most significant for VA patients and providers and where in the treatment pathway these barriers and facilitators are most likely to exist. Studies in VHA’s equal access health care system, where potential confounding due to variation in insurance coverage is minimized, could also increase certainty on the independent role of patient-level factors in receiving medications for OUD and thereby more broadly inform VA and non-VA interventions to increase their use.

Figure 1. Common barriers to use of medications for opioid use disorder



EVIDENCE BRIEF

INTRODUCTION

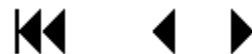
PURPOSE

The ESP Coordinating Center (ESP CC) is responding to a request from VA's Health Services Research and Development Service (HSR&D) for an evidence brief on barriers to and facilitators of use of buprenorphine and extended-release naltrexone for treatment of opioid use disorder (OUD). This review synthesizes evidence on the barriers and facilitators at the patient, provider, and health care system levels. Findings from this review will be used to inform prioritization of questions for a September 2019 State-of-the-Art (SOTA) conference.

BACKGROUND

Mirroring national trends, the proportion of opioid overdoses among Veterans due to illicit opioids is increasing. Opioid overdose among Veterans increased from 14.5 per 100,000 person-years in 2010 to 21.1 per 100,000 person-years in 2016, mostly due to overdoses from heroin and synthetic opioids such as fentanyl rather than prescription opioids.¹ This finding highlights the need for opioid risk reduction efforts beyond those aimed at increasing opioid safety in the healthcare setting. As a component of the Veterans Health Administration's (VHA) overall response to the crisis of opioid-related morbidity and mortality, VHA provides treatment for those with opioid use disorder (OUD), a diagnosis made based on symptoms, such as drug cravings, and behaviors, such as compulsive drug seeking and drug use despite negative consequences.² Methadone, buprenorphine, and extended-release naltrexone are medications approved by the Federal Drug Administration (FDA) for treatment of OUD. Of note, the term medication-assisted treatment (MAT) has been commonly used to describe these medications but is no longer favored given that medication is considered an option for first-line treatment for OUD (rather than an adjunctive treatment).³ Guidelines from the Veteran's Administration/Department of Defense (VA/DoD) recommend offering patients with OUD treatment with medication. These guidelines state that while patients receiving methadone should be offered individual counseling and/or contingency management (rewards to reinforce positive behaviors), there is insufficient evidence to recommend for or against any specific psychosocial intervention in addition to office-based medical management with buprenorphine.⁴

Methadone and buprenorphine treat OUD by reducing opioid cravings and preventing withdrawal, which are both potent drivers of ongoing opioid use. Methadone is a "full opioid agonist," meaning that it activates opioid receptors in the brain and body in the same way as other prescription opioids and illicit opioids such as heroin. Buprenorphine is referred to as a "partial opioid agonist" because it does not act on opioid receptors in the same way as full agonists like methadone. Specifically, it binds tightly to the mu opioid receptor (which is responsible for analgesic and euphoria effects but also harmful effects such as respiratory depression) but does not activate this receptor as much as full agonists like methadone. It also has a ceiling effect, meaning that the receptor is not more activated with more exposure to the drug, and it is therefore thought to have a lower risk of overdose.⁵



Buprenorphine used for OUD treatment is a higher dose than buprenorphine formulations approved to treat chronic pain and is typically co-formulated with naloxone, which helps deter misuse by causing opioid withdrawal if the medication is crushed and injected or snorted instead of being used under the tongue as prescribed. Buprenorphine is also available as an implantable medication and an extended-release injection form, although currently neither of these options are widely used or available on VA formularies.⁶

Naltrexone is an “opioid antagonist,” meaning that it blocks opioid receptor activity. Naltrexone is available in an injectable form and oral form, although treatment retention and adherence may be lower with the oral form and it is not as commonly used.^{4,7} Extended-release naltrexone is the preferred option for patients who would like to avoid taking any form of opioid or for whom methadone and buprenorphine are contraindicated (such as with severe alcohol use). Naltrexone works differently than methadone and buprenorphine to treat OUD – by blocking the effects of opioids, it has been shown to reduce cravings over time and increase opioid abstinence.^{2,8}

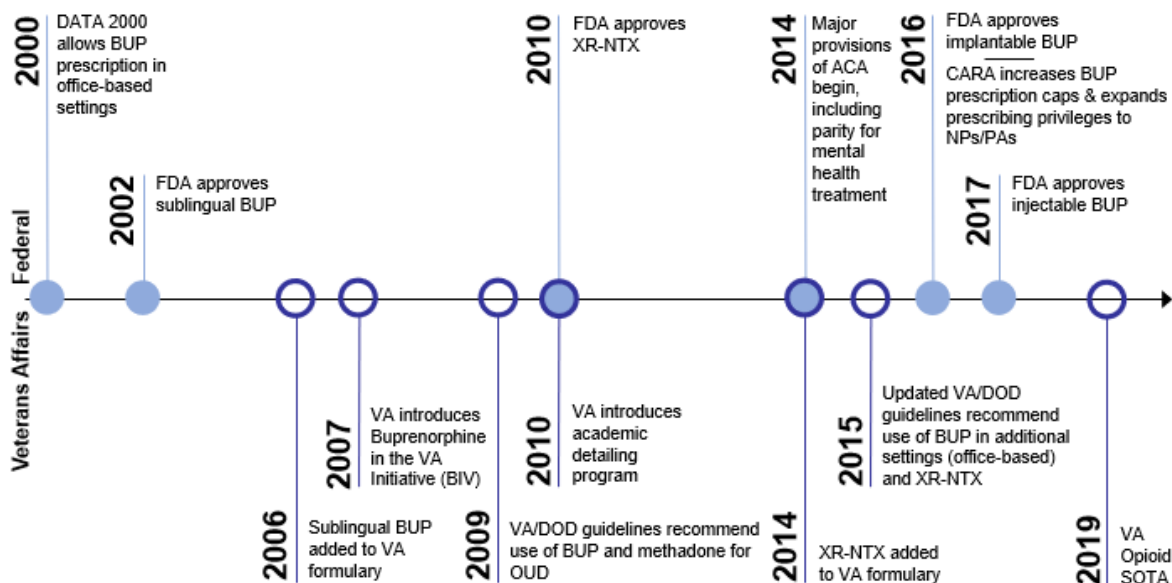
Several factors determine which type of medication may be recommended for an individual patient, including his or her treatment preferences, unique history of opioid use and other substance use, co-morbidities, living situation and social history, and risk of relapse and other adverse outcomes. Similar to other chronic medical conditions, patients with OUD may need a higher or lower level of care when they are first diagnosed, and this need may fluctuate at different times during their disease course. The highest level of care for OUD is delivered in “Opioid Treatment Programs” (OTPs), which is a specific term used to denote a treatment program certified by the Substance Abuse and Mental Health Services Administration (SAMHSA).⁹ OTPs can exist in multiple settings including intensive outpatient programs, residential programs, and hospital settings. OTPs are highly regulated, with requirements that patients receive psychosocial supports, complete frequent urine drug tests, and receive a limited number of take-home medications (thereby requiring frequent visits).⁴ As of 2018, VHA operated 32 OTPs nationwide, but also contracts with an unknown number of OTPs in the community.⁶

In addition to OTPs, OUD care is delivered in “office-based” settings, a term that refers to outpatient settings other than OTPs, including primary care and general mental health clinics.¹⁰ In some health systems, these levels of care are linked. For example, in the “hub and spoke” model developed in Vermont, OTPs are connected with office-based care settings and patients are triaged to the level of care that best meets their needs.¹¹ Intensity of care delivered in office-based settings varies by practice structure and the scope of available psychosocial services.¹¹ Office-based care may be viewed as more patient-centered and accessible and preferred by some patients compared to OTPs.¹² Incorporating OUD treatment into routine chronic disease management, similar to conditions commonly treated in primary care such as asthma, diabetes, and hypertension, may help reduce the stigma associated with opioid use and addiction.¹³ Stigma may be defined as “the general public identifying and labeling differences between themselves and a specific group [and] conferring these differences with negative attributes.”¹⁴

While methadone can *only* be used in the OTP setting due to federal regulations, federal legislation over the past 20 years or so has made it possible for buprenorphine to be prescribed in the office-based setting. VHA guidelines and program changes have also helped promote buprenorphine and naltrexone use. See Figure 1 for a timeline of federal legislation and VHA changes related to OUD medication prescribing, including the addition of extended-release

naltrexone to VA formularies. The first legislative milestone to expand access to OUD medication was the Drug Addiction Treatment Act of 2000 (DATA 2000), which allowed providers to prescribe buprenorphine in the office-based setting after completing an 8-hour training, obtaining a SAMHSA waiver, and obtaining a specially designated Drug Enforcement Agency (DEA) registration number. Initially, DATA 2000 set a cap on prescriptions of 30 patients per physician, with the option to increase to 100 patients after a year. However, the 2016 Comprehensive Addiction and Recovery (CARA) Act increased the cap for experienced providers to 275 patients and expanded the waiver option to nurse practitioners (NPs) and physician assistants (PAs), although many states do not allow NPs and PAs to prescribe buprenorphine without oversight by a physician who also has a waiver.¹⁵ Because naltrexone is not an opioid and has no abuse potential, it is not subject to additional federal regulations and may be prescribed in any setting just as other non-controlled medications.

Figure 2. Timeline of federal and Veterans Affairs events affecting the availability and use of medications for opioid use disorder



Despite evidence of the effectiveness of medications as first-line treatment for OUD, even without psychosocial interventions, and guidelines from the Veterans Affairs/Department of Defense (DoD), Centers for Disease Control & Prevention (CDC), and the American Society of Addiction Medicine recommending their use, these medications are underutilized within VHA populations and the general community.^{4,16,17} Within VHA, the percentage of Veterans with diagnosed OUD on medication was approximately 39% at the end of the second quarter of 2019.⁶ While improved compared to treatment rates of approximately 34% in 2016, this rate of OUD medication use is still far short of what is needed given the scope of the opioid crisis.

Reasons why OUD medications are still underutilized even several years into the opioid crisis are not fully understood, but are likely due to multiple interconnected factors at the patient, provider, and systems levels. Patients and providers can both experience barriers at several places along the pathway towards starting OUD medication. Patients must first recognize and accept a diagnosis of OUD (either self-recognition or recognizing and accepting a diagnosis made by a provider), decide to seek treatment, identify a provider with prescribing capacity who

accepts the patient's insurance and/or has affordable out-of-pocket fees (in non-VA settings), navigate transportation or child care needs, and start treatment, which involves ceasing illicit opioid use. From the provider perspective, use of buprenorphine presents several potential barriers. Providers must be interested and willing to prescribe buprenorphine, work in a practice setting that supports buprenorphine prescribing, complete training and obtain a SAMHSA waiver and updated DEA registration, possibly update their hospital/clinic credentials, educate staff regarding buprenorphine inductions (process for starting the medication), ensure adequate clinic space, and navigate insurance prior authorization requirements (in non-VA settings) before writing a prescription. Low reimbursement for OUD treatment (in non-VA settings) may also be a barrier.

A qualitative study based on interviews with a national sample of administrative and clinical staff at VHA sites in 2006-2007 found that provider barriers to prescribing buprenorphine included lack of education regarding buprenorphine treatment, negative perceptions of patients with OUD, perceived lack of resources, and the thought that OUD care was best delivered outside the VA.¹⁸ While it is possible that many of these same barriers still exist, the opioid crisis itself has changed since 2006-2007, with a higher prevalence of heroin and synthetic opioid use.¹⁹ Societal attitudes towards opioids and people with OUD may have also shifted in the past decade with greater public awareness of the problem. Understanding current barriers and facilitators to OUD medication use, and which barrier and facilitator types are most relevant to the VHA patients and providers, is necessary to design and evaluate interventions to increase prescribing capacity and patient uptake. The aim of this review is to synthesize the evidence on provider, patient, and system-level barriers and facilitators to use of OUD medications to help inform VHA stakeholders engaged in policy development, program planning, and OUD research. Because buprenorphine and extended-release naltrexone can be prescribed in office-based settings and have the most potential for widespread use, this review is limited to those 2 medications rather than methadone. We also focus our discussion on barriers that VHA can address, rather than federal regulatory barriers outside of VHA's control.

SCOPE

This rapid evidence review addresses the following key questions and eligibility criteria:

Key Questions

Key Question 1: What are the patient, provider, and systems-level barriers and facilitators to use of buprenorphine and extended-release naltrexone for OUD?

Key Question 2: Do these barriers and facilitators vary by patient characteristics, provider characteristics, or setting?

ELIGIBILITY CRITERIA

We included studies of all types (quantitative and qualitative) of adults eligible for OUD treatment (excluding pregnant women) in the US. We included studies of initial OUD medication use (not treatment retention). Included studies had to have a specific aim of identifying barriers and facilitators or factors associated with OUD medication use or prescribing (such as patient demographics or provider characteristics). Full inclusion and exclusion criteria are available in Appendix A.

METHODS

SEARCHES AND STUDY SELECTION

To identify articles relevant to the key questions, our research librarian searched MEDLINE, PsycINFO, CENTRAL, Cochrane Database of Systematic Reviews, and EMBASE from database inception to March 2019 using terms for *opioid use disorder*, *buprenorphine*, *naltrexone*, *barriers*, and *facilitators* (see Supplemental Materials Appendix B for complete search strategies). Additional citations were identified from hand-searching reference lists and consultation with content experts. We limited the search to published and indexed articles involving human subjects available in the English language. Study selection was based on the eligibility criteria described above. Due to the large volume of studies we identified in our search, the need to accommodate a compressed rapid review timeline, and the goal of providing VHA clinicians, researchers, and policy-makers with the most current and relevant synthesis of evidence on OUD medication barriers and facilitators, we limited selection of studies to those published since 2014. Limiting our study selection in this way allowed us to prioritize evidence in the context of recent VHA and federal policy changes including the addition of extended-release naltrexone to the VHA formulary in 2014, updated VHA substance use disorder guidelines in 2015, and the 2016 CARA Act aimed at expanding OUD medication prescribing. Titles and abstracts and full-text articles were reviewed by one investigator and checked by another. All disagreements were resolved by consensus or review from a third investigator.

QUALITY ASSESSMENT & DATA EXTRACTION

We took a categorical approach to assessing study quality. This approach involved evaluating whether each study met minimum methodological quality standards to distinguish the subset of studies that adequately performed the most critical methods from those that did not. Using predefined criteria from existing tools,^{20,21} we focused on assessing adequacy of the following features that are common across study types (qualitative and quantitative) and most critical for interpreting findings: 1) sampling methods, 2) adequacy of survey or interview questions in capturing the desired information, 3) population descriptions, 4) setting descriptions, and 5) barrier/facilitator detection methods. For quantitative studies, we also assessed 6) whether appropriate statistical analyses were conducted, and for qualitative studies we assessed 7) whether the study used a formal process for recording, transcribing, and coding themes from interviews or open-ended responses. We then categorized studies as either “met minimum criteria” or “did not meet minimum criteria.” Additionally, we informally commented on the status of additional study features that can help in identifying the highest-quality studies, including whether survey studies compared responders to non-responders, or whether qualitative studies had independent analysis of data by more than one researcher or examined the potential effect of the author’s background, education, or perspective on the results.

We abstracted data from all studies, including study characteristics, setting, population, type of medication discussed, and barriers/facilitators identified. All data abstraction and quality assessment was first completed by one reviewer and then checked by another. All disagreements were resolved by consensus. Full data abstraction and quality assessment tables are available in Appendix D.

STRENGTH OF EVIDENCE ASSESSMENT

We informally graded the strength of the evidence as a whole based on the AHRQ Methods Guide for Comparative Effectiveness Reviews.²² This approach incorporates 4 key domains: risk of bias (includes study design and aggregate quality), consistency, directness, and precision of the evidence. It also considers other optional domains that may be relevant for some scenarios, such as strength of association (magnitude of effect), and publication bias. While AHRQ's strength of evidence tool is designed to evaluate intervention studies, we felt the principles could be applied to this evidence base of non-intervention studies. Strength of evidence ratings generally range from high to insufficient, reflecting our confidence that the evidence reflects the true effect. For this review, we applied the following general algorithm: evidence comprised of qualitative studies and uncontrolled observational studies with consistent and precise findings received a rating of "low"; whereas the same type of evidence with few studies and/or indirectness and inconsistency would be downgraded to "insufficient."

SYNTHESIS OF DATA

We synthesized the evidence qualitatively but, due to heterogeneity, did not perform a quantitative synthesis. We prioritized synthesis of studies of Veterans populations and/or those conducted in VHA settings. When VHA studies were not available, we focused on studies with the most applicability to VHA by prioritizing 1) studies of patients with OUD (reasoning that Veteran and non-Veteran patient populations with OUD have much in common) and 2) studies of providers in primary care and other office-based settings (given the VHA's aim to expand OUD medication use widely and not just in OTPs). As much of the data was qualitative (open-ended surveys and interviews), we conducted content analysis of barriers and facilitators in prioritized studies using coding based on an iterative process without pre-defined categories. We considered a barrier/facilitator to be any factor endorsed by at least 1 participant in the study that either inhibited or helped them adopt medication treatment or that theoretically would inhibit or help them adopt medication treatment (as opposed to assigning a cut-off point for the percentage of participants that would need to endorse it for it to be considered a barrier). As we reviewed studies, we grouped content into existing categories or created a new category. We later identified sub-categories within each of the major categories. All codes were first conducted by one reviewer and checked by a second.

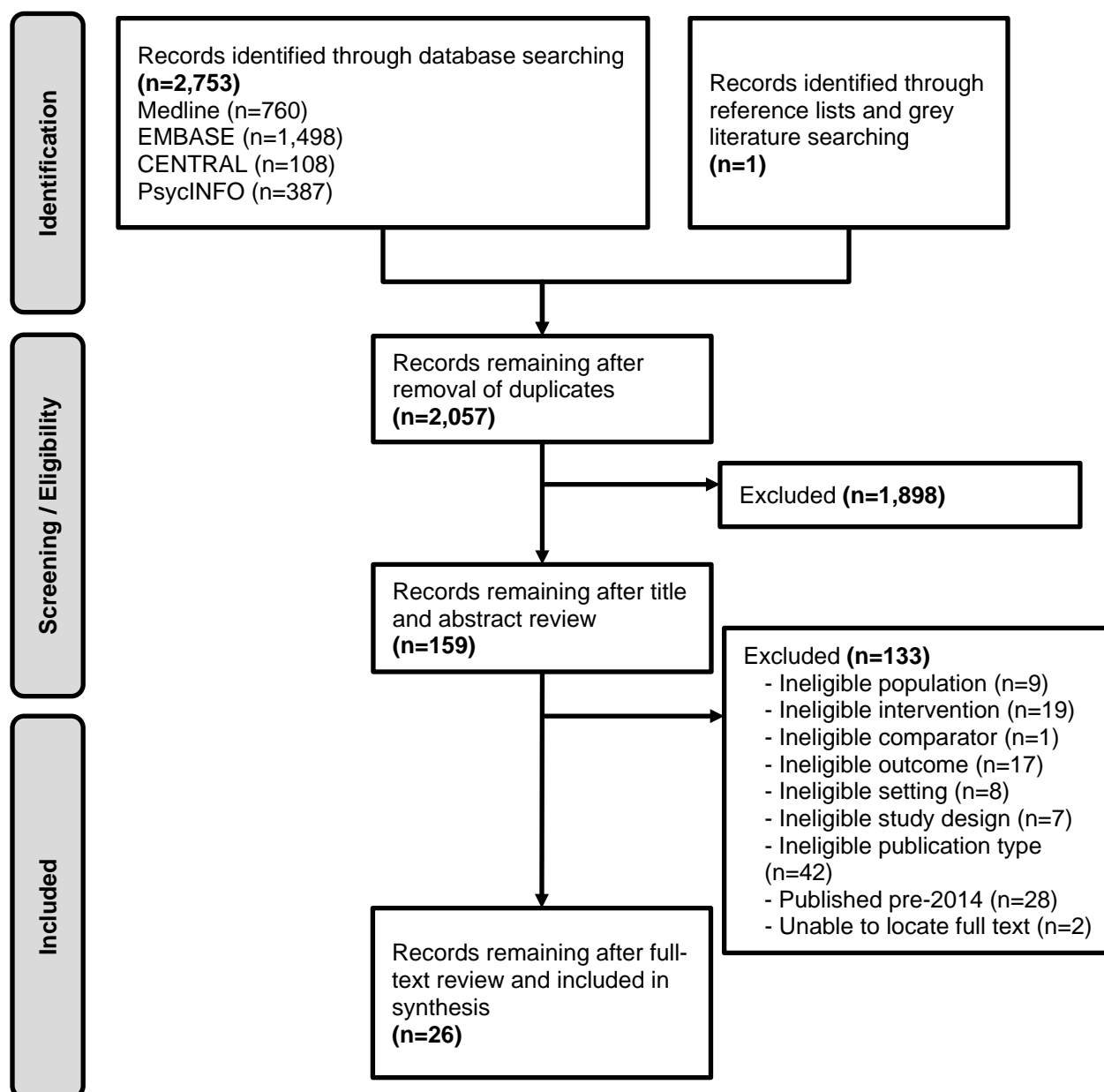
A draft version of this report was reviewed by peer reviewers as well as clinical leadership (see supplemental materials for disposition of peer review comments). The complete description of our methods can be found on the PROSPERO international prospective register of systematic reviews (<http://www.crd.york.ac.uk/PROSPERO/>; registration number CRD42019133394).

RESULTS

LITERATURE FLOW

The literature flow diagram (Figure 2) summarizes the results of the search and study selection processes. Among 2,753 potentially relevant citations, we included 26 studies published since 2014.^{7,23-46} Of these, we prioritized evidence synthesis of 16 studies with the most applicability to VHA, as discussed in more detail below.^{7,28,32,34-47} See supplemental materials for list of excluded studies and full data tables.

Figure 3: Literature Flowchart



Literature Overview

We did not identify studies published since 2014 that were conducted in VHA settings. If we had identified VHA studies, they would have been the focus of our evidence synthesis. We therefore focused on a subset of studies with the most relevance and applicability to VHA, which we refer to as prioritized studies. This subset included all 8 studies of patient-identified barriers and facilitators to medication use for OUD (reasoning that Veteran and non-Veteran patient populations with OUD have much in common) and 8 provider studies conducted in primary care and mental health settings (given the VHA's aim to expand OUD medication use widely and not just in OTPs) or from national samples. We abstracted information from but do not discuss in detail the remaining 10 studies with lower applicability to VHA, which include systems-level studies examining the impact of Medicaid or private insurance coverage of OUD medications,²³⁻²⁹ surveys of substance use program administrators or counselors (who do not directly prescribe OUD medications and work in specialized care settings),^{30,31} and a survey of correctional facility staff given that barriers and facilitators may be unique in correctional facility setting and results would not directly inform VHA actions.³³

Five of the prioritized studies used open- and closed-ended surveys and interviews to examine patient experiences and attitudes towards OUD medications, specifically buprenorphine.^{32,36,38,43,47} Another 3 studies (1 survey, 2 chart or database review) examined patient factors associated with receiving buprenorphine.^{44,45,48} No studies examined patient-identified barriers or facilitators to naltrexone use. For the provider perspective, 7 prioritized studies (6 on buprenorphine^{34,37,39-42} and 1 on buprenorphine and naltrexone⁷) used surveys and/or interviews to examine provider experiences and attitudes towards OUD medications. One survey study examined regional differences experiences and attitudes among providers.³⁵ While we did not include any studies of system-level barriers or facilitators in our prioritized evidence synthesis (given that studies we found had low VHA applicability), several systems-level factors underlie patient and provider barriers and facilitators to OUD medication use, and we discuss these accordingly.

Five of the prioritized studies (3 of patients, 2 of providers) used qualitative methods for data collection and used various models for data analysis.^{7,32,36,40,47} See Tables 1 and 2 for methodological details of each study.

Eleven prioritized studies met all of our minimum quality criteria^{28,32,34-35,40-45,47} and 5 did not.^{7,36-39} Common limitations of those studies that did not meet criteria included low response rates (range: 3-46%) for surveys and a lack of detailed information on participants and settings across study types. Our overall confidence in this evidence is low. Although results were generally consistent (most studies discussed similar barriers and facilitators) and precise (studies had appropriate sample sizes based on study design), the studies are indirect (not in the VHA setting) and due to the nature of qualitative methods prohibit conclusions regarding the magnitude of effects for a given barrier or facilitator (do not tell us the size or severity of a barrier or facilitator, just how commonly it was referenced).

KEY QUESTION 1: What are the patient, provider, and systems-level barriers and facilitators to use of buprenorphine and extended-release naltrexone for OUD?

Patient-identified Barriers to OUD Medication Use

Patient-identified barriers to buprenorphine use (none examined naltrexone use) may be categorized into 4 main categories – stigma, logistics, treatment experiences (current and prior) and beliefs, and knowledge of OUD medications. These barrier types are likely overlapping and mutually reinforcing. Of these, social stigma associated with OUD and high out-of-pocket costs were the most commonly described barriers. See Table 1 for a summary of patient-identified barriers and Table 2 for an overview of barrier categories and subcategories.

Stigma

Studies discussed several forms of stigma including social stigma, manifesting as not wanting to be seen or associated with OUD treatment, and self or internalized stigma, manifesting as shame related to having an addiction and needing treatment.³⁸ Another form of stigma is related to treatment specifically. For example, stigma associated with buprenorphine can manifest as the view that using buprenorphine is “a crutch” and that people on buprenorphine are not really sober.^{32,38,47} These forms of stigma may affect patients with OUD along the entire care continuum, including their ability to accept an OUD diagnosis and willingness to engage in treatment, and were discussed in all studies of patient-identified barriers to OUD treatment.

Logistics

Logistical barriers were also common and include high out-of-pocket costs including insurance copays and costs associated with “cash-only” providers who do not accept insurance, finding a buprenorphine provider, provider waiting lists, the need to “first fail” abstinence-based treatment prior to receiving buprenorphine, and having access to transportation and childcare to attend treatment visits. Of these logistical barriers, cost was identified in most (4/5) studies of patient-identified barriers. The exception was a study of former inmates with OUD in New York City, 90% of whom had Medicaid coverage of OUD medication.⁴⁷

Prior treatment experiences, beliefs, and knowledge

Beliefs about OUD treatment generally and prior experience with buprenorphine/naloxone and/or other OUD treatment were also identified by patients as barriers to use of OUD medication. In a qualitative study based on interviews with previously incarcerated individuals at addiction treatment centers, some participants stated that a reason why they had not sought OUD treatment in the past was a belief that personal characteristics such as willpower and readiness to change are more important to opioid abstinence than medical treatment.⁴⁷ Two studies based on interviews with patients with a history of OUD treatment (one of patients in New York City at a syringe exchange program and the other in Alaska) discussed negative past experiences with treatment, including being treated poorly by treatment center staff, not feeling supported by staff, or not trusting staff.^{32,38} Lack of knowledge about where to find treatment was a less commonly cited barrier, discussed in only 1 study in which 50% of patients surveyed at a syringe exchange program did not know where to access buprenorphine.³² While use of illicit buprenorphine was more often discussed as a facilitator, as described below, some participants in a study based on

interviews with former inmates with OUD described negative experiences with illicit use of buprenorphine, which study authors speculate may have may been due to use of illicit buprenorphine concomitantly with other opioids and therefore precipitated withdrawal, underscoring the need for greater access to prescribed buprenorphine and proper instruction on how to use it.⁴⁷

Table 1. Patient-identified barriers to OUD medication use

Author, Year Study Design Study Size	Population, setting, and history of opioid use (prescription opioids or other)	Population characteristics	Stigma	Treatment experiences and belief	Knowledge	Logistics
Cicero, 2018 ³⁶ Survey with open-ended questions N = 303	Adults with substance use disorder (primarily OUD) and variable buprenorphine use at treatment centers (national sample); unclear opioid use history	Male: 45% Age: 72% 25–44 years Race: 90% White Ethnicity: NR Insurance: 30% Private, 34% Medicaid/Medicare, 3% VA/Military, 9% Dependent, 24% No/other	ü			ü
Fox, 2015 ⁴⁷ Semi-structured interviews; grounded theory model N = 21	Former inmates with OUD recruited from addiction treatment centers in New York City; 100% history of heroin use	Male: 81% Age: median 49 years Race/ethnicity: 62% Hispanic, 38% Non-Hispanic Black Insurance: 90% Medicaid	ü	ü		
Fox, 2015 ³² Survey with close-ended questions N = 102	Adults in syringe exchange program with variable buprenorphine use at harm reduction agency in New York City; 98% history of heroin use	Male: 73% Age: median 47 years Race/ethnicity: NR Insurance: 68% Medicaid	ü	ü	ü	ü
Hewell, 2017 ³⁸ Focus groups and semi-structured interviews; grounded theory model N = 11	Adults with OUD and variable buprenorphine use in Fairbanks, Alaska; unclear opioid use history	Male: 36% Age: NR Race/ethnicity: NR Insurance: NR	ü	ü	ü	ü
Monico, 2017 ⁴³ In-depth semi-structured interviews; ecological systems model N = 20	Adults receiving daily buprenorphine within an OTP in Delaware; 75% history of prescription opioid use and 25% heroin use	Male: 65% Age: 55% 30-39 years Race: 65% White Ethnicity: 15% Hispanic Insurance: 65% State-funded, 15% Private, 20% Uninsured	ü			ü

Patient-identified Facilitators to Use of OUD Medications

The most commonly cited facilitator of receiving buprenorphine was receiving personal support from others, including peers who had used OUD medication, family, and treatment providers. A study based on interviews of patients with OUD in Alaska highlighted participation in a structured program as a facilitator (although participants also noted that restrictive programs structures may also be perceived as a barrier later in the treatment process).³⁸

Illicit use of buprenorphine as a treatment facilitator

Three studies discussed use of illicit buprenorphine as a facilitator to seeking treatment with prescribed buprenorphine.^{32,36,47} In a survey of syringe exchange program participants in New York City overall interest in buprenorphine was greater among those with a history of illicit buprenorphine use versus those without (54% vs 36%), although this difference was not statistically significant.³² The perceived likelihood of starting prescribed buprenorphine if it was offered as part of harm reduction agency services was also higher among those who had used illicit buprenorphine versus those who had not (82% vs 50%). These findings are consistent with another survey of patients in OUD treatment (N=303) indicating that among those who had used illicit buprenorphine, this use was intended for prevention of withdrawal symptoms (79%) or to maintain abstinence from other drugs (67%).³⁶

These findings suggest that providers who cite concerns about buprenorphine diversion (selling or giving away prescribed medication) as a barrier to prescribing it could benefit from knowing how diverted buprenorphine is used, in case they would be more likely to prescribe it in the context of harm reduction. Interest in illicit buprenorphine to manage withdrawal or maintain abstinence is likely due to insufficient access to prescription treatment. It is possible that with increased access to prescribed buprenorphine, illicit use may decrease.³²

Table 2. Categories of patient-identified barriers and facilitators to OUD medication use

Category (n)	Barrier sub-categories (n)	Facilitator Sub-categories (n)
Stigma (5) ^{32,36,38,43,47}	<p>Social stigma (4) <i>Example - Fear of judgement from others if they knew patient was an addict, not wanting to be seen at treatment center</i></p> <p>Self or internalized stigma (1) <i>Example – Patients’ feelings about themselves as they try to access treatment, including the experience of shame related to having OUD and needing treatment</i></p> <p>Stigma specific to buprenorphine use (3) <i>Example - Buprenorphine as a “crutch” or substituting one addiction for another; belief that people on MAT were still addicts and not in the recovery process</i></p>	Positive social support from peers and family (3)
Treatment experiences and beliefs (4) ^{32,36,38,47}	<p>Use of illicit buprenorphine (negative experience) (1)</p> <p>Negative experience with prior treatment or treating providers (1) <i>Example - Patients treated poorly by treatment center staff/provider; lack of trust in physician/ mistrust in patients</i></p> <p>Rigid treatment structure later in treatment (1)</p> <p>Belief that individual traits like willpower and readiness for change are more important than treatment (1)</p>	<p>Use of illicit buprenorphine (positive experience) (3)</p> <p>Support from treatment providers (1)</p> <p>Rigid treatment structure at the beginning of treatment (1)</p> <p>Helps prevent re-incarceration (1)</p>
Knowledge (2) ^{32,38}	<p>Lack of knowledge about where to get treatment (1)</p> <p>Low health literacy (1)</p>	None
Logistics (4) ^{32,36,38,43}	<p>Out-of-pocket costs, including “cash-only” providers (4)</p> <p>Finding a provider who accepts insurance and/or accepting new patients, long wait time (3)</p> <p>Need to “first fail” abstinence-based treatment (1)</p> <p>Transportation and childcare barriers (1)</p>	None

Provider-Identified Barriers to Prescribing OUD Medications

Similar to patient-identified barriers to using OUD medications, provider-identified barriers to prescribing OUD medications be categorized into 4 main types – stigma related to OUD, logistical barriers, treatment experiences and beliefs, and knowledge gaps. Just as with patient-identified barriers, the barriers affecting providers’ willingness and ability to prescribe buprenorphine are likely overlapping and mutually reinforcing. See Table 3 for a summary of provider-identified barriers and Table 4 for an overview of barrier categories and subcategories.

Stigma

Four studies of providers identified barriers to OUD medication prescribing related to stigma.^{6,16,34,37} Similar to patient-identified barriers related to stigma, providers described social stigma related to OUD manifesting as lack of desire to be known as an OUD treatment provider⁷ and concerns about attracting more patients with drug use to their practice.³⁴ In a study by Huhn et al based on a survey of US physicians through the American Society for Addiction Medicine and American Medical Association Listservs, most providers (87%) had a buprenorphine waiver, but among those who did not have a waiver, 29% cited concerns about being “inundated” with requests for buprenorphine as a reason for not prescribing it.³⁹ It is possible that stigma related to patients with OUD, which can also manifest as the perception that patients with OUD are “difficult” or not trust-worthy,^{7,37} contributes to concerns about requests for treatment from a large number of patients. However, concerns about time may also underlie the fear of being “inundated” with buprenorphine requests. The Huhn et al study does not provide enough detail to know which factors drive a lack of desire to treat high volumes of patients with OUD.

Also similar to patient-identified barriers to OUD medication use, 2 studies of providers identified stigma specific to buprenorphine, specifically the view that it is “substituting one addiction for another”^{7,37} and the Huhn et al study discussed above found that reasons why waived providers were not prescribing at capacity included lack of belief in buprenorphine therapy. Further explanation is not provided, so it is not known whether a lack of belief in buprenorphine is based on experience prescribing it or view that it is “substituting one addiction for another” or another unspecified reason.³⁹

Logistics

Overall, studies of provider-identified barriers to OUD medication prescribing found that logistical barriers are most common. Time was identified as a barrier in 7/7 studies and was the first or second most commonly cited barrier in 5 of these studies. Although no studies were conducted in VHA settings, identification of time as a barrier to OUD medication prescribing is still applicable to VHA settings given that concerns about time and workload are common among frontline providers.⁴⁹ As discussed above in the section on stigma, these concerns may be exacerbated by negative views of patients with OUD among some providers. For example, the perception that patients with OUD are “difficult,” which was cited in 2 studies^{7,37} (one based on physician interviews and the other a survey with open-ended questions), may make providers even more concerned about the time commitment required to take on buprenorphine prescribing for these patients and make them fear being “inundated” with buprenorphine requests.³⁹

Other logistical barriers include concerns about insurance coverage, prior authorizations, and reimbursement. While not directly applicable to VHA settings, these barriers apply to VHA

contracted care providers, and may impact VHA's ability to find community providers to partner with, particularly in rural areas. A study evaluating how often providers with buprenorphine waivers in Ohio accept insurance payments found that among active prescribers, 52.7% accepted insurance for buprenorphine, 20.8% accepted insurance for non-buprenorphine services but not for buprenorphine, and 26.5% did not accept insurance for any services (*ie*, accepted cash only).²⁸ The findings of this study highlight the potential that access may be much more limited than numbers of waived providers might suggest, and also help explain why patients without means to pay out-of-pocket for treatment may encounter even steeper barriers to treatment than others.

Knowledge gaps and beliefs about OUD medication

Knowledge gaps regarding OUD medications and OUD generally were also cited as barriers and are likely to impact VHA providers in the same way as providers in other practice settings. In a qualitative study by Andraka-Christou et al of 20 US-licensed physicians (mostly psychiatrists and primary care providers) in 4 states, 75% of participants cited lack of addiction education in medical school and residency as a barrier.⁷ Lack of knowledge also translates into low confidence in buprenorphine use, cited as a barrier in a large survey of 1,124 rurally located providers with buprenorphine waivers.³⁴ Lack of training regarding buprenorphine may also manifest as a perception that buprenorphine is not effective or that patients have a low need for it.^{7,37} In a survey of clinicians obtaining an initial buprenorphine waiver or an increase in authorized patient limit, lack of patient demand for treatment was cited as the primary barrier to prescribing. It is unclear whether this lack of demand is based on provider perception, which could indicate a knowledge gap, beliefs that patients with OUD do not need (and are therefore not requesting) buprenorphine, or other subjective or objective factors.⁴¹

The qualitative study by Andraka-Christou et al discussed above was the only one that examined barriers specific to buprenorphine and extended-release naltrexone (and the only study overall to discuss barriers and facilitators to naltrexone).⁷ In this study, 20 US-licensed physicians identified 3 main barriers to buprenorphine prescribing – regulatory requirements, fear of liability, and restrictions imposed by the criminal justice system (such as not allowing or discouraging buprenorphine use). Barriers related to extended-release naltrexone were more specific to its pharmacologic properties. Because naltrexone is an opioid antagonist, patients must completely cease opioid use before starting it (to avoid precipitating acute opioids withdrawal) and physicians in this study expressed concerns about patient willingness to take this step without access to medically-supervised detoxification programs. Another barrier specific to naltrexone in this study was lack of awareness of its use in OUD treatment.

Concerns about buprenorphine diversion

In 5 of 7 studies, providers described buprenorphine misuse and diversion as barriers. It is unclear whether these concerns are primarily driven by negative views of patients with OUD, concerns about patient safety and the potential for overdose and other adverse outcomes, or concerns about liability and DEA intrusion (cited as barriers in 2 studies^{7,34}).

Barriers to prescribing at capacity

Three studies found that providers with buprenorphine waivers were not prescribing at capacity.^{39,41,42} Only one of these studies, the Huhn et al study based on a survey of providers on

the American Society for Addiction Medicine and American Medical Association Listervs, examined barriers specific to waived providers who were not prescribing at capacity. In this study, 56.2% of waived providers (N = 272) reported not prescribing to capacity (providers with patient caps of 30 and 100) and the most commonly cited reason was not having time for more patients.³⁹ More than half (54.8%) of survey respondents with a buprenorphine waiver who were not prescribing to capacity indicated that nothing would increase their willingness to prescribe at that level. Reasons for this lack of willingness based on statistical analysis by study authors included lack of belief in agonist treatment (also discussed above in the section on stigma), lack of time for additional patients, and beliefs that reimbursement rates were insufficient.

Table 3. Provider-identified barriers to buprenorphine use

Author, Year Study Design Study Size	Population and setting	Stigma	Treatment experiences and beliefs	Knowledge	Logistics
Andrilla, 2017 ³⁴ Survey with closed and open-ended questions N = 1,124	Rurally located US physicians on the DEA list	ü		ü	ü
Andraka-Christou, 2018 ⁷ Individual semi-structured and in-depth interviews; thematic analysis approach N = 20	20 US-licensed physicians (10/20 psychiatrists, 4/20 primary care, 6/20 other specialties) in 4 states (IN, FL, IL, WI)	ü	ü	ü	ü
DeFlavio, 2015 ³⁷ Survey with open-ended questions N = 108	Family physicians in VT or NH, 10% buprenorphine prescribers	ü	ü	ü	ü
Hutchinson, 2014 ⁴⁰ Semi-structured interviews using 10-minute questionnaire N = 92	Physicians trained to prescribe buprenorphine in Washington			ü	ü
Huhn, 2017 ³⁹ Survey with closed and open-ended questions N = 558	US physicians (87% with buprenorphine waiver) on the American Society for Addiction Medicine and American Medical Association Listervs	ü	ü	ü	ü
Jones, 2019 ⁴¹ Survey with close-ended questions N = 4,225	US clinicians obtaining an initial buprenorphine waiver or an increase in authorized patient limit				ü
Kermack, 2017 ⁴² Survey with close-ended questions N = 72	New York City public sector buprenorphine prescribers serving Medicaid and uninsured patient populations				ü

Provider-identified Facilitators to OUD Medication Prescribing

Two studies described provider-identified facilitators to prescribing buprenorphine, including a survey by Jones et al of more than 4,200 providers obtaining an initial buprenorphine waiver or applying for an increased prescribing limit. In this survey, the most commonly cited facilitator was increased patient demand for buprenorphine (22%), followed by institutional support (12.5%), increased reimbursement (12.2%), having an integrated system with specialty linkages (9.3%) and an easy referral process (8.3%), and having an addiction medicine mentor (7.7%). In this same study, lack of patient demand was identified as the primary barrier to buprenorphine prescribing. How these 2 findings – lack of demand is a barrier and increased demand is a facilitator – relate to each other and manifest in clinical practice is unclear. For example, it is not known whether providers perceive increased patient demand for buprenorphine because patients are directly asking for it, or whether providers become more aware of population-level OUD treatment needs and therefore perceive that patient demand is higher.

Although it was the least commonly cited facilitator in the study by Jones et al, the concept of having a mentor was similar to findings of another provider survey identifying “being paired with an experienced provider” as a facilitator.³⁹

Table 4. Categories and subcategories of provider-identified barriers and facilitators to use of OUD medications

Category (n)	Barriers Subcategory (n)	Facilitators Subcategory (n)
Stigma (4) ^{7,34,37,39}	Social stigma (4) <i>Example - Fear of becoming community addiction/buprenorphine provider, “not wanting to attract drug users to your practice”</i>	None
	Perception of patients with OUD (2) <i>Example - Patients with addiction are “difficult”; mistrust of patients</i>	
	Stigma specific to buprenorphine use (3) <i>Example - Buprenorphine is substituting one addiction for another</i>	
Treatment experiences and beliefs (3) ^{7,37,39}	Perception of lack of patient need or demand for buprenorphine(2)	Recognizing patient need/demand for buprenorphine (2)
	Lack of interest in prescribing (1)	
Knowledge (5) ^{7,34,37,39,40}	Lack of training on OUD or OUD medications or lack of confidence in ability to treat OUD (3)	Mentoring (2)
	Perception that OUD medications are not effective (2)	Access to education and training (1)
	Perception that patients do not need OUD medications(1)	
	Not knowing how to obtain waiver (1)	
Logistics (7) ^{7,34,37,39-42}	Time constraints (7)	
	Low insurance reimbursement or need for prior authorizations (6)	
	Inability to refer to psychosocial supports, lack of referral/collaboration with addiction specialist (5)	Information about/ability to refer to specialty care (2)
	Concerns about diversion (5)	
	Lack of practice partner and/or institutional support (3)	Presence of peer and institutional support (2)
	Lack of staff resources or space (3)	
	Cumbersome regulatory requirements (3)	

Systems-level Barriers and Facilitators to OUD Medication Use

We did not identify studies of systems-level barriers with applicability to VHA settings. However, many of the logistics barriers and facilitators identified by patients and providers have direct linkages to regulatory requirements, insurance coverage (patient out-of-pocket costs and provider reimbursement), and factors affecting access such as prescribing limits and provider time and space constraints.

KEY QUESTION 2: Do these barriers and facilitators vary by patient characteristics, provider characteristics, or setting?

Patient Characteristics

The 5 patient studies based on surveys and/or interviews did not perform subgroup analysis. Therefore, we are not able to draw conclusions about how patient-identified barriers and facilitators may vary among different patient groups. We identified 3 retrospective studies that evaluated the likelihood of patients receiving buprenorphine – one based on data from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey (which provide nationally representative estimates of ambulatory care provided in the US by non-federally employed physicians) and 2 based on chart review.^{44,45,48} These studies of the predictors of buprenorphine use provide indirect evidence on how barriers and facilitators to OUD medication use may vary among patient groups. See Table 5 for study characteristics and findings.

Studies consistently found that adults in the age range 30-50, white patients, and those who self-pay or are employed are more likely to be prescribed buprenorphine than those who are on the extremes of age and non-white. In addition to these factors, predictors of receiving buprenorphine included living in an area with an increase in buprenorphine prescribers,⁴⁴ living in a metropolitan area,⁴⁴ having a point-of-service insurance plan allowing a choice of providers,⁴⁴ having chronic pain,⁴⁴ and history of incarceration.⁴⁵

In a retrospective chart review of patients in a large non-profit integrated health system serving a substantial portion of the population in Washington and Northern Idaho (Group Health), older age and co-occurring alcohol and non-opioid drug dependency were associated with a higher likelihood of not receiving buprenorphine.⁴⁴ This finding may reflect a clinical practice of not using buprenorphine in more complex patients, although the study does not describe enough detail regarding treatment settings (non-specialized outpatient settings vs OTPs) to know whether patients were more likely to receive buprenorphine treatment if they were referred to higher levels of care (OTPs) or whether some patients were offered treatment but did not start it. Another retrospective study of patients receiving care at a primary care clinic in Washington found that recent polysubstance use and prior experience with OUD medications were predictors of not receiving buprenorphine.⁴⁵ This study specifically evaluated patients during the time between being offered buprenorphine treatment and starting treatment and suggests that more complex patients (indicated by polysubstance use) with a longer history of OUD (indicated by prior buprenorphine use) may face unique barriers to starting buprenorphine.

Our confidence in these findings is low given the small number of studies, observational study designs with potential for unmeasured confounders including the influence of provider attitudes towards buprenorphine treatment, and indirect measures of barriers (characteristics associated with receiving buprenorphine rather than direct measurement of a barrier). Additional studies are needed before concluding that the patient characteristic associated with receiving buprenorphine are representative of similar patterns in VHA settings. Nonetheless, these studies provide insight into patient characteristics that may make certain populations more or less likely to receive OUD medications that would be difficult to evaluate by asking patients directly, and the consistency of the findings suggests an area to focus future research.

Table 5. Predictors of receiving or not receiving buprenorphine

Author, Year Study Design Study Size	Population and setting	Population characteristics	Predictors of not receiving buprenorphine (OR, 95% CI):	Predictors of receiving buprenorphine (OR or aOR, 95% CI):
Lagisetty 2019 ⁴⁸ Survey N=1,369	Adults receiving buprenorphine in outpatient- based settings (not limited to patients with OUD)	Not reported	<ul style="list-style-type: none"> Black compared to white: (0.23, 0.13-0.44) 	<ul style="list-style-type: none"> Age 30-50 compared to <30 (1.68, 1.33-2.12) Self-pay compared to private insurance (12.27, 6.86-21.91)
Murphy, 2014 ⁴⁴ Retrospective Cohort Study N = 4,030	Adults with OUD enrolled at Group Health in Washington	Patient sample on buprenorphine: Male: 58% Age: mean 32 years Race/ethnicity: NR Insurance: 60.7% Commercial, 29.2% Point-of-Service, 6.3% Basic Health, 1.3% Medicaid, 0.3% Medicare, 1.4% Individual/family	<ul style="list-style-type: none"> Older age (0.98, 0.97-0.99) Co-occurring alcohol (0.48, 0.38-0.60) or non-opioid drug dependency (0.02, 0.01-0.03) 	<ul style="list-style-type: none"> Increase in local providers with waiver (1.15, 1.00-1.32) Living in metropolitan area (1.62, 1.17-2.24) Point-of-service insurance plan allowing choice of providers (2.63, 1.17-5.93) Co-morbid drug-induced mental disorder (3.21, 2.61-3.95) Chronic pain (1.82, 1.37-2.40)
Simon, 2017 ⁴⁵ Database (EMR) Review N = 100	Adults with OUD starting buprenorphine treatment at an adult primary care clinic Harborview Medical Center in Washington	Male: 71% Age: mean 39 years Race/ethnicity: 81% non-Hispanic White Insurance: NR	<ul style="list-style-type: none"> Current polysubstance use (0.15, 0.04–0.53) Prior substance use treatment with methadone (0.05, 0.01–0.36), buprenorphine (0.06, 0.01–0.47), or other (0.19, 0.04–0.98) 	<ul style="list-style-type: none"> Age older than 35 years (1.93, 0.60–6.20)* Non-Hispanic White (1.82, 0.44–7.57)* Employed (2.58, 0.76–8.74)* History of incarceration (1.40, 0.38–5.21)*

*Non-significant finding

Provider Characteristics and Setting

Similar to studies of patients, studies of providers did not perform subgroup analyses so we are not able to draw conclusions about how provider-identified barriers and facilitators may vary among different groups. However, findings from 3 studies of provider characteristics associated with buprenorphine prescribing provide indirect evidence on how barriers and facilitators to OUD medication use may vary among providers.

Three general findings emerge from these studies (Table 6). The first is that prescribing behavior is associated with provider-identified barriers and facilitators. For example, 1 large survey of providers found that those reporting resistance from practice partners or staff or lack of institutional support were less likely to prescribe buprenorphine (aOR = 0.14, 95% CI = 0.10–0.21).⁴¹

The second finding is that buprenorphine prescribing and presumed underlying barriers and facilitators may vary by region. For example, one survey of providers applying for a buprenorphine waiver or requesting an increase in patient caps found that practicing in the Midwest compared to the South (aOR = 1.35, 95% CI 1.03–1.78) predicted buprenorphine prescribing.⁴¹ Regional differences were also highlighted in a survey of rurally located physicians on the DEA list, which identified a greater lack of confidence among physicians in the Pacific Census Division versus other regions (22.0% vs 7.7%) and higher rates of concern about attracting drug users to their practice among physicians in the East and West South Census Divisions versus other regions (42.7% vs 27.8%). These regionally specific barriers may inform local intervention efforts.

The third finding, based on a study by Jones et al of providers applying for a buprenorphine waiver or requesting an increase in patient caps, suggests that providers who engaged in buprenorphine training and/or using other best practices in OUD treatment (such as co-prescribing naloxone) are more likely to prescribe buprenorphine.⁴¹ These findings suggest that as providers learn about and implement OUD treatment best practices, rates of buprenorphine may increase.

Notably, all of these surveys were of physicians and no studies evaluated practice patterns among NPs or PAs, who represent an important component of the workforce able to treat patients with OUD.

Table 6. Provider characteristics associated with buprenorphine prescribing and predictors of prescribing

Author, Year Study Design Study Size	Population and setting	Provider characteristics associated with <i>not</i> prescribing buprenorphine or predictors of <i>not</i> prescribing	Provider characteristics associated with prescribing buprenorphine or predictors of prescribing
Andrilla, 2018 ³⁵ Survey with closed and open-ended questions N = 1,221	Rurally located US physicians on the DEA list	<ul style="list-style-type: none"> · Greater lack of confidence among physicians in the Pacific Census Division vs other regions (22.0% vs 7.7%) · Higher rates of concern about attracting drug users to their practice among physicians in the East and West South Census Divisions vs other regions (42.7% vs 27.8%) 	
Hutchinson, 2014 ⁴⁰ Semi- structured interviews using 10- minute questionnaire N = 92	Physicians trained to prescribe buprenorphine in Washington		<ul style="list-style-type: none"> · Family medicine training (compared to other specialty) · Having a partner with a buprenorphine waiver
Jones, 2019 ^{41*} Survey with close-ended questions N = 4,225	US clinicians obtaining an initial buprenorphine waiver or an increase in authorized patient limit	<ul style="list-style-type: none"> · Lack of access to psychological services or behavioral health providers (aOR = 0.34, 95% CI = 0.22–0.51) · Lack of access to addiction specialists for consultation (aOR = 0.18, 95% CI = 0.10–0.33) · Lack of confidence in managing patients with OUD (aOR = 0.17, 95%CI= 0.10–0.28) · Lack of patient demand (aOR = 0.46, 95% CI = 0.33–0.66) · Preferring non-buprenorphine treatment (aOR = 0.26, 95% CI = 0.14–0.49) · Resistance from practice partners or staff or lack of institutional support (aOR = 0.14, 95% CI = 0.10–0.21) · Concerns over DEA intrusion (aOR = 0.51, 95% CI = 0.27–0.96) 	<ul style="list-style-type: none"> · Practicing in the Midwest compared to the South (aOR = 1.35, 95% CI 1.03–1.78) · Interacting with PCSS-MAT* (aOR = 1.32, 95% CI 1.10–1.59) · Being listed on the SAMHSA Provider Locator (aOR = 2.13, 95% CI = 1.79–2.54) · Prescribing or administering extended-release naltrexone (aOR = 1.71, 95% CI = 1.40–2.08) · Co-prescribing or encouraging patients to obtain naloxone (aOR = 1.56, 95% CI = 1.28–1.90) · Citing no barriers compared to insurance reimbursement, prior authorization or other insurance requirements (aOR = 5.35, 95% CI 1.89–15.18)

*Highlighted findings with most applicability to VHA

Abbreviations: PCCSS-MAT= Provider Clinical Support System – MAT



SUMMARY AND DISCUSSION

We synthesized evidence on barriers and facilitators to use of medications to treat OUD among patients and providers. We identified 26 studies published since 2014, of which we prioritized evidence synthesis of 16 studies with the most VHA applicability.

Although most studies met our minimum quality criteria and findings were consistent across studies, we have low confidence in the results and applicability to VHA populations, as there were no studies in VHA settings and some surveys had low response rates (<50%) or did not: 1) provide detailed information on survey responder characteristics versus non-responders, 2) give participants the choice of open-ended responses in case the survey was missing a potential barrier or facilitator, or 3) give participants the option to rank or prioritize which barriers and facilitators they think are most important.

Barriers to Use of OUD Medications

Studies using mostly qualitative methods suggest that patients and providers experience 4 main types of barriers related to using or prescribing OUD medication – stigma, logistical barriers, treatment experience and beliefs, and knowledge gaps. Of these, stigma and logistical barriers are most common. Among patients, stigma was described as a barrier in all studies and primarily manifests as not wanting to be associated with OUD treatment, which may lead to reluctance to attend addiction-specific programs and clinics (compared to primary care or general mental health clinics). As Hewell et al point out, stigma may also be internalized so that patients are not comfortable admitting that opioid use is a problem or that they have sought OUD treatment.³⁸ Among providers, stigma manifests as not wanting to be perceived as having a practice with a high prevalence of patients with OUD and negative beliefs about patients with OUD, including the perception that patients are “difficult” or not trustworthy. Although not captured in our included studies, it is possible that stigma accounts for systems-levels barriers as well as patient- and provider-level barriers. For example, the reluctance of a practice to be known as offering treatment for OUD may underlie lack of leadership or institutional support for providers who are interested in prescribing OUD medications.

In addition to stigma, barriers related to logistics were common. Among patient studies, high out-of-pocket costs were discussed 4/5 studies. The exception was a study of former inmates with OUD in New York City, where OUD medications are covered by Medicaid. Challenges with finding a provider who is accepting new patients and does not have a long wait list were other commonly identified barriers. For providers, concerns about time were the most commonly cited logistical barrier and discussed in all 7 studies. The perception that patients with OUD are more challenging to care for and concerns about time are likely mutually reinforcing barriers. Interestingly, these findings are similar to results of a qualitative study based on interviews with a national sample of administrative and clinical staff at VHA sites in 2006-2007 which found that ill perceptions of opioid-dependent patients and perceived lack of resources were common barriers.¹⁸

Studies based on physician surveys and chart review suggest that certain patient populations are more or less likely to be prescribed buprenorphine and indirectly suggest that barriers vary by patient groups. Specifically, adults in the age range 30-50, white patients, and those who self-pay or are employed are more likely to be prescribed buprenorphine than those who are on the

extremes of age and non-white. Patients with non-opioid substance use, including alcohol use, were less likely to receive buprenorphine or less likely to start it once it was offered. While some of these differences likely reflect a clinical assessment that use of buprenorphine would be potentially unsafe in patients using other substances, it is also likely that practice trends and norms for who is offered buprenorphine vary by provider, practice setting, and possibly geographic region. As no studies were conducted in VHA populations, additional research is needed to evaluate patient characteristics related to buprenorphine use within VHA.

Facilitators to Use of OUD Medications

Support from peers, family, and treatment providers was the most common facilitator for patients. This support may help to reduce the social stigma or internalized stigma associated with OUD and seeking treatment. Among providers, limited information regarding facilitators of OUD prescribing are available and one factor did not stand out as being most important. Provider-identified facilitators include increased patient demand for OUD medication, mentoring and linkages to addiction medication specialists, receipt of OUD and buprenorphine training, ability to refer patients to psychosocial support services, and institutional support.

VHA Strengths and Opportunities for Intervention

The barriers discussed above can overlap and mutually reinforce each other, but given that, it is also plausible that efforts to reduce one barrier may lead to improvements in others. For example, addressing a knowledge gap by providing buprenorphine waiver training also addresses a logistical gap. Similarly, reinforcing with providers that office-based treatment with buprenorphine is an option for first-line treatment and does not require psychosocial supports other than those provided in the context of medication management may reduce providers' concerns about lack of access to mental health services. A 2019 consensus report from the National Academies of Sciences, Engineering, and Medicine states, "Lack of availability or utilization of behavioral interventions is not a sufficient justification to withhold medications to treat opioid use disorder."³ As another example, if providers are aware that many patients with OUD are using illicit buprenorphine to maintain abstinence from other opioids or treat withdrawal and that prior experience with illicit buprenorphine may increase patients' interest in seeking treatment, providers may have fewer concerns related to diversion from a harm-reduction perspective.

VHA may be well-structured to intervene to reduce knowledge gaps, as multiple educational resources are available to VHA providers including team-based trainings, online and video-based training, and support from clinical pharmacy and academic detailing. Likewise, because VHA is an integrated care system, providers working in VHA settings may not experience the same barriers related to lack of access to mental health and addiction medicine specialists as providers working in other healthcare systems or clinic settings. It is possible that connections with those who have more experience with OUD treatment may reduce concerns about time and effort to prescribe OUD medications. A recent perspective piece on "myths" associated with buprenorphine use addressed this idea with a statement about the "reality" of prescribing: "Treating patients with buprenorphine can be uniquely rewarding. In-office inductions and intensive behavioral therapy are not required for effective treatment."⁵⁰

Regulatory barriers, specifically the requirement for providers to complete buprenorphine-specific training and obtain a SAMHSA waiver to prescribe it, are common to all US providers,

and discussing efforts to change federal regulations is beyond the scope of this review. Nonetheless, VHA facilities may be able to reduce internal barriers to obtaining a waiver, such as making training available and free to providers during the workday and reducing VHA-specific administrative barriers such as the need to update hospital and clinic credentials prior to prescribing buprenorphine. While the waiver requirement is a commonly cited barrier, the finding that many providers with waivers are not prescribing at capacity reflects the need to reduce barriers to not just obtaining a buprenorphine waiver, but also to starting to prescribe buprenorphine and take on a higher patient load.

Common facilitators of OUD medication use for both patients and providers include support from peers. This theme highlights the potential for community – peer supports for patients and communities of practice for providers – to overcome some of the perceived barriers to OUD medication use. Notably, in a study of 108 family physicians, only 10% of whom prescribed buprenorphine, nearly three-quarters (73%) reported that they felt a personal responsibility to treat opioid addiction.³⁷ Capitalizing on a sense of responsibility to treat OUD among providers on the frontlines of the opioid crisis, paired with peer and institutional supports, has the potential to expand the number of providers who prescribing OUD medications and make it a routine part of their practice.

LIMITATIONS

Primary Study Limitations

There are several important limitations of the primary studies included in this review. Most importantly, although most studies met our quality criteria (*ie*, minimum amount of information to have confidence in the results) these studies were not ideally designed to answer our study questions. An ideal study would have been conducted in the most directly applicable population (*ie*, Veterans seeking care or VA providers or administrators in office-based settings); would have provided clear descriptions of both responders and non-responders (*ie*, age, race, diagnoses for patients or practice areas for providers, *etc*) to ensure that responders were representative; would have given participants the choice of open-ended responses in case the survey was missing a potential barrier or facilitator; and would have given participants the option to rank or prioritize which barriers and facilitators they think are most important.

Of our included studies, none assessed Veterans, VA providers, or VA administrators; therefore, we only have indirect evidence about what are likely barriers/facilitators within VA. Additionally, patient studies included those who had a history or were currently receiving OUD treatment and/or participating in syringe exchange programs.^{32,36,38,43} Barriers and facilitators to use of OUD medications may be different for patients who are not linked into medical care or community services. Most studies were also of patients with a history of injection drug use, rather than prescription drug use, and OUD medication barriers and facilitators may be different in these 2 patient populations.

Several survey studies also had low (3-46%)^{37,39,41,42,46} or unclear^{32,38} response rates. Low response rates in studies that used a survey design may lead to potential nonresponse bias, in which those who respond may differ in meaningful ways from those who do not respond. It is difficult to tell how low response rates could affect our review's conclusions, as we do not know how the experiences may have differed – whether they may have had more, fewer, or different types of barriers. Finally, several studies provided limited information on the patients and

settings being assessed, making it difficult to tell how similar they are to VA patients and settings.

Rapid Review Limitations

In addition to primary study limitations, there were limitations in our rapid review methodology. First, our use of single reviewer article inclusion, quality assessment, and data abstraction with second reviewer checking instead of dual independent review may have resulted in missing eligible studies or study data. However, given that many of these studies discussed the same barriers/facilitators, we likely captured the major categories. Second, our use of a streamlined approach to assessing study quality means that we could not definitively determine which studies were the highest quality studies. However, given our studies reported similar themes, identifying the highest quality studies would have been unlikely to change our conclusions. Third, limiting our review to studies published in 2014 or later may have missed important studies, although given the amount of recent federal and VA-specific policies and programs addressing OUD medication prescribing barriers (such as increasing the number of OUD medications that providers can prescribe), older literature is likely less relevant. Fourth, because heterogeneity in study populations, settings, and study designs limited our ability to synthesize which barriers and/or facilitators might be the most impactful, we elected to tally how many studies addressed each barriers/facilitator as a measure of how prevalent that issue is. However, other reviewers may take a different approach and come to different conclusions about what the biggest barriers/facilitators are. Fifth, given our limited timeline, we could not address interventions to reduce barriers or retain patients in treatment, which are important research questions. The Agency for Healthcare Research and Quality is currently conducting an evidence review on retention in OUD medication treatment, which will complement ongoing and future studies on OUD medication initiation.⁵¹

GAPS AND FUTURE RESEARCH

This review highlights several important gaps in evidence on barriers/facilitators to increase use of OUD medications. Some of these gaps are specific to the VHA setting, and others are general evidence gaps.

While we do not expect that future studies in the VHA setting would uncover additional barriers and facilitators that do not relate to one of the themes highlighted in this report – stigma, logistics, knowledge gaps, and beliefs and attitudes related to OUD – studies in VHA populations would increase certainty regarding which barrier and facilitator subthemes are most significant for VHA populations and relevant to VA systems of care. For example, future VHA research may find that patients with OUD have access to psychosocial treatments but decline medication due to reasons related to stigma, or are not being referred to providers who can prescribe OUD medication due to reasons related to provider access. Another example would be finding that ED and inpatient providers who could start patients on OUD medications are not doing so due to lack of available outpatient providers to continue treatment. Comparing practices at VA facilities with high rates of OUD medication use to those with low rates of use could also help VHA replicate successful models.

Also, we did not identify studies published since 2014 that have examined how OUD medication utilization varies by patient co-morbidities. A recent VA study based on chart review found that Veterans engaged in post-traumatic stress disorder (PTSD) treatment had higher retention in

buprenorphine treatment.⁵² Understanding how co-morbidities that are prevalent among Veterans, such as PTSD, are barriers and facilitators to starting OUD medications would also fill an important evidence gap and help direct future VHA interventions to increase OUD medication use.

Because VHA is not subject to barriers imposed by private health insurance and patients receiving VA care have low or no copays, VHA is also an ideal setting for further research into population-level disparities in OUD medication utilization, including those related to age and race/ethnicity. Whether or not those same disparities exist in VHA populations could impact the direction of future research and interventions within VA and non-VA settings. Additionally, comparisons of OUD medication use among different VHA facilities could help VA clinical leadership refine criteria for offering OUD medications. For example, finding that Veterans in one VA facility or region are receiving buprenorphine despite perceived barriers such as older age or homelessness could help broaden the population of patients who are offered buprenorphine in other facilities or regions. VHA also has case management resources and capacity for telehealth visits. Studies of OUD medication uptake in the VHA setting if transportation barriers are reduced or removed would also be informative.

To summarize, findings of this review highlight evidence gaps specific to VHA settings in the following areas:

- Specific rates of OUD medication use among VHA populations and how utilization varies by region, age, race/ethnicity, unstable housing or current homelessness, rural versus urban location, and co-morbidities including PTSD
- Barriers and facilitators specific to VHA systems of care, including transitions of care between the ED and inpatient settings and outpatient settings
- VA practice settings in which OUD medication use is highest and lowest (*eg*, regional differences or provider disciplines/settings such as primary care compared to general mental health compared to outpatient substance use treatment programs)
- Which commonly cited OUD medication barriers including stigma and logistics (*eg*, provider time) are having the most impact on use in VHA settings, and which facilitators are having the most impact

Additionally, we identified non-VHA-specific gaps in the following areas:

- Barriers and facilitators to use of extended-release naltrexone, which was only discussed in 1 provider study and no patient studies
- Which barriers and facilitators have the most impact on OUD medication use relative to other barriers and facilitators

Ongoing VA Interventions and Research on Utilization of OUD Medications

Nationally, the VA's Partnered Evaluation Initiative has begun implementing the SCOUTT (Stepped Care for Opioid Use Disorder Train the Trainer) initiative to help train interdisciplinary teams to deliver a stepped model of OUD treatment at his/her preferred point of care.⁵³ This

stepped care will consist of: 1) Level 0: self-management only through mutual help groups and skills application; 2) Level 1: addiction-focused medical management in primary care, pain clinic, or mental health; 3) Level 2: SUD specialty care including outpatient, intensive outpatient, OTPs, and residential. In addition to implementation of the stepped care model, this initiative will develop strategies and products that can be used across VISNs; provide facilitation, training, and mentorship to pilot team members; and will conduct program evaluation and process improvement to streamline SCOUTT. This intervention may address provider barriers of: lack of confidence treating OUD; lack of education on OUD/addiction; lack of access to specialty care; and time needed to manage OUD patients.

Regionally, the Minneapolis VA Health Care System is currently evaluating the effect of an intensive external facilitation strategy to promote the use of buprenorphine and naltrexone at 8 VA sites with low rates of OUD medication use.⁵⁴ This external facilitation consists of 1) a review of site-specific barriers and potential implementation strategies, 2) instruction on the use of available dashboards to track prescription rates, and 3) education on OUD medication including required training to obtain buprenorphine waiver. The VA Connecticut Healthcare System is taking an alternative approach towards increasing use of OUD medications by expanding the use of clinical video teleconferencing. This site plans to deliver OUD care including medications to Veterans served by rural CBOCs and to develop a standard set of materials to assist other VA telemedicine centers in delivering this type of care.⁵⁵ These interventions may address provider barriers of: lack of confidence treating OUD; lack of education on OUD/addiction; and concerns about diversion. The telemedicine intervention may additionally address lack of access/wait times to see a provider.

Ongoing Non-VA Research on Utilization of OUD Medications

Other approaches towards overcoming barriers to OUD medication treatment are also being explored outside the VA. For example, a single-armed study at Duke University is examining the feasibility of transferring care of OUD patient receiving buprenorphine/naloxone from a physician to a pharmacist after initial induction.⁵⁶ This intervention could address barriers of lack of time/staffing to manage OUD patients, and administrative barriers including lack of office space. Another example is the NIH HEAL Initiative which aims to develop an office-based buprenorphine treatment module for primary care, which includes an assessment of barriers to implementation of buprenorphine treatment within participating clinics as well as methods for overcoming these barriers.⁵⁷ Several other models of systems-based care link primary care providers with addiction medicine specialists for education and consultation or use a “hub-and-spoke” model in which patients are started on OUD medications by specialists and then transferred to community providers for ongoing care (currently used in Vermont).¹¹

Other Considerations for Future Research

Future research aimed at reducing barriers to OUD treatment with medication could also focus on reducing stigma. Evidence on reducing stigma related to HIV care may provide a model for reducing stigma associated with OUD, specifically the findings that multicomponent interventions including role-playing and spending time with people living with HIV helped improve provider knowledge and reduce negative attitudes towards this population.¹⁴

In addition, because providers commonly indicated that they did not prescribe buprenorphine due to concerns about diversion, educating providers about the reasons patients use illicit

buprenorphine (mostly abstinence from other opioids and to prevent withdrawal) may be useful in reducing this barrier. Future research could also examine the hypothesis that an increase access to prescribed buprenorphine would reduce illicit buprenorphine use.

CONCLUSIONS

Our review of 16 non-VHA studies published since 2014 that mostly discussed buprenorphine found that the 4 most commonly cited categories of patient-identified and provider-identified barriers to use of OUD medications were stigma, logistical barriers, treatment experiences and beliefs, and knowledge gaps. Of these, social stigma associated with OUD and high out-of-pocket costs were the most commonly described patient-identified barriers. Among providers, logistical concerns, particularly time, were the most commonly cited barriers. Support from peers, family, and treatment providers was the most common facilitator for patients. Among providers, limited information regarding facilitators of OUD prescribing are available and one factor did not stand out as being most important. Priorities for future research include exploration of systems-level barriers with applicability to VHA settings, evaluation of barriers/facilitations to extended-release naltrexone, determining whether barriers and facilitators vary by patient or provider characteristics or setting, and identification of which barriers and facilitators are most important.

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In designing the study questions and methodology at the outset of this report, the ESP consulted several technical and content experts. Broad expertise and perspectives were sought. Divergent and conflicting opinions are common and perceived as healthy scientific discourse that results in a thoughtful, relevant systematic review. Therefore, in the end, study questions, design, methodologic approaches, and/or conclusions do not necessarily represent the views of individual technical and content experts.

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Operational Partners

Operational partners are system-level stakeholders who have requested the report to inform decision-making. They recommend Technical Expert Panel (TEP) participants; assure VA relevance; help develop and approve final project scope and timeframe for completion; provide feedback on draft report; and provide consultation on strategies for dissemination of the report to field and relevant groups.

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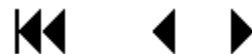
VA Interprofessional Advanced Fellowship in Addiction Treatment

Peer Reviewers

The Coordinating Center sought input from external peer reviewers to review the draft report and provide feedback on the objectives, scope, methods used, perception of bias, and omitted evidence. Peer reviewers must disclose any relevant financial or non-financial conflicts of interest. Because of their unique clinical or content expertise, individuals with potential conflicts may be retained. The Coordinating Center and the ESP Center work to balance, manage, or mitigate any potential nonfinancial conflicts of interest identified.

REFERENCES

1. Lin HC, Wang Z, Simoni-Wastila L, Boyd C, Buu A. Interstate data sharing of prescription drug monitoring programs and associated opioid prescriptions among patients with non-cancer chronic pain. *Preventive Medicine*. 2019;118:59-65.
2. NIDA. *Principles of drug addiction treatment: A research-based guide*. Third Edition 2018.
3. National Academies of Sciences E, Medicine. *Medications for opioid use disorder save lives*. National Academies Press; 2019.
4. Department of Veterans Affairs. VA clinical practice guideline for opioid therapy for chronic pain. 2017;
<https://www.healthquality.va.gov/guidelines/Pain/cot/VADoDOTCPG022717.pdf>.
5. Welsh C, Valadez-Meltzer A. Buprenorphine: A (relatively) new treatment for opioid dependence. *Psychiatry (Edgmont)*. 2005;2(12):29.
6. Wyse JJ, Gordon AJ, Dobscha SK, et al. Medications for opioid use disorder in the department of veterans affairs (VA) health care system: Historical perspective, lessons learned, and next steps. *Substance abuse*. 2018;39(2):139-144.
7. Andraka-Christou B, Capone MJ. A qualitative study comparing physician-reported barriers to treating addiction using buprenorphine and extended-release naltrexone in u.S. Office-based practices. *International Journal of Drug Policy*. 2018;54:9-17.
8. Krupitsky E, Nunes EV, Ling W, Illeperuma A, Gastfriend DR, Silverman BL. Injectable extended-release naltrexone for opioid dependence: A double-blind, placebo-controlled, multicentre randomised trial. *The Lancet*. 2011;377(9776):1506-1513.
9. Center for Substance Abuse Treatment. Medication-assisted treatment for opioid addiction in opioid treatment programs. 2005.
10. American Society of Addiction Medicine. Level of care certification.
<https://www.asam.org/resources/level-of-care-certification>. Accessed July, 2019.
11. Korthuis PT, McCarty D, Weimer M, et al. Primary care-based models for the treatment of opioid use disorder: A scoping review. *Annals of internal medicine*. 2017;166(4):268-278.
12. Korthuis P, Gregg J, Rogers WE, McCarty D, Nicolaidis C, Boverman J. Patients' reasons for choosing office-based buprenorphine: Preference for patient-centered care. *Journal of Addiction Medicine*. 2010;4(4):204-210.
13. Moran G, Noftinger R, Noda J. Implementing medication-assisted treatment for opioid use disorder in rural primary care: Environmental scan, volume 1. (*Prepared by Westsat under Contract Number HHSP 233201500026I, Task Order No HHSP23337003T*) In Rockville, MD: Agency for Healthcare Research and Quality. 2017.
14. Mak WW, Mo PK, Ma GY, Lam MY. Meta-analysis and systematic review of studies on the effectiveness of hiv stigma reduction programs. *Social science & medicine*. 2017;188:30-40.
15. The Pew Charitable Trusts. Nurse licensing laws block treatment for opioid addiction [press release]. 2017.
16. Dowell D, Haegerich TM, Chou R. Cdc guideline for prescribing opioids for chronic pain - united states, 2016. *MMWR Recomm Rep*. 2016;65(1):1-49.
17. Kampman K, Jarvis M. American society of addiction medicine (asam) national practice guideline for the use of medications in the treatment of addiction involving opioid use. *Journal of addiction medicine*. 2015;9(5):358-367.



18. Gordon AJ, Kavanagh G, Krumm M, et al. Facilitators and barriers in implementing buprenorphine in the veterans health administration. *Psychol Addict Behav.* 2011;25(2):215-224.
19. Centers for Disease Control and Prevention. Opioid overdose: Understanding the epidemic. <https://www.cdc.gov/drugoverdose/epidemic/index.html>. Accessed July, 2019.
20. Hannes K. Supplementary guidance for inclusion of qualitative research in cochrane systematic reviews of interventions. 2011.
21. The Joanna Briggs Institute. Critical appraisal tools. 2017; . https://joannabriggs.org/critical_appraisal_tools. Accessed July, 2019.
22. Berkman ND, Lohr KN, Ansari M, et al. *Grading the strength of a body of evidence when assessing health care interventions for the effective health care program of the agency for healthcare research and quality: An update methods guide for effectiveness and comparative effectiveness reviews.* Rockville, MD;2013.
23. Burns RM, Pacula RL, Bauhoff S, et al. Policies related to opioid agonist therapy for opioid use disorders: The evolution of state policies from 2004 to 2013. *Substance Abuse.* 2016;37(1):63-69.
24. Huskamp HA, Riedel LE, Barry CL, Busch AB. Coverage of medications that treat opioid use disorder and opioids for pain management in marketplace plans, 2017. *Medical Care.* 2018;56(6):505-509.
25. Molfenter T, Fitzgerald M, Jacobson N, McCarty D, Quanbeck A, Zehner M. Barriers to buprenorphine expansion in ohio: A time-elapsed qualitative study. *J Psychoactive Drugs.* 2019.
26. Molfenter T, Sherbeck C, Zehner M, et al. Implementing buprenorphine in addiction treatment: Payer and provider perspectives in ohio. *Substance Abuse Treatment, Prevention, & Policy.* 2015;10:13.
27. Reif S, Creedon TB, Horgan CM, Stewart MT, Garnick DW. Commercial health plan coverage of selected treatments for opioid use disorders from 2003 to 2014. *Journal of Psychoactive Drugs.* 2017;49(2):102-110.
28. Parran TV, Muller JZ, Chernyak E, et al. Access to and payment for office-based buprenorphine treatment in oh. *Substance Abuse: Research and Treatment.* 2017;11(no pagination).
29. Wen H, Hockenberry JM, Borders TF, Druss BG. Impact of medicaid expansion on medicaid-covered utilization of buprenorphine for opioid use disorder treatment. *Medical Care.* 2017;55(4):336-341.
30. Aletraris L, Edmond MB, Paino M, Fields D, Roman PM. Counselor training and attitudes toward pharmacotherapies for opioid use disorder. *Substance Abuse.* 2016;37(1):47-53.
31. Knudsen HK, Brown R, Jacobson N, et al. Pharmacotherapy, resource needs, and physician recruitment practices in substance use disorder treatment programs. *Journal of addiction medicine.* 2019;13(1):28-34.
32. Fox AD, Chamberlain A, Sohler NL, Frost T, Cunningham CO. Illicit buprenorphine use, interest in and access to buprenorphine treatment among syringe exchange participants. *Journal of Substance Abuse Treatment.* 2015;48(1):112-116.
33. Streisel S. Intent to refer: Exploring bias toward specific medication-assisted treatments by community corrections employees. *Substance Use & Misuse.* 2018;53(14):2421-2430.
34. Andrilla CHA, Coulthard C, Larson EH. Barriers rural physicians face prescribing buprenorphine for opioid use disorder. *Annals of Family Medicine.* 2017;15(4):359-362.

35. Andrilla CHA, Coulthard C, Patterson DG. Prescribing practices of rural physicians waived to prescribe buprenorphine. *Am J of Prev Med.* 2018;54(6 Supplement 3):S208-S214.
36. Cicero TJ, Ellis MS, Chilcoat HD. Understanding the use of diverted buprenorphine. *Drug & Alcohol Dependence.* 2018;193:117-123.
37. DeFlavio JR, Rolin SA, Nordstrom BR, Kazal LA, Jr. Analysis of barriers to adoption of buprenorphine maintenance therapy by family physicians. *Rural & Remote Health.* 2015;15:3019.
38. Hewell VM, Vasquez AR, Rivkin ID. Systemic and individual factors in the buprenorphine treatment-seeking process: A qualitative study. *Substance Abuse Treatment, Prevention, & Policy.* 2017;12(1):3.
39. Huhn AS, Dunn KE. Why aren't physicians prescribing more buprenorphine? *Journal of Substance Abuse Treatment.* 2017;78:1-7.
40. Hutchinson E, Catlin M, Andrilla C, Baldwin L-M, Rosenblatt RA. Barriers to primary care physicians prescribing buprenorphine. *Annals of Family Medicine.* 2014;12(2):128-133.
41. Jones CM, McCance-Katz EF. Characteristics and prescribing practices of clinicians recently waived to prescribe buprenorphine for the treatment of opioid use disorder. *Addiction.* 2019;114(3):471-482.
42. Kermack A, Flannery M, Tofighi B, McNeely J, Lee JD. Buprenorphine prescribing practice trends and attitudes among new york providers. *Journal of Substance Abuse Treatment.* 2017;74:1-6.
43. Monico LB. A systems perspective of buprenorphine patients' experiences in an opioid treatment program. *Dissertation Abstracts International Section A: Humanities and Social Sciences.* 2017;78(1-A(E)):No Pagination Specified.
44. Murphy SM, Fishman PA, McPherson S, Dyck DG, Roll JR. Determinants of buprenorphine treatment for opioid dependence. *Journal of Substance Abuse Treatment.* 2014;46(3):315-319.
45. Simon CB, Tsui JI, Merrill JO, Adwell A, Tamru E, Klein JW. Linking patients with buprenorphine treatment in primary care: Predictors of engagement. *Drug & Alcohol Dependence.* 2017;181:58-62.
46. Suzuki J, Connery HS, Ellison TV, Renner JA. Preliminary survey of office-based opioid treatment practices and attitudes among psychiatrists never receiving buprenorphine training to those who received training during residency. *American Journal on Addictions.* 2014;23(6):618-622.
47. Fox AD, Maradiaga J, Weiss L, Sanchez J, Starrels JL, Cunningham CO. Release from incarceration, relapse to opioid use and the potential for buprenorphine maintenance treatment: A qualitative study of the perceptions of former inmates with opioid use disorder. *Addiction Science & Clinical Practice.* 2015;10:2.
48. Lagisetty P, Ross R, Bohnert A, Clay M, Maust D. Buprenorphine treatment divide by race/ethnicity and payment. *JAMA Psychiatry.* 2019.
49. McDonald KM, Rodriguez HP, Shortell SM. Organizational influences on time pressure stressors and potential patient consequences in primary care. *Medical care.* 2018;56(10):822-830.
50. Wakeman SE, Rich JD. Barriers to medications for addiction treatment: How stigma kills. *Substance Use & Misuse.* 2018;53(2):330-333.

51. Agency for Healthcare Research and Quality, Effective Health Care Program. Protocol: A rapid evidence review of retention strategies for medications for addiction treatment (MAT) in adults with opioid use disorder. 2019; <https://effectivehealthcare.ahrq.gov/topics/mat-retention-strategies-oud/rapid-protocol>.
52. Meshberg-Cohen S, Black AC, DeViva JC, Petrakis IL, Rosen MI. Trauma treatment for veterans in buprenorphine maintenance treatment for opioid use disorder. *Addictive behaviors*. 2019;89:29-34.
53. Department of Veterans Affairs, Quality Enhancement Research Initiative. Facilitation of the stepped-care model and medication treatment for opioid use disorder. https://www.queri.research.va.gov/national_partnered_evaluations/oud.cfm. Accessed July, 2019.
54. Hagedorn H, Kenny M, Gordon AJ, et al. Advancing pharmacological treatments for opioid use disorder (adapt-oud): Protocol for testing a novel strategy to improve implementation of medication-assisted treatment for veterans with opioid use disorders in low-performing facilities. *Addiction science & clinical practice*. 2018;13(1):25.
55. NCT03566459. MAT for opioid use disorders. <https://clinicaltrials.gov/ct2/show/NCT03566459>. Accessed July, 2019.
56. NCT03248947. Buprenorphine physician-pharmacist collaboration in the management of patients with opioid use disorder. <https://clinicaltrials.gov/ct2/show/NCT03248947>. Accessed July, 2019.
57. de la Cruz A, Trivedi M. Innovatively increasing pcp prescribing of buprenorphine: Measurement based care and integrated electronic solution (NIH heal initiative), CTN protocol id: CTN-0090. *National Institute on Drug Abuse*. 2019.