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Barriers to Use of Pharmacotherapy for Addiction Disorders and How to Overcome Them

Elizabeth M. Oliva · Natalya C. Maisel · Adam J. Gordon · Alex H. S. Harris

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Abstract Substance use disorders are highly prevalent, debilitating conditions for which effective pharmacotherapies exist with a broad evidence base, yet pharmacotherapy for the treatment of addiction disorders is underutilized. The goals of this review are to describe the barriers that may contribute to poor adoption and utilization of pharmacotherapy for alcohol and opioid dependence at the system, provider, and patient level and to discuss ways to overcome those barriers. Multifaceted efforts directed at all three levels may be needed to speed pharmacotherapy adoption. More research is needed to help us better understand barriers from patients' perspectives. Strategies to promote adoption of pharmacotherapy for addiction disorders should be modified to fit the needs of the practice, system, and individual patients. Pharmacotherapy is a valuable tool in the clinical armamentarium of addiction treatment; thus, overcoming barriers to implementation may improve clinical and social outcomes.

Keywords Pharmacotherapy · Pharmacologic interventions · Addiction · Substance dependence · Medication-assisted treatment · Substance abuse treatment · Alcohol · Opioids · Barriers · Facilitators

E. M. Oliva (✉) · N. C. Maisel · A. H. S. Harris
Center for Health Care Evaluation,
VA Palo Alto Health Care System,
795 Willow Road (Mailcode 152 MPD),
Menlo Park, CA 94025, USA
e-mail: elizabeth.oliva@va.gov

N. C. Maisel
e-mail: natalya.maisel@va.gov

A. H. S. Harris
e-mail: alexander.harris2@va.gov

A. J. Gordon
Center for Health Equity Research and Promotion,
VA Pittsburgh Healthcare System,
7180 Highland Drive (Mailcode 151-C-H),
Pittsburgh, PA 15206, USA
e-mail: adam.gordon@va.gov

A. J. Gordon
Mental Health Research, Education, and Clinical Center,
VA Pittsburgh Healthcare System,
Pittsburgh, PA, USA

A. J. Gordon
Center for Research on Health Care, University of Pittsburgh,
Pittsburgh, USA

Introduction

Substance use disorders are highly prevalent, debilitating psychiatric conditions that have deleterious effects on individuals, their families, and society. In 2009, approximately 22.5 million Americans older than 12 years of age (8.9% of the population) had a substance use disorder (abuse or dependence), with 5% of Americans meeting criteria for alcohol or illicit drug dependence [1]. In the United States, the total economic cost attributable to drugs is estimated to be 181 billion dollars [2]; the cost attributable to alcohol is estimated to be 234 billion dollars, or 2.7% of the gross domestic product in 2007 [3].

Many efficacious and effective psychosocial interventions for alcohol and drug dependence exist, including brief interventions, individual and group-based therapies, and self-help processes. However, pharmacotherapy, despite a strong evidence base and its potential to augment psychotherapy or provide treatment to individuals who refuse psychotherapy, tends to be underutilized [4–7, 8•]. For instance, Harris et al. [4] found that only 2.8% of patients treated in the Veterans Health Administration who were diagnosed with an alcohol

use disorder received pharmacotherapy. Moreover, in 2007, among substance abuse treatment facilities in the United States, only 11% offered methadone, 14% offered buprenorphine, and 15% offered naltrexone [7]. This review describes approved medications for alcohol and opioid dependence, their barriers to adoption and utilization, and ways to overcome these barriers.

Pharmacotherapy for Alcohol and Opioid Dependence

The US Food and Drug Administration has approved four medications for alcohol dependence—acamprosate, oral naltrexone, long-acting injectable naltrexone, and disulfiram—and three medications for opioid dependence—methadone, buprenorphine (two formulations: sublingual buprenorphine and buprenorphine/naloxone), and long-acting injectable naltrexone. The medications with the highest consensus ratings and recommendations based on their strong evidence base are naltrexone, acamprosate, methadone, and buprenorphine [9–12].

During the past 20 years, investigators have conducted more than 60 randomized, placebo-controlled trials testing the efficacy and safety of acamprosate and naltrexone, and several meta-analyses have synthesized these findings [13–15]. Overall, both medications have shown small to moderate but significant effects in improving drinking outcomes compared with placebo. Meta-analyses suggest that naltrexone shows mixed effects in promoting abstinence but is particularly effective at reducing relapse to heavy drinking (often defined as >5 drinks/day) [16–18]. Acamprosate often demonstrates efficacy in maintaining abstinence but less beneficial effects on relapse to heavy drinking [16, 19, 20]. These findings suggest that naltrexone may be more effective among patients who are still drinking (eg, to reduce heavy drinking), while acamprosate may be more effective among patients who are already abstinent (e.g., to help maintain abstinence). Interpreting results from previous studies suggests that the number needed to treat to achieve good clinical outcomes for naltrexone and acamprosate is generally between 7 and 10 [16, 20, 21].

Meta-analyses have also synthesized randomized trials of methadone and buprenorphine for opioid dependence [22, 23]. Both medications are considered the "gold standard" treatment for opioid dependence, yet the regulatory requirements associated with provision of methadone represent a major barrier for many programs. Since the Drug Addiction Treatment Act of 2000 (DATA 2000) was enacted in 2002, buprenorphine has been available to treat opioid dependence in specialty addiction treatment programs and office-based care, settings in which most medical care is provided in the United States, promising to reduce this barrier. In clinical trials and real world settings, buprenorphine has been shown to be effective in treating patients with opioid dependence and comparable to methadone in effectiveness [23, 24] and cost-effectiveness [25–27]. Furthermore, buprenorphine has the potential to increase access to opioid agonist treatment for patients who are unwilling or unable to access traditional methadone clinics [28, 29].

Despite evidence of efficacy and consensus that these medications should be available and considered for all patients, rates of utilization are low and variable. To better understand barriers that may contribute to these low rates, we review the recent literature and describe system-, provider-, and patient-level barriers and ways to overcome them.

System-level Barriers and Ways to Overcome Them

Several interrelated system-level barriers have impeded utilization of pharmacotherapy for alcohol and opioid dependence, including government and insurance policies, program characteristics (e.g., treatment philosophy), lack of pharmaceutical industry support, and logistical issues (e.g., lack of access to prescribing physicians). Pharmacotherapy for opioid dependence has been especially affected by these system-level barriers because of the additional federal requirements and regulations involved in provision of care.

Government and Insurance Policies

Government and insurance policies that impact the availability and cost of services are among the most frequently reported barriers to pharmacotherapy utilization for alcohol and opioid dependence [30–37, 38•]. Barriers include the requirement to attend an 8-hour training session in order to prescribe office-based treatment for opioid dependence with buprenorphine, third party payer reimbursement obstacles, lack of parity in insurance coverage, complex rules regarding Medicaid coverage of pharmacotherapy, and limits and restrictions on treatment coverage (including pharmacy benefits) [32, 36, 38•, 39]. For instance, insurance plans may exclude medications for alcohol or opioid dependence from their formularies or require prior authorization. This can delay care, result in increased administrative effort, and put patients at risk of adverse outcomes [38•]. Moreover, insurance policies may limit care to several months in duration and require accessory services (e.g., nonpharmacologic therapy, dedicated psychiatric care, mandated urine drug screens at each visit, attendance at 12-step programs) that go beyond the minimum federal requirements. These policy barriers particularly impact patients served by programs reliant on public funding [30, 40, 41]. For example, Becker et al. [30] found that individuals with an opioid use disorder tended to

be uninsured or reliant on public funding mechanisms (e.g., Medicaid).

Top-down institutional support would help reduce barriers to pharmacotherapy implementation [33, 42, 43]. Health insurance plans should expand benefit coverage to include medications for substance use disorders and structure coverage as they would for other chronic diseases (e.g., insurance plans should not increase copayments if treatment is extended [30, 38•, 44]). State governments could assist in these efforts by supporting Medicaid policies that cover medications for substance use disorders [31, 43, 45]. Insurance reimbursement should also take into account the administrative and clinical resources needed to effectively implement pharmacotherapy (e.g., office and nursing support [38•, 43]). Given the complexity of insurance benefit coverage, clarifying coverage at the outset of treatment would be helpful for programs, providers, and patients [46].

Program Characteristics

Program characteristics (e.g., treatment philosophy) and practices (e.g., suboptimal dosing) often act as to barriers to pharmacotherapy utilization and effectiveness. Programs that emphasized a 12-step model or that viewed pharmacotherapy as conflicting with their treatment philosophy were less likely to provide pharmacotherapy [8•, 35, 37]. Opioid substitution treatment programs that provided suboptimal dose levels, did not include patient participation in decision-making about medication dose, were punitive in response to illicit drug use, and did not follow practice guidelines had poorer treatment retention and outcomes [42, 47]. Treatment philosophy also affects the way in which treatment is offered (e.g., separate clinics) and can lead to stigmatization, poor access, and poor coordination of care [34, 36, 42, 48–52]. Offering pharmacotherapy in separate treatment settings may also result in fewer physician role models across medical specialties with expertise in addiction medicine [38•].

Various ways to overcome these barriers have been suggested. Promoting positive perceptions of pharmacotherapy may be especially helpful [50]. This could involve garnering government support for public information campaigns to disseminate knowledge about pharmacotherapy [8•], having role models or leaders who champion pharmacotherapy to help change the culture of a facility [53], routinely offering in-house pharmacotherapy as a standard component of care [54], and promoting a harm-reduction approach to patient care with less emphasis on a 12-step model of care [8•, 53]. Hiring addiction treatment clinical staff with graduate degrees and developing linkages between addiction treatment researchers and treatment staff also may help speed adoption of pharmacotherapy [8•, 54, 55].

Lack of Pharmaceutical Industry Support

Compared with other psychiatric medications, there is a notable lack of pharmaceutical industry support for pharmacotherapy for alcohol and opioid dependence. Mark et al. [6] suggested that despite the large potential market for pharmacotherapy for alcohol and opioid dependence, sales may not be large enough to stimulate pharmaceutical marketing. However, these sales figures likely reflect the relative lack of marketing effort, thus contributing to the reduced demand for and knowledge about these medications [8•, 51, 56–58]. Littleton et al. [57] discussed various reasons for the dearth of pharmaceutical support, one of which includes difficulties establishing the clinical efficacy of pharmacotherapy given the lack of agreed upon international guidelines governing clinical trials and what constitutes acceptable outcomes.

In terms of how to overcome these barriers, Knudsen et al. [33] found that contact with pharmaceutical representatives was positively associated with pharmacotherapy adoption. Provider interest in and patient demand for medications may be increased if the pharmaceutical industry invested in and improved its marketing of medications for addiction [6, 35, 51, 57]. Moreover, Littleton et al. [57] suggest aggressive educational marketing towards providers and nonmedical personnel. They also recommend reaching broad, international agreement on how to evaluate and use pharmacotherapy medications.

Logistical Issues

Logistical issues are frequently cited barriers to provision of pharmacotherapy for alcohol and opioid dependence and include lack of access to prescribing physicians, limited clinical and administrative support, cost concerns, issues with coordinating care (e.g., access to counseling), difficulties obtaining medications at local pharmacies, and the burden of laboratory testing [33, 36, 38•, 42, 43, 46, 48, 50, 53]. In addition, access to pharmacotherapy appears to be especially low among public sector programs [5, 8•]; thus, there may be poorer access among those who may be in greatest need of treatment. DATA 2000 represents a step in the right direction with regard to addressing access issues in that it was enacted to help reduce barriers to opioid dependence treatment by allowing for office-based treatment with buprenorphine; however, insufficient institutional support (e.g., limited capacity or resources) has been a highly cited reason for not providing or underutilizing office-based buprenorphine [42, 43, 46]. Another logistical issue includes concern about maintaining compliance with Code of Federal Regulations 42 confidentiality requirements, especially in large health care systems with integrated health information systems and electronic medical records.

Specific logistical barriers and the ways to overcome them likely will vary by program. However, there are some general suggestions that may help, such as to provide incentives to providers to prescribe medications for alcohol and opioid dependence [59], for programs to allot time for providers to implement pharmacotherapy [53], to increase medical personnel staffing to facilitate pharmacotherapy implementation [33], and to offer training plus performance evaluation based on the provision of pharmacotherapy [55]. Governments could also identify treatment agencies housed within medical facilities that are not offering pharmacotherapy, or perhaps underutilizing pharmacotherapy, and promote pharmacotherapy utilization within these agencies [59]. Given that prescribers often lack relationships with psychosocial treatment providers and vice versa, efforts should be made to develop referral networks for prescribers and treatment agencies. These referral networks will be particularly helpful, and perhaps feasible, in light of the big push toward promoting integrated care delivery [38•, 44, 46, 54], such as the initiative related to Screening, Brief Intervention, and Referral to Treatment (SBIRT) in primary care and nonspecialty care settings (Department of Veterans Affairs/Department of Defense, National Institute on Drug Abuse [NIDA]). As screening for alcohol and drugs will increase in nonspecialty settings, providers need treatment options for patients who screen positive; pharmacotherapy may be one such option. Weber [38•] also suggested that patients with substance use disorders and their families should advocate for more accessible treatment options.

Various solutions have also been proposed to address the specific logistical barriers involved with provision of pharmacotherapy for opioid dependence. Cost is a notable concern; however, McCarty et al. [60] found that methadone maintenance utilization was actually associated with lower total health care costs for opioid-dependent patients. Furthermore, for methadone maintenance programs, having a flexible clinical policy that offers greater accessibility to services (e.g., flexible dispensing hours) may help improve patient utilization of methadone pharmacotherapy [42]. Suggestions to help improve access to office-based opioid treatment with buprenorphine include extending prescribing privileges to nurse practitioners and physicians assistants [32, 61] and using a nurse care manager model [61]. Finkelstein et al. [32] also recommended easing restrictions on the number of patients per provider who may be prescribed buprenorphine.

Provider-level Barriers and Ways to Overcome Them

Various studies have examined provider-level barriers to pharmacotherapy utilization for alcohol and opioid dependence. These studies tend to describe barriers that fall broadly into two categories: informational barriers (e.g., lack of knowledge) and provider perceptions and concerns (e.g., pharmacotherapy is ineffective, low self-efficacy to prescribe properly).

Informational Barriers

Informational barriers, primarily inadequate training and deficits in knowledge, are among the most frequently reported provider-level barriers to utilization of pharmacotherapy for alcohol and opioid dependence [35, 37, 44, 51, 53, 59, 62, 63]. Providers who lack information about pharmacotherapy for alcohol and opioid dependence are less likely to utilize it [35, 37]. Moreover, inadequate training is a barrier to pharmacotherapy implementation across providers (e.g., physicians, psychiatrists, counselors [38•, 42, 48, 50, 51, 64]). Beginning in medical school, many physicians receive limited training and education in addiction medicine [38•, 58, 64]. Furthermore, addiction treatment counselors also report receiving little or no training in pharmacotherapy [48], which can be problematic given that counselors tend to discuss treatment options with patients, and their lack of training in pharmacotherapy may impact these discussions.

To address these informational barriers, many have advocated for greater training in addiction medicine in medical schools and other training programs (e.g., programs for physicians assistants, nurse practitioners [8•, 32, 38•, 56, 58, 64]). For instance, O'Connor et al. [64] described five expert recommendations to improve training within medical schools and residency programs: 1) integrate substance abuse competencies into training, 2) assign substance abuse teaching the same priority as teaching about other chronic diseases, 3) enhance faculty development (e.g., at least one core faculty member with expertise in substance use disorders), 4) create addiction medicine divisions or programs in academic medical centers, and 5) make substance abuse screening and management part of routine care in new models of primary care practice.

To address knowledge gaps among current providers, dissemination of "best practices" guidelines (e.g., Substance Abuse and Mental Health Services Administration [SAMHSA] Treatment Improvement Protocols) and requirement of formal training (e.g., the SAMHSA and NIDA Buprenorphine Blending Initiatives training) for providers and agencies providing pharmacotherapy for alcohol and opioid dependence have been suggested [59, 65]. The Buprenorphine Blending Initiative provides training for multidisciplinary addiction treatment professionals, including nonprescribing addiction treatment staff, to improve their knowledge about buprenorphine and the role they can play in promoting its utilization. Abraham et al. [48] also recommended disseminating information about pharmaco-

therapy to staff, especially front-line addiction treatment staff. Fitzgerald and McCarty [54] broadened this recommendation by suggesting that all staff within a treatment program, including support staff (e.g., clerks), receive training about pharmacotherapy for addiction. Abraham et al. [48] also suggested disseminating information to patients and other stakeholders. In general, training should be tailored to meet the specific needs of the target population (e.g., psychiatrists vs addiction treatment counselors [46, 48]). It may also be helpful to provide flexible options for training requirements in order to increase participation (e.g., Web-based, in-person). Once they are trained, providers should stay current in their pharmacotherapy knowledge by continuing to attend trainings [54]. It is important to keep in mind, however, that although training is necessary to speed implementation of pharmacotherapy, it is not sufficient in changing provider behavior [66, 67]. Combining training with some of the suggestions in the following section may be most effective.

Provider Perceptions and Concerns

Several provider perceptions and concerns contribute to barriers to pharmacotherapy utilization for alcohol and opioid dependence. Provider perceptions about the effectiveness of and need for pharmacotherapy greatly impact whether they will actually prescribe pharmacotherapy. Studies suggest that providers may lack confidence in the effectiveness of pharmacotherapy interventions, especially when they have difficulty seeing the impact of the medications or believe that the medications may reduce motivation for psychosocial treatment [35, 37, 58, 63]. In addition, publication of conflicting findings about pharmacotherapy may lead to perceptions of ineffectiveness [8•, 68]. Moreover, some providers may perceive there to be low patient demand for pharmacotherapy and consequently may feel little need to offer treatment [42, 43, 50, 53].

Various studies also suggest that providers may lack confidence or comfort in their ability to utilize pharmacotherapy appropriately for alcohol and opioid dependence [38•, 50, 69]. Providers may view medications for addiction as more difficult to prescribe than other medications [38•]. They also may feel ill-prepared to address salient patient barriers such as misuse and diversion [49]. In terms of practical considerations that may affect provider self-efficacy, Roman et al. [8•] noted there are no empirically based guidelines for overall implementation of pharmacotherapy from an operations perspective (e.g., to guide pharmacotherapy implementation into the overall program/organization, including the content of psychosocial support and interventions). Additional provider perceptions that may serve as barriers to provision of pharmacotherapy for opioid dependence include mixed attitudes about the 8-hour training required to prescribe office-based buprenorphine and the belief that the training requirement sets it apart from other medications [32].

A host of other provider concerns serve as barriers to implementation of pharmacotherapy for alcohol and opioid dependence, including concerns about patient compliance with treatment, medication misuse or diversion [35, 42, 46, 49, 70], time [35, 44, 46, 50, 53, 71], side effects [35], taking on increased medicolegal risks [71], and stereotypes and stigmatization of individuals with addiction [38•, 42, 50, 53].

Many suggestions have been offered to help overcome barriers associated with provider perceptions and concerns. Training has been shown to improve provider attitudes toward pharmacotherapy for alcohol and opioid dependence. Thus, many federal initiatives have focused on developing training materials [48]. Given the poor perceptions providers have of the effectiveness of pharmacotherapy, training may want to address these perceptions. For example, providers may need to be convinced that the benefits of adopting pharmacotherapy outweigh the risks [35]. It may also be helpful for providers to develop a better understanding of the neurobiological mechanisms underlying medications for addiction. Moreover, training may also want to highlight the number-needed-to-treat statistics in order to set realistic expectations regarding the proportion of patients who are likely to experience a positive clinical response.

Provider perceptions may also be addressed with a grassroots approach that trains local role models or "champions" to help speed diffusion of pharmacotherapy [53]. Ensuring provider access to these champions as well as expert consultants or mentors may help address some of the self-efficacy and referral concerns [32, 44, 53, 62, 66, 72]. Moreover, exposing providers to patients receiving and benefiting from pharmacotherapy may also be beneficial [66]. Strobbe et al. [73] found that requiring patients who received buprenorphine maintenance therapy to participate in a monthly, multidisciplinary buprenorphine clinic at which they could schedule individual appointments with their physician, have their prescription reviewed, provide a urine drug screen, and participate in a group therapy session was an efficient use of resources that was associated with high levels of patient satisfaction, attendance, and treatment adherence. In addition to training, clinical support systems that provide free mentorship, consultation, and educational support for integrating evidence-based practice guidelines may also help improve provider self-efficacy [46, 53, 72, 74].

With regard to other provider concerns, concerns about misuse and diversion are particularly salient. Bacha et al. [49] suggested that the common response to these concerns (i.e., to require supervised dosing) may not be effective.

Instead, they suggested an important first step in addressing issues of misuse and diversion is to ensure that dosing practices closely match treatment guidelines, as inadequate dosing is a significant risk factor for misuse and diversion. Providers who are extremely concerned about these issues could use treatment options with reduced risk of misuse and diversion (e.g., buprenorphine–naloxone, long-acting medications such as extended-release naltrexone [49]). In addition, Albright et al. [46] suggested creating educational materials that summarize the research findings on abuse and diversion, as well as profiling patients based on their risk of abuse and diversion, and providing special services to high-risk patients to help reduce their risk. Education may be especially important given that Stöver [42] found that many providers and patients were not aware of, or using, appropriate strategies to address misuse and diversion.

Regarding time concerns, Albright et al. [46] found that psychiatrists believed there would be a greater time commitment for treating opioid-dependent patients with buprenorphine; however, they found this perception to be discrepant from evidence suggesting that psychiatric patients with depression and anxiety tended to require more time. Albright et al. [46] suggested addressing these discrepancies within the continuing medical education framework and other medical education mechanisms. This approach, as well as others mentioned previously (e.g., exposure to patients receiving medications, providing mentors) may also be helpful in addressing other provider concerns, such as side effects, medicolegal risks, and stereotypes and stigmatization of individuals with addiction.

Patient-level Barriers and Ways to Overcome Them

Many of the previously discussed system- and provider-level barriers contribute to patient-level barriers (e.g., cost, access) to pharmacotherapy utilization for alcohol and opioid dependence. However, for sake of brevity, these system- and provider-level barriers are not re-reviewed here. Instead, one important patient-level barrier is discussed: informational barriers (e.g., lack of knowledge). It is important to note that in general, fewer studies have focused on patient-level barriers to pharmacotherapy utilization. Especially and notably absent are data examining patient perspectives, knowledge, and attitudes regarding pharmacotherapy. This represents a significant research gap.

Informational Barriers

Similar to providers, patients also have deficits in knowledge about pharmacotherapy options for alcohol and opioid dependence [42, 58]. For instance, Stöver [42] found that opioid-dependent patients varied in their knowledge of the different medication options available and were more familiar with methadone than buprenorphine. With regard to overcoming these patient-level informational barriers, in addition to previously discussed suggestions that involve educating patients and the public about pharmacotherapy for addiction (e.g., government-supported public information campaigns, pharmaceutical industry marketing), other ways to overcome these barriers involve having providers fully inform patients about the range of treatment options available [4, 42] and educating patients and other stakeholders (e.g., family, social) about pharmacotherapy and how it may improve outcomes [35, 54]. To this end, the Department of Veterans Affairs and the Department of Defense are collaborating to develop educational materials (e.g., brochures) to educate patients with alcohol use disorders about the array of treatment options available; several patient-oriented websites, some sponsored by the pharmaceutical industry, may also help encourage patient interest in pharmacotherapy interventions. Treatment programs may want to adopt these types of brochures or some other standardized method of informing patients about treatment options available in order to reduce potential bias in dissemination of information. As with providers, patients may also need to be convinced that the benefits of pharmacotherapy outweigh the risks [35].

Conclusions

Effective pharmacotherapies are available to treat addiction disorders, yet the field has been slow to adopt pharmacotherapy interventions. Our discussion of system-, provider-, and patient-level barriers to utilization of pharmacotherapy for alcohol and opioid dependence and ways to overcome them makes clear that these barriers are interrelated [38•, 54, 75]. Most notably, research is needed to increase our understanding of patient perspectives regarding these treatment options. Multifaceted efforts directed at all three levels that are adapted to fit the needs of the facility and target audience may be needed to significantly increase pharmacotherapy utilization for addiction disorders [46, 53, 54, 76]. Pharmacotherapy is a valuable tool in the clinical armamentarium of addiction treatment; overcoming barriers to implementation may improve clinical and social outcomes.

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