



Alcohol use disorder pharmacotherapy and treatment in primary care (ADaPT-PC) trial: Impact on identified barriers to implementation

Hildi J. Hagedorn, Jennifer P. Wisdom, Heather Gerould, Erika Pinsker, Randall Brown, Michael Dawes, Eric Dieperink, Donald Hugh Myrick, Elizabeth M. Oliva, Todd H. Wagner & Alex H. S. Harris

To cite this article: Hildi J. Hagedorn, Jennifer P. Wisdom, Heather Gerould, Erika Pinsker, Randall Brown, Michael Dawes, Eric Dieperink, Donald Hugh Myrick, Elizabeth M. Oliva, Todd H. Wagner & Alex H. S. Harris (2022) Alcohol use disorder pharmacotherapy and treatment in primary care (ADaPT-PC) trial: Impact on identified barriers to implementation, Substance Abuse, 43:1, 1043-1050, DOI: [10.1080/08897077.2022.2060444](https://doi.org/10.1080/08897077.2022.2060444)

To link to this article: <https://doi.org/10.1080/08897077.2022.2060444>



Published online: 25 Apr 2022.



[Submit your article to this journal](#)



Article views: 38




[View related articles](#)



[View Crossmark data](#)

Alcohol use disorder pharmacotherapy and treatment in primary care (ADaPT-PC) trial: Impact on identified barriers to implementation

Hildi J. Hagedorn, PhD^{a,b} , Jennifer P. Wisdom, PhD MPH^c, Heather Gerould, MS^a, Erika Pinsker, PhD MPH^a, Randall Brown, MD^{d,e}, Michael Dawes, MD^{f,g}, Eric Dieperink, MD^{a,b}, Donald Hugh Myrick, MD^{h,i}, Elizabeth M. Oliva, PhD^j, Todd H. Wagner, PhD^k, and Alex H. S. Harris, PhD^j

^aVeterans Affairs Health Services Research and Development Center for Care Delivery & Outcomes Research, Minneapolis Veterans Affairs Health Care System, Minneapolis, MN, USA; ^bDepartment of Psychiatry, University of Minnesota School of Medicine, Minneapolis, MN, USA; ^cWisdom Consulting, New York, NY, USA; ^dWilliam S. Middleton Memorial Veterans Hospital, Madison, WI, USA; ^eDepartment of Family Medicine, University of Wisconsin School of Medicine and Public Health, Madison, WI, USA; ^fVA Boston Healthcare System, Brockton, MA, USA; ^gBoston University Medical School, Boston, MA, USA; ^hCenter for Drug and Alcohol Problems, Ralph H. Johnson Veterans Affairs Medical Center, Charleston, SC, USA; ⁱDepartment of Psychiatry and Behavioral Services, Medical University of South Carolina, Charleston, SC, USA; ^jVeterans Affairs Health Services Research and Development Center for Innovation to Implementation, Palo Alto Veterans Affairs Health Care System, Menlo Park, CA, USA; ^kHealth Economics Resource Center, Palo Alto Veterans Affairs Health Care System, Menlo Park, CA, USA

ABSTRACT

Background: A minority of individuals meeting diagnostic criteria for alcohol use disorders (AUD) receive any type of formal treatment. Developing options for AUD treatment within primary care settings is imperative to increase treatment access. A multi-faceted implementation intervention including provider and patient education, clinician reminders, development of local champions and ongoing facilitation was designed to enhance access to AUD pharmacotherapy in primary care settings at three large Veterans Health Administration (VHA) facilities. This qualitative study compared pre-implementation barriers to post-implementation barriers identified via provider interviews to identify those barriers addressed and not addressed by the intervention to better understand the limited impact of the intervention. **Methods:** Following the nine-month implementation period, primary care providers at the three participating facilities took part in qualitative interviews to collect perceptions regarding which pre-implementation barriers had and had not been successfully addressed by the intervention. Participants included 20 primary care providers from three large VHA facilities. Interviews were coded using common coding techniques for qualitative data using the Consolidated Framework for Implementation Research (CFIR) codebook. Summary reports were created for each CFIR construct for each facility and the impact of each CFIR construct on implementation was coded as positive, neutral, or negative. **Results:** Some barriers identified during pre-implementation interviews were no longer identified as barriers in the post-implementation interviews. These included Relative Advantage, Relative Priority, and Knowledge & Beliefs about the Innovation. However, Compatibility, Design Quality & Packaging, and Available Resources remained barriers at the end of the implementation period. No substantial new barriers were identified. **Conclusions:** The implementation intervention appears to have been successful at addressing barriers that could be mitigated with traditional educational approaches. However, the intervention did not adequately address structural and organizational barriers to implementation. Recommendations for enhancing future interventions are provided.

KEYWORDS

Alcohol use disorders; implementation; health care delivery

Background

In 2019, 14.1 million individuals in the United States over the age of 18 years (5.6%) met diagnostic criteria for an alcohol use disorder (AUD).¹ Despite the high prevalence of and the high societal costs associated with AUDs, treatment rates in the general population remain astonishingly low. In 2019, only 7.3% of individuals meeting diagnostic criteria for AUD received any type of AUD treatment.¹ Effective, guideline-recommended treatments for AUD include both psychosocial interventions (e.g., cognitive behavior therapy, motivational enhancement therapy) and pharmacotherapies

(e.g., acamprosate, disulfiram, oral or extended-release naltrexone).² Pharmacological treatments for AUD are supported by randomized controlled trials and meta-analyses demonstrating improved drinking outcomes and are recognized as an important treatment option.^{3–6} However, receipt of pharmacotherapy is exceedingly rare, with only 1.6% of patients with AUD receiving any FDA approved pharmacotherapy in 2019.^{1,7} Improving treatment rates for AUD has potential to reduce suffering, improve clinical outcomes, and realize savings in health care costs. In the Veterans Health Administration (VHA), AUD treatment rates are better than in the general population, with approximately 25% of

patients with an AUD receiving any specialty care AUD services and 7.5% receiving FDA-approved pharmacotherapy.⁸ Within VHA, AUD medications are substantially less frequently prescribed than nicotine replacement therapy and pharmacotherapy for other major mental illnesses.^{9–12}

Clearly, different care delivery models are needed to offer and increase accessibility of treatment for individuals with AUD. Healthcare systems such as the VHA have high interest in integrating AUD treatment services into primary care settings to address patients' needs where they present for care and reduce stigma surrounding accessing AUD treatment.^{13,14} A few models for implementation of AUD treatment into primary care have been tested.^{15–19} Several of these models have incorporated pharmacotherapy for AUD (e.g., naltrexone, acamprosate) given the assumption that pharmacological treatments would be more easily integrated into primary care environments than complex psychosocial interventions.

The Alcohol Use Disorder Pharmacotherapy and Treatment in Primary Care (ADaPT-PC) trial sought to increase implementation of AUD pharmacotherapy in primary care clinics in three large VHA facilities using a multifaceted implementation intervention targeting multiple stakeholder groups. Details of the methods for the larger project are available in the published protocol and main outcome paper.^{20,21} The intervention phase of the study took place from March through November of 2015. To summarize, local substance use disorder specialists and primary care mental health integration providers were trained to serve as local champions and consultants for primary care providers. Primary care providers received access to a website with educational materials regarding management of AUD in primary care settings, contact information for local and national AUD treatment consultants, and a personalized dashboard of their patients with a documented AUD diagnosis in their charts. Primary care providers also received email alerts if a patient from their dashboard had a clinic visit scheduled within the next week. Finally, patients with AUD diagnoses received direct mailing of a brochure describing pharmacotherapy options for AUD treatment, including naltrexone and acamprosate. As previously reported, the probability of a patient with AUD being prescribed an evidence-based AUD pharmacotherapy increased significantly during the intervention period, but changes at the intervention sites did not outpace control sites.²¹ Results varied by site with one site having a significant increase in prescribing, one demonstrating a non-significant trend toward an increase and one demonstrating no change in prescribing.

Prior to initiating the intervention period, we conducted interviews with primary care providers at each participating facility to identify local barriers to implementation. Information from these formative interviews was used to modify the intervention and qualitative data were analyzed to understand pre-intervention differences between the sites which may have contributed to the variable intervention impact. As previously reported, these pre-implementation interviews identified multiple pre-implementation barriers

across sites including: (1) lack of insight into the relative advantage of providing AUD pharmacotherapy in primary care over current practice of referral to substance use disorder specialty care, (2) complaints about design quality and packaging of implementation intervention materials, (3) limited compatibility of AUD treatment with existing primary care processes, (4) limited priority of addressing AUD in primary care, (5) limited available resources to implement AUD pharmacotherapy in primary care, and (6) providers' limited knowledge and negative beliefs about AUD pharmacotherapy.²²

To understand the impact (or lack thereof) of the intervention, a second round of provider interviews was conducted after completion of the intervention period. Results of these post-intervention interviews are presented here with the goals of: (1) identifying pre-implementation barriers that were successfully addressed by the intervention and (2) pre-implementation barriers that remained unaddressed at the end of the intervention. Lessons learned regarding the nature of how barriers shift and persist throughout the implementation project was used to inform the design of a sister project to increase use of pharmacotherapy for opioid use disorder, Advancing Pharmacological Treatments for Opioid Use Disorder (ADAPT-OUD).^{23–24} We conclude by providing recommendations for future efforts to enhance access to AUD pharmacotherapy in primary care settings.

Methods

Participants

Three large, geographically diverse VHA facilities were recruited to participate in the implementation intervention based on the availability of local substance use disorder specialty care providers and primary care mental health integration providers interested in serving as local champions for the project. Facilities with identified providers to fill the champion roles were also required to secure approval from the chief of primary care. Following the end of the 9-month intervention period, primary care providers were recruited for interviews via email solicitations. Recruitment emails were sent to all primary care providers with prescribing privileges at one of the three participating facilities. Initial emails were followed by reminder emails one week and two weeks following the initial email. There were no exclusion criteria for interviews. Interviews were conducted with all providers who responded to the email solicitation with a goal of conducting up to 10 interviews per site. Actual enrollment was 20 providers across all three sites. Enrollment was similar to pre-implementation interviews where the goal was to conduct up to 10 interviews per site and actual enrollment was 24 providers across all three sites. Identifying information was not collected from interview participants to maintain confidentiality, therefore the extent to which the same providers participated in both pre- and post-implementation interviews is not known. This study received approval from the VHA Central Institutional Review Board. All participants provided written informed consent.

Procedures

Interviews were conducted by the local project coordinator at each site in the primary care providers' office space and lasted approximately 60 min. Interviewers all completed an in-person, two-day training on semi-structured interviewing techniques conducted by the research team's qualitative expert (JPW). The semi-structured interview guide was modeled after the pre-implementation interview guide which requested feedback on study resources, asked about current practice for screening and treating AUD, and assessed for local barriers and facilitators to implementation guided by Consolidated Framework for Implementation Research (CFIR) constructs.²⁵ The CFIR integrates implementation theories and provides consistent definitions and terminology for 39 constructs in five domains: Innovation/Intervention Characteristics, Outer Setting, Inner Setting, Characteristics of Individuals, and Process. The post-implementation interview guide again walked the providers through each of the resources provided by the intervention to determine if they were aware of the resource, if they had used it, and their opinion of the resource if they were familiar with it. The interviewers also asked providers about their current approach to screening and treating AUD and whether this had changed as a result of the intervention. Finally, the interview repeated the questions about potential local barriers and facilitators to implementation guided by CFIR constructs.²⁵ Interviews were audio recorded and transcribed to create written documents for qualitative coding.

Data analysis

Data analysis methods for post-implementation interviews were the same as those used for pre-implementation interviews. All transcripts were entered into a qualitative data analysis program (NVivo) that enables researchers to mark blocks of text with thematic codes and explore relationships among and between codes and groups. Transcripts were analyzed using common coding techniques for qualitative data.²⁶ Transcripts were coded using the CFIR codebook.²⁷⁻²⁸ The coding strategy allowed for coding a single chunk of text to multiple CFIR constructs if deemed appropriate. The coding strategy also allowed for the addition of inductive emergent codes that identified important themes not represented by the CFIR constructs.

Three members of the research team, blinded to the facility from which an interview was collected, were responsible for coding. This included the two team members who had coded all of the pre-implementation interviews. Two members were randomly assigned to code each transcript separately. Then collectively, along with the research team qualitative expert (JPW) who also provided oversight of coding for pre-implementation interviews, they came to consensus on coding decisions. Inconsistencies were resolved through discussion and mutual agreement. The consensus process rather than a process of calculating reliability statistics is typically used for CFIR coding given the complexity of the coding scheme.²⁶ The original codebook was modified to add exemplar text segments for individual CFIR

constructs as the qualitative coding team came to agreement on text segments that would or would not receive a particular CFIR construct code.

Once agreement was reached on coding for all transcripts, code reports were created for each CFIR construct for each facility. Because double coding was allowed, specific text could appear on more than one coding report. Only code reports that contained text segments from a minimum of three respondents from that facility were analyzed. This protected against idiosyncratic responses and ensured that constructs were addressed by multiple respondents and thus more likely to be reflective of the facility as a whole. Qualitative analysts, remaining blind to facility, then reviewed each code report and rated each CFIR construct for each facility as a barrier (i.e., coded as negative), a facilitator (i.e., coded as positive), or having a neutral (i.e., coded as neutral) impact on implementation. Analysts also indicated whether a rating for a particular construct was "mixed," where at least one provider comment was not consistent with the overall rating, e.g., negative mixed indicates that the predominance of coded text segments indicated a barrier to implementation but there was at least one positive comment. Code reports were then unblinded to create facility-level reports of identified barriers and facilitators to implementation.

Results

The results presented here focus on CFIR constructs that were identified as pre-implementation barriers as no substantial new barriers were identified. The pattern of successfully addressed barriers (e.g., rated positive at post-implementation) and unaddressed barriers (e.g., rated negative at post-implementation) was highly consistent across all three clinics with no discernable pattern related to the varying impact of the intervention.

Research question 1: which pre-implementation barriers were successfully addressed by the intervention?

Of the six barriers identified during pre-implementation interviews (see Table 1), three were identified as facilitators in the post-implementation interviews. These were the perceived relative advantage of providing AUD pharmacotherapy in primary care over current practice of referral to substance use disorder specialty care, the relative priority of addressing AUD in primary care, and providers' knowledge and beliefs about AUD pharmacotherapy.

Relative advantage

Prior to the intervention, providers rarely recognized a clinical advantage to treating AUD in primary care, feeling that patients would rather go to specialty care when they were ready and would be better served with referrals to specialists. Following the intervention period, although there were occasional negative comments at two sites, providers at all sites overwhelmingly reported that offering treatment in the

Table 1. Primary pre-implementation barriers identified.

Domain	Construct	Definition
Intervention Characteristics	Relative Advantage*	Stakeholders' perception of the advantage of implementing the innovation versus an alternative solution
Intervention Characteristics	Design quality and packaging	Perceived excellence in how the intervention is bundled, presented, and assembled.
Inner Setting	Compatibility	The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with the individuals' own norms, values, and perceived risks and needs, and how the intervention works with existing workflows and systems.
Inner Setting	Relative priority*	Individuals' shared perception of the importance of the implementation within the organization
Inner Setting	Available resources	The level of resources dedicated for implementation and on-going operations, including money, training, education, physical space, and time
Characteristics of Individuals	Knowledge & Beliefs about the Innovation*	Individuals' attitudes toward and value placed on the innovation, as well as familiarity with facts, truths, and principles related to the innovation

*These constructs were successfully addressed during the intervention.

primary care setting might provide options for patients who were reluctant to go to specialty AUD care or did not feel they needed a higher level of intervention. For example, one respondent said:

I think most physicians really feel that this has been a great thing in terms of being able to offer patients medications in primary care. In other words, we're used to sending them to Mental Health or Behavioral Health. But I think for Primary Care, they have more of a 'hands-on' on people that maybe are not at the point where they need rehab or treatment, intensive treatment, but maybe we can decrease the amount of alcohol and binge drinking. I think that's a good tool for them. And I think Primary Care [providers] really do want to do that.

In other words, this respondent reported that providers understood and reiterated some of the key messaging from the educational materials and presentations provided by the intervention; that AUD pharmacotherapy may be appropriate for individuals with milder disorder or who are not willing to seek care in a specialty setting and that treatment options in primary care where the individual feels comfortable seeking care may assist in harm reduction goals.

Relative priority

Prior to the intervention period, providers frequently pointed out other high priority issues within the VHA that were demanding attention and did not see addressing AUD in primary care as reaching that level of priority. Following the intervention period, while there were occasionally negative comments at one site, providers at all sites were more likely to speak about the benefits that addressing AUD would have for their patients' other health issues and the increase in focus on AUD as a priority issue. For example,

We need to find a way to help these people. Just like any other mental illness, alcohol dependence affects the care of my patients when I am dealing with their diabetes and hypertension everything else and so, it's a barrier to dealing with anything else.

Providers also indicated that after the intervention, they view AUD as a higher priority than they did previously:

Well, speaking for the entire section is hard to do but [AUD is] given a higher priority than it used to get, probably moderate. It's not like someone is banging the drum all the time about it, but definitely the pharmacist is more aware, the psychologist is more aware of it, we are more aware of it.

These findings suggest that the intervention enhanced awareness of the importance of addressing AUDs to the overall health of patients and the place of AUD treatment in the primary care setting.

Knowledge & beliefs about the innovation

Prior to the intervention, providers reported little to no exposure to any education or training in how to use AUD medications effectively and, although understanding that AUD medications were evidence-based, many reported negative attitudes toward medications as an appropriate mechanism for treating a substance use disorder. Following the intervention period, while there were occasional negative comments at two sites, comments from providers at all sites overwhelmingly reflected an increased knowledge of AUD medications and an increase in their comfort level for having conversations with their patients about problematic alcohol use and potential medication options. For example, one provider said:

I was aware that there were some studies about naltrexone and topiramate but I felt a little reluctant to use those. But I think now that we've had some education, I feel a lot more comfortable using those medications. [...] And I think it's made me more aware that there are medications out there for patients that are binge drinkers that maybe aren't to the point where they need rehab or they have an alcohol disorder but more of a binge drinking pattern that maybe I can help them with. So I think it definitely made me more aware of it and made me more comfortable with using those medications.

The intervention clearly filled a gap in knowledge for providers who had little exposure to education focused on this topic prior to this project.

Research question 2: which pre-implementation barriers were not addressed by the intervention?

Design quality and packaging

Prior to the intervention, providers at two sites expressed concern that project resources were located on a separate website from the patient computerized medical record that they would have open during a clinical appointment. Unfortunately, time limitations of the project precluded

integrating resources into the official VHA computerized medical record. As a result, these concerns continued to be cited as a major barrier to implementation by these same two sites at the end of the intervention:

I kind of like knew it was there but forgot how to access it. It's nice to look through it once; most of that information is not going to stick in my head that well, so having a way to get back to it in the middle of a busy clinic would be useful. If I was just looking for that practical information, which medication to use first, and if I could get to that very easily through CPRS (Computerized Patient Record System) which is already open on my screen, then that would be the most useful thing for me.

Although providers expressed positive opinions of the materials that were made available to them, they clarified that finding and using the materials did not fit within their usual workflows and drastically limited the impact of the materials. This concern was not expressed by providers at the third site either before or after the intervention, but this did not correlate with improved intervention outcomes at that site.

Compatibility

Prior to the intervention, providers indicated that addressing AUD during a primary care appointment did not fit or align with how primary care clinics were currently organized. Patient appointments are usually scheduled for 20 min, patients have typically scheduled an appointment to address a specific concern, and providers often have several clinical reminders that they are required to address in the appointment. These challenges leave little time to delve into a conversation about the patients' alcohol use, particularly when this issue is not raised by the patient. Following the intervention, providers at all sites consistently continued to express concerns about how addressing alcohol use would fit within the time they are allotted for each patient.

It's just hard, there are a million things we take care of. It's hard to be on top of all of it. Yes, if I were Superwoman I would have planned out the meeting, but people have a 20 minute appointment and I don't know how many questions are going to be on their list. So doing a ton of advanced prepping on my part can often be non-patient centered because now I am setting the whole agenda and the patient has no time to ask their questions.

This statement illustrates that although the limited amount of time available for patient appointments is a concern, providers also experience conflicts between the imperative to provide patient-centered care and addressing alcohol use when a patient has presented for a different medical issue.

Resources

Prior to the intervention, providers felt that they did not have the resources required to adequately address AUD in the primary care setting. Specifically, they reported not having the time to address AUD given their perception that primary care providers are constantly being asked to take on "one more thing" without additional resources. They also did not feel they had adequate access to behavioral health

support within the primary care setting. The project team made efforts to identify procedures to connect with Primary Care Mental Health Integration staff to assist with diagnosis and follow-up. However, despite occasional positive comments, concerns about time burden and lack of back-up persisted at all sites:

For me, impact would [be increased by] making sure that there are adequate resources for us to refer to, rather than having us be the main source of treatment. Primary care is already stretched enough. You don't want to keep stretching it more by saying, "Okay, you guys can do this. You can be the orthopedist, and you can be the neurologist, and you can be," you know, we know how to do a lot of these things. Sometimes it's just a matter of time.

Such responses suggest that the primary care providers felt unfairly targeted by the implementation strategy; that they were expected to do "one more thing" and that real needs for additional resources or supports across many implementation efforts, including this one, have not been taken seriously.

Discussion

The ADAPT-PC intervention attempted to implement AUD pharmacotherapy prescribing within primary care settings in three large VHA medical facilities. The quantitative results of that effort indicated little increase in prescribing rates compared to control facilities. The qualitative interview data collected prior to and following the implementation intervention allowed for a more nuanced understanding of why the intervention was not more successful and how the intervention could be enhanced.

Of the implementation barriers identified prior to the implementation intervention, the qualitative interview results indicate that several were adequately addressed by the intervention. Addressed barriers (Relative Advantage, Relative Priority, and Knowledge & Beliefs) have clear similarities to each other in that, by definition, they are dealing with individual's *attitudes, perceptions, and knowledge*.²⁵ Up-front training, educational resources, and the on-going focus on evidence-based pharmacotherapy for AUD during the course of the project appear to have been sufficient to increase knowledge about AUD treatment and to change perceptions about whether and how AUD can be managed in a primary care setting.

While these changes in knowledge and attitudes may have translated into changes in how providers speak with their patients about their alcohol use, this did not translate into a detectable change in the frequency of the target behavior of prescribing medications to treat AUD. Findings suggest this is because more complex organizational level barriers (Design Quality & Packaging, Compatibility, and Resources) were not sufficiently addressed by the intervention. While providers may have had the best of intentions, the project resources were not adequately integrated into their usual workflow, the intervention was not compatible with the structure of brief primary care visits focused on the issues presented by the patient, and the intervention was

Table 2. Differences between ADAPT-PC and ADAPT-ODU implementation intervention.

Identified Barrier		ADAPT-PC	ADAPT-ODU
Project resources not integrated into usual workflow	Progress Monitoring	Project-specific dashboard for tracking actionable patients and prescribing rates; available on separate website not integrated into electronic medical record	Pre-existing administrative dashboards and metrics already familiar to implementation team members used to track actionable patients and prescribing rates
Goals not compatible with structure of primary care visits	Project Goal	Defined project goal of increasing AUD medication prescribing in primary care	Broad project goal of increasing OUD medication prescribing within the facility; target clinic, specific goals and action steps determined by local team based on local resources and barriers
Project perceived as added burden with no additional resources provided	Local Champions	Identified two local champions per facility; one SUD specialist and one primary care/mental health integration specialist	Developed local implementation teams consisting of cross-disciplinary and cross-clinic members
	Facilitation	Brought champions from all facilities together for one 1.5 day project kickoff meeting 9 monthly facilitation calls for champions from all facilities together	1.5 day kickoff site visit at each site separately; X-waiver training and other educational sessions offered during site visit 12 monthly facilitation calls with each local site implementation team separately

perceived as yet another task placed on already overburdened clinicians with no additional resources provided.

Based on these results, the implementation intervention for a subsequent sister project, ADAPT-ODU,^{23,24} was designed to more specifically address these complex organizational level barriers. The aim of ADAPT-ODU was to increase prescribing of medication treatment rates for opioid use disorders (MOUD) in VHA facilities with low performance on the VHA national MOUD access metric. The target of this intervention was not a specific clinical setting within the facility but rather the implementation team worked with the facility to identify key areas for expansion which, depending on the facility, meant expanding prescribing within SUD specialty care, expanding access to other clinics such as pain, general mental health or primary care, or both. While we acknowledge that a key difference in treatment of OUD compared to AUD is the fact that medication treatments are recognized as the evidence-based, essential treatment for OUD while medications are one of several evidence-based options for AUD treatment, we consider the lessons learned from ADAPT-ODU to be applicable to efforts to improve access to AUD treatment as well.

Key differences between the ADAPT-PC and the ADAPT-ODU interventions are summarized in Table 2. Specifically, for actionable patient information and monitoring of implementation progress, ADAPT-ODU relied on readily available administrative metrics and dashboards that were already integrated into providers' usual workflow. ADAPT-ODU also focused heavily on developing and supporting a multi-disciplinary and cross-clinic implementation team at each facility to identify specific project goals that fit with local priorities and took into account local resources and barriers. Facilitation was designed to be individualized to each site rather than utilizing cross-site meetings. This individualized team approach was designed to address the issue of limited provider time as teams specifically considered options for how other disciplines (e.g., nursing, pharmacy) could be engaged to assist with patient monitoring

and care. This individualized team approach was also designed to increase a sense of ownership over intervention details on the part of local providers to reduce the perception that the intervention was another requirement being placed onto them. ADAPT-ODU successfully expanded access to medication treatments for opioid use disorder, which is likely at least in part due to these implementation enhancements. Analysis of ADAPT-ODU barriers across the timespan of the project supported the notion that implementation barriers fluctuate over time with knowledge and attitudes shifting early and more complex organizational issues requiring more time to address.²⁹

It must also be acknowledged that the national focus on addressing the opioid overdose epidemic impacted the success of ADAPT-ODU. Despite the fact that alcohol misuse and AUD affect a much larger number of individuals¹ and contribute to a larger number of deaths than opioid overdose,³⁰ addressing expansion of access to evidence-based pharmacotherapy for AUD has never received the same focused attention as expanding access to medication treatments for OUD. It is not possible to know to what degree the differing effectiveness of the ADAPT-PC intervention and the ADAPT-ODU intervention can be attributed to the differences in the implementation interventions themselves or to the perceived higher priority of addressing OUD.

Key limitations to this study are that qualitative interviews were completed with a convenience sample of providers who volunteered to participate. The number of providers who participated was below the targeted recruitment number both pre- and post-intervention. Therefore, the opinions expressed may not have been generalizable to the population of primary care providers at the participating facilities. To maintain provider anonymity, identifying information was not tracked meaning we do not know how many of the same providers participated in both interviews and therefore cannot state with certainty that the intervention resulted in changes to individual provider's responses. In addition, all study facilities were within the VHA and

therefore, findings may not generalize to other hospital systems.

Conclusions

The findings highlight key lessons learned for implementation of AUD pharmacotherapy in primary care settings which may be applicable to health care systems outside of the VHA. Specifically, (1) metrics and patient tracking dashboards should be integrated into the clinical tools that providers are used to using for clinical management; (2) implementation efforts should be approached as a healthcare team effort rather than a new responsibility placed on individual providers; (3) implementors should not only identify SUD specialists for consultation but should assist in building relationships and communication across clinics; and (4) implementors should ensure team input into details of how AUD care will be integrated into individual clinics, e.g., defining who is responsible for what tasks. Building a team-based approach to addressing AUD in primary care is not only likely to improve provider receptiveness to, and satisfaction with, the resulting intervention but could also increase patient receptiveness to, and satisfaction with, AUD care, as they could receive more frequent follow-up and greater continuity of care.

These findings also highlight the value of qualitative process evaluation for developing a more nuanced understanding of the outcomes of implementation efforts. The less than ideal outcomes of the ADAPT-PC study informed and enhanced the ADAPT-OD intervention. The ADAPT-PC implementation intervention was designed to be cost-efficient, highly scalable, and rapid. While these goals were laudable, the results, especially in comparison to those of ADAPT-OD, highlight the fact that implementation is complex and resource and time intensive. Implementation efforts should be sufficiently resourced to provide the greatest opportunity for success otherwise they risk squandering resources and the good will of the stakeholders (health system leaders and providers) who engage with implementation teams.

Acknowledgements

The authors would like to acknowledge the contributions of the following individuals to the conduct of this study: Karen Oliver, Alex Carrizales, Bri Deyo, Beret Skroch, Scott McNairy, Kathy Hodgkins, Marie-Therese Jackson, Christina Song, Shuang Ouyang.

Author contributions

HJH and AHS designed the study. JPW provided qualitative methods consultation. HJH, HG, and EP conducted the qualitative analysis. RB and MD served as local site principal investigators and clinical experts. ED and DHM served as national clinical experts and consultants. All authors participated in editing the manuscript and read and approved the final manuscript.

Disclosure statement

The authors declare that they have no conflicts of interest to report. The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government.

Funding

This work was supported by the Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Health Services Research and Development, Quality Enhancement Research Initiative Grant #SDP 11-411. The funding organization had no role in the design and conduct of the study; collection management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

ORCID

Hildi J. Hagedorn  <http://orcid.org/0000-0002-5118-7624>

References

- [1] Han B, Jones CM, Einstein EB, Powell PA, Compton WM. Use of medications for alcohol use disorder in the US: results from the 2019 National Survey on Drug use and Health. *JAMA Psychiatry*. 2021;78(8):922–924.
- [2] Management of Substance Use Disorders Work Group. *VA/DoD clinical practice guideline for the management of substance use disorders (version 4.0)*. Washington, DC: Department of Veterans Affairs, Department of Defense; 2021.
- [3] Kranzler HR, Van Kirk J. Efficacy of naltrexone and acamprostate for alcoholism treatment: a meta-analysis. *Alcohol Clin Exp Res*. 2001;25(9):1335–1341.
- [4] Bouza C, Magro A, Munoz A, Amate JM. Efficacy and safety of naltrexone and acamprostate in the treatment of alcohol dependence: a systematic review. *Addiction* 2004;99:811–828.
- [5] Anton RF, O'Malley SS, Ciraulo DA, et al. Combined pharmacotherapies and behavioral interventions for alcohol dependence: the COMBINE study: a randomized controlled trial. *JAMA* 2006;295(17):2003–2017.
- [6] Rosner S, Hackl-Herwerth A, Leucht S, Leherth P, Vecchi S, Soyka M. Acamprostate for alcohol dependence. *Cochrane Database Syst Rev*. 2011;9:CD004332.
- [7] Joudrey PJ, Kladney M, Cunningham CO, Bachhuber MA. Primary care engagement is associated with increased pharmacotherapy prescribing for alcohol use disorder (AUD). *Addict Sci Clin Pract*. 2019;14(1):19.
- [8] Williams EC, Chen JA, Frost MC, et al. Receipt of evidence-based alcohol-related care in a national sample of transgender patients with unhealthy alcohol use: overall and relative to non-transgender patients. *JSAT*. 2021;131:108565.
- [9] Harris AH, Kivlahan D, Bow T, Humphreys KN. Pharmacotherapy of alcohol use disorders in the Veterans Health Administration. *Psychiatr Serv*. 2010; 61(4):392–398.
- [10] Del Re AC, Gordon AJ, Lembke A, Harris AH. Prescription of topiramate to treat alcohol use disorders in the Veterans Health Administration. *Addict Sci Clin Pract*. 2013;8:12.
- [11] Iheanacho T, Issa M, Marienfeld C, Rosenheck R. Use of naltrexone for alcohol use disorders in the Veterans' Health Administration: a national study. *Drug Alcohol Depend*. 2013; 132(1–2):122–126.
- [12] Rubinsky AD, Chen C, Batki SL, Williams EC, Harris AHS. Comparative utilization of pharmacotherapy for alcohol use disorder and other psychiatric disorders among U.S. Veterans

- Health administration patients with dual diagnoses. *J Psychiatr Res.* 2015;69:150–157.
- [13] Spithoff S, Kahan M. Paradigm shift: moving the management of alcohol use disorders from specialized care to primary care. *Can Family Phys.* 2015;61(6):491–493.
- [14] Rehm J, Anderson P, Manthey J, et al. Alcohol use disorders in primary health care: what do we know and where do we go? *Alcohol Alcohol.* 2016; 51(4):422–427.
- [15] Ornstein SM, Miller PM, Wessell AM, Jenkins RG, Nemeth LS, Nietert PJ. Integration and sustainability of alcohol screening, brief intervention, and pharmacotherapy in primary care settings. *J Stud Alcohol Drugs.* 2013;74(4):598–604.
- [16] Saitz R, Cheng DM, Winter M, et al. Chronic care management for dependence on alcohol and other drugs: the AHEAD randomized trial. *JAMA* 2013;310(11):1156–1167.
- [17] Oslin DW, Lynch KG, Maisto SA, et al. A randomized clinical trial of alcohol care management delivered in Department of Veterans Affairs primary care clinics versus specialty addiction treatment. *J Gen Intern Med.* 2014;29(1):162–168.
- [18] Harris AHS, Bowe T, Hagedorn H, et al. Multifaceted academic detailing program to increase pharmacotherapy for alcohol use disorder: Interrupted time series evaluation of effectiveness. *Addict Sci Clin Pract.* 2016;11(1):15.
- [19] Bradley KA, Bobb JF, Ludman EJ, et al. Alcohol-related nurse care management in primary care: a randomized clinical trial. *JAMA Intern Med.* 2018;178(5):613–621.
- [20] Hagedorn H, Brown R, Dawes M, et al. Enhancing access to alcohol use disorder pharmacotherapy and treatment in primary care settings: ADaPT-PC. *Implement Sci.* 2016;11:64.
- [21] Harris AHS, Brown R, Dawes M, Dieperink, et al. Effects of a multifaceted implementation intervention to increase utilization of pharmacological treatments for alcohol use disorders in the US Veterans Health Administration. *J Subst Abuse Treat.* 2017; 82:107–112.
- [22] Hagedorn HJ, Wisdom JP, Gerould H, et al. Implementing alcohol use disorder pharmacotherapy in primary care settings: a qualitative analysis of provider-identified barriers and impact on implementation outcomes. *Addict Sci Clin Pract.* 2019;14(1):24.
- [23] Hagedorn H, Kenny M, Gordon AJ, et al. Advancing pharmacological treatments for opioid use disorder (ADAPT-OD): protocol for testing a novel strategy to improve implementation of medication-assisted treatment for Veterans with opioid use disorders in low-performing facilities. *Addict Sci Clin Pract.* 2018;13(1):25.
- [24] Gustavson AM, Wisdom JP, Kenny ME, et al. Early impacts of a multi-faceted implementation strategy to increase use of medication treatments for opioid use disorder in the Veterans Health Administration. *Implement Sci Commun.* 2021;2(1):20.
- [25] Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci.* 2009;4(50):50.
- [26] Miles MB, Huberman MA, Saldana J. *Qualitative data analysis: a methods sourcebook.* 3rd ed. Thousand Oaks, CA: Sage Publications; 2014.
- [27] Damschroder LJ, Lowery JC. Evaluation of a large-scale weight management program using the consolidated framework for implementation research. *Implement Sci.* 2013;8(51):51.
- [28] CFIR Technical Assistance Website. <http://www.cfirguide.org>. Accessed March 24, 2016.
- [29] Gustavson AM, Kenny ME, Wisdom JP, et al. Fluctuations in barriers to medication treatment for opioid use disorder prescribing over the course of a one-year external facilitation intervention. *Addict Sci Clin Pract.* 2021;16(1):51.
- [30] Centers for Disease Control and Prevention. Alcohol and Public Health: Alcohol related disease impact (ARDI). Annual average for United States 2011–2015 Alcohol-Attributable deaths due to excessive alcohol use, all ages. https://nccd.cdc.gov/DPH_+ARDI/Default/Default.aspx