Knudsen *et al.*
Substance Abuse Treatment, Prevention, and Policy (2025) 20:15
https://doi.org/10.1186/s13011-025-00644-y

Substance Abuse Treatment, Prevention, and Policy

RESEARCH

Open Access

Barriers and facilitators to scaling up medications for opioid use disorder in Kentucky: qualitative perspectives of treatment organization staff

Hannah K. Knudsen[1*], Shaquita Andrews-Higgins[2], Sandra Back-Haddix[2], Michelle R. Lofwall[3], Laura Fanucchi[4] and Sharon L. Walsh[3]

Abstract

Background Underutilization of medications for opioid use disorder (MOUD) remains a persistent obstacle to addressing the opioid epidemic. This study explores MOUD agency experiences with patient census growth as well as multi-level barriers and facilitators to expanding MOUD from the perspectives of agency staff.

Methods Semi-structured qualitative interviews were conducted with 66 employees representing 30 MOUD agencies in eight Kentucky counties in the United States from December 2022 to June 2023 as part of the HEALing (Helping to End Addiction Long-term®) Communities Study in Kentucky (HCS-KY). Interviews were conducted prior to the development of partnerships to implement strategies focused on expanding MOUD census and increasing MOUD retention. Facility administrators/directors, prescribers, and clinicians were prioritized for recruitment, but agencies could identify other staff to participate. Interviews were recorded and transcribed. A consensus-based approach to coding and thematic analysis was used.

Results Although some agencies had a fairly static number of patients, most described recent experiences with modest growth in MOUD census and the ability to provide same day/next day MOUD. Multi-level factors, including organizational, patient, and community factors, were perceived to impact MOUD census. Organizational characteristics impacting growth included the physical space of the clinic and staffing. Organizational policies in some agencies constrained treatment retention, while other agencies implemented innovations to better meet patients' needs. Patients often encountered numerous obstacles to treatment initiation and retention, including limited access to transportation, technology, stable housing, and childcare. These patient-level barriers often reflected community characteristics, while community stigma also impeded MOUD growth.

Conclusions Although some degree of growth in MOUD has occurred, multiple barriers are impeding further increases in treatment initiation and retention. Overcoming some barriers would likely require policy changes related to financing and regulation, while other barriers would require community-level efforts to decrease stigma and greater community investment in infrastructure, such as transportation and housing.

*Correspondence:
Hannah K. Knudsen
hannah.knudsen@uky.edu
Full list of author information is available at the end of the article

Trial registration ClinicalTrials.gov, NCT04111939. Registered 30 September 2019, https://clinicaltrials.gov/ct2/show/NCT04111939.

Keywords Medication for opioid use disorder, Treatment retention, Staffing, Community resources, Policy, Stigma

Background

The opioid epidemic continues to be a major public health emergency in the United States (US), with fatal opioid-related overdose rates among the highest in the world [1]. An estimated 42.4% of US adults know at least one person who has died by overdose [2], and opioid-related overdose mortality has large economic costs [3]. Medications for OUD (MOUD) include methadone (a full opioid agonist), buprenorphine (a partial agonist), and naltrexone (an opioid antagonist) [4]. Buprenorphine and methadone are significantly associated with reduced risk of both overdose and recurrence of opioid use, when compared to no treatment or non-MOUD treatment [5, 6]. Buprenorphine and methadone increase quality of life and improve health outcomes [4].

Underutilization of MOUD, which reflects limited initiation and suboptimal retention, remains problematic from a public health perspective. Fewer than 30% of people with OUD in the past year actually received MOUD [7, 8]. Although buprenorphine utilization increased over the mid-2010s [9, 10], growth in the rate of buprenorphine initiation has largely been flat since 2018 [11]. The number of patients receiving methadone has remained fairly stable[12]. Utilization of naltrexone for OUD is very low.

Policy, structural, and patient-level barriers impede MOUD initiation. Buprenorphine and extended-release naltrexone can be prescribed in office-based medical practice. However, until the Mainstreaming Addiction Treatment Act within the Consolidated Appropriations Act of 2023, buprenorphine prescribers were required to apply for a waiver from the Drug Enforcement Agency (DEA) which was a barrier to adoption [13]. Individual prescribers have relatively small patient panels, with most having fewer than five buprenorphine patients [14]. The specialty SUD treatment sector, encompassing nearly 15,000 public and private outpatient, inpatient, and residential facilities focusing primarily on SUD treatment, has been slow to adopt MOUD. Only about 47% of specialty SUD programs provide buprenorphine, 42% provide extended-release naltrexone, and 14% are federally licensed opioid treatment programs (OTPs) that dispense methadone [15]. Models of care implemented in some MOUD programs may produce obstacles to care if there are delays in scheduling appointments, if only in-person services are offered, and if requirements are inflexible and not patient-centered [16]. In addition, many individuals with OUD do not perceive a need for treatment, have limited knowledge about MOUD, or hold misconceptions about MOUD [17, 18].

Regarding MOUD retention, quality standards recommend a minimum 6-month treatment duration [19]; however, only about one in five new buprenorphine patients are retained for ≥ 6 months, and this did not improve from 2016 to 2022 [11]. Research focused on how to improve retention is somewhat limited; a 2021 review screened 14,000 articles and identified only 9 randomized controlled trials (RCTs) that analyzed at least 6 months of objective data on buprenorphine retention; they found that dose was positively associated with retention, while the addition of behavioral therapy was not associated with retention [20]. A broader review comparing buprenorphine and methadone including both RCTs and observational studies reported greater retention for methadone but also called for more research on retention strategies, citing a paucity of evidence [21].

Although MOUD underutilization has been well-documented in quantitative terms, relatively few qualitative studies have focused on the barriers to scaling up MOUD to reach more patients through agencies that have already adopted MOUD. Drawing on qualitative interviews with MOUD agencies, this study describes multilevel barriers and facilitators to expanding MOUD in Kentucky. We draw upon an adapted PRISM (Practical, Robust Implementation and Sustainability Model) framework [22] from the HEALing (Helping to End Addiction Long-term®) Communities Study [23, 24] in our analysis to elucidate the interplay between external context and internal context in MOUD utilization. The external context includes community-level and state-level factors, such as resources, policies, and community norms. The internal context includes both the organization and the people it serves. PRISM notes the importance of characteristics (e.g., financial resources, staffing resources) and perspectives (e.g., organizational norms, patient attitudes) in the implementation of EBPs. Here, we apply the PRISM framework to guide our analysis of the multi-level factors affecting MOUD initiation and retention, which has implications for scaling up MOUD.

Methods

Study design

This study was a small qualitative component within the HEALing Communities Study (HCS) by the University

of Kentucky site (HCS-KY). The HCS was a multi-site, parallel group, cluster randomized wait-list controlled trial that tested the Communities That HEAL (CTH) intervention's effect on opioid overdose deaths by comparing 34 communities randomized to Wave 1 (intervention) to 33 communities randomized to Wave 2 (waitlist control) in Kentucky, Massachusetts, New York, and Ohio [24]. After the wait-list control trial, the CTH intervention was replicated in the Wave 2 communities. This manuscript focuses on Wave 2 communities because Wave 1 communities were heavily impacted by the COVID-19 pandemic. Of Kentucky eight Wave 2 communities, five counties were urban and three were rural. All counties were highly impacted by opioid overdose deaths, and each had a syringe service program, a jail, and at least one MOUD provider.

The primary objective of the CTH intervention was to decrease opioid overdose deaths by scaling up of evidence-based practices (EBPs) and reducing stigma toward people with OUD and EBPs. The CTH intervention included community engagement with coalitions using a multi-phase process to prioritize EBPs for implementation from the Opioid-overdose Reduction Continuum of Care Approach (ORCCA), which included strategies seeking to expand MOUD and improve retention [25–28] among others. The community engagement process included a web-based landscape analysis to identify potential partner agencies for implementing EBPs. HCS-KY's landscape analysis sought to identify each county's OTPs and non-OTPs that delivered MOUD; if a county lacked a licensed OTP, a 50-mile radius was used to identify OTPs that may dispense methadone to the county's residents. This landscape analysis was supplemented by knowledge of programs identified by HCS-KY coordinators who lived in the Wave 2 communities and implementation facilitators who had built partnerships with multi-site MOUD agencies during Wave 1. Coalition members identified a small number of primary care-based MOUD programs as potential partners. Prior to initiating partnerships, research staff conducted a short telephone screening to assess whether programs were still open, provided MOUD for maintenance (meaning, not solely for withdrawal management), did not have a waitlist, and accepted Medicaid. This process identified 39 MOUD locations. After screening, implementation facilitators worked to develop partnerships with these agencies to implement each coalition's selected EBPs and offer resources. The HCS protocol (Pro00038088) was approved by Advarra Inc., the HCS's single Institutional Review Board and was registered at ClinicalTrials.gov (NCT04111939).

Data collection

Additional File 1 presents our consolidated criteria for reporting qualitative research (COREQ) checklist [29]. Semi-structured interviews were conducted with employees of MOUD agencies in eight Wave 2 HCS-KY counties from December 2022 to June 2023. The primary purpose of these interviews was to identify opportunities for partnerships in the implementation of ORCCA EBPs and to build rapport. Facility administrators/directors, prescribers, and clinicians were prioritized for recruitment, but agencies could identify other staff to participate. Data were intended to be collected in a small group format, but if an interview could only be scheduled with a single individual, it was still conducted.

Email and telephone invitations were used for recruitment. Of the 39 MOUD agencies, interviews were conducted with 77.0% (n = 30); 12.8% of the agencies refused (n = 5), and 10.3% (n = 4) were unresponsive. Twenty-seven interviews were conducted with 66 individuals who provided verbal informed consent. Two interviews were conducted with organizations that had multiple locations (two and three locations, respectively); at their request, an interview was conducted to cover the multiple locations with participants from each location as well as individuals in regional management roles. Twenty-two individuals identified for recruitment did not participate, with 11 refusing to participate and the remainder unavailable at the time of the group interview or unresponsive. Interviewers were trained HCS-KY Implementation Facilitators. All interviews were conducted prior to efforts to implement MOUD-related ORCCA strategies during the CTH intervention. Interviews were recorded and professionally transcribed; transcripts were named with individual participant identification number (e.g., an interview transcript with three participants is named with three numbers). No payments were provided for participation.

The semi-structured interview guide included open-ended questions about MOUD census, resources needed to increase the patient census, barriers to MOUD access and retention, and the impact of the COVID-19 pandemic. Interview data regarding types of MOUD and current census differentiated types of organization and size.

Data analysis

An initial codebook was created based on the PRISM framework, with code definitions and inclusion/exclusion criteria for each code. Similar to other qualitative studies in the HCS [30, 31], the coding team (HKK, SBH, SAH) used a consensus-based approach to apply the codebook

Table 1 Key themes related to scaling up medication for opioid use disorder (MOUD)

Domains	Key themes
Growth experience and capacity for growth	• Recent growth in patient census was common • Agencies wanted to grow their patient census • Significant growth would stretch staffing, physical space, and financial resources
Organizational barriers and facilitators to growth	• Some organizational policies impeded growth • Innovative services, if billable, facilitated growth
Patient-level social determinants of health as barriers to growth	• Patient's lack of access to key resources impeded growth • Reliable transportation • Communication technology • Safe, stable housing • Childcare
Community-level barriers to growth	• Community stigma negatively impacted patients • Limited community resources and infrastructure impeded retention
External factors impacting growth	• Insurance policies created barriers for some patients • Telehealth and federal MOUD policy changes in response to COVID-19 had mixed effects

to four transcripts; coding discrepancies and codebook updates were logged. Once consensus was reached, the remaining transcripts were independently coded in NVivo 12.0, with ongoing meetings to discuss coding challenges. The codebook is included as Additional File 2. After coding, we conducted a thematic analysis [32–34] of the multilevel factors impacting MOUD growth. To enhance rigor, the coding team reviewed code reports independently for themes, then discussed themes and representative passages during meetings until consensus was reached [35].

Results

Organizational characteristics and participants' roles

Of the 30 MOUD agencies, seven were OTPs, two delivered MOUD in outpatient primary care practices, and 21 were non-OTP specialty treatment organizations. Nine were located in rural counties. Regarding census, five agencies were very large (>400 MOUD patients), nine were large (200–400 MOUD patients), four were medium (100–199 MOUD patients), three were small (50–99 MOUD patients), and nine were very small (<50 MOUD patients). Regarding interviewee roles, 50.0% (n=33) were in local leadership positions (e.g., facility administrator, chief executive officer, chief operating officer) or other local management roles (e.g., community outreach manager), and 16.7% (n=11) served in regional leadership roles. Another 31.8% were participants from clinical professions (n=11 in therapy, case management, or clinical supervision roles; n=4 physicians; n=4 in nursing roles; n=2 medical assistants). The role of one participant was unknown.

Most organizations had experienced recent growth and had capacity for modest growth, but significant growth would stretch resources

A summary of key themes is presented in Table 1. Although some agencies had a fairly static number of patients, most described recent experiences with modest growth in patient census. For about half of the agencies experiencing growth, patient volume had increased at their existing sites with new admissions exceeding monthly discharges. For the other half, growth had occurred by opening new sites or purchasing existing clinics.

When asked about their perspectives regarding growth, nearly all participants indicated strong interest. In the words of one participant:

> *We are very interested. Anytime that we can get people into our program and of course help them, that's our goal. We are increasing our providers. We recently brought on case management. And we're looking to hire more counselors. So, it's like the people are there and in place to serve. It's just getting more patients here and building that client base.*
> *(4346; very large, urban, non-OTP)*

One indicator of capacity to grow was the ability to admit new patients quickly. Most agencies reported being able to admit new patients either with same day or next day appointments:

> *We try to take them as soon as they walk in the door. Unfortunately, in this line of work, if you don't take them when they're ready for treatment or you try to schedule appointments, they usually generally will not come back. So, our goal is to get them in here to try to save their lives and not make them another statistic. So, we work really hard if somebody walks in through the front door and wants to do an intake that we will scramble around if we have to find a counselor that can do it, because it is time consuming. But we will do whatever we have to do to get them in the same day.*
> *(4247_4273_4274; large, urban, OTP)*

Another participant described their capacity for new intakes similarly and noted that same day appointments were not the norm in other healthcare specialties:

> *I was just going to say with turnaround time, a patient can not have an appointment, come to [clinic name] and leave that day with a counselor, with treatment, and with a case manager. All on the same day, without an appointment. It's crazy. But it just honestly to me shows the dedication of [Participant 1] and the practice. We all roll the same way and put patients first. But to me that's--I couldn't do that at my doctor. I'm sure most people don't have that luxury of, "oh, I'm sick today, can you get me in same day?" And we're just like, "Just come, if you come, we'll take care of you, just come." And that's kind of our motto throughout everything.*
> *(4349_4348; very large, urban, non-OTP)*

Of note, nearly all agencies indicated that patients received medication on the intake day.

Two organizational characteristics likely to impact growth were the physical space of the clinic and staffing. For some, ample space was available to accommodate more patients, but growth would require hiring additional staff:

> *Well, right now we, we, I would say we have unlimited capacity to grow. I mean, our biggest limitation is staffing, probably, more than anything.*
> *(4157_4175_4176_4177; very large, urban, OTP)*

Other agencies described that creative reallocation of space and renovations might support growth in their current location:

> *We have a group room that we only utilize for orientations twice a week, so there's a group room there. We also have a couple offices that don't have people in them yet, so there's that. So, as we grow, and our census grows, there might be people in those offices, but there's not anybody in those offices now.*
> *(4249; large, urban, OTP)*

For other agencies, the total square footage of the current location could not accommodate an increase in patients and staff:

> *We would need a bigger clinic at some point. Ours is very small. Not much room for the current staff that we have there now. If we were doing 25 new patients a month, we'd probably outgrow that in six months easily.*
> *(3824_4180_4173; medium, rural, non-OTP)*

For some organizations, the physical space of the clinic was adequate, while others would need to change locations if significant growth occurred.

A consistent theme was that significant growth would necessitate hiring additional staff. Most agencies had enough staff for their current patients and new intakes, but staff were described as wearing "many hats." It was quite normal for staff to carry responsibilities across multiple roles:

> *We're a small office, so all my staff wears a lot of hats. My administrative assistant at the front desk right now is doing that insurance legwork for me. Like I said, before they're even clients, he's working with them before and trying to make sure that we have a place to send them.*
> *(4156; very small, urban, non-OTP)*

Another agency noted that prescribers were intentionally capped in terms of patient census so that prescribers could provide other medical services needed by their MOUD patients:

> *We usually try to keep a nurse practitioner around 100 patients. Because we treat hepatitis C, we treat infectious disease, and so they'll manage other things like blood pressure. We'll bridge script until we get patients into family doctors if they need to. We try to keep the census around 100 patients per provider.*
> *(4211_4215; very small, urban, non-OTP)*

Furthermore, significant growth would also require hiring other professionals. Increased staffing would be needed due to regulations for OTPs or regulations for residential treatment programs:

> *So, to increase that number by 25, right now our regulations read 40 patients per counselor. So, we would need enough counselors to be able to provide the care.*
> *(4249; large, urban, OTP)*

An agency providing MOUD in a residential setting also noted that challenges of hiring and retaining staff:

> *The primary thing we would need right now would be staff. And that's not necessarily medical staff or provider staff, but clinical staff and direct supports. So that's a big issue we're seeing right now in terms of keeping our units staffed, especially overnight. We really try very hard to maintain an appropriate staff to client ratio because, obviously, we want to provide good care to the people that we have here with us. So that would be the primary barrier from our standpoint would be staffing.*
> *(4196; small, urban, non-OTP)*

For some agencies, hiring additional staff would be financially challenging. In the words of one agency, *"Yeah, so nurses. Nurses is our big one now and we just*

can't afford them. We just can't afford them" (4333_4334, very large, urban, non-OTP). Financial challenges partly reflected market forces as nurses were in high demand due to the COVID-19 pandemic, and wages were rising across the entire labor market. Another agency described wanting to build a partnership with the local jail to increase linkage to MOUD when people were released, which would lead to MOUD growth; the impediment was that linkage services were not billable, so grant funding was needed but had not been obtained:

> *So, when they left the jail, they'd not only have familiar faces to go and continue on their road to recovery, [MOUD clinic name] faces, that they would have the Vivitrol® already in their system and it would reduce their cravings once they hit the street again. So, it's a re-entry specialist is this very specific job for this, and they do for about $70,000 a year. Probably a little bit more than that as a salary. So, neither the jail or [MOUD clinic name] could afford that. So, we keep waiting on these grants, and we have been part of two grants, hopefully for funding related to having a re-entry specialist. But we haven't been successful in obtaining that. (3824_4180_4173; medium, rural, non-OTP)*

Financial constraints for some agencies thus limited their ability to begin new initiatives that would increase their census over time and better address patients' needs.

Organizational policy and innovations served as barriers and facilitators to growth

Organizational policy was sometimes viewed as an obstacle to growth, particularly policies that impeded retention. Some of these policies were not aligned with recommendations for good clinical practice and were more stringent than required by state regulations. For example, several agencies noted specific requirements within their treatment protocols, particularly around the frequency of office visits, that hindered retention:

> *We run a high intensity Suboxone program. We have a lot of requirements. We run, I call it a tight ship. We don't play a lot with our Suboxone. We do have a high expectation. People who get Suboxone with us come daily for eight weeks, five days a week. And that's a big thing when you've been running or living in the middle of addiction, and we expect a five day a week attendance.*
> *(4156; very small, urban, non-OTP)*

Additionally, counseling requirements, embedded within organizational policy, were described by several participants, which made ongoing treatment more difficult for some patients.

Other MOUD agencies recognized that patients encountered multi-level barriers to retention and implemented innovations to reduce patient burden. Some innovations were billable to insurance, such as peer support, medical care for hepatitis C, or psychiatric services. Other innovations, such as transportation assistance, were not billable which placed additional financial constraints on the agency:

> *So those patients are already fragile and that is 85% to 90% of our patient population. So, we immediately try and identify, are these going to be at-risk patients? Is their behavior showing us risky behavior? And so then, when we do the crisis management with these patients and we bring them in two to three times a week, we are providing transportation for them. So, we give them, that's completely free. We can't bill for that. This is something we've been doing since we moved to a bigger space. We kept seeing that transportation seemed to be the number one issue. That patients didn't get to their appointment. And for some patients who did, unfortunately, they were being trafficked just so that they could have transportation to get to their appointments. So, we were like, "Okay, we have to stop this." (4333_4334; very large, urban, non-OTP)*

A small number of agencies had obtained grant funding to provide transportation to the agency and other community locations. In one instance, participants described foregoing their own salaries to fund transportation services for patients. These varied strategies for transportation focused on building recovery support and reducing barriers to ongoing treatment.

Social determinants of health at the patient-level affected MOUD census

To some extent, constraints on growth occurred at the patient-level, with patients reporting numerous challenges related to transportation, communication technology, housing, and childcare. Transportation barriers at the patient-level were frequently mentioned. One agency discussed transportation in relation to patient discharges:

> *Probably over half of the discharges that we end up with are due to transportation issues. Whether it is not having transportation at all or not being able to afford gas to get to and from.*
> *(3820_3891_4209; very small, rural, non-OTP)*

Having a reliable vehicle or money to afford public transportation was a key factor in treatment initiation and retention. In some instances, patients lacking transportation walked long distances, even in unbearable conditions, to continue their journey of recovery:

Participant 2: A lot of them walk.
Participant 1: We've had patients that walk from-
Participant 2: Four or five...
Participant 1: We have one that works, what? [Name] Road is how far out there?
Participant 2: It's seven, eight...
Participant 1: 12 miles.
Participant 2: It's 7, 8, 12 miles, they're walking.
Participant 1: And they would leave their house at four o'clock in the morning to get here by what? 10:30? And have to walk all the way back. And they did that for a while until they just couldn't do it anymore. And when winter was here, it was really brutal. So, a lot of our patients walk because they can't afford.
(4247_4273_4274; large, urban, OTP)

Other participants shared that limited access to communication technology, safe housing, and childcare were significant barriers. Some patients lacked consistent access to cellular devices, preventing them from staying in regular contact with the treatment agency:

The problem is, number one, cell phones being able to get in touch with these patients. So, all of them have prepaid phones and they have these prepaid minutes. So, we send out reminders for appointments. So, if your appointment's in a week and we can't get a reminder to you, and you've used drugs within the time you were here last time to when you come in, it's likely not that they're going to remember they have an appointment. We have literally went to one of the patient's houses because we hadn't seen them in a while, and we were very worried about them and said, "Hey, please just come with us. We'll get you some food, we'll feed you at the office. Let's just see what's going on." Right? Because we worry. So, our follow-through is great, but the missing link is patients not having the access to be able to text or they're out of their minutes and when they get here, the first thing they want to do was jump on our wi-fi because when they jump on our wi-fi, they can text mom, dad, or whoever. So yeah, because they have no minutes on their phones. Next to transportation, that is the biggest barrier that no one's talking about.
(4333_4334; very large, urban, non-OTP)

Some patients lacked safe, stable housing that was supportive of recovery. Housing environments with people who were actively using drugs were very challenging, as such living situations increased the risk of relapse and affected treatment retention:

Interviewer: Aside from transportation, what are some of the other significant barriers to treatment retention?

Participant: I think environment that they live in is probably the next biggest thing. They're living with people who are all continuing to use, so eventually, that seeps into their heads and they just give up on treatment, because it's easier to just use with the people that you're around. They have nowhere else to go. They have to continue to live in these situations, or they don't have anything outside of that that gives them any kind of push.

(3864_3926_4208; very large, rural, non-OTP)

Finally, women sometimes faced additional barriers due to lack of childcare:

We have mainly female patients here at [clinic location], and I don't know if you all do this, but some type of childcare, I don't know. Some people have to bring their kids into their appointments with them sometimes, and then sometimes they can't come in because they don't have somebody to watch their kids.

(4155_4194_4188_4210; very small, urban, non-OTP)

In summary, many patients experienced poverty, limiting their access to transportation, communication technology, safe housing, and childcare. For these patients, MOUD retention was an ongoing challenge, which consequently impeded growth in the agency's census.

Community-level barriers to moud growth: local stigma and limited infrastructure constrained growth

Barriers to MOUD initiation and retention at the patient-level intersected with the community context. Regarding community culture, participants described that stigma against MOUD was still prevalent:

But really breaking that negative stigma of, it's horrible to say, but pill mill mentality. You hear treatment, people in small communities don't hear, "Oh, we're healing communities." They hear, "Oh, you're pushing scripts. Just take it out of their mouths. They just don't need to do it again. Just stop using." They think it's really easy. Breaking stigma is a big thing.
(4211_4215; very small, urban, non-OTP)

A general sense of community stigma served to undermine patients' willingness to initiate and remain on MOUD.

Stigma could also be found in specific sectors of the community where MOUD patients experienced negative interactions and discriminatory organizational policies. One participant shared how stigma towards MOUD

patients revealed itself in pharmacies, which prompted the agency to open an in-house pharmacy:

> *Going to the pharmacies locally was a big stigma because they weren't treated very kindly picking up Suboxone scripts. Small towns talk. So, [we] eliminated that barrier as well. They can come here, use the in-house pharmacy to pick up medications and avoid the pharmacy stigma hurdles.*
> *(4211_4215; very small, urban, non-OTP)*

Another participant noted that patients experienced stigma when navigating recovery support services such as sober living facilities:

> *So, a big issue that we see is actually after they've completed residential treatment… But one of the largest barriers we see is afterwards trying to refer clients to other sober living. It's very often that transitional house or recovery house or halfway house, or however you want to phrase it, they don't take people that are on Suboxone actively. So that's a tricky issue that we have on the back end, and that's probably the largest barrier that we have right now. You don't want to set people up on a medication and then tell them, "By the way, the place that you're going to, you can't take this medication." So, there's often a shortage of quality options for them.*
> *(4196; small, urban, non-OTP)*

In addition to stigma, communities varied in terms of resources due to geographic location and population size. Smaller rural communities generally lacked public transportation infrastructure and private transportation options (e.g., taxis, rideshare), resulting in a significant barrier at the community-level:

> *Community resources are huge. We just don't have a whole lot to refer people out to. If they don't have transportation and they can't ride the [local van service], then there's nothing here that we can refer them to, so being in a small community kind of hinders us in that way.*
> *(3864_3926_4208; very large, rural, non-OTP)*

Another participant shared how there was no transportation access at all in their community which led to patients either walking to their appointment or relying on someone in their support system to drop them off:

> *There is no bus service, there's no cabs, there's nothing here. They'll walk or get dropped off by someone they know.*
> *(3824_4180_4173; medium, rural, non-OTP)*

Even in communities with public transportation, schedule mismatches and limited service routes were significant barriers, particularly for those who were employed:

> *…the bus system is difficult for people that have to work, you know, it takes multiple hours to get to us and then back home and whatever, so it's not really a feasible option for a lot of patients. So, transportation I would say is probably number one.*
> *(4157_4175_4176_4177; very large, urban, OTP)*

At the community-level, transportation systems often failed to meet the needs of MOUD patients, with smaller, rural communities lacking public transportation infrastructure and urban communities having public transportation systems that did not efficiently move people to their destinations.

Smaller, more rural communities experienced technological infrastructure barriers, which made it more difficult to expand MOUD treatment via telehealth. These communities had limited access to broadband internet and cell reception, which impeded agencies who wanted to reduce patients' transportation barriers by implementing telehealth. Even urban areas faced challenges, as one urban participant noted, *"And Kentucky's the worst part because we have deserts for internet, period" (4333_4334; very large, urban, non-OTP).*

Housing barriers also reflected community-level resources, particularly transitional and recovery housing services. Although recovery housing was limited in most communities, there were more transitional housing options for men and fewer options for women, particularly for pregnant women or women with children. One participant shared:

> *Another issue that we do have in terms of --- sorry to circle back to barriers, just housing in general is a major barrier depending on --- it's a lot easier for men to find transitional housing than it is for women to find transitional housing, especially women and children. So that's a major focus right now for us is trying to acquire more housing resources for our female clients, especially our female clients that have their children and are currently providing care for their children.*
> *(4196; small, urban, non-OTP)*

In summary, the community contexts constrained MOUD growth though stigma and limited infrastructure, exacerbating patient-level barriers.

Broader external factors impacting growth: insurance-related policies and the COVID-19 pandemic

Insurance-related policies impacted MOUD growth in multiple ways. First, some new patients needed to acquire insurance after incarceration or other life circumstances had resulted in a coverage lapse:

A lot of times insurance is a barrier. We have a lot of people who call, they want treatment, but they've been incarcerated and their Medicaid lapsed, or they've been in these streets and just forgot to send in some paperwork and their Medicaid lapsed. So, when those patients come in, the first barrier we have to get through, is getting them insurance so they can get their medication and get their doctor's visit. So, a lot of times getting your insurance reinstated is a hurdle.
(4156; very small, urban, non-OTP)

This type of insurance barrier was surmountable, as Kentucky is a Medicaid expansion state, so agency staff would help patients obtain insurance. Other barriers, such as deductibles and co-pays in commercial insurance plans, were more difficult to overcome:

So, some of them could be the commercial health insurance, a lot of the plans require them to pay their full deductible before they cover. So, [major insurer] is an example. Their copay is $20 a day. Well, our cash fee is only $15 a day. So, in order for them to utilize their [major insurer] insurance, they have to pay their full $2000, $3000, $5,000 deductible, whatever it may be, before they could actually utilize that benefit. So, for a lot of our patients, they choose not to utilize the insurance benefit unless they've got some other health concerns, too. Because they're paying $5 a day more than if they were just a self-pay patient.
(4181_4054_4159, small, rural OTP)

Finally, many participants noted that the policies of Medicaid's transportation service resulted in barriers to MOUD retention. Its 72-h advance scheduling policy was difficult for patients to navigate. Other policies rendered some patients ineligible to use the service. The following participant described multiple policy-related obstacles to using Medicaid transportation:

We do have women who use the Medicaid transportation. But again, that takes planning and early in recovery, that's hard to plan 72 hours in advance. And oftentimes they're not reliable, the Medicaid transportation. So, if that's our last option, that we use. But that also can run into barriers because you can't live within a mile of a [bus] stop. You can't have a car registered to your name. So even that resource can become challenging.
(4189; very small, urban, non-OTP)

A second broader external factor were policy changes enacted during the COVID-19 pandemic. Some described positive impacts due to the rapid rise in telehealth, but also the negative impacts of pandemic-related stress on patients:

I guess first thing I would say around positives, I'll start there, is just that we've made better utilization of telehealth services and electronic means of outreach to patients. It's helped with patient engagement and retention as well, as people are able to be seen via telehealth and not just in office all of the time. Then some of the negatives that I would say, we've seen an increased amount of mental health needs with our patient population, increased anxiety and depression for sure, obviously increased risk of overdose and in some cases overdose.
(4167_4164_4191_4161_4192_4190; large, urban, non-OTP)

Others noted that telehealth had maintained access to MOUD during the height of the pandemic, but now there were challenges, such as increased competition from telehealth-only MOUD agencies and a minority of patients not wanting to return to in-person care:

Participant: We never offered telehealth services prior to the COVID-19 pandemic, and now that is more of an option for our patients, so I think that's a positive way that it's impacted us. I do think the year that most things were telehealth kind of disengaged a lot of patients.
Interviewer: When you say disengaged--
Participant: They started in that time, they got used to doing telehealth and not coming into the clinic, so when we tried to transition back to more in-house services, we lost a lot of patients, because they got used to the telehealth and it was more convenient for them…I think that the pandemic opened up a lot of options for fully telehealth clinics, and that has impacted our retention to, not a huge extent, but we've lost maybe five or ten patients to strictly telehealth clinics, because it's easier for them. I would say not a huge impact on us, but five or ten patients is five or ten patients. You want to keep as many as you can engaged in treatment.
(3864_3926_4208; very large, rural, non-OTP)

For OTPs, the pandemic resulted in changes to federal regulations that allowed for telehealth and greater flexibility for take-home medications:

Participant 1: I mean, candidly, I think it [the pandemic] opened up a lot of extra doors and because primarily before we didn't use telehealth for anything. We didn't use it for sessions, we didn't use it for anything. So, I think at least for a temporary piece, it opened our door, our eyes opened to, we

can think outside the box, and we did that. We were able to expand take-homes to our patients and work within different parameters. So, I think we really were forced to look outside the box. And I think…we as an agency and as a field kind of grew from that. We made mistakes along the way obviously, but I think we learned a lot about individualized treatment even more so than we were already doing.
Participant 2: Yeah. I think it also forced federal and state regulators to, I think it really forced them to think outside the box quickly and it proved to them that we could handle treating a whole lot of patients in a crisis crazy situation and could really take care of our patients really well, and the patients could also handle it. And it's resulted in, not only have they continued to extend a lot of the COVID exceptions … currently our state regulations are being amended. And at the federal level, the DEA and SAMSHA are expected to make the COVID exceptions permanent in their regulations. But this is something that has several of those things are, knock on wood, it looks like they're going to turn out working to our and the patient's advantage.
(4181_4054_4159; small, rural, OTP)

The likely permanence of these regulatory challenges was viewed by most participants from OTPs as opportunities to maintain greater flexibility and better meet the needs of patients.

Discussion

Expanding the number of people receiving MOUD is an important strategy for addressing the opioid epidemic. Qualitative interviews with MOUD agency staff revealed the complex multi-level factors that affect MOUD census. Agencies largely had the organizational resources to support modest levels of growth, but large-scale growth would likely strain staffing resources and potentially the clinic's physical space. Additional constraints on growth included organizational policies, patient-level characteristics, limited community resources, and stigma.

Of note, many programs had experienced modest growth in their census. Some growth may have resulted from individuals returning to care after the COVID-19 pandemic had waned. Growth may also reflect the persistently high rates of OUD in Kentucky [36]. Structural changes in healthcare financing likely underpinned growth. Kentucky expanded Medicaid under the Affordable Care Act, and among people who use drugs, the increase in health insurance has been dramatic, with one study of a longitudinal cohort of people who use drugs finding an increase from 34% in 2008 to 87% in 2017 [37]. In July 2019, Kentucky's Medicaid program finally began coverage for methadone dispensed by OTPs; by mid-2021, about 60% of individuals receiving methadone in Kentucky were Medicaid beneficiaries [38]. These structural changes are important given that cost has been cited as a patient-level barrier to entering care [39]. However, even with these policy changes, some patients continue to encounter barriers related to insurance. For example, in April 2020, Kentucky Medicaid removed the prior authorization requirement for long-acting injectable buprenorphine, and while this was associated with increased utilization, some Medicaid managed care organizations continued to process denials for this medication [40]. Further policy changes, such as the Modernizing Opioid Treatment Access Act (S.644) that has bipartisan and bicameral support, could spur development of novel models of MOUD including low barrier pharmacy MOUD treatment, which has helped other countries improve MOUD access [41].

Another notable finding regarding capacity for growth is that nearly all participants described models of intake that provided MOUD on the same day or day following intake. Waitlists to MOUD have long been noted in the literature [39, 42], so the rise of same day/next day MOUD represents a substantial improvement. Same day/next day intakes are central to low-threshold treatment models that have been described as a means to expand MOUD [43, 44]. Many participants drew the connection between same day/next day MOUD and harm reduction, which also aligns with the core components of low-threshold care [44]. Other aspects of low-threshold care were not described, such as reducing or eliminating counseling requirements which can be detrimental to retention [45]. In part, Kentucky's regulatory environment may prevent the loosening of counseling requirements; an analysis of state-level regulations for methadone categorized Kentucky as "high restrictiveness on patient experience," which was characterized by set schedules for counseling [46]. State regulations pre-pandemic also set schedules for buprenorphine office visits and for counseling [47, 48]. As of March 2023, a policy analysis showed Kentucky was one of 19 states explicitly regulating buprenorphine [49]. Buprenorphine regulations promulgated by the Kentucky Board of Medical Licensure (KBML) specify the need for behavioral modification, frequency of clinician visits and drug testing, initiation doses and maintenance dose maximums, and in June 2024, the KBML proposed revising its regulations to become more stringent (e.g., removing allowances for split dosing, requiring gabapentin testing) [50, 51]. However, even with the stringency of Kentucky's regulations, some MOUD agencies have implemented even more intensive visit requirements than are required by KMBL's regulations, which is not evidence-based and

likely restricts access. The evidence base and best practice guidelines recommend that patients stay in MOUD treatment for as long as needed, that medication doses and treatment plans to be individualized, and that patients not be forced off their medication because of not attending counseling [52, 53]. Non-evidenced based practices that do not prioritize utilization of MOUD or that force medication withdrawal without regard for the individual patients' needs most often result in the patient dropping out of medical care, returning to use, and increase risk for death and other adverse outcomes [54–56]. By many other measures, policy leaders in Kentucky have taken proactive steps to make methadone and buprenorphine more accessible (e.g., Medicaid expansion, Medicaid covers all the FDA-approved MOUDs). This highlights the complex external context that affects MOUD treatment access and the simultaneous need for active participation from community, state, and national stakeholders to reinforce the need for evidence-based practices and try to prevent implementation of proposed access-limiting regulations.

The ability of MOUD agencies to grow, particularly through increased retention, was constrained by multiple factors. A key organizational constraint on growth was staffing. Previous research suggests that achieving growth in MOUD prescribers requires intentional strategies, such as having someone dedicated to the role of recruitment and having a specific budget allocation for recruitment, yet these strategies are not widely used [57]. Recruitment of other professions, such as counselors, may be particularly challenging in rural areas [58]. Furthermore, the treatment field has long experienced elevated rates of staff turnover [59, 60]. These challenges were likely exacerbated by the COVID-19 pandemic; recent research has documented an increasing percentage of the healthcare workforce transitioning to non-healthcare sectors [61]. However, there may be opportunities to engage and train new workforces, such as peer recovery coaches, who are persons with lived experience of remission from substance use disorder who have been trained to provide health education and practical support [62]. As part of HCS-KY, we developed a MOUD training program and then deployed 94 recovery coaches to link people to MOUD and help retain them in care [63]. Recovery coaches were well-received by MOUD agencies, such that programs largely agreed to retain their coaches once state opioid abatement funds were obtained to fund the positions after the CTH intervention ended.

Constraints on growth also result from intersections of patient-level and community-level characteristics. Many MOUD patients face challenges, such as lack of transportation, lack of communication technology, and housing [42]. Participants underscored lack of transportation as a key barrier, which has been highlighted in qualitative interviews [64] and surveys with MOUD patients [65, 66]. However, transportation barriers are not solely a patient-level phenomenon, but rather reflect community infrastructure (i.e., the absence of public transportation entirely or time-intensive transportation systems). During Wave 1 of HCS-KY, a novel peer-led transportation model was developed in a rural county that lacked public transportation; this service transported over 150 patients to methadone treatment [67]. Such novel transportation models are worthy of further exploration and may be reimbursable through CMS principal illness navigation peer support (PIN-PS) codes [68].

Access to communication technology is another area where there is an intersection between individual and structural barriers. A large survey of rural people who use opioids found that 35% did not have a cell phone, and that lack of a cell phone was correlated with a decrease in the number of days of receiving MOUD [69]. Although cell phone ownership is a patient-level phenomenon, digital divides persist at the community level, particularly in rural areas that have limited high speed internet connectivity [70].

Participants noted that many patients faced housing challenges such as homelessness, unsafe housing situations, or recovery housing that was hostile to MOUD. Similar to our study findings, a qualitative study of patients and providers identified lack of safe and stable housing as a major barrier, interfering with attending appointments and increasing risk of relapse [71]. Policies that broadly discriminate against persons based on having a substance use disorder and receiving MOUD may be violations of the Americans with Disabilities Act and there are avenues to report such policies [72], which could over time help expand MOUD-friendly recovery housing. The issue of housing again highlights the intersection of the personal and the structural, as broader economic forces have resulted in the lack of affordable housing which poses a significant threat to individual-level and population-level health [73].

Many participants shared how community stigma impacted patients. Stigma was often noted as a major barrier impacting MOUD growth, and it operated in multiple ways. These findings on stigma surrounding MOUD growth are consistent with recent qualitative studies [74–77]. Similar to our findings, other studies have shown how MOUD-related stigma is a significant factor in the types of MOUD treatment that patients chose and their experience in MOUD treatment [39, 75, 76]. A clear pattern emerged in our findings beyond general community stigma, with stigma operating in other health-related settings, such as pharmacies and recovery housing, that negatively impacted patients receiving MOUD.

Several limitations should be noted. First, these interviews were conducted with MOUD agencies in a single state, so the themes identified may not generalize to other states. These agencies were located in both urban and rural areas in a Medicaid expansion state, so some themes may have applicability to other similar states. Second, participants largely worked within specialty treatment settings where OUD or SUD treatment was the primary focus as opposed to settings where MOUD has been integrated into outpatient medical care; although community-level barriers likely impact primary care-based MOUD, there may be differences in terms of organization-level factors. Third, the interviews were conducted in the context of establishing partnerships for the HCS, which may have impacted how participants responded. Finally, we were unable to conduct qualitative interviews with MOUD patients, given the broader design of the HCS, but recognize that patients' perspectives may differ from staff working in MOUD agencies.

Conclusions

There is an ongoing need to scale up MOUD to meet the needs of people with OUD through increasing access and improving retention. These qualitative data from interviews with MOUD agencies revealed that some growth has occurred, but multi-level barriers are impeding further improvements in treatment initiation and retention. Overcoming some barriers would likely require policy changes related to how MOUD treatment is financed and regulated, while other barriers would require greater community investment in infrastructure, such as innovative strategies to improve transportation and housing. Future research is needed to better understand the impacts of addressing the social determinants of health in the context of MOUD initiation and retention.

Abbreviations

CTH	Communities That HEAL
DEA	Drug Enforcement Agency
EBP	Evidence-based practice
FDA	Food and Drug Administration
HCS	HEALing (Helping to End Addiction Long-term®) Communities Study
HCS-KY	HEALing (Helping to End Addiction Long-term®) Communities Study Kentucky site
HEAL	Helping to End Addiction Long-Term®
KBML	Kentucky Board of Medical Licensure
MOUD	Medication for opioid use disorder
ORCCA	Opioid-overdose Reduction Continuum of Care Approach
OUD	Opioid use disorder
PRISM	Practical, Robust Implementation and Sustainability Model
SAMHSA	Substance Abuse and Mental Health Services Administration
US	United States

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s13011-025-00644-y.

Additional file 1.

Additional file 2.

Acknowledgements

This research was supported by the National Institutes of Health and the Substance Abuse and Mental Health Services Administration through the NIH HEAL (Helping to End Addiction Long-term®) Initiative under award number UM1DA049406. (ClinicalTrials.gov Identifier: NCT04111939). This study protocol (Pro00038088) was approved by Advarra Inc., the HEALing Communities Study single Institutional Review Board. The content of this manuscript is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health, the Substance Abuse and Mental Health Services Administration or the NIH HEAL Initiative®. We wish to acknowledge the participation of the HEALing Communities Study communities, community coalitions, and organizations who partnered with us on this study. We wish to acknowledge the participation of the HEALing Communities Study communities, community coalitions, and organizations who partnered with us on this study. In addition, we wish to acknowledge the research staff who conducted interviews: Kathy Adams, Michael Goetz, Hallie Mattingly, Jeanie Hartman, Rachel Hoover, Latasha Jones, and Melissa Reedy-Johnson.

Authors' contributions

Study conceptualization and design was conducted by HKK, LF, MRL, and SLW. Funding was obtained by SLW. Data acquisition was carried out by SAH and SBH. Data analysis was done by HKK, SAH, and SBH. All authors were involved in data interpretation, editing, and manuscript approval. All authors read and approved the final manuscript.

Funding

This research was supported by the National Institutes of Health and the Substance Abuse and Mental Health Services Administration through the NIH HEAL (Helping to End Addiction Long-term®) Initiative under award number UM1DA049406. (ClinicalTrials.gov Identifier: NCT04111939). This study protocol (Pro00038088) was approved by Advarra Inc., the HEALing Communities Study single Institutional Review Board. The content of this manuscript is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health, the Substance Abuse and Mental Health Services Administration or the NIH HEAL Initiative®.
National Institutes of Health and the Substance Abuse and Mental Health Services Administration,UM1DA049406,UM1DA049406,UM1DA049406,UM1DA049406,UM1DA049406,UM1DA049406

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

This study protocol (Pro00038088) was approved by Advarra Inc., the HEALing Communities Study single Institutional Review Board. All participants provided verbal informed consent prior to being interviewed.

Consent for publication

Not applicable.

Competing interests

HKK, SBH, SAH, and LF declare that they have no competing interests. In the last three years, ML has been a research consultant for Braeburn Pharmaceuticals, Berkshire Biomedical, and Journey Colab, and has received a speaker honorarium for an invited research talk from Camurus. SW has served as a scientific advisor to Cerevel Therapeutics, Astra Zeneca, Kinoxis, Reacx, Titan, and Braeburn Pharmaceuticals.

Author details
[1]Department of Behavioral Science and Center on Drug & Alcohol Research, University of Kentucky, 845 Angliana Avenue, Room 204, Lexington, KY 40508, USA. [2]Substance Use Research Priority Area, University of Kentucky, 845 Angliana Avenue, Lexington, KY 40508, USA. [3]Department of Behavioral Science and Center on Drug & Alcohol Research, University of Kentucky, Lexington, KY 40508, USA. [4]Department of Internal Medicine, University of Kentucky, 300 Rose St., Suite C300, Lexington, KY 40536, USA.

Received: 12 November 2024 Accepted: 20 March 2025
Published online: 02 April 2025

References

1. Degenhardt L, Grebely J, Stone J, Hickman M, Vickerman P, Marshall BDL, Bruneau J, Altice FL, Henderson G, Rahimi-Movaghar A, Larney S. Global patterns of opioid use and dependence: harms to populations, interventions, and future action. Lancet. 2019;394:1560–79.
2. Athey A, Kilmer B, Cerel J. An Overlooked emergency: more than one in eight US adults have had their lives disrupted by drug overdose deaths. Am J Public Health. 2024;114:276–9.
3. Florence C, Luo F, Rice K. The economic burden of opioid use disorder and fatal opioid overdose in the United States, 2017. Drug Alcohol Depend. 2021;218: 108350.
4. Bell J, Strang J. Medication treatment of opioid use disorder. Biol Psychiatry. 2020;87:82–8.
5. Wakeman SE, Larochelle MR, Ameli O, Chaisson CE, McPheeters JT, Crown WH, Azocar F, Sanghavi DM. Comparative effectiveness of different treatment pathways for opioid use disorder. JAMA Netw Open. 2020;3: e1920622.
6. Mattick RP, Breen C, Kimber J, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. Cochrane Database Syst Rev. 2014;2014:CD002207.
7. Krawczyk N, Rivera BD, Jent V, Keyes KM, Jones CM, Cerda M. Has the treatment gap for opioid use disorder narrowed in the U.S.?: A yearly assessment from 2010 to 2019. Int J Drug Policy. 2022;110:103786.
8. Mauro PM, Gutkind S, Annunziato EM, Samples H. Use of medication for opioid use disorder among us adolescents and adults with need for opioid treatment, 2019. JAMA Netw Open. 2022;5: e223821.
9. Knudsen HK, Hartman J, Walsh SL. The effect of Medicaid expansion on state-level utilization of buprenorphine for opioid use disorder in the United States. Drug Alcohol Depend. 2022;232: 109336.
10. Schuler MS, Saloner B, Gordon AJ, Dick AW, Stein BD. National trends in buprenorphine treatment for opioid use disorder from 2007 to 2018. Subst Abus. 2023;44:154–63.
11. Chua KP, Nguyen TD, Zhang J, Conti RM, Lagisetty P, Bohnert AS. Trends in buprenorphine initiation and retention in the United States, 2016–2022. JAMA. 2023;329:1402–4.
12. Substance Abuse and Mental Health Services Administration: National Substance Use and Mental Health Services Survey (N-SUMHSS) 2023: Annual Detailed Tables. Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration; 2024. https://www.samhsa.gov/data/sites/default/files/reports/rpt53013/NSUMHSS-Annual-Detailed-Tables-23.pdf. Accessed 6 Feb 2025.
13. Saloner B, Andraka-Christou B, Stein BD, Gordon AJ. Will the end of the X-Waiver expand access to buprenorphine treatment? achieving the full potential of the 2023 consolidated appropriations act. Subst Abus. 2023;44:108–11.
14. Jones CM, Olsen Y, Ali MM, Sherry TB, McAninch J, Creedon T, Juliana P, Jacobus-Kantor L, Baillieu R, Diallo MM, et al. Characteristics and prescribing patterns of clinicians waivered to prescribe buprenorphine for opioid use disorder before and after release of new practice guidelines. JAMA Health Forum. 2023;4: e231982.
15. Substance Abuse and Mental Health Services Administration: National Substance Use and Mental Health Services Survey (N-SUMHSS), 2022: Annual Detailed Tables. Rockville, MD: SAMHSA; 2023. https://www.samhsa.gov/data/sites/default/files/reports/rpt42714/NSUMHSS-Annual-Detailed-Tables-22.pdf. Accessed 6 Feb 2025.
16. Substance Abuse and Mental Health Services Administration. Low Barrier Models of Care for Substance Use Disorders. Advisory. (Publication No. PEP23-02-00-005). https://library.samhsa.gov/sites/default/files/advisory-low-barrier-models-of-care-pep23-02-00-005.pdf. Accessed 6 Feb 2025.
17. Ali MM, Teich JL, Mutter R. The role of perceived need and health insurance in substance use treatment: implications for the Affordable Care Act. J Subst Abuse Treat. 2015;54:14–20.
18. Cioe K, Biondi BE, Easly R, Simard A, Zheng X, Springer SA. A systematic review of patients' and providers' perspectives of medications for treatment of opioid use disorder. J Subst Abuse Treat. 2020;119:108146.
19. National Quality Forum. Continuity of Pharmacotherapy for Opioid Use Disorder (OUD)—national quality strategy domain: effective clinical care; meaningful measure area: prevention and treatment of opioid and substance use disorders. https://qpp.cms.gov/docs/QPP_quality_measure_specifications/CQM-Measures/2019_Measure_468_MIPSCQM.pdf. Accessed 14 Oct 2024.
20. Kennedy AJ, Wessel CB, Levine R, Downer K, Raymond M, Osakue D, Hassan I, Merlin JS, Liebschutz JM. Factors associated with long-term retention in buprenorphine-based addiction treatment programs: a systematic review. J Gen Intern Med. 2021. Adv online publication. https://doi.org/10.1007/s11606-020-06448-z.
21. Degenhardt L, Clark B, Macpherson G, Leppan O, Nielsen S, Zahra E, Larance B, Kimber J, Martino-Burke D, Hickman M, Farrell M. Buprenorphine versus methadone for the treatment of opioid dependence: a systematic review and meta-analysis of randomised and observational studies. Lancet Psychiatry. 2023;10:386–402.
22. Feldstein AC, Glasgow RE. A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. Jt Comm J Qual Patient Saf. 2008;34:228–43.
23. Knudsen HK, Drainoni ML, Gilbert L, Huerta TR, Oser CB, Aldrich AM, Campbell ANC, Crable EL, Garner BR, Glasgow LM, et al. Model and approach for assessing implementation context and fidelity in the HEALing Communities Study. Drug Alcohol Depend. 2020;217: 108330.
24. HEALing Communities Study Consortium. The HEALing (Helping to End Addiction Long-term SM) Communities Study: Protocol for a cluster randomized trial at the community level to reduce opioid overdose deaths through implementation of an integrated set of evidence-based practices. Drug Alcohol Depend. 2020;217: 108335.
25. Winhusen T, Walley A, Fanucchi LC, Hunt T, Lyons M, Lofwall M, Brown JL, Freeman PR, Nunes E, Beers D, et al. The Opioid-overdose Reduction Continuum of Care Approach (ORCCA): Evidence-based practices in the HEALing Communities Study. Drug Alcohol Depend. 2020;217: 108325.
26. Young AM, Brown JL, Hunt T, Sprague Martinez LS, Chandler R, Oga E, Winhusen TJ, Baker T, Battaglia T, Bowers-Sword R, et al. Protocol for community-driven selection of strategies to implement evidence-based practices to reduce opioid overdoses in the HEALing Communities Study: a trial to evaluate a community-engaged intervention in Kentucky, Massachusetts. New York and Ohio BMJ Open. 2022;12:e059328.
27. Sprague Martinez L, Rapkin BD, Young A, Freisthler B, Glasgow L, Hunt T, Salsberry PJ, Oga EA, Bennet-Fallin A, Plouck TJ, et al. Community engagement to implement evidence-based practices in the HEALing communities study. Drug Alcohol Depend. 2020;217: 108326.
28. Chandler R, Nunes EV, Tan S, Freeman PR, Walley AY, Lofwall M, Oga E, Glasgow L, Brown JL, Fanucchi L, et al. Community selected strategies to reduce opioid-related overdose deaths in the HEALing (Helping to End Addiction Long-term (SM)) communities study. Drug Alcohol Depend. 2023;245: 109804.
29. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19:349–57.
30. Drainoni ML, Knudsen HK, Adams K, Andrews-Higgins SA, Auritt V, Back S, Barkowski LK, Batty EJ, Behrooz MR, Bell S, et al. Community coalition and key stakeholder perceptions of the community opioid epidemic before an intensive community-level intervention. J Subst Abuse Treat. 2022;138: 108731.
31. McAlearney AS, Walker D, Shiu-Yee K, Crable E, Auritt V, Barkowski L, Batty E, Dasgupta A, Goddard-Eckrich D, Knudsen HK, et al. Embedding big qual and team science into qualitative research: Lessons from a large-scale, cross-site research study. Int J Qual Methods. 2023;22:1–9.
32. Kiger ME, Varpio L. Thematic analysis of qualitative data: AMEE Guide No. 131. Med Teach. 2020;42:846–54.

33. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3:77–101.
34. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005;15:1277–88.
35. Castleberry A, Nolen A. Thematic analysis of qualitative research data: Is it as easy as it sounds? Curr Pharm Teach Learn. 2018;10:807–15.
36. Thompson K, Barocas JA, Delcher C, Bae J, Hammerslag L, Wang J, Chandler R, Villani J, Walsh S, Talbert J. The prevalence of opioid use disorder in Kentucky's counties: A two-year multi-sample capture-recapture analysis. Drug Alcohol Depend. 2023;242: 109710.
37. Knudsen HK, Lofwall MR, Walsh SL, Havens JR. Impact of health reform on health insurance status among persons who use opioids in eastern Kentucky: A prospective cohort analysis. Int J Drug Policy. 2019;70:8–14.
38. Marks KR, Talbert J, Hammerslag LR, Lofwall MR, Fanucchi LC, Broce H, Walsh SL. Contributions of a central registry to monitor methadone -treatment through the HEALing Communities Study. J Opioid Manag. 2023;19:73–81.
39. Hall NY, Le L, Majmudar I, Mihalopoulos C. Barriers to accessing opioid substitution treatment for opioid use disorder: a systematic review from the client perspective. Drug Alcohol Depend. 2021;221: 108651.
40. Hammerslag LR, Talbert J, Slavova S, Lei F, Freeman PR, Marks KR, Fanucchi LC, Walsh SL, Lofwall MR. Utilization of long-acting injectable monthly depot buprenorphine for opioid use disorder (OUD) in Kentucky, before and after COVID-19 related buprenorphine access policy changes. J Subst Use Addict Treat. 2024;164: 209391.
41. Panwala V, Joudrey P, Kowalski M, Bach P, Amram O. Changes to methadone maintenance therapy in the United States, Canada, and Australia during the COVID-19 pandemic: a narrative review. J Subst Use Addict Treat. 2023;152: 209086.
42. Hutchison M, Russell BS, Leander A, Rickles N, Aguiar D, Cong XS, Harel O, Hernandez AV. Trends and barriers of medication treatment for opioid use disorders: a systematic review and meta-analysis. Journal of Drug Issues. 2023. https://doi.org/10.1177/00220426231204841. epub ahead of print.
43. Chalabianloo F, Ohldieck C, Haaland OA, Fadnes LT, Johansson KA. Effectiveness and Safety of Low-Threshold Opioid-Agonist Treatment in Hard-To-Reach Populations with Opioid Dependence. Eur Addict Res. 2022;28:199–209.
44. Jakubowski A, Fox A. Defining low-threshold buprenorphine treatment. J Addict Med. 2020;14:95–8.
45. Gertner AK, Clare HM, Powell BJ, Gilbert AR, Jones HE, Silberman P, Shea CM, Domino ME. A mixed methods study of provider factors in buprenorphine treatment retention. Int J Drug Policy. 2022;105: 103715.
46. Conway A, Krawczyk N, McGaffey F, Doyle S, Baaklini V, Marshall AD, Treloar C, Davis CS, Colledge-Frisby S, Grebely J, Cerda M. Typology of laws restricting access to methadone treatment in the United States: a latent class analysis. Int J Drug Policy. 2023;119: 104141.
47. Andraka-Christou B, Gordon AJ, Bouskill K, Smart R, Randall-Kosich O, Golan M, Totaram R, Stein BD. Toward a typology of office-based buprenorphine treatment laws: Themes from a review of state laws. J Addict Med. 2022;16:192–207.
48. Andraka-Christou B, Golan OK, Williams M, Buksbaum S, Gordon AJ, Stein BD. A systematic review of state office-based buprenorphine treatment laws effective during 2022: counseling, dosage, and visit frequency requirements. Subst Use Addctn J. 2024;45:278–91.
49. Murray CM, Herpolsheimer A, Frazer A. Buprenorphine prescribing requirements and limitation. https://phlr.org/sites/default/files/uploaded_images/VS%20Buprenorphine%20Policy%20Brief_Feb2024.pdf. Accessed Oct 8 2024.
50. Enos G. Kentucky physicians call rewrite of buprenorphine rules onerous. Alcoholism Drug Abuse Weekly. 2024;36:36.
51. Enos G. Kentucky treatment backers mobilize to oppose access-limiting proposals. Alcoholism Drug Abuse Weekly. 2024;36:36.
52. Substance Abuse and Mental Health Services Administration. Medications for opioid use disorder. Treatment Improvement Protocol (TIP) Series 63 (Publication No. PEP21-02-01-002. Rockville, MD: SAMHSA; 2021. https://library.samhsa.gov/product/tip-63-medications-opioid-use-disorder/pep21-02-01-002. Accessed 6 Feb 2025.
53. Crotty K, Freedman KI, Kampman KM. Executive summary of the focused update of the ASAM national practice guideline for the treatment of opioid use disorder. J Addict Med. 2020;14:99–112.
54. Wakeman SE, Larochelle MR, Ameli O, Chaisson CE, McPheeters JT, Crown WH, Azocar F, Sanghavi DM. Comparative effectiveness of different treatmentpathways for opioid use disorder. JAMA Netw Open. 2020;3: e1920622.
55. Fiellin DA, Schottenfeld RS, Cutter CJ, Moore BA, Barry DT, O'Connor PG. Primary care-based buprenorphine taper vs maintenance therapy for prescription opioid dependence: a randomized clinical trial. JAMA Intern Med. 2014;174:1947–54.
56. Kakko J, Svanborg KD, Kreek MJ, Heilig M. 1-year retention and social function after buprenorphine-assisted relapse prevention treatment for heroin dependence in Sweden: a randomised, placebo-controlled trial. Lancet. 2003;361:662–8.
57. Molfenter T, Jacobson N, Kim JS, Horst J, Kim H, Madden L, Brown R, Haram E, Knudsen HK. Building medication for opioid use disorder prescriber capacity during the opioid epidemic: Prescriber recruitment trends and methods. J Subst Use Addict Treat. 2023;147: 208975.
58. Murphy J. Improving the recruitment and retention of counselors in rural substance use disorder treatment programs. J Drug Issues. 2022;52:434–56.
59. Eby LT, Rothrauff-Laschober TC. The relationship between perceptions of organizational functioning and voluntary counselor turnover: a four-wave longitudinal study. J Subst Abuse Treat. 2012;42:151–8.
60. Knight DK, Broome KM, Edwards JR, Flynn PM. Supervisory turnover in outpatient substance abuse treatment. J Behav Health Serv Res. 2011;38:80–90.
61. Shen K, Eddelbuettel JCP, Eisenberg MD. Job flows into and out of health care before and after the COVID-19 pandemic. JAMA Health Forum. 2024;5: e234964.
62. Eddie D, Hoffman L, Vilsaint C, Abry A, Bergman B, Hoeppner B, Weinstein C, Kelly JF. Lived experience in new models of care for substance use disorder: A systematic review of peer recovery support services and recovery coaching. Front Psychol. 2019;10: 1052.
63. Moffitt T, Fallin-Bennett A, Fanucchi L, Walsh SL, Cook C, Oller D, Ross A, Gallivan M, Lauckner J, Byard J, et al. The development of a recovery coaching training curriculum to facilitate linkage to and increase retention on medications for opioid use disorder. Front Public Health. 2024;12: 1334850.
64. Poulsen MN, Asdell PB, Berrettini W, McBryan K, Rahm AK. Application of the COM-B model to patient barriers and facilitators of retention in medication treatment for opioid use disorder in rural Northeastern United States: a qualitative study. SSM Ment Health. 2022;2:100151.
65. Boyd J, Carter M, Baus A. Access to MAT: Participants' experiences with transportation, non-emergency transportation, and telehealth. J Prim Care Community Health. 2024;15:21501319241233200.
66. Pasman E, Kollin R, Broman M, Lee G, Agius E, Lister JJ, Brown S, Resko SM. Cumulative barriers to retention in methadone treatment among adults from rural and small urban communities. Addict Sci Clin Pract. 2022;17:35.
67. Fallin-Bennett A, Moffitt T, Walsh SL, Lofwall M, Miles J, Underwood C, Combs, K, Fanucchi L. We drove to the moon: Ensuring methadone access in rural Kentucky through peer transportation. J Addict Med. 2025. https://doi.org/10.1097/ADM.0000000000001459. Epub ahead of print.
68. Centers for Medicare and Medicaid Services. Health equity services in the 2024 physician fee schedule final rule. https://web.archive.org/web/20250207211303/https://www.cms.gov/files/document/mln9201074-health-equity-services-2024-physician-fee-schedule-final-rule.pdf-0. Accessed 7 Feb 2025.
69. Button D, Levander XA, Cook RR, Miller WC, Salisbury-Afshar EM, Tsui JI, Ibragimov U, Jenkins WD, Westergaard RP, Korthuis PT. Substance use disorder treatment and technology access among people who use drugs in rural areas of the United States: A cross-sectional survey. J Rural Health. 2023;39:772–9.
70. Hampton J, Mugambi P, Caggiano E, Eugene R, Valente A, Taylor M, Carreiro S. Closing the digital divide in interventions for substance use disorder. J Psychiatr Brain Sci. 2024;9:e240002. https://doi.org/10.20900/jpbs.20240002.
71. Godersky ME, Saxon AJ, Merrill JO, Samet JH, Simoni JM, Tsui JI. Provider and patient perspectives on barriers to buprenorphine adherence and the acceptability of video directly observed therapy to enhance adherence. Addict Sci Clin Pract. 2019;14:11.
72. South AM, Fanucchi L, Lofwall M. Advocacy for patients with opioid use disorder: a primer for physicians and other clinicians on the Americans with Disabilities Act. J Opioid Manag. 2023;19:53–60.

73. Keene DE, Blankenship KM. The affordable rental housing crisis and population health equity: a multidimensional and multilevel framework. J Urban Health. 2023;100:1212–23.
74. Bridges NC, Taber R, Foulds AL, Bear TM, Cloutier RM, McDonough BL, Gordon AJ, Cochran GT, Donohue JM, Adair D, et al. Medications for opioid use disorder in rural primary care practices: Patient and provider experiences. J Subst Use Addict Treat. 2023;154: 209133.
75. Dickson-Gomez J, Krechel S, Ohlrich J, Montaque HDG, Weeks M, Li J, Havens J, Spector A. "They make it too hard and too many hoops to jump": system and organizational barriers to drug treatment during epidemic rates of opioid overdose. Harm Reduct J. 2024;21:52.
76. McCurry MK, Avery-Desmarais S, Schuler M, Tyo M, Viveiros J, Kauranen B. Perceived stigma, barriers, and facilitators experienced by members of the opioid use disorder community when seeking healthcare. J Nurs Scholarsh. 2023;55:701–10.
77. McLean K, Murphy J, Kruis N. "I think we're getting better but we're still not there": Provider-based stigma and perceived barriers to care for people who use opioids (PWUO). J Subst Use Addict Treat. 2024;159:209270.

Publisher's Note