

ORIGINAL ARTICLE

Integrating MOUD and Primary Care: Outcomes of a Multicenter Learning Collaborative

Christine Hancock, MD, MS^a; Ashley Johnson, MPH^b; Mandy Sladky, RN, MSN, CARN^c; Luann Lawton Chen, MD, MHA^d; Stephanie Shushan, MHA^d; Michael L. Parchman, MD, MPH^e

AUTHOR AFFILIATIONS:

^a Sea Mar Community Health Centers, Bellingham, WA

^b Department of Family Medicine, University of Washington, Seattle, WA

^c Public Health–Seattle & King County, Seattle, WA

^d Community Health Plan of Washington, Seattle, WA

^e Kaiser Permanente Washington Health Research Institute, Seattle, WA

CORRESPONDING AUTHOR:

Christine Hancock, Sea Mar Community Health Centers, Bellingham, WA, christinehancock@seamarchc.org

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ABSTRACT

Background and Objectives: Opioid use and overdose remain a central and worsening public health emergency in the United States and abroad. Efforts to expand treatment have struggled to match the rising incidence of opioid use disorder (OUD), and treating patients in primary care settings represents one of the most promising opportunities to meet this need. Learning collaboratives (LCs) are one evidence-based strategy to improve implementation of medication treatment for opioid use disorder (MOUD) in primary care.

Methods: We developed and studied a multidisciplinary MOUD learning collaborative involving six underserved primary care clinics. We used a mixed-methods approach to assess needs, develop curriculum, and evaluate outcomes from these clinics.

Results: We recruited six clinics to participate in the collaborative. Half had an established MOUD program. Approximately 80% of participants achieved their organizational quality improvement goals for the collaborative. After the collaborative, participants also reported a significant increase in their perceived competence to implement/improve a MOUD program (pre-LC competence=2.80, post-LC competence=6.33/10, $P=.02$). The most consistent barrier we identified was stigma around OUD and its effects on patients' ability to access services and staff/provider ability to provide services. The most frequent enablers of program success were trainee interest, organizational leadership support, and a dedicated MOUD care team.

Conclusions: Organizations used clinical and systems improvement knowledge to enhance their existing programs or to take steps to create new programs. All participants identified the need for additional staff/clinician training, especially to overcome stigma around OUD. The outcomes demonstrated the crucial importance of long-term organizational support for program success.

INTRODUCTION

With more than 100,000 overdose deaths in the United States in a recent 12-month period (January 2021–January 2022),¹ many agencies find themselves scrambling to quickly increase access to treatment for opioid use disorder (OUD).² Although effective medication treatments for opioid use disorder (MOUD) exist, access is limited, especially in marginalized communities and rural areas.³ Even where treatment is available, only about one in five patients with OUD engage in treatment.⁴ Moreover, improvements in access are not keeping pace with the rise in OUD diagnoses.⁵

Treatment with medications for OUD can be provided effectively in primary care settings,⁶ and primary care rep-

resents one of the biggest opportunities to improve MOUD access.⁷ However, many practices perceive OUD treatment as difficult, time-consuming, and overwhelming,⁸ indicating that support for clinics and systems aiming to integrate MOUD into primary care is needed.^{9,10}

Learning collaboratives (LCs) are a known method of building capacity in existing medical practices¹¹ and one of three evidence-based strategies to improve access to MOUD.⁹ While other MOUD-focused LCs have been more general in scope,^{10,12} focusing only on prescribers^{13,14} or targeting a specific patient population such as pregnant women,¹⁵ we developed a primary care collaborative that included several novel elements in an effort to increase the success of this

intervention.

Our 6-month LC initiative focused on integrating MOUD treatment into primary care practices by improving knowledge and expertise as measured by engagement and perceived competence of participants with implementing a new or improving an existing MOUD program in their clinical setting. The curriculum consisted of two parallel domains: one centered on clinical knowledge and skills, and the other on improving clinic systems to support MOUD delivery. The curriculum emphasized the importance of addressing the stigma surrounding OUD, which was identified as the most frequent barrier to MOUD implementation/expansion across practices in early self-assessment. Next, we describe the content of this LC, our methods, and initial outcomes so that others can build on our efforts and improve buprenorphine treatment access in their own settings.

METHODS

Participant Recruitment

Leaders from Community Health Plan of Washington (CHPW), a nonprofit Medicaid health plan in Washington state, and Public Health–Seattle & King County (PHSKC) recruited primary care clinic organizations to participate in the learning collaborative. CHPW leveraged its relationships with Federally Qualified Community Health Center (FQHC) leadership across the state to recruit FQHC organizations. PHSKC focused its recruitment efforts on public health primary care clinics and nonprofit clinics for the homeless populations in Seattle/King County. Initial recruitment efforts focused on clinics interested in starting new primary care MOUD treatment programs; however, during recruitment several organizations that wished to expand or improve on their current programs expressed an interest in participating.

Curriculum Development and Content

We divided the LC curriculum into two content areas: a clinical track to improve participants' clinical knowledge and skills regarding treatment and management of patients with OUD, and a systems improvement track to support their efforts to implement and/or improve a MOUD program in a clinic setting. Content experts from PHSKC and CHPW created the clinical track, with the objectives of increasing provider confidence, reducing barriers to MOUD access, and addressing stigma. Session topics were identified based on clinical experience and public health expertise in substance use disorder (SUD) and are described in [Table 1](#). A needs assessment survey completed by participants indicated two high-priority topics—stimulant use disorders and care coordination—that were addressed in the last two sessions. Participants also expressed interest in perinatal OUD care, adolescent OUD care, low-dose buprenorphine starts (microinductions), long-acting injectable buprenorphine, telehealth, case consults, and panel management. We tailored the instructional methods to the session content to maximize participation and engagement.

The systems improvement track focused on implementation of and quality improvement around MOUD care as

well as peer support through shared reflection. To tailor the content to the needs of participants, we conducted the aforementioned learning needs survey to identify and prioritize content and appropriate learning formats. The survey assessed participants' level of experience with MOUD, the number of waived clinicians in their practices, and their participation goals. We selected session topics based on survey responses and the input of content experts from the University of Washington and Kaiser, and we conducted an environmental scan to identify existing practice tools and resources. This curriculum is also summarized in [Table 1](#).

The Learning Collaborative

The collaborative met twice each month via a 1-hour online webinar from March through August of 2021. The clinical curriculum was delivered during the first webinar each month, and the systems improvement content during the second webinar each month. Learning formats for the live sessions included didactic presentations, peer-to-peer discussion, expert-to-peer discussion, and an experiential quality improvement project. Clinical sessions were primarily didactic and case-based, with ample opportunities for discussion and troubleshooting of difficult patient situations.

Each systems track session included a 10- to 15-minute didactic session on curriculum topics and 30 to 45 minutes of peer-to-peer or expert-to-peer discussions. Between the first two sessions, participants completed a MOUD capacity baseline self-assessment to help them better understand their current treatment capacity ([Appendix A](#)). We subsequently used these findings to assist participants in selecting and initiating an improvement project. Participants then followed the Institute for Healthcare Improvement's plan-do-study-act (PDSA) format while developing and documenting their cycle of improvement. All participants were encouraged to attend both tracks.

Throughout the 6-month collaborative, faculty members held at least one meeting with individuals from each participating organization to provide feedback and support and to identify a quality improvement (QI) project with focused and attainable measures. For newer programs, we worked to identify the next step in their program development and identify a concrete goal/project that promoted their end goal of program implementation. During the final systems track session, participants presented their projects to their peers.

Data Collection Surveys

We administered two surveys: one before the start of the learning collaborative, and one postparticipation. The purpose of the preparticipation survey was to gather information about characteristics of the clinics and the current status of their MOUD treatment program. In this survey, we also asked about their goal(s) for participation in the collaborative.

At the conclusion of the LC, participants completed a postparticipation survey to evaluate the learning experience. In this postparticipation survey, we asked them to rate their level of competency with implementing or improving a MOUD

TABLE 1. Clinical and Systems Learning Sessions: Objectives, Topics, Contents, and Details

Track/ objectives	Topic	Content	Pedagogical approaches	Speaker(s)
Clinical 1. Increase provider confidence in delivering evidence-based MOUD care. 2. Reduce barriers to medication access. 3. Destigmatize SUD in clinical practice.	Best Practices for Buprenorphine Prescribing, Part 1	<ul style="list-style-type: none"> Medication initiation approaches and coprescribing naloxone Strategies to reduce barriers to medication access Therapeutic use of urine drug testing (purpose, type, frequency, discussing results, and clinical decision-making) 	<ul style="list-style-type: none"> Didactics 	<ul style="list-style-type: none"> Board-certified addiction medicine physician APRN specialist in SUD
	Best Practices for Buprenorphine Prescribing, Part 2	<ul style="list-style-type: none"> Standardizing care with clinical guidelines Facilitated discussion on approaches to patient care: challenges and successes related to prescribing, testing, and standardization 	<ul style="list-style-type: none"> Didactics Large-group discussion 	<ul style="list-style-type: none"> APRN specialist in SUD
	Effective Patient Engagement	<ul style="list-style-type: none"> Impacts of stigma on patient care Strategies to reduce stigma organizationally and individually Trauma-informed care, motivational interviewing, and peer support 	<ul style="list-style-type: none"> Didactics Small-group discussion 	<ul style="list-style-type: none"> Licensed therapist and SUD professional APRN specialist in SUD
	Care of Cooccurring Mental Health Disorders	<ul style="list-style-type: none"> Psychiatric diagnoses and medications in context of OUD Reducing polypharmacy: medication selection, patient impact, tapering, monitoring, and withdrawal 	<ul style="list-style-type: none"> Didactics Case reviews 	<ul style="list-style-type: none"> Board-certified addiction psychiatrist
	Care of Cooccurring Stimulant Use Disorders	<ul style="list-style-type: none"> Trends in methamphetamine use among people with OUD Methamphetamine use and buprenorphine treatment retention Treatments for stimulant use and importance of low-barrier approach 	<ul style="list-style-type: none"> Didactics Case reviews 	<ul style="list-style-type: none"> Board-certified addiction medicine physician and researcher
	Care Coordination and Referrals	<ul style="list-style-type: none"> Care team roles, tasks, and workflows Hiring, training, and supporting staff 	<ul style="list-style-type: none"> Panel discussion 	<ul style="list-style-type: none"> Patient navigator 3 nurse care managers
Systems 1. Share best practices and resources; support the establishment/improvement of a MOUD program. 2. Facilitate the planning and implementation of a QI project. 3. Facilitate peer support and engagement through discussion of successes, barriers, and insights.	Overview of MOUD Models and Assessing Your Baseline	<ul style="list-style-type: none"> MOUD) program models discussion, including (a) hub and spoke, (b) Project ECHO, (c) single-waivered clinician, and (d) nurse care management model 	<ul style="list-style-type: none"> Didactics Large-group discussion Baseline clinic assessment 	<ul style="list-style-type: none"> MD with QI and MOUD experience
	Introduction to PDSA Cycles and Improvement Projects	<ul style="list-style-type: none"> Introduction to quality improvement and PDSA cycles Initial project planning, including baseline data collection and review 	<ul style="list-style-type: none"> Qualitative and quantitative data review Small- and large-group discussion 	<ul style="list-style-type: none"> MD with QI training, practice facilitator
	Planning an Improvement Project Within Current or Planned MOUD Program	<ul style="list-style-type: none"> Introduction to action planning Reviewing and refining project plans; giving and receiving feedback around current plans 	<ul style="list-style-type: none"> Action planning Didactics Small- and large-group discussion 	<ul style="list-style-type: none"> MD with QI training, practice facilitator
	Tracking and Monitoring in MOUD Programs	<ul style="list-style-type: none"> Health equity and discussion of disparities in MOUD access Review of existing quality measures and outcomes in MOUD care 	<ul style="list-style-type: none"> Action plan review and reflection Small- and large-group discussion 	<ul style="list-style-type: none"> MD with QI training and MOUD experience
	Supporting MOUD Programs With Legal Compliance—42 CFR	<ul style="list-style-type: none"> Overview of the history and current status of confidentiality laws around SUD treatment Current organizational approaches to privacy and SUD 	<ul style="list-style-type: none"> Didactics Case studies Large-group discussion 	<ul style="list-style-type: none"> Family physician with MOUD program administration experience
	Celebrating Success and Next Steps	<ul style="list-style-type: none"> Clinics share their experiences, challenges, and next steps 	<ul style="list-style-type: none"> Oral presentations 	<ul style="list-style-type: none"> Participants

Abbreviations: SUD, substance use disorder; QI, quality improvement; MOUD, medication treatment for opioid use disorder; PDSA, plan-do-study-act; OUD, opioid use disorder; ECHO, extension for community health outcomes; APRN, advanced practice nurse; CFR, code of federal regulations

program both before and after the learning collaborative using a 10-point Likert scale with anchor statements of 0=complete beginner, 5=intermediate, and 10=expert. The rationale for asking them to rate their competencies postparticipation rather than both pre- and postparticipation was to avoid response shift bias, which occurs when participants' evaluation standard regarding the dimension measured shifts as a result of the intervention—in this case, the LC experience.^{16,17}

Qualitative Data Collection

Faculty members took field notes during and immediately after each learning session. We used faculty field notes from two of these learning sessions in our analysis. During the second month of the collaborative, participants shared the results of their assessment of the MOUD treatment capacity. For this assessment, participants asked clinicians and staff members in their clinic setting to complete a MOUD capacity self-assessment tool (Appendix A). We used field notes taken by faculty during this session to describe the results of these assessments. In addition, we collected field notes kept by faculty members during presentations of each clinic's improvement project during the final session of the learning collaborative and copies of each clinic's PowerPoint slides to identify facilitators and barriers to improvement efforts.

The Kaiser Permanente Washington Human Subjects Review Office reviewed and determined that this project was exempt from approval because it did not meet the definition of human subjects research per federal regulations (45 CFR 46).

Analyses

We used frequencies to report quantitative findings from the preparticipation surveys. We analyzed change in competence with implementing/improving a MOUD program with a paired *t* test. We assessed engagement in the learning collaborative by tracking participant attendance in the learning sessions and the number of participants who submitted an action plan for an improvement project.

We analyzed faculty field notes from the previously described learning session of results from their MOUD self-assessment to identify frequently mentioned gaps and opportunities for improvement.¹⁸ We used faculty field notes and PowerPoint presentations by each participant during the final session of the collaborative to describe QI projects and both barriers and facilitators participants encountered. We analyzed all qualitative data using a thematic analysis approach.¹⁹ We compiled, disassembled, and reassembled all notes and text from PowerPoints into clusters of common concepts, and then three authors interpreted the results to develop conclusions about the themes emerging from the data.

RESULTS

The results from the participant assessments and presentations during the collaborative are presented chronologically in the following sections.

Participant Characteristics

The collaborative was comprised of multidisciplinary teams from all but one clinic. Participation in sessions varied, with prescribing clinicians participating more consistently in those sessions focused on clinical topics, and other clinic staff (eg, clinic managers, nurses) more frequently participating in sessions focused on improving clinic systems for MOUD care. Prescribers included four physicians, an advanced nurse practitioner, and one physician assistant. Clinics were at various stages of MOUD program development, ranging from established programs to those that had never previously prescribed buprenorphine. Characteristics of the six participating organizations and their patient populations collected on the preparticipation survey are shown in Table 2. Four of the participating clinics were FQHCs, one was a public health primary care clinic, and one served the homeless populations in Seattle. Three regularly had medical resident trainees on-site, one with internal medicine residents, the other two with family medicine residents. Resident participation in the LC sessions was intermittent based on their clinical rotations and competing educational and clinical demands. Despite ongoing competing priorities related to the COVID-19 response and workforce shortages, 83% of participants attended at least 10 of the 12 clinical and systems sessions.

Regarding their goal for participating in the collaborative (as described on the preparticipation surveys), three of the clinics did not have an existing MOUD program and joined the collaborative to support their efforts to launch such a program. One clinic with an existing program wanted to transition from a treatment program run by a single primary care/addiction medicine provider to a nurse care manager program embedded in the primary continuity clinic setting. Another established program focused its improvement efforts on decreasing stigma among clinicians and staff. A housing organization initially focused its efforts on expanding MOUD services into housing-based primary care services as well as adding a contingency management component to its existing MOUD program.

MOUD Self-Assessment

Presentations by participants describing results of their MOUD self-assessment revealed a diversity of needs and some common themes (Table 3). Among the three clinics developing a new program, needs included training staff (n=3), engaging stakeholders (n=2), developing workflows (n=2), and creating standard work and workflows (n=2).¹⁹ Participants from established programs described more targeted needs, such as revising medication agreements to make them more patient-centered, developing skills around using urine drug screenings as part of the therapeutic process, and ongoing efforts to address stigma with both clinicians and staff. In fact, five of the six programs identified a need for training to address stigma in their clinic.

Quality Improvement Project Presentations

During the presentations of their improvement project outcomes, participants from five of the six organizations reported

TABLE 2. Baseline Program Characteristics and Learning Collaborative Participation

Clinic/organization type	Populations served	Existing MOUD program?	Number of waived providers	Percent of clinical staff with OUD training	Participants in LC
Clinic 1 (public health)	Low-income, immigrant, refugee, people experiencing homelessness, >75% Latinx	No	8	20	Medical providers: 2 Behavioral health providers: 0 Administrators: 1
Clinic 2 (FQHC)	Low-income, immigrant, Latinx, east African	No	1	Very few	Medical providers: 2 Behavioral health providers: 0 Administrators: 4 Medical assistants: 1 Nurses: 1
Clinic 3 (FQHC)	Low-income, migrant farmworker, immigrant	No	2	1	Medical providers: 1 Behavioral health providers: 2 Administrators: 0 Pharmacists: 1
Clinic 4 (FQHC)	Low-income, refugee, immigrant	Yes—want to reduce stigma among staff and providers	73	40–60	Medical providers: 0 Behavioral health providers: 1 Administrators: 0 Nurses: 1
Clinic 5 (FQHC)	Low-income, primarily racial/ethnic minority	Yes—want to implement nurse care management	>30	Very few	Medical providers: 1 Behavioral health providers: 2 Administrators: 0
Clinic 6 (housing)	People experiencing homelessness or in permanent supportive housing	Yes—want to implement low-barrier buprenorphine	5	Unknown	Medical providers: 1 Behavioral health providers: 0 Administrators: 0

Abbreviations: MOUD, medication treatment for opioid use disorder; OUD, opioid use disorder; LC, learning collaborative; FQHA, Federally Qualified Health Center

that they had achieved their improvement focus. Analysis of faculty field notes from that session revealed common barriers they encountered that limited the clinic's abilities to build and grow programs: inadequate administrative time, lack of stakeholder buy-in, and competing organizational priorities (Table 4). As discussed earlier, the most consistent barrier identified was stigma and its effects on patients' ability to access services from staff/providers interested and able to provide needed services.

During these final presentations, clinic participants also identified factors that enabled their success. These included residency program support and enthusiasm for training in MOUD, organizational leadership support, and a dedicated MOUD care team that met regularly to develop a program (Table 4). In addition, participants acknowledged the LC's role in their success in that it provided support and camaraderie among providers and organizations in the community, created accountability, and built capacity by improving quality improvement skills such as developing PDSA cycles and setting milestones.

Postparticipation Evaluation

Seven individuals from five of the participating organizations completed the LC postparticipation evaluation survey. Six of seven respondents agreed that their knowledge and skills improved during the collaborative. Satisfaction with the LC was high, with all participants specifically rating the organization

of the collaborative at a 9 or 10 out of 10. Participants rated the small- and large-group discussions as most effective, followed by didactic content. Respondents also rated their competency before and after the LC, with an average competency improvement from less than intermediate (2.80 out of 10 Likert score) to above intermediate (6.33 out of 10 Likert score; $P=.02$). Additionally, six of the seven respondents reported that a clinic-level change was very likely based on this experience.

DISCUSSION

Our 6-month learning collaborative, focused on improving clinical knowledge and skills and building organizational capacity for MOUD in primary care, demonstrated positive outcomes in both organizational accomplishments and participant perceptions of increased competence. The participating organizations used clinical and systems improvement knowledge to improve their existing program or to take steps toward creating new programs. Participants also found the training methods valuable and generally felt that their needs were met. Clinic success was facilitated by training program support and enthusiasm for MOUD, organizational leadership support, and a dedicated core team, while barriers to success included limited administrative time, lack of buy-in by stakeholders within their organization, staffing shortages, competing organizational priorities, and stigma.

TABLE 3. Self-Assessment Results and Quality Improvement Project Topics

Clinical organization and FQHC status	How participants described their MOUD self-assessment survey results	Process improvement focus
Clinic 1 (public health)	<ul style="list-style-type: none"> • “We need every step required to start a program.” • “We need standard workflows for all aspects of a MOUD program.” • “We need to do trainings for staff to prepare them for starting a new program—baseline knowledge.” 	Increase staff knowledge in the areas of buprenorphine, MOUD, stigma. Introduce workflow changes through a series of staff meetings.
Clinic 2 (FQHC)	<ul style="list-style-type: none"> • “Training staff: There is very little basic understanding of addiction, and fear as a result of that lack of knowledge.” • “We need to engage leadership about the need for this training.” 	Build consensus for starting a MOUD program with internal staff and external stakeholders by developing one-page description of the high-level program plan to share with stakeholders at an upcoming meeting.
Clinic 3 (FQHC)	<ul style="list-style-type: none"> • “We need education/training about MAT for staff and providers.” • “We need to engage with providers about getting their waivers.” • “We need to develop systems to support providers, for example, figure out EHR and confidentiality/privacy requirements.” 	Show an educational video about opioid use disorder at an upcoming meeting and then assess whether the video changed providers’ receptivity to obtaining a buprenorphine waiver.
Clinic 4 (FQHC)	<ul style="list-style-type: none"> • “We need more consistent training for staff, especially about stigma and OUD.” • “Medication agreements: We need to figure out how to use them . . . to educate patients.” • “We need ongoing training about urine drug screens and how to use them therapeutically.” 	Use a pre/postsurvey to assess clinical staff’s current beliefs related to stigma before and after an educational intervention.
Clinic 5 (FQHC)	<ul style="list-style-type: none"> • “We need training for nonclinician staff; their knowledge level is low in general, and we have had turnover so new people need training.” • “Workflows for staff are needed, for example, what to do/say when someone calls.” 	Increase buy-in for a nurse care manager MOUD program with primary care clinicians and staff in the family medicine clinic by presenting educational information at an upcoming meeting.
Clinic 6 (housing)	[Did not complete survey]	Develop a grant application to support a contingency management component of a MOUD program.

Abbreviations: FQHC, Federally Qualified Health Center; MOUD, medication treatment for opioid use disorder; OUD, opioid use disorder; MAT, medication-assisted treatment; EHR, electronic health record

TABLE 4. Barriers and Facilitators of Improvement Project Implementation

Clinical organization and FQHC status	Factors enabling MOUD program implementation	Barriers/challenges to MOUD program implementation
Clinic 1 (public health)	<ul style="list-style-type: none"> • Residency support and enthusiasm for training in MOUD care • Local public health department honorarium for PCPs to become waivered 	<ul style="list-style-type: none"> • Lack of continuity of patient care in a resident-run clinic • Training within siloed teams (staff, residents, preceptors)
Clinic 2 (FQHC)	<ul style="list-style-type: none"> • Organizational leadership support and designation of staff time to develop program 	<ul style="list-style-type: none"> • Stigma due to limited knowledge of MOUD care among staff and providers • Difficulty gathering useful and impactful data for ongoing evaluation of MOUD program
Clinic 3 (FQHC)	<ul style="list-style-type: none"> • Support and development of a collaborative relationship for MOUD care by behavioral medicine colleagues within the organization • Core group of motivated primary care providers to champion MOUD program 	<ul style="list-style-type: none"> • Lack of organizational consensus around MOUD training for all providers and appropriate allocation of organizational resources • Need for additional support in tracking and monitoring MOUD patients • Lack of primary care provider time and competing priorities
Clinic 4 (FQHC)	<ul style="list-style-type: none"> • Prior existence of an addiction medicine core team committed to MOUD efforts 	<ul style="list-style-type: none"> • Turnover in support staff leading to various levels of knowledge/experience with MOUD
Clinic 5 (FQHC)	<ul style="list-style-type: none"> • Residency support and enthusiasm for training in MOUD care 	<ul style="list-style-type: none"> • Difficulties in recruiting and hiring a new nurse care manager • Limited resources for training a nurse care manager • Need for increased cross-training of staff within MOUD program as well as larger organizational training/capacity building • Difficulty in implementing 42 CFR Part II requirements • Lack of congruency between workflow and clinic operations
Clinic 6 (housing)	[Did not complete survey]	

Abbreviations: FQHC, Federally Qualified Health Center; MOUD, medication treatment for opioid use disorder; CFR, code of federal regulations; PCP, primary care physician

To differentiate our LC from prior ones that have focused principally on prescribers,^{13,14} we asked clinics to recruit a multidisciplinary improvement team including medical residents, mental health providers, medical providers, and clinic administrators. In addition, the collaborative planning team included academic, health insurer, public health, and health center representatives. Though we did not look at feedback or outcomes based on job role, this diversity of perspectives at both the planning and participant levels facilitated system change, may have assisted in designing the content to address the diversity of clinic needs, and contributed to the high level of satisfaction reported by participants. In addition, we tailored the content of the LC, as well as participants' improvement efforts, based on early capacity self-assessments.

Three of the clinics had medical resident trainees involved in MOUD care. In a recent national survey of primary care residency programs, only 23% dedicated more than 12 hours of curricular time to management of OUD.¹⁹ Developing MOUD capacity in primary care training programs for residents is of utmost importance given the ongoing effect this experience has in increasing access to MOUD once trainees graduate and establish their own practices. The training also normalizes the practice as a part of standard primary care, which in turn helps to address stigma.^{20,21} Adequate resources must be dedicated to program implementation so that trainees have positive experiences with MOUD that motivate them to incorporate it into their future practice.²²

Several limitations of our evaluation of the LC deserve mention. We were unable to report on long-term outcomes such as the number of waived providers, MOUD prescriptions written, patients served, or changes in patient access to MOUD. A low response rate to the postparticipation survey raises the potential of response bias, in addition to the fact that the pre- and postevaluation survey data were not linked. Moreover, we asked participants to estimate their level of pre/post competence to implement a new or improve an existing MOUD program at the conclusion of the training experience, creating the possibility of a social desirability bias in their responses. However, we felt that this risk was outweighed by concerns about potential response-shift bias when asking respondents to rate their competence before and after an educational intervention.^{16,17} Finally, we did not attempt to make the LC trainings culturally relevant to the populations served other than requesting that participants tailor their improvement efforts to their patient populations. We also did not ask participants for detailed demographic data about the populations they served, so our descriptions of these populations are imprecise.

Also worth noting is that the LC training and MOUD program implementation/improvement occurred within Washington State where several supportive factors are in place for MOUD training and implementation. These include acceptance of the need for MOUD and early recognition of the misuse of prescription opioids during the opioid epidemic,²³ consistent payment for MOUD medications,^{23,24} availability of waived

prescribers,²⁵ and a state-level organization that develops and promotes evidence-based guidelines regarding opioid use and misuse.²⁶ We recognize that other regions may not operate in a similar environment and may face different challenges in implementing and integrating MOUD into primary care settings.

Future LCs should be of longer duration, and increased technical support could be provided to individual clinics during and after the collaborative. Clinics developing new MOUD programs would benefit from a structured toolkit to support the development of their policies, workflows, and staff/provider training, such as those recently developed by the American Academy of Physicians and the Substance Abuse and Mental Health Services Administration for this purpose.^{27,28} Finally, future LCs should be tailored to address barriers that clinics encounter and provide specific tools and customized strategies to address those barriers.

CONCLUSIONS

An LC can provide essential support to primary care clinics when implementing a new MOUD program or improving an existing one. However, more sustained support than that available through an LC—financial, operational, and technical—is needed to fully implement new programs. Like other change efforts in primary care settings,^{29–31} expecting small teams to make substantial changes in training, culture, workflows, and service is unreasonable without sustained organizational commitment and adequate resources.

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