Building Capacity for Medication Assisted Treatment in Rural Primary Care Practices: The IT MATTTRs Practice Team Training

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Abstract

Objectives: In response to rural communities and practice concerns related to opioid use disorder (OUD), the Implementing Technology and Medication Assisted Treatment Team Training in Rural Colorado study (IT MATTTRs) developed a training intervention for full primary care practice (PCP) teams in MAT for OUD. This evaluation reports on training implementation, participant satisfaction, and impact on perceived ability to deliver MAT. Methods: PCPs in the High Plains Research Network and Colorado Research Network were randomized to receive team training either in-person or through virtual tele-mentoring. Training attendance logs recorded the number of participants and their roles. Participants completed a survey within one month of the last training session to evaluate satisfaction and ability to deliver components of MATs. Results: 441 team members at 42 PCPs were trained, including 22% clinicians, 47% clinical support staff, 24% administrative support staff. Survey respondents reported high levels of satisfaction, including 82% reporting improved understanding of the topic, and 68% identifying actions to apply information. Self-rated ability was significantly higher after training for all items ($P < .0001$), including ability to identify patients for MAT and to manage patients receiving MAT. Mean change scores, adjusted for role, were significantly greater for all measures ($P < .001$) in SOuND practices compared to ECHO practices. Conclusions: The IT MATTTRs Practice Team Training successfully engaged PCP team members in diverse roles in MAT for OUD training and increased self-efficacy to deliver MAT. Results support the training as a resource for a team-based approach to build rural practices' capacity to deliver MAT.

Introduction

The United States faces the worst drug overdose epidemic in its history.[1] A key driver of the overdose epidemic is a sharp increase in the prevalence of opioid use disorder (OUD).[2,3] Medication assisted treatment (MAT) with buprenorphine in primary care clinics is a proven strategy to treat OUD; however, primary care has been slow to adopt MAT.[4-7] Barriers include training required by the Drug Enforcement Agency (DEA) for clinicians to prescribe buprenorphine for OUD, time, clinician lack of confidence, misconceptions about the patients needing treatment, complex definitions, and inadequately trained staff.[8,9]

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The High Plains Research Network (HPRN) is a rural primary care practice- and community-based research network in eastern Colorado. Prior to this study, only three clinical professionals in the study region were identified with a DEA waiver to prescribe buprenorphine.[7] Implementing Technology and Medication Assisted Treatment Team Training in Rural Colorado (IT MATTTRs™) was a response to these rural practices' call for help. This study created a new training to help entire practice teams address many of the reported barriers and make progress towards MAT implementation to increase access to MAT for OUD in rural communities.

This article describes the IT MATTTRs Practice Team Training and reports on its implementation, trainee satisfaction, and perceived ability to deliver MAT. Further, this study compares onsite and online training delivery models. These results help inform the development and utilization of sustainable and effective MAT training programs for primary care practices throughout the United States.

Methods

IT MATTTRs was a randomized, pragmatic trial. The study was conducted in two 20-year-old practice-based research networks, the High Plains Research Network (HPRN) and the Colorado Research Network (CaReNet). HPRN is a network of 53 primary care practices, 16 hospitals, and communities in the 16 counties of rural eastern Colorado. The HPRN includes Federally Qualified Health Centers (FQHCs), rural health clinic, hospital-based clinics, and private practices. CaReNet consists of 45 practices that mostly care for underserved patients at FQHCs, residency programs, or other practices focusing on serving patients of lower resources. Both networks are housed in the Department of Family Medicine at the University of Colorado Anschutz Medical Campus and are members of State Network of Colorado Ambulatory Practices and Partners.

The IT MATTTRs Practice Team Training sought to engage the entire primary care practice team in learning about and implementing MAT for OUD. The training was designed for all practice members to address the reported barriers to providing MAT, including misconceptions about OUD and inadequately trained staff. Further, involving members of the practice's clinical and administrative support staff aligns with and supports team-based care, which is strongly recommended as a strategy to integrate teams and offer effective delivery of patient education and care coordination.[10-13] The research team, with collaboration from local MAT experts, community members, and professional practice facilitators, developed the training. The curriculum was based on the American Society of Addiction Medicine and Center for Disease Control and Prevention guidelines and designed for all members of the practice team.[14] Because MAT is a new treatment to most primary care practices, the training content applied to practices at different stages of MAT readiness and incorporated locally relevant language and concepts from the

HPRN and CaReNet Community Advisory Councils to infuse the patient perspective and help practice teams address stigma. Organized into four modules, the training covered the epidemiology of OUD, pharmacology of buprenorphine, neurobiology of addiction, and detailed MAT steps. Each module included comprehensive companion scripts for trainers.

Two different methods were used to deliver the training and evaluated: the in-person Shared Onsite kNowledge Dissemination (SOuND) Team Training™ model and the Extension for Community Health Outcomes (ECHO) telehealth model. SOuND was developed in the HPRN and combines information, asset identification, and practice facilitation to full rural primary care practice teams.[15] The model uses a non-clinician trainer with strong group and practice facilitation skills. Two facilitator-trainers delivered the modules over four one-hour sessions typically scheduled one to two months apart. The ECHO Colorado program adapted the training to the Project ECHO® model, which uses specialist teams and live, bi-directional, virtual communication.[16,17] The team identified clinicians, educators, and researchers with expertise in OUD and MAT to provide a web-based learning environment. ECHO delivered the training with 30-60-minute sessions over eight consecutive weeks. ECHO offered four cohorts, each with a maximum of 30 participants. Table 1 outlines specific content areas and schedule.

All HPRN practices and practices in six counties in southcentral Colorado affiliated with CaReNet were eligible to participate. Practices were identified from rosters maintained by the HPRN and CaReNet and online searches for southcentral Colorado, resulting in a list of 79 practices. Historically, HPRN and CaReNet practices have been more likely to participate in a study if they know what they will be specifically asked to do or receive. Therefore, practices were randomized prior to recruitment, using a random number generator to the SOuND or ECHO training arm. The study aimed to recruit 40 practices based on power calculations to detect pre-post changes. Recruitment numbers were monitored to ensure a comparable number of practices in each group. Practice enrollment closed when the recruitment numbers supported by the grant were reached. Practices were trained over a 20-month period.

This study used the RE-AIM framework to guide its analyses.[18] These analyses focus on the training reach and trainees' satisfaction and perceived ability to deliver MAT. Knowledge and beliefs towards OUD and MAT were assessed before and after the intervention and will be reported elsewhere. Reach was measured by the number of practices participating, the number and proportion of clinicians and practice staff participating, and attendance across sessions. The number of clinicians and staff at each practice were collected prior to the first session. Participation was defined as having attended at least one session. Attendance logs were maintained. Data on participants' satisfaction with the training and perceived ability to deliver MAT before and after training were collected via survey within

Table 1. IT MATTTRs Primary Care Practice Team Training Module Content by Module.

Module	.Topics Covered	SOuND (in-person) Session No.	ECHO (web-based) Session No.
1	Epidemiology, neurobiology of addiction, buprenorphine effectiveness; MATerials Resource Toolkit.	1	1
2	Buprenorphine safety, identifying and preparing patients (forms, instructions, motivation), definition of success	2	2, 3, 4
3	Insurance and billing, Induction, Stabilization, Maintenance, relapse, non-pharmacological treatment	3	5, 6, 7
4	MAT in special populations, including pregnant women, adolescents, people with co-morbidities	4	7, 8

one month of the practice's final training session. The survey was based on the standard education evaluation used by ECHO Colorado projects and included seven items on satisfaction and eight items on perceived ability. Professional roles were categorized into three categories: Clinician (MD, DO, physician assistant, nurse practitioner), Clinical Support Staff (eg, registered nurse, licensed practical nurse, medical assistant, navigator), and Administrative Support Staff (eg, front office, manager, records).

Descriptive statistics (mean, standard deviation, rates) were computed for participant characteristics, participation rates, and survey responses. Chi-square tests and t-tests (for Likert scale items) were used for simple comparisons between study arms. Differences in participant satisfaction used multivariable linear regression, adjusting for respondent role. Overall pre-post on Likert scale items for all respondents were analyzed with paired *t*-tests. Perceived ability to deliver MAT responses ranged from 1 (no ability) to 5 (expert). To analyze before-after differences in perceived ability between training models, we computed change scores (after ratings minus before ratings) for each of the eight measures of perceived ability and used multivariable linear regression models, adjusting for respondent role in practice. Clustering effects of respondents within practice were not significant; therefore, mixed effects modeling was not necessary. Hypothesis tests were two-sided with alpha = .05 and *P* values reported. All statistical analyses were performed using SAS version 9.4 (SAS Institute Inc., Cary, N.C.).

This study was funded by the Agency for Healthcare Research and Quality. The Colorado Multiple Institutional Review Board approved study protocols.

Results

The IT MATTTRs Primary Care Practice Team Training was conducted in 42 practices. Of these, 24 were trained with SOuND Team Training and 18 with the ECHO model. Practices included 19 hospital-based clinics, 18 Federally Qualified Health Centers, and 4 private practices. Overall, 65% (441 of 676) of clinicians and practice staff at participating practices attended the team training. By delivery model,

96 attended any ECHO session (35% of those eligible), and 345 attended any SOuND training session (87% of those eligible). See Figure 1. The average number of sessions attended was three (of four) for participants at SOuND practices and six (of eight) for participants at ECHO practices.

The training reached team members across role types. Participants were 22% (98) clinicians, 47% (207) clinical support staff, and 24% (107) administrative support staff. ECHO participants consisted of proportionately more clinicians than SOuND participants, while a greater proportion of clinical and administrative support staff were trained at SOuND practices than ECHO.

Of the 441 training participants, 203 completed the training evaluation survey [152 SOuND participants (44%) and 51 ECHO participants (53%)], for a 46% response rate. See Figure 1. Table 2 summarizes survey respondents' demographic characteristics. The majority of respondents were female (84%), 47% were white, and 41% Hispanic or Latino. Respondents in the two study arms differed by gender and role. Most relevant to this evaluation, a greater proportion of clinicians in the ECHO group completed the survey than SOuND, while a greater proportion of clinical support staff in the SOuND group responded to the survey than in the ECHO group ($P < .0001$).

Respondents reported high levels of satisfaction with the training. See Table 3. Most respondents agreed or strongly agreed that the training contributed to their professional network (88%). Participants agreed or strongly agreed that their understanding of the subject matter improved (82%), the information was presented in ways they could clearly understand (84%), and they would recommend the training to others in their profession (79%). Further, 68% agreed or strongly agreed that they identified actions to apply information learned to their work. Respondents in the SOuND arm had a significantly higher mean score than ECHO respondents pertaining to the training providing an appropriate balance between instruction and practice (SOuND mean = 3.78, ECHO mean = 3.51, $P = .03$).

High levels of satisfaction were also observed across all roles. Among clinicians, clinical support, and administrative support staff, 61%, 67%, and 76% (respectively) agreed
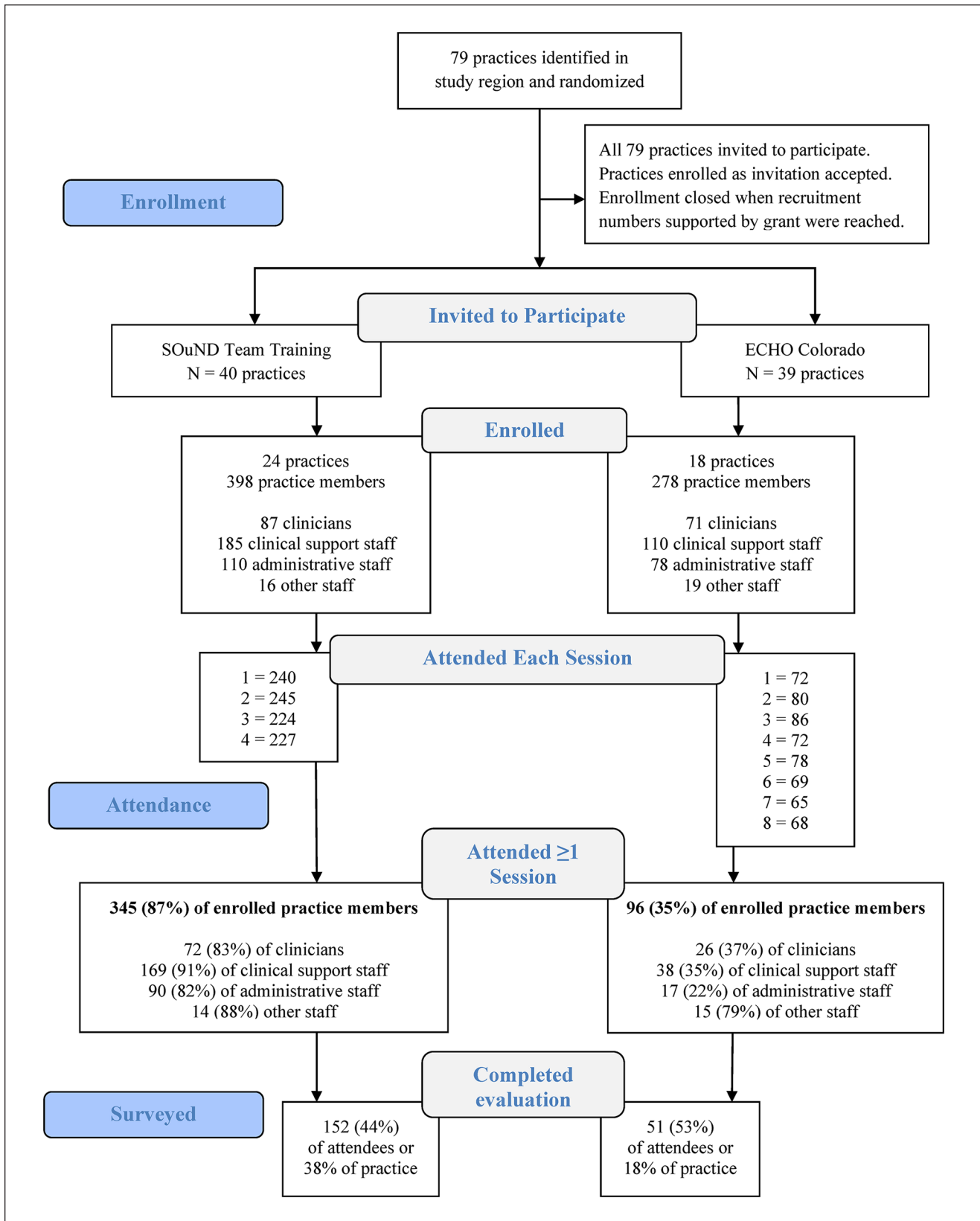
79 practices identified in
study region and randomized

All 79 practices invited to participate.
Practices enrolled as invitation accepted.
Enrollment closed when recruitment
numbers supported by grant were reached.

Enrollment

Invited to Participate

SOuND Team Training
N = 40 practices

ECHO Colorado
N = 39 practices

Enrolled

24 practices
398 practice members

87 clinicians
185 clinical support staff
110 administrative staff
16 other staff

18 practices
278 practice members

71 clinicians
110 clinical support staff
78 administrative staff
19 other staff

Attended Each Session

1 = 240
2 = 245
3 = 224
4 = 227

1 = 72
2 = 80
3 = 86
4 = 72
5 = 78
6 = 69
7 = 65
8 = 68

Attendance

**Attended ≥1
Session**

345 (87%) of enrolled practice members

72 (83%) of clinicians
169 (91%) of clinical support staff
90 (82%) of administrative staff
14 (88%) other staff

96 (35%) of enrolled practice members

26 (37%) of clinicians
38 (35%) of clinical support staff
17 (22%) of administrative staff
15 (79%) of other staff

**Completed
evaluation**

Surveyed

152 (44%)
of attendees or
38% of practice

51 (53%)
of attendees or
18% of practice

Figure 1. CONSORT flow diagram: IT MATTTRs practice team training reach and implementation evaluation.

Table 2. IT MATTTRs Training evaluation survey respondent characteristics.

	Participants at SOuND practices (N = 152) n (%)	Participants at ECHO practices (N = 51) n (%)	Total (N = 203) n (%)	P value
Gender				
Male	9 (6)	9 (18)	18 (9)	.03
Female	131 (86)	40 (78)	171 (84)	
Prefer Not to Answer/Missing	12 (8)	2 (4)	14 (7)	
Race and Ethnicity (check all apply)				
American Indian or Alaskan Native	5 (3)	0 (0)	5 (2)	.19
Asian	0 (0)	1 (2)	1 (<1)	.08
Black or African American	1 (<1)	0 (0)	1 (<1)	.56
Native Hawaiian/Pacific Islander	1 (<1)	1 (2)	2 (1)	.42
White	68 (45)	28 (55)	96 (47)	.21
Other	2 (1)	3 (6)	5 (2)	.07
Hispanic or Latina/o	68 (45)	16 (31)	84 (41)	.09
Prefer not to answer	12 (8)	3 (6)	15 (7)	.63
Role				
Clinician	9 (6)	18 (35)	27 (13)	<.001
Clinical Support Staff	91 (60)	16 (31)	107 (53)	
Administrative Support Staff	22 (14)	13 (26)	35 (17)	
Missing Role/Prefer not to Answer	30 (20)	4 (8)	34 (17)	

Table 3. Participant Satisfaction with IT MATTTRs Practice Team Training.

	Strongly Agree (5) %	Agree (4) %	Neutral (3) %	Disagree (2) %	Strongly Disagree (1) %	Mean (ECHO/ SOuND)	P Value*
There was appropriate balance between instruction and practice.	14	51	27	7	1	3.51 3.78	.03
The complexity of the series topics was appropriate for me.	21	46	26	7	<1	3.76 3.81	.53
My understanding of the topic has improved as a result of this training.	25	57	14	4	0	4.12 4.00	.79
The information was presented in ways I could clearly understand.	25	59	13	3	0	4.10 4.05	.50
I have identified actions I will take to apply information I learned from this series in my work.	20	48	26	5	1	3.78 3.83	.46
I was satisfied overall.	24	55	16	5	<1	3.88 3.99	.17
I would recommend this series to others in my profession.	26	53	15	5	1	3.86 4.03	.06

*Adjusted for role.

or strongly agreed that the training provided an appropriate balance between instruction and practice; 89%, 80%, and 85% (respectively) reported that their understanding of the subject matter improved; and 93%, 83% and 85% reported that the information was presented in ways they could

clearly understand. Almost 70% of each group (74%, 69% and 65%, respectively) reported having identified actions to apply information to their work.

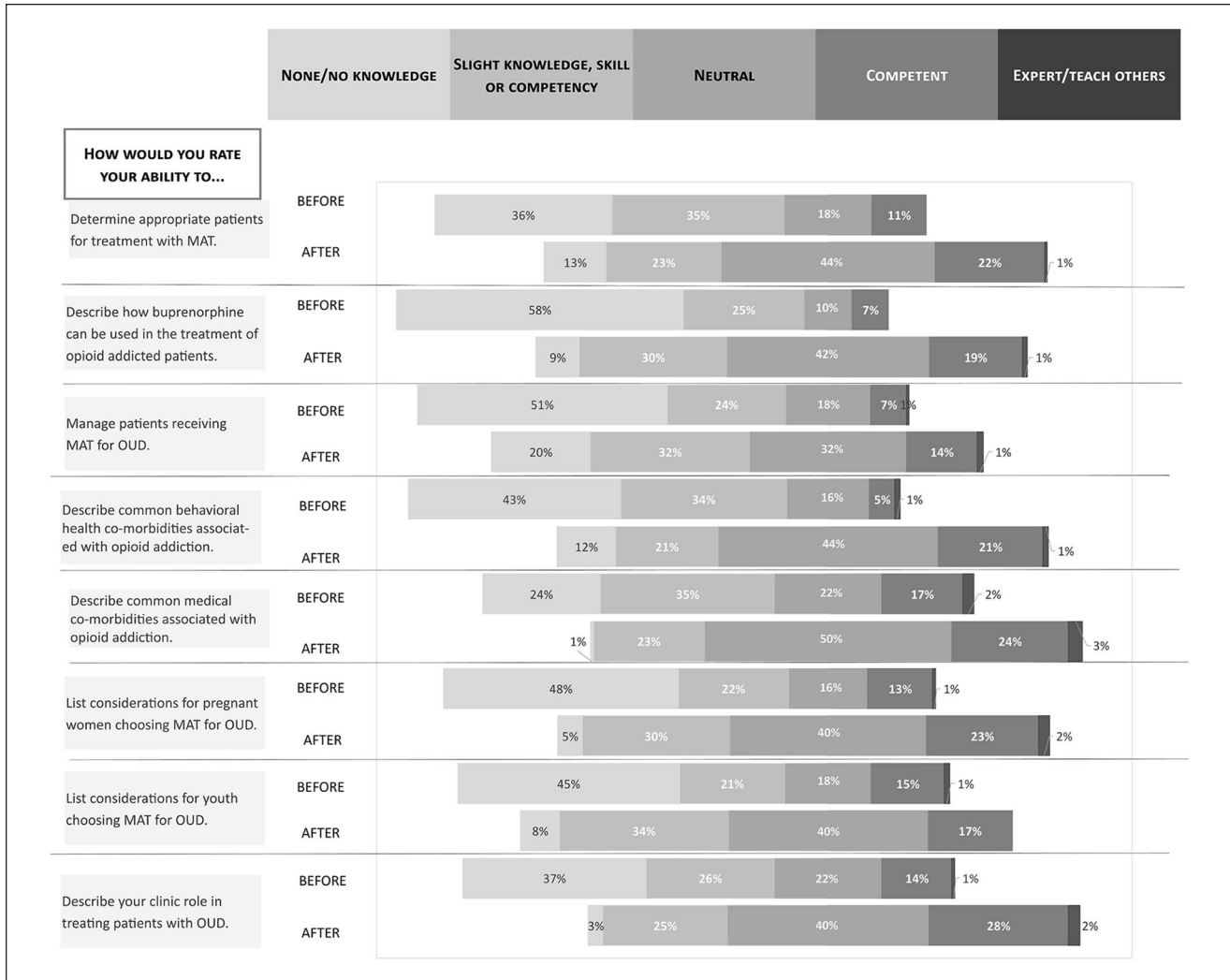Overall, respondents rated their ability to describe and deliver MAT significantly higher after training than before

Figure 2. Self-rated ability related to medication assisted treatment (MAT) for opioid use disorder (OUD) before and after IT MATTTRs Team Training among all survey respondents.
P < .0001 for all items, adjusted for role.

on all measures (*P* < .0001). Figure 2 illustrates the substantial reductions in the "none" rating and increases in "average" and "competent" rating levels.

Changes in self-rated ability to deliver MAT differed between the participants in SOuND and ECHO practices. Mean change scores (mean after-training ratings minus mean before-trainings ratings), adjusted for role, were significantly greater for all perceived ability measures in SOuND practices compared to ECHO practices (*P* < .001). The changes in mean scores across the eight measures of ability ranged from +0.94 to +1.31 for SOuND respondents and from -0.77 to +0.52 for ECHO respondents.

Discussion

Strategies to curb the OUD epidemic in the United States need to support a culture shift in rural communities where primary care practices are a source of MAT and a medical home for patients suffering from OUD. Increasing the number of clinicians with DEA waivers to prescribe buprenorphine is a necessary step; however, a substantial proportion of waivered clinicians prescribe well below the allowed patient limit, if at all.[19] With inadequately trained staff cited by clinicians as a barrier to MAT implementation, engaging full practice teams in learning about MAT and OUD and implementation decisions is an important component of efforts to increase the provision of MAT. This evaluation provides valuable information about the implementation of a training intervention designed for full primary care teams. Results strengthen our understanding of the characteristics and types of programs and processes needed to effectively build practice-level capacity.

These results support a team-based approach to learning, as demonstrated by the substantial reach the of the IT MATTTRs Practice Team Training. Training was well

attended by people in a wide variety of roles, regardless of clinician waiver-training status at the practice. Attendance was well-sustained, particularly compared to other MAT training projects using the ECHO model.[20,21]

A team approach to MAT training was also supported by reported satisfaction levels. The inclusion of the epidemiologic, neurobiological, and scientific aspects of addiction might risk alienating some staff. However, clinical and administrative support staff indicated that the level of information was appropriate and increased their understanding of MAT for OUD. High proportions of participants in all roles would recommend this training to others in their profession.

Our results also suggest the ability of the training to positively affect participants' self-efficacy to deliver MAT. Participants reported improved self-rated ability to deliver MAT and identified action related to what they learned. For all MAT-related competencies, there were substantial decreases in the percent of participants reporting no ability and increases in average and competent ability levels. Given that so few participating practices had experience providing MAT prior to this study, these results represent meaningful shifts.

With the increased promotion and use of tele-education models, PBRNs and other organizations should consider several factors when determining how to reach practices and effectively disseminate information. While the IT MATTTRs Practice Team Training demonstrated substantial reach and improvement in perceived ability to deliver MAT, there were differences between the two study arms. The proportion of eligible staff participating in the training at SOuND practices was higher than ECHO, revealing differences in the implementation protocols for each model. The SOuND model held training at individual practices that were attended by as many team members as possible. In the Colorado ECHO model, participants from multiple practices attended the sessions, and registration did not exceed 30 people. SOuND respondents reported significantly greater increases in their understanding of MAT and self-reported ability to deliver MAT. The facilitated questions and conversations around implementation during the onsite team training might have provided the additional support and confidence for trainees. Also, differences in the duration of the training period might have played a role in participants' perceived ability.

We believe several aspects of the IT MATTTRs Training contributed to the successful implementation and positive response. This training was created by MAT experts working with rural primary care providers, community members, and practice facilitators using a community-based participatory research approach. Participants viewed the resulting training favorably and considered it applicable to their work, regardless of delivery method. While other training programs used physicians and trained specialists to deliver

clinical content,[22,23] this training intervention used a non-clinician facilitator-trainer in the SOuND Team Training model to deliver clinical information. While the impact of the different training delivery models on learning is unclear and a full exploration of learning theory is beyond the scope of this paper, these results may represent that this model helped make the material accessible to non-clinicians and reduced the likelihood of non-clinicians attending only as observers, as supported by the continued participation and the high satisfaction reported by non-clinician team members. Third, participating practices are part of practice-based research networks (PBRN), which often provide training, linkages to other practices and communities, and practice facilitation support.

Based on our results, we recommend training in MAT include primary care practice teams. Participation in either of the models of training described here can be beneficial. Based on our results and understanding of each model, a future approach might be to sequence the use of SOuND, to optimize core training for the full team, followed by ECHO approaches that can offer tailored supplemental consults. We also encourage other researchers, practice and hospital administrators, and others working with primary care practices to align with their local PBRNs to utilize the long-term relationships and resources they often provide.

The National Academy of Medicine called for initiatives that address the stigma surrounding addiction and treatments for OUD and dispel notions of OUD as a moral issue while reinforcing knowledge of OUD as a chronic disease.[24] This evaluation supports the IT MATTTRs Practice Team Training as an effective resource to engage primary care practices in helping change the trajectory of the opioid epidemic. To help meet the demand for help in Colorado and nationally, IT MATTTRs developed a Train the Trainer program to train others to deliver the curriculum with the SOuND model. This training is available to primary care practices, hospitals, health systems, and other disciplines that help identify and support the treatment of OUD. Over 90 people in Colorado, Montana, California, and North Carolina have received this training so far.

Several limitations should be mentioned. First, 47% of training participants completed the evaluation survey. The lower response rate from participants at SOuND practices may have impacted the results. However, there was widespread agreement on the value of the IT MATTTRs intervention regardless of delivery method. Second, data include self-reported perceived ability to deliver MAT and not practice behaviors. However, self-report data are standard for this type of evaluation. The study team is finalizing analysis to determine change in knowledge and implementation and MAT delivery. Finally, a cost comparison between the two delivery models could provide additional information about training rural primary care practices but is beyond the scope of this paper.

Conclusions

Engaging practice teams is a crucial component to provide MAT in primary care settings. A DEA waiver to prescribe buprenorphine is necessary but insufficient strategy to provide office-based opioid treatment. The IT MATTTRs Practice Team Training, created in partnership with rural community members, successfully delivered training on the complex topic of MAT for OUD that was well accepted in diverse primary care practices and across practice roles. This evaluation helps fill gaps in the evidence around team-based training on OUD and MAT content and implementation. This training can help other communities working to engage primary care in efforts to stem the opioid epidemic.

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