

## ORIGINAL RESEARCH

## Improving Care for Unhealthy Alcohol Use: Results from the Facilitating Alcohol Screening and Treatment (FAST) Colorado Study

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**Introduction:** Unhealthy alcohol use (UAU) is associated with preventable morbidity and mortality and accounted for more than 140,000 deaths per year in the US during 2015 to 2019. The United States Preventive Services Task Force recommends routine screening for UAU in adults aged 18 years and older and pregnant persons, followed by brief counseling for a positive screening (B recommendation). Primary care clinicians can improve UAU outcomes by universally screening and offering brief counseling. This study aimed to increase screening, brief intervention, medication-assisted treatment (MAT), or referral for treatment (SBI/RT + MAT) in primary care practices.

**Methods:** Cluster-randomized study to investigate 1) the effectiveness of virtual practice facilitation as a method to enhance implementation of SBI/RT + MAT and 2) the potential added benefit of using alcohol use eLearning modules to guide and focus the process and content of virtual practice facilitation.

**Results:** Sixty-one primary care practices in Colorado enrolled in the study, with 43 primary practices completing the intervention and reporting 9-month data. Results show significant overall improvements in SBI/RT + MAT practice implementation scores from baseline to 9-month follow-up ( $P < .0001$ ) and no differences between groups. The number of patients screened for UAU and/or Alcohol Use Disorder (AUD), receiving brief intervention, receiving an AUD diagnosis all significantly increased from baseline ( $P < .0001$ ); and number receiving MAT also significantly increased ( $P < .0014$ ).

**Discussion:** Practice facilitation can assist primary care practices in improving SBI/RT + MAT processes and patient outcomes, with the results providing initial evidence for successful use of virtual practice facilitation. (J Am Board Fam Med 2024;37:1027–1037.)

**Keywords:** Alcohol Use Disorder, Colorado, Computer-Assisted Instruction, Counseling, Family Medicine, Patient Care Team, Patient-Centered Care, Primary Health Care, Process Assessment (Health Care), Quality of Care, Screening

## Introduction

Unhealthy alcohol use (UAU) is associated with preventable morbidity and mortality across the lifespan,

and accounted for more than 140,000 deaths per year in the US during 2015 to 2019.<sup>1</sup> UAU includes heavy episodic drinking ( $\geq 4$  drinks for women,  $\geq 5$  drinks for men on an occasion), heavy drinking ( $\geq 8$  drinks for women,  $\geq 15$  drinks for men in a week), and any alcohol consumption during pregnancy or in persons aged  $< 21$  years.<sup>2</sup> During 2018, 1 in 6 adults reported past-month binge drinking, the most common form of UAU, and 25% reported doing so weekly or more frequently.<sup>3</sup>

Brief, 1 to 3 item screening questionnaires accurately identify UAU and can be self-administered by patients.<sup>4,5</sup> A positive brief screening result is followed by additional assessment to further characterize risk, for example, using the full US AUDIT

This article was externally peer reviewed.

Submitted 2 February 2024; revised 26 April 2024; accepted 13 May 2024.

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**Funding:** This research was supported by the Agency for Healthcare Research and Quality (AHRQ) Grant #R18HS027079.

**Conflict of interest:** None to disclose.

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questionnaire to identify low-, moderate-, or high-risk UAU, including possible alcohol use disorder (AUD).<sup>4,5</sup> AUD is characterized by an impaired ability to stop or control alcohol use despite adverse social, occupational, or health consequences.<sup>6</sup> In the US, approximately one-third of all adults will meet the criteria for AUD at some point in their lives.

There are multiple effective and evidence-based treatment approaches for AUD, including medication assisted treatment (MAT<sup>7</sup>) with several medications approved to help people with AUD in stopping or reducing their drinking and preventing relapse. These interventions are ideally suited for primary care settings where ongoing monitoring and support for changing UAU can be provided, and the use of MAT in primary care practices could help considerably in filling the large gaps in the availability of AUD intervention services.<sup>8,9</sup> Screening and brief counseling for UAU in primary care has the potential to improve health outcomes across the lifespan by reducing alcohol-exposed pregnancy and poor pregnancy outcomes including fetal alcohol spectrum disorders,<sup>10</sup> addressing increasing alcohol consumption and alcohol-attributable mortality among women,<sup>11,12</sup> preventing unintentional and intentional injuries,<sup>13</sup> decreasing chronic disease morbidity and mortality,<sup>1,14–16</sup> and improving health and quality of life in older adults.<sup>17,18</sup> Finally, primary care clinicians can help decrease the considerable stigma associated with UAU by universally screening and offering brief counseling interventions.<sup>19</sup>

The US Preventive Services Task Force (USPSTF) recommends routine screening for UAU in adults aged 18 years and older and pregnant persons, followed by brief counseling for a positive screening (B recommendation).<sup>4,5</sup> Among prevention services, increased utilization of alcohol screening and brief counseling is considered a priority for its potential to improve population health.<sup>20</sup> Despite the USPSTF recommendations, a recent study found that alcohol screening with a validated questionnaire occurred during only 2.6% of primary care visits.<sup>21</sup> In addition, alcohol counseling, provided by a physician or by referral, was documented less than 1% of the time. A systematic review of the effectiveness of brief alcohol interventions in primary care population found that brief intervention can reduce alcohol consumption in patients with AUD compared with minimal or no intervention.<sup>22</sup> As such, there is an urgent need to develop strategies

to assist primary care practices to implement workflows and processes to increase SBI/RT.

Practice facilitation (PF) has been shown to assist practices in implementing evidence-based interventions, improving incorporation of programs into practice operations, and increasing sustainability.<sup>23–28</sup> Little is known about distance or virtual practice facilitation, although a recent study in Veterans Administration primary care practices found that distance practice facilitation conducted via weekly phone calls significantly improved implementation of a care management toolkit compared with just providing the toolkit.<sup>29</sup> One result of the COVID-19 pandemic has been a sudden increase in comfort with and use of virtual video technology in practices, which could make distant, virtual practice facilitation more feasible. The Stop Unhealthy (STUN) Alcohol Use Now trial utilized virtual practice facilitation as part of implementation of screening, brief intervention, referral to treatment, plus medication assisted treatment (SBI/RT + MAT) in primary care practices in North Carolina.<sup>30</sup> Qualitative interviews with their PFs found that remote PF led to fewer interactions with practices, with challenges in maintaining relationships, providing support, and the ability to establish workflows and access to the practice's EHR. Further study of the effectiveness of virtual practice facilitation is needed, especially with its potential of increasing adaptability and scalability and decreasing costs.

E-learning has provided health care professionals with training and development opportunities, regardless of their location, and became a key learning tool during COVID. A recent study examining the effects of eLearning in health care found benefits included increased accessibility, interactivity, flexibility, knowledge management, and cost efficiency.<sup>31</sup> Our study team has implemented the use of eLearning modules extensively as a complementary resource to practice facilitation, and successfully piloted the use of eLearning modules to standardize practice facilitation in the Transforming Clinical Practice Initiative. In this project, we sought to further test this approach and formally study the utility of eLearning modules as part of SBI/RT + MAT implementation.

Here, we report the primary results of Facilitating Alcohol Screening and Treatment (FAST), Colorado, a 2-arm, cluster randomized trial designed to accomplish 2 aims: 1) study the ability to improve SBI/RT + MAT implementation in primary care practices using virtual practice facilitation; and 2) to determine if there

was an additive benefit of using eLearning modules to structure the virtual practice facilitation sessions. Our study was 1 of the 6 regional cooperatives that participated in the Agency for Health care Research and Quality project on Managing Unhealthy Alcohol Use in Primary Care.

## Methods

### *Design*

The overall purpose of both the Managing Unhealthy Alcohol Use in Primary Care initiative and our project was to study the impact of practice transformation support on the implementation of SBI/RT + MAT in primary care practices. To further our understanding of methods of practice transformation support, our original study design included a comparison of in-person PF with virtual PF guided by eLearning modules. Due to the COVID-19 pandemic, we needed to rapidly respond to the inability to conduct in-person PF and pivoted to a using all virtual PF, while still maintaining the use of eLearning modules in 1 arm of the study. As such, the study protocol was changed to investigate 1) the effectiveness of virtual practice facilitation as a method to enhance implementation of SBI/RT + MAT and 2) the potential added benefit of using alcohol use eLearning modules to guide and focus the process and content of virtual practice facilitation.

### *Sample*

Colorado primary care practices serving adult patients were recruited and enrolled in the study between June 2020 and August 2022 and were randomized to 1 of the 2 intervention arms. Inclusion criteria were family medicine, general internal medicine, or obstetrics and gynecology practices with clinicians agreeing to participate. Practices that were able to start the intervention at approximately the same time were grouped into a randomization block, and practices within the same block were randomized to study arms.

### *Protections*

This project was reviewed and approved by the Colorado Multiple Institutional Review Board and registered with ClinicalTrials.gov (protocol number NCT04303676).

### *Interventions*

Table 1 describes the interventions for each group. Practices received 6, 1-hour practice facilitation sessions, mostly done over the lunch-hour, that focused on implementation of SBI/RT + MAT for unhealthy

alcohol use and alcohol use disorder. After the 6 sessions were completed, the practices had a 3-month maintenance period before completing final surveys and submitting final patient metrics at 9 months.

### *Primary Effectiveness Outcomes*

Primary effectiveness outcomes included changes in SBI/RT + MAT implementation in primary care practices, as determined through practice response to the Practice SBI/RT Implementation Checklist, and improvements in the unhealthy alcohol use measures.

### *Clinical Practice Data*

Practice staff and clinicians provided deidentified SBI/RT + MAT metrics for active patients in their practice. Table 2 describes the measures and reporting schedule. Practice facilitators helped practices to determine how best to report their baseline, 3, 6, and 9-month data. The intervention for both groups involved helping practices develop and implement workflows for their SBI/RT + MAT implementation, including data reporting and monitoring. For all data collection points, practices reported the number of patients for each metric from the prior 3 months. The SBI/RT + MAT metrics were not clinical quality measures that practices could easily pull from their electronic health records (EHRs), and successful strategies were not consistent across EHR platforms. As such, several “work arounds” were implemented to collect these data. Some practices resorted to using smart codes to pull the measures; these were used to determine the number of unique patients screened for UAU measures and the number of patients who screened positive for a measure. To track patients who received brief intervention counseling for UAU or AUD, practices generally used the G0443 billing code to be able to report on the number of patients receiving this intervention. However, this code is for a 15-minute intervention, which most practices did not meet, so they either zeroed out the billing charge or, sometimes, did not record the code. To track the number of patients receiving MAT, practices generally either used smart codes or ran reports on the number of patients on a medication prescribed specifically for MAT for AUD. To track the number of patients referred to specialty clinics for treatment for AUD, practices used their EHR referral tool, if it was available. Some practices were not able to use their EHR to obtain any of these measures and resorted to using a manual registry to track some or all the measures. Practice facilitators reported at

**Table 1. Description of Study Intervention Practice Facilitation Content**

Session/Topic	Virtual Practice Facilitation	Virtual Practice Facilitation + eLearning
1: Introduction/ Complete baseline surveys	Complete two surveys; review baseline SBIRT patient metrics; identify practice champions; prepare for Session 2.	Complete two surveys; review baseline SBIRT patient metrics; identify practice champions; prepare for Session 2.
2: SBIRT Introduction, Screening for UAU and AUD	<ul style="list-style-type: none"> <li>Review SBIRT</li> <li>Review practice's current process for screening for UAU/AUD</li> <li>Set goals for screening</li> </ul>	Using Screening eLearning module: <ul style="list-style-type: none"> <li>Review SBIRT</li> <li>Review practice's current process for screening for UAU/AUD</li> <li>Complete screening PDSA cycle within module</li> </ul>
3: Brief Intervention	<ul style="list-style-type: none"> <li>Review goals from UAU/AUD screening</li> <li>Discuss brief intervention</li> <li>Set goals for brief intervention</li> </ul>	Using Brief Intervention eLearning module: <ul style="list-style-type: none"> <li>Review screening PDSA cycle and determine changes</li> <li>Discuss brief intervention</li> <li>Complete brief intervention PDSA cycle within module</li> </ul>
4: Medication Assisted Therapy (MAT)	<ul style="list-style-type: none"> <li>Review goals from brief intervention</li> <li>Discuss MAT</li> <li>Set goals for MAT</li> </ul>	Using MAT eLearning module: <ul style="list-style-type: none"> <li>Review brief intervention PDSA cycle and determine changes</li> <li>Discuss MAT</li> <li>Complete MAT PDSA cycle within module</li> </ul>
5: Team-Based Care for SBIRT/MAT	<ul style="list-style-type: none"> <li>Review goals from MAT</li> <li>Discuss team-based SBIRT/MAT care</li> <li>Set goals for team-based SBIRT/MAT</li> </ul>	Using Team-Based Care eLearning module: <ul style="list-style-type: none"> <li>Review MAT PDSA cycle and determine changes</li> <li>Discuss team-based SBIRT/MAT care</li> <li>Complete team-based care PDSA cycle within module</li> </ul>
6: SBIRT/MAT Sustainability Plan	<ul style="list-style-type: none"> <li>Review goals from team-based SBIRT care</li> <li>Discuss SBIRT/MAT sustainability plan</li> <li>Set goals for SBIRT/MAT sustainability plan</li> </ul>	Using SBIRT/MAT Sustainability eLearning module: <ul style="list-style-type: none"> <li>Review team-based care for SBIRT/MAT PDSA cycle and determine changes</li> <li>Discuss SBIRT/MAT sustainability plan</li> <li>Complete SBIRT/MAT sustainability plan PDSA cycle within module</li> </ul>
7: 9-month Final Data Collection	<ul style="list-style-type: none"> <li>Complete SBI/RT + MAT Checklist Survey</li> <li>Complete patient SBI/RT + MAT metrics</li> </ul>	<ul style="list-style-type: none"> <li>Complete SBI/RT + MAT Checklist Survey</li> <li>Complete patient SBI/RT + MAT metrics</li> </ul>

*Abbreviations:* SBIRT, Screening Brief Intervention and Referral to Treatment; UAU, Urinalysis and Urine Culture; AUD, Alcohol Use Disorder; PDSA, Plan-Do-Study-Act; RT, Respiratory Therapy.

baseline and at 9-months how their practices extracted and reported these measures.

#### **Practice SBI/RT + MAT Implementation: Process of Care**

The SBI/RT + MAT Implementation Checklist is a 13-item survey used across all the AHRQ grantees to determine the extent of practice implementation of the following processes:

- Screening for unhealthy alcohol use (including follow-up items on screening tools used, which patients are screened, the frequency of screening, who was involved in the workflow, how screening was documented, and what tools/approach were used for reviewing and interpreting alcohol screening results);
- Process for reviewing and interpreting screening results (including information regarding the process);



**Table 2. Primary Outcomes**

Survey Name	Variables Collected	Source of Data	Timing of Completion
SBI/RT + MAT checklist	13-item survey to determine SBI/RT + MAT implementation	Survey completed by PF and key practice members	Baseline and 9-months
Practice characteristics survey	20-item survey to determine key practice characteristics	Survey completed by practice manager or medical director	Baseline
Unhealthy alcohol use SBI/RT + MAT patient measures	# of unique patients screened for UAU over past 3 months # of unique patients screened + for AUD over past 3 months # of unique patients receiving brief intervention for UAU over past 3 months # of unique patients receiving MAT for AUD over past 3 months # of unique patients referred to specialty clinic for treatment of AUD over past 3 months	EHR or patient registry	Baseline, 3, 6, 9 months (look back from prior 3 months)

*Abbreviations:* SBI/RT + MAT, screening, brief intervention, referral, treatment plus medication assisted treatment; PF, practice facilitator; UAU, unhealthy alcohol use; AUD, alcohol use disorder.

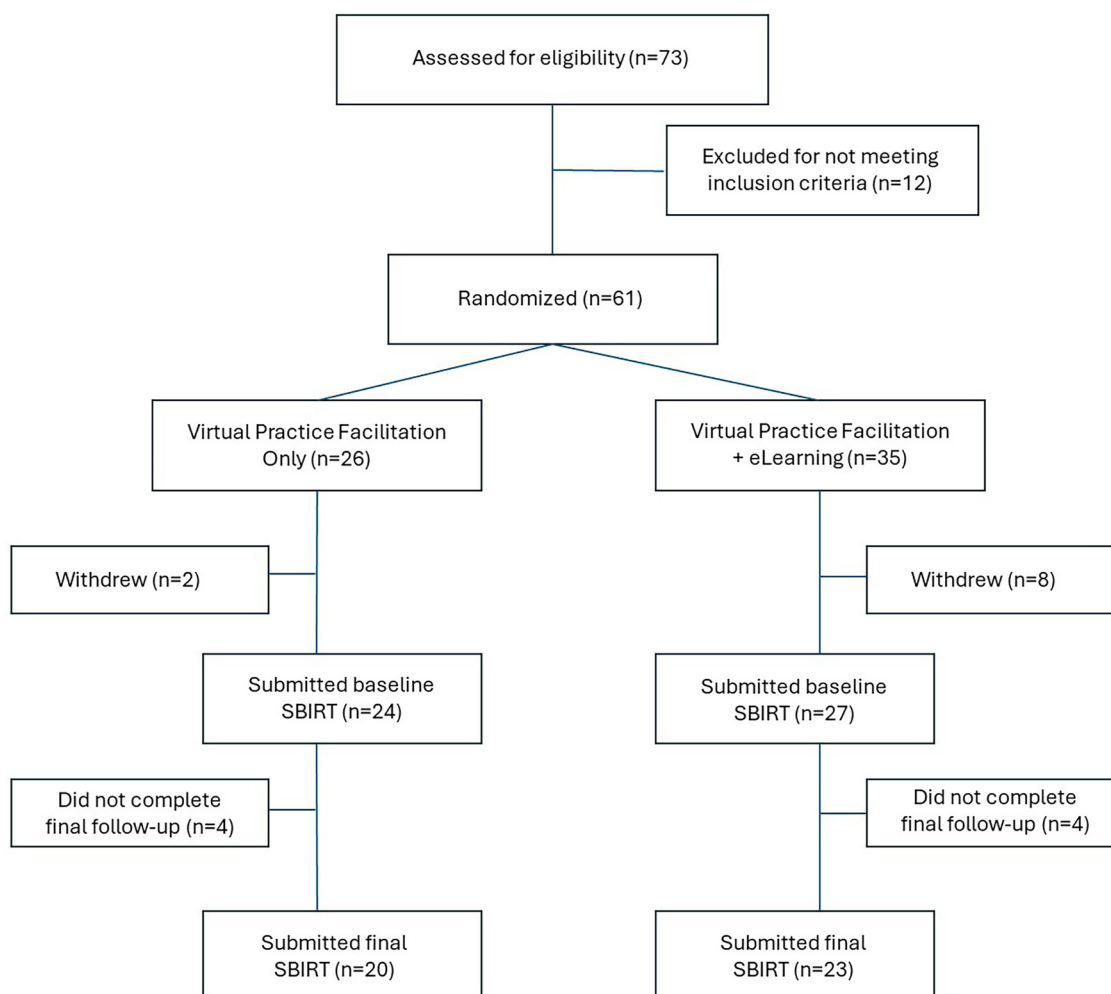
- Process for assessing symptoms of AUD when a patient screens positive (including the instrument used for further assessment);
- Process for providing feedback to patients on screening results;
- System for engaging patients in care following a positive screen, including items on the following:
  - Provision of brief intervention to decrease risk, reinforce healthy behaviors, or stop drinking alcohol when indicated;
  - Provision of medication assisted treatment for patients with AUD;
  - Referral of patients to outside resources for treatment of AUD; and
  - Referral to other resources, including educational materials and peer support groups.

The checklist was completed by the practice facilitator and key practice members involved in this project at baseline and 9-months. A summary score of the responses regarding the practices' level of implementation (sum of 5 core items, each scored from 0 for not started implementing to 3 for fully implemented) was used to assess overall implementation over time. In addition, the levels of use of brief intervention, medication assisted treatment, and referral to outside resources were compared over time.

Practice characteristics were examined as potential confounders and moderators in analyses, including practice size, type of practice organization, and availability of an integrated behavioral health professional.

### **Data Analysis**

Descriptive statistics were computed for baseline practice characteristics, initially testing for differences between (1) different intervention arms, and (2) practice dropouts versus nondropouts. All data were collected at the practice level. We employed intent-to-treat analyses that utilized all available data, assuming ignorable missingness (Missing At Random).<sup>32–35</sup> SBIRT survey scores over time were analyzed using general linear mixed models with random intercept for practice, adjusting for average number of patient visits per week and practice ownership (private, hospital owned, safety net, rural health center). For count data (# screened, # screen positive, etc.) we used generalized linear mixed models (negative binomial) with random intercepts for practice to analyze the data, again adjusting for average number of patient visits per week and practice ownership. We assessed overall improvement over time (main effect for time) as well as differential improvement by study arm (time x arm). When there was no significant differential improvement by study arm we combined arms for ease of interpreting change over time. For other survey items with

**Figure 1. Consort diagram.**

**Notes:** SBIRT, Screening, Brief Intervention, and Referral to Treatment.

binary or multinomial response options, we examined pre/post change using McNemar's test for practices with both baseline and follow-up responses. Hypothesis tests were 2-sided with  $\alpha = 0.05$  or  $P$  values reported. All statistical analyses were performed using SAS version 9.4 (SAS Institute Inc., Cary, N.C.).

## Results

Seventy-three primary care practices in Colorado were assessed for eligibility, with 61 practices meeting inclusion criteria and randomized to either Virtual Practice Facilitation (VPF) or VPF + eLearning (eL) (VPF = 26; VPF + eL = 35). Forty-three practices completed the intervention and all final assessments (VPF = 20; VPF + eL = 23). Practices that dropped out before completing the

baseline SBIRT survey ( $n = 10$ ) did not differ significantly from practices that stayed in the study past initial data collection in terms of practice ownership and payer mix ( $P$ -values  $> 0.20$ ). Compared with practices that completed final data collection ( $n = 43$ ), those that provided some, but not all, data ( $n = 8$ ) were less likely to be Family Medicine and more likely to be Federally Qualified Health Center (FQHC) practices, were larger (more primary care clinicians), and had a lower percentage of patients with private insurance (all  $P < .05$ ).

Please see the Consort diagram in Figure 1 for details.

Table 3 describes the practice characteristics of the primary care practices randomized to this study. There were no statistically significant differences in practice characteristics between intervention groups.

**Table 3. Practice Characteristics**

Practice Characteristics	Standard PF	PF with eLearning	Total	P-value
	n = 24	n = 27	n = 51	
	n (%) or Mean (SD)	n (%) or Mean (SD)	n (%) or Mean (SD)	
Specialty				0.5507
Family medicine	16 (67%)	15 (56%)	31 (61%)	
Internal medicine	4 (17%)	8 (30%)	12 (24%)	
Other*	4 (17%)	4 (15%)	8 (16%)	
Number primary care clinicians	4.8 (2.6)	6.8 (9.1)	5.8 (6.7)	0.3215
Number psychiatrists	0.09 (0.42)	0.09 (0.43)	0.09 (0.42)	0.5902
Number pharmacists	0 (0)	0.07 (0.23)	0.04 (0.17)	0.2001
Number nursing staff	5.0 (3.7)	5.9 (5.4)	5.5 (4.6)	0.5140
Number behavioral health	1.6 (1.8)	1.3 (1.8)	1.5 (1.8)	0.6281
Practice ownership				0.9243
Clinician owned	12 (50%)	12 (44%)	24 (47%)	
Safety net or similar	4 (17%)	5 (19%)	9 (18%)	
Hospital/system owned	8 (33%)	10 (37%)	18 (35%)	
Number of patient visits per week	225.4 (156.9)	171.3 (162.2)	197.8 (160.3)	0.2420
Payor mix*				
% Private	46.8 (27.2)	41.9 (25.1)	44.1 (16.0)	0.5109
% No insurance/self-pay	5.0 (5.4)	5.2 (7.2)	5.1 (6.3)	0.9123
% Medicare	20.0 (15.3)	21.6 (15.2)	20.8 (13.8)	0.6977
% Medicaid	20.0 (15.3)	23.9 (22.2)	22.1 (19.2)	0.4800
Patient race*				
% White	69.9 (14.7)	71.0 (29.2)	70.4 (23.0)	0.8783
% Black	8.0 (9.2)	4.7 (5.4)	6.2 (7.6)	0.1375
% Other race	22.1 (16.3)	27.7 (16.2)	25.1 (22.7)	0.4005
Patient ethnicity (% Hispanic), n = 44	24.8 (17.4)	19.0 (22.3)	21.9 (20.0)	0.3447
Patient gender (% male), n = 45	46.6 (7.7)	45.0 (6.8)	45.8 (7.2)	0.4744

P-values for categorical variables obtained from  $\chi^2$  tests for differences between study arms; P-values for continuous variables obtained from *t* test for differences between study arms.

\*Separate question for each category with a continuous response.

Abbreviations: PF, Practice facilitator; SD, Standard deviation.

### **SBI/RT + MAT Implementation Checklist**

Results show significant overall improvements in SBI/RT + MAT implementation scores from baseline to 9-month follow-up ( $P < .0001$ ) (Table 4). Study arms were combined for this analysis since there were no significant differences between the 2 intervention groups ( $P > .05$ ). In addition, significant improvements were seen for individual aspects of SBI/RT + MAT including screening, reviewing results, number of positive screens for AUD, providing patient feedback, and providing care for AUD (all  $P < .0001$ ), with no differences seen between groups (all  $P > .05$ ). Other survey questions with significant change from baseline to follow-up include increases in screening of patients over 18 or presenting for a health maintenance or preventive visit, overall increase in eligible patients screened, provision of a

brief intervention, referral to outside resources, and prescribing medication assisted therapy (all  $P < .05$ ).

### **SBI/RT + MAT Clinical Quality Metrics**

Practice patient metrics also showed significant improvements across multiple SBI/RT + MAT domains. For most metrics there was no significant difference in improvement between groups and groups were combined for reporting for ease of interpreting change over time (Table 5, means across all practices with 95% CI shown for each time period). Although the time x arm interaction term for AUD diagnosis was significant ( $P = .0254$ , slightly more improvement in PF only), differences were minor and largely attributed to more diagnoses in the PF + eLearning group at baseline (hence, less room for improvement in this group), so groups

**Table 4. SBI/RT + MAT Implementation Checklist Results\***

Variable	Baseline	9-Month	P-value
	Mean (95% CI)	Mean (95% CI)	
Overall summed SBI/RT implementation score**	5.9 (4.8, 6.9)	12.7 (11.5, 13.8)	<0.0001
Process for UAU screening**	1.4 (1.1, 1.6)	2.7 (2.4, 2.9)	<0.0001
Process for reviewing and interpreting UAU screening result**	1.2 (0.9, 1.4)	2.6 (2.4, 2.9)	<0.0001
Process for + Screen results**	1.0 (0.8, 1.3)	2.6 (2.3, 2.8)	<0.0001
Process for routinely providing feedback and brief intervention**	1.2 (0.9, 1.5)	2.5 (2.2, 2.7)	<0.0001
Process for providing care following + UAU screening result**	1.1 (0.9, 1.4)	2.4 (2.1, 2.7)	<0.0001
Other survey questions			
Variable	Baseline	9-Month	P-value*
	Total n = 51 n (%)	Total n = 43 n (%)	
Which patients are screened?			
All patients ages 18 and above	30 (59%)	35 (81%)	0.0184
All patients with different age range	6 (12%)	1 (2%)	0.0588
Patients with a particular condition	2 (4%)	2 (5%)	1.0
Patients presenting for a health maintenance/preventive care visit	13 (25%)	20 (47%)	0.0290
Patients participating in telehealth or phone appointments	4 (8%)	2 (5%)	0.4142
Patients participating in web-based/ tablet/ application-based appointments	2 (4%)	2 (5%)	1.0
How often are eligible patients screened? Your best estimate is fine.			
Up to 25% of the time	3 (8%)	0 (0%)	
26% to 50% of the time	12 (32%)	11 (26%)	
51% to 75% of the time	16 (42%)	13 (30%)	
76% of the time or more	7 (18%)	19 (44%)	0.0040
The practice provides the following support to help patients with unhealthy drinking or alcohol use disorder			
	"Yes"	"Yes"	P-value
	N (%)	N (%)	
1, Brief intervention/brief treatment provided by internal clinician	33 (65%)	41 (95%)	0.0010
2, Brief intervention/brief treatment provided by internal behavioral health provider	18 (35%)	23 (53%)	0.0209
Any brief intervention	34 (67%)	42 (98%)	0.0005
3, Provide patient educational materials	12 (24%)	37 (86%)	<0.0001
4, Refer to external medical or behavioral health provider	23 (45%)	35 (81%)	<0.0001
5, Refer to self-help, mutual support, or peer support groups	20 (39%)	34 (79%)	<0.0001
6, Refer to external treatment program (inpatient, outpatient, residential)	21 (41%)	30 (70%)	0.0013
Any external referral for treatment ("yes" to 4 or 6 above)	26 (51%)	37 (86%)	0.0002
7, Prescribe medication for alcohol use disorders (prescribe medication without behavioral health intervention)	21 (41%)	31 (72%)	0.0029
8, Prescribe medication-assisted therapy (prescribe medication with behavioral health intervention)	15 (29%)	27 (63%)	0.0043
Any provision of MAT	21 (41%)	33 (77%)	0.0011

\*Adjusted for visits per week and practice type (safety-net, hospital owned, rural health center, independent).

\*\*SBIRT implementation questions are scored 0 (not started at this time) to 3 (full implementation). The total score is the sum of the scores on the individual items; higher scores mean greater implementation. The n's (n = 51, n = 43) refer to the number of randomized practices that submitted baseline and 9-month surveys respectively.

‡McNemar's test on practices with both baseline and follow-up.

Abbreviations: SBI, Screening and Brief Intervention; RT, Referral to Treatment; UAU, Urinalysis and Urine Culture; MAT, Medication-Assisted Treatment; SBIRT, Screening Brief Intervention and Referral to Treatment.



**Table 5. SBIRT Metrics Results: Adjusted Estimates over Time (Previous 3-Months Before Reporting Period)**

SBIRT Survey	Study Arm	Baseline	3 Months	6 Months	9 Months	P-value*
		Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	
Screened	Both groups	99.6 (64.3, 154.3)	233.2 (150.3, 361.6)	368.7 (236.7574.5)	337.4 (216.2, 526.7)	Time: <0.0001
Positive screen	Both groups	5.6 (3.2, 9.8)	13.2 (7.6, 23.0)	23.6 (13.5, 41.0)	27.4 (15.8, 47.7)	Time: <0.0001
AUD diagnosis	Both groups	0.29 (0.11, 0.71)	0.76 (0.32, 1.78)	1.06 (0.45, 2.48)	1.32 (0.57, 3.08)	Time: 0.0006
Brief intervention	Both groups	0.3 (0.1, 0.7)	0.9 (1.2, 5.4)	4.1 (2.0, 8.5)	4.0 (1.9, 8.3)	Time: <0.0001
Referred	Both groups	0.1 (0.1, 0.5)	0.3 (0.1, 0.6)	0.3 (0.2, 0.7)	0.3 (0.2, 0.7)	Time: 0.9284
MAT	Both groups	0.9 (0.5, 1.5)	1.5 (0.9, 2.4)	1.8 (1.1, 2.9)	2.6 (1.6, 4.2)	Time: 0.0007

\*Analyses adjusted for average visits per week and practice ownership (clinician, safety-net, hospital-owned, rural health center); P-value refers to change over time across all timepoints in longitudinal analyses.

Abbreviations: SBIRT, Screening Brief Intervention and Referral to Treatment; MAT, Medication-Assisted Treatment; AUD, Alcohol Use Disorder.

were combined in Table 5. The number of patients screened for UAU and/or AUD, number of patients with a positive screen, number of patients receiving brief intervention, and the number of patients receiving an AUD diagnosis all significantly increased from baseline ( $P < .0001$ ). The number of patients receiving MAT also significantly increased ( $P < .0014$ ); however, the number of patient referrals for UAU or AUD did not improve significantly ( $P = .9284$ ).

## Discussion

The results from our study demonstrated that a focused virtual practice facilitation intervention to support implementation of SBI/RT + MAT in diverse primary care practices in Colorado resulted in significant improvements in SBI/RT + MAT processes. Our study found significant improvements in the number of patients screened for unhealthy alcohol use and alcohol use disorder, number of patients receiving brief intervention, patients receiving an AUD diagnosis, and those patients receiving medication assisted treatment for AUD. We did not see an increase in referral to specialty care, which may reflect that the practices felt that they were able to treat the patients instead of refer, as we saw an increase in MAT. However, this may also be related to the limited referral options available for patients and practices. This study, one of the first to investigate virtual practice facilitation through videoconferencing, provides additional refinement of our understanding of how to approach practice facilitation, which is used extensively in the implementation of new evidence-based interventions in practices.

The results from our study reinforced results from a recent qualitative study on successful SBIRT implementation in primary care through using a team approach to SBIRT implementation, providing clear education on SBIRT, and aligning SBIRT with primary care office workflows.<sup>36</sup> Our study provided a focused SBI/RT + MAT change package delivered by practice facilitators that focused on concise and actionable education and practical workflows for SBI/RT + MAT implementation.

Our research team along with others have found that practice facilitation is a key method for assisting primary care practices with implementing organizational change and evidence-based interventions.<sup>23–28</sup> However, in-person practice facilitation can be costly and time-intensive, and the original study design was to compare in-person PF with virtual PF guided by eLearning modules to compare the adaptability, trialability, and scalability of these 2 interventions. Due to the COVID-19 pandemic, we needed to rapidly respond to the inability to conduct in-person PF and pivoted to providing virtual PF with virtual PF plus the use of eLearning modules. There were no significant differences between the practices receiving VPF compared with practices receiving VPF + eLearning, indicating that both methods were effective in improving implementation of SBI/RT + MAT processes. Feedback from the practices and PFs indicated that there was variation in how the eLearning modules were used during the monthly QI sessions. A possible strategy for use of eLearning modules for future studies is to allow the practice/PF combination partnership to determine how best to use eLearning modules to enhance their QI efforts.

Limitations of this study include that it only enrolled primary care practices in Colorado, which may not be representative of the general practice population of the United States. The COVID-19 pandemic also changed our initial protocol, and we were unable to compare in-person PF with virtual PF. The COVID-19 pandemic may also have influenced baseline data collection, as practices were dealing with an influx of patients and staff shortages. In addition, there was a lack of consistent methods of collecting patient metric data across practices with some practices unable to use their EHR to obtain some of the patient SBI/RT + MAT measures, so that they resorted to using a manual registry to track all measures. This may have resulted in undercounting the number of patients screened for UAU, receiving brief intervention, receiving MAT, or referred to a specialty clinic. The study design for this project was to investigate the comparative effectiveness of 2 practice facilitation strategies, and as such, did not include a control group. Therefore, there may have been other factors, unrelated to the study intervention, that may have accounted for the improvements in SBI/RT + MAT outcomes. Practice dropout is also a potential limitation, with FQHC practices less likely to complete the full study than non-FQHC practices.

## Conclusion

Practice facilitation can assist primary care practices in implementing improvements in their screening and management of unhealthy alcohol use, with both groups producing significant improvements in SBI/RT + MAT processes. The results of this study also provide some initial evidence regarding the successful use of virtual practice facilitation. Further study is needed to compare the effectiveness and efficiency of virtual, in-person, and/or blended virtual and in-person models of practice facilitation.

To see this article online, please go to: <http://jabfm.org/content/37/6/1027.full>.

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