Engaging with rural communities for colorectal cancer screening outreach using modified Boot Camp Translation

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ABSTRACT

Background: Colorectal cancer (CRC) incidence and mortality are disproportionately high among rural residents and Medicaid enrollees.

Objectives: To address disparities, we used a modified community engagement approach, Boot Camp Translation (BCT). Research partners, an advisory board, and the rural community informed messaging about CRC outreach and a mailed fecal immunochemical test (FIT) program.

Methods: Eligible rural patients (English-speaking and ages 50 to 74) and clinic staff involved in patient outreach participated in a BCT conducted virtually over two months. We applied qualitative analysis to BCT transcripts and field notes.

Results: Key themes included: the importance of directly communicating about the seriousness of cancer, leveraging close clinic-patient relationships, and communicating the test safety, ease, and low cost.

Conclusions: Using a modified version of BCT delivered in a virtual format, we were able to successfully capture community input to adapt a CRC outreach program for use in rural settings. Program materials will be tested during a pragmatic trial to address rural CRC screening disparities.

KEYWORDS: Colorectal cancer screening, rural health, patient outreach, community engagement, Boot Camp Translation

BACKGROUND

Despite the fact that colorectal cancer (CRC) screening is highly effective, [1] rural residents are less likely than their urban counterparts to be screened, leading to higher CRC incidence and mortality.[2-5] Medicaid enrollees are a key underserved group in rural areas with only 54% of Medicaid patients current on screening vs. 65% for commercially insured people and 73% of Medicare-insured.[6,7] Many evidence-based interventions could potentially address these disparities, but patient and community engagement are important precursors to successfully adapting those programs and tailoring outreach messages to rural settings. Adapting evidence-based interventions to address the specific barriers that a target population experiences can impact the success of implementation.[8]

Key barriers to CRC screening among rural patients include high cost, lack of time, fear of burdening family, lack of privacy, and transportation.[9] While in-clinic fecal immunochemical test (FIT) distribution and reminders are promising approaches to improve screening rates in rural populations,[10,11] additional strategies could potentially expand screening to more people. Mailing FIT kits directly to patients might improve screening rates,[12 13-16] but rural populations display lower response rates for mailed FIT compared to urban populations (for example, 16% rural FIT returns, compared to 19% in urban enrollees (p=.05)).[17] Because of this gap, our pilot study aims to engage rural community members and staff from primary care clinical teams to learn how to best reach a population of rural community members due for CRC screening.

Experts have recommended using community-based participatory research (CBPR) approaches to address cancer intervention barriers more broadly.[18-21] Our prior research indicates a collaborative community approach is feasible, acceptable, and promising for attenuating these

persistent screening disparities.[22,23] Building on this need, the research described here is using a collaborative partnership approach[22,24,25] that connects rural clinics to Medicaid health plans to coordinate preventive care outreach to patients due for CRC screening.

One way to engage the rural community in developing interventions and messaging for CRC screening is a participatory approach called Boot Camp Translation (BCT). BCT is an iterative process that prioritizes locally relevant and culturally appropriate language to make scientific evidence-based guidelines more accessible for patients and community members.[26-28] The BCT model used by Norman and colleagues required 20-25 hours of participant time over the course of 4 to 12 months; it included one full in-person meeting day, multiple in-person meetings from two to four hours, and up to eight 30-minute phone calls.[26] We use a modified version of this BCT process based on prior work[27,28] to determine what to emphasize in our CRC screening messages to rural unscreened patients as part of a mailed FIT program with follow-up colonoscopy. We also ask about the best way to deliver outreach alerts or reminders to this population and how to encourage CRC screening in light of COVID-19. This manuscript describes the BCT process and findings, which will be tested in a subsequent pragmatic trial that continues to rely on community input in scale up and dissemination activities.

METHODS

The Screening More Patients for Colorectal Cancer through Adapting and Refining Targeted Evidence-based Interventions in Rural Settings (SMARTER CRC) (ClinicalTrials.gov #: NCT04890054) pragmatic trial aims to reduce disparities in CRC screening and follow-up for rural Medicaid enrollees.[29] The SMARTER CRC study included an academic research team from Oregon Health & Science University (OHSU), three Coordinated Care Organizations

(CCOs)[30] that provide Medicaid coverage for rural populations, and four primary care clinical practices serving rural populations. The participating organizations have a long history of working together as part of a practice-based research network (PBRN), which is coordinated by the academic research center and focused on rural health.[19,22,31-33] The activities described in this manuscript are part of a suite of pilot activities to prepare for a large-scale, partnered collaboration of CRC screening outreach.[29] The pilot activities included: 1) adapting materials and outreach for mailed FIT and follow-up with rural Medicaid patients using BCT; 2) piloting the feasibility and acceptability of patient navigation in rural clinical practices; and 3) recruiting additional research partners and working with clinical teams to identify factors associated with program adoption.

A local advisory board was formed by the academic research team to actively guide all the SMARTER CRC research activities. The 12-member advisory board included members representing clinical practice, Medicaid health plan, community health worker, researcher, policy, and patient perspectives. The board included one member from each of the participating CCOs. Some advisory board members or their professional counterparts had a history of partnered collaborations with members of the research team. [22,31,32,34,35] The local advisory board met quarterly and key learnings were circulated by the academic research team after the meetings. The board reviewed and advised the research project on direct mail program adaptations and outreach strategies, criteria and processes for clinic recruitment, and academic research evaluation plans. The academic research team brought outreach, mailing, and reminder materials tailored through BCT and proposed protocols for the adapted intervention to the advisory board for review and final input before implementing them in the full trial. BCT

participants were invited to join the advisory board meeting to share these results after the BCT sessions were completed.

With the input from community and staff participants in BCT and the advisory board, the CCOs refined the outreach program elements for implementation in the full pragmatic clinical trial currently underway. The full pragmatic trial (ClinicalTrials.gov #: NCT04890054) engages clinical practice staff as research partners using practice facilitation to implement the program shaped by BCT.[29] BCT activities were deemed non-human subjects research by the Oregon Health & Science University (OHSU) Institutional Review Board (IRB # STUDY00020681).

Clinic and Patient Engagement

Between April 2020-June 2020, we invited participants from across Oregon to join our BCT sessions. Because SMARTER CRC is specifically focused on tools for implementation in rural primary care practices, we invited both rural community members and clinical practice staff to participate. Clinical practice staff from four SMARTER CRC pilot clinics were invited to participate in the BCT sessions; these clinics were rural or frontier according to Rural-Urban Commuting Area (RUCA) codes[36] and the Oregon Office of Rural Health Designation,[37] had a lower than 60% CRC screening rate, and care for Medicaid patients. We also worked with these clinical practices to refine the community member (i.e., patient) recruitment approach. Community members invited to be part of the BCT were English speaking men or women ages 50-74 without a personal history of CRC or colorectal disease, and able to participate in the online sessions.

We originally proposed to limit BCT community participants to people on Medicaid; however, our clinical partners removed the requirement citing concerns that it would not be feasible,

especially during the height of the COVID-19 pandemic. All participating clinics preferred to identify and outreach to community members directly using clinic staff, which allowed them to build on their personal and trusted connections with their patient population. Two clinics recruited participants by sharing patient-facing fliers created by the academic research team. Due to competing clinical practice priorities with COVID-19, we expanded our recruitment by asking our Advisory Board to distribute fliers to rural community members meeting eligibility criteria.

BCT Intervention

BCT has been used to gain community input on a wide range of health topics.[38-40] In prior research on cancer screening interventions in an urban Latino population, our team modified the BCT approach to require fewer participant hours (9 instead of 25) over a shorter length of time (3-months instead of 18 months) and included Spanish facilitation.[27,28] The research partners felt a similar modified BCT was the optimal strategy for this community engagement for two primary reasons: 1) studies have explored CRC messaging in other populations[11,27,41] so we could focus on rural-specific barriers and messages, and 2) we wanted to enable participation by community members without substantial time commitment and travel burden. We had planned to use a modified BCT approach with one 6-hour in-person meeting in a location close to one of the pilot clinics, followed by two conference calls and one final in-person meeting. While this abbreviated format would have accommodated rural-based participants needing to travel, we would have needed to limit participation to a single regional area to make it more feasible (i.e., distance between the 4 participating clinics ranged from 47 – 382 miles *each way*). Ultimately, COVID-19 travel restrictions dictated a fully virtual format for all meetings. In the final format, the team incorporated the following specific modifications: 1) limited participants to English

speaking only (versus Spanish and English); 2) expanded the group to include clinical staff members in addition to clinic patients only; 3) used a fully virtual delivery where all participants were online (compared to in-person sessions); 4) further reduced the number of participant hours to 5.5 total over 2 months (compared to 9 hours over 3 months) (see Table 1).

INSERT TABLE 1 HERE

Figure 1 displays the modified BCT workflow. One-to-two weeks prior to the first BCT session (May 2020), all patient participants were called by a study team member (EM). The phone call welcomed the participant and built initial rapport, confirmed their mailing address, and assessed their technology to ensure they could join at least one video call. Additionally, a short participant demographic survey was conducted. After the phone call, each participant received Zoom meeting information via email. To improve engagement, each participant was mailed a care package with Zoom instructions, meeting materials including a sample letter and FIT, a poop emoji ballpoint pen, snacks, and a thank you card.

After the initial intake call and care package mailing, four BCT sessions were held over a 2-month period between June-August 2020. In these sessions, participants learned about CRC and considered the best messaging, approach, and reminders to encourage FIT completion. All BCT sessions were conducted via Zoom (see Figure 1), with a phone-in option. Sessions lasted between thirty minutes to three hours. Patient participants were sent incentives for each session they attended ($150 for the first session, $25 for the second session, $25 for the third session, $50 for the last session). Incentives were mailed out with a thank you card after the final session.

INSERT FIGURE 1 HERE

All four BCT sessions were facilitated by a lead (JC) and co-lead (MMD), with administrative support to monitor the chat and questions (EM). Study team members also modeled asking questions of the facilitators, so that participants became more comfortable sharing out ideas. One key expert (GDC) presented during the first three-hour session. The presentation addressed how CRC develops, the importance of early detection and screening, screening guidelines, and available screening options. Facilitators also walked through a sample letter and FIT materials, which had been used in prior research implementing a mailed FIT program. All sessions were recorded, saved for analysis, and transcribed. The academic research team summarized the messages we were hearing, revised the materials based on this feedback, and reviewed updated versions of the mailing materials in the latter BCT sessions.

Qualitative Data Collection and Analysis

A trained qualitative analyst (MP), present during all four sessions, took detailed field notes. We conducted a rapid analysis of our field notes in alignment with "rapid turn-around" methods,[42,43] and captured quotes from the recordings in between each BCT session to provide reflective content for the following session. All study documents (i.e., field notes and transcripts) were analyzed as a whole at the end of all sessions. First, the field notes and transcripts from each BCT session were reviewed to create neutral domain names [43] that corresponded to our key questions. Second, the neutral domains were consolidated into a summary template. Third, all field notes and transcripts were re-reviewed and key findings put under the appropriate domain. As a final analytic step, the qualitative analyst (MP), project manager (JC), and practice facilitator (EM) summarized findings across all the sessions' themes and domains. Findings were shared and discussed as a full academic research team to finalize results. Findings presented here

are focused on the three key questions guiding the BCT: (1) what to emphasize in messages; (2) what would encourage CRC screening in light of COVID-19, and (3) what is the best way to deliver CRC outreach overall?

RESULTS

Participant Characteristics

Thirteen adults agreed to participate in BCT; however, four could not participate due to COVID-related difficulties and two did not participate for other reasons. The seven remaining participants (4 community members and 3 clinical practice staff) were all female, included both Black and White individuals and lived in rural areas across the state of Oregon. Community members had a range of health coverage types including private insurance (n=2), Medicaid (n=1), and Medicare (n=1); we did not ask staff to identify their personal health coverage but they all worked with Medicaid patients in their practices. Income levels of community members included both people in the categories of making less than $20,000 per year and $50,000 or more; and community members had a variety of education levels from college degree to less than a high school diploma. Of the participants who were able to join the BCT, all seven (100%) attended the initial group Zoom session, and we had excellent attendance at the follow-up sessions (an 81% attendance rate) with five people not missing any sessions.

Messages to Emphasize in CRC Screening Outreach

BCT participants discussed barriers, what would encourage rural patients to return FITs, and who to target for outreach. Table 2 summarizes the barriers identified by participants that prevent CRC screening and related recommendations for how we should tailor messages about mailed FIT. Consensus was reached on almost all preferred messages. Barriers to screening ranged from

logistical questions (e.g., how to return a mailed FIT), to structural barriers (e.g., lack of transportation), to socio-emotional concerns (e.g., cost and stigma about the topic). All of the participants who were not clinical staff members did not know about the seriousness of CRC screening before the BCT expert presentation, and staff members echoed that their communities did not know about the importance of screening. In addition, the group answered some questions specifically about how to get men involved both in community input and in responding to screening outreach. Clinical practice staff noted the difficulty of reaching men, and two community members shared materials and brought back to the group reactions from male family members or friends.

INSERT TABLE 2 HERE

Encouraging CRC Screening in Context of COVID-19

The academic research team solicited responses from participants about how to encourage CRC screening in light of the COVID-19 pandemic. The dominant themes around this topic centered on the idea that mailing FIT tests was a "pandemic proof" approach to outreach that did not require an in-person visit to a clinic setting.

The academic research team, with advisory board input, incorporated these themes and modality suggestions into both updated materials and mailed FIT program recommendations for rural clinics (see Figure 2 as an example). For example, instead of putting the image of a family on the letters, participants suggested the word cancer with a red line through it (i.e., NO Cancer). BCT participants suggested that images of families could lead to feelings of exclusion. Our participants shared that family photos are challenging because "…what my family looks like is going to be different from everyone else." Our redesigned printed materials and brief reminder

phone scripts and sample text messages included the words "completely FREE" to reflect concerns about cost.

INSERT FIGURE 2 HERE

Best Way to Deliver Outreach

Patient and clinic participants preferred live phone calls that emphasized the call was made on behalf of their provider and text messages that alert them about delivery and lab orders. The group preferred to receive a text reminder to return the FIT before a live phone call reminder. Participants noted a potential downside to text was not always receiving texts or possible charges for text messages. Other preferences included to leverage personal connections and more "media" coverage, such as posters in clinics or local news articles. Participants had mixed opinions on whether incentives or "swag" (such as gift cards or t-shirts) would encourage people to return their FIT. The final BCT-informed mailed FIT protocol for the SMARTER CRC trial included: an advance notification (prompt) live phone call from the clinic, and reminders by text or phone about a week after the FIT is mailed.

Participants' reactions to the modified materials and process was positive and they expressed the materials reflected their input. For example, one participant shared that, "I'm super excited. As I read through the letter, I can see all the little points that we had discussed, even though they were just minor you've incorporated it. It makes me tickled on my part to know that we made an impact on it and that you listened. Thank you."

DISCUSSION

We used a modified community engagement approach, BCT, to tailor a cancer screening outreach approach to resonate better with rural communities. Despite adjustments due to COVID-19, we were able to capture barriers to screening for rural patients, corresponding messaging for mailed FIT programs, and communication modality preferences. Our study employed a well-established technique (i.e., BCT) that has been used to improve individual treatment outcomes and clinical practice improvement activities, even in modified forms that align with program need and partner capacity. [27,40,44-46] We employed BCT to shape CRC screening outreach that will be part of a mailed FIT and patient navigation program in a pragmatic trial. BCT is a CBPR method that enables research teams to translate complex health information into messages and concepts that are relatable and meaningful to members of the community.[26,39] BCT, which is designed to put the voice of the community at its center, has been used across a number of preventive care topics to engage a diverse range of communities in developing health interventions. [47-49] In addition, prior research has shown communities can still be effectively engaged with modified versions of this approach.[27,28,39,40,46,50] Our population was likely unable to commit additional hours and travel, such those described in other BCT protocols.[26] Given the competing demands on our target population (both rural clinical practice staff and their patients), which were amplified by the COVID-19 pandemic, we modified the BCT to be accessible and elicit community feedback from community members.

Findings Related to Mailed FIT

Our study confirmed barriers to CRC screening mentioned in both urban and rural research, such as cost of screening, privacy, not knowing the seriousness of CRC, FIT ease of use, fear, literacy, and invasiveness of colonoscopy.[51,52] In particular, several participant themes in our results align

with barriers that are especially pronounced in the rural community, such as privacy concerns, lack of a prevention attitude, transportation to test facilities, or distance to medical practices.[9,53] Supporting prior research, cost was discussed multiple times during the sessions. In response, our redesigned printed materials included the words "completely FREE" with emphasis. Our participants shared a preference to "tell it like it is," which we tried to capture in printed materials using the word "CANCER" with a line through it. Other rural-specific themes from our sessions were perceived closer clinic-patient relationships in rural communities and building on this personal connection for outreach, which is consistent with previous findings.[27,52] The team reflected this message by including wording about how the clinical staff cares about their patients. In terms of modality, our participants preferred live phone calls stressing that the clinic staff know their patients particularly well in rural areas. In direct contrast to prior work in an urban setting,[27] participants had negative reactions to pictures of families in the materials. Patient preferred messages and images for use in outreach materials may vary both by geography (e.g., urban versus rural), and additional demographic or community-level factors. Further tailoring materials to specific groups by demographics, age, prior screening history is warranted in future research.

Learnings and Recommendations Regarding COVID-Modified BCT

We were able to form a cohesive group using video conferencing. While the overall number of hours spent in sessions was lower than if we had held full day in-person sessions, we elicited responses from all participants. The phone call before the first video session helped facilitate remote BCT and seemed to build rapport. Participants indicated our revised materials accurately reflected the input they had shared throughout the virtual sessions. Our findings and others' [54-57]

indicate that virtual meetings might offer a positive way to reach across geographically dispersed participants in future CBPR research.

Study Limitations and Strengths

Our study has certain limitations including a small number of community members in the sessions caused by pandemic-related disruptions and staffing shortages in clinics. While we had fewer participants than originally planned, this small number gave the community members ample opportunity to contribute to the discussions and we did hear from everyone in the sessions. Ultimately, our group included participants from many different areas of rural Oregon and our advisory board gave feedback that the messages we captured resonated with their knowledge of the rural population and barriers to CRC screening. While we had no men in our sample, participating clinical staff shared their experiences reaching out to men for preventive care activities and patient participants shared materials with male friends and family and reported back on their input. Additionally, our participant responses when asked about this topic reflected that women are often family caregivers and have a leading role in family health-related decision making, including motivating preventive care behaviors.[58-60] Our full pragmatic trial is collecting gender information so we will be able to monitor whether outreach effectiveness differs by gender. Another possible limitation is that our approach used an abbreviated BCT method from the original format of 6-12 months of meetings and calls. [26] However, prior research has demonstrated the effectiveness and appropriateness of using an abbreviated BCT program depending on the scope of the project and the complexity of the health topic.[28]

Conclusions

We were able to use BCT in a remote format to identify messaging for CRC outreach that could improve engagement with rural populations. By pivoting approach in response to local community constraints and COVID-19 pressures, we discovered that remote approaches to community engagement can successfully inform research activities. We anticipate using these findings with community partners to test effectiveness of the materials produced and the feasibility of process suggestions. The clinical practice and CCO research partners will continue to be involved in adapting the materials throughout implementation of the pragmatic trial, and the advisory board will maintain its role in guiding the study's outreach approach to best engage rural patients. The trial will build on this foundational pilot work.[29] Future research could explore whether these themes apply to messaging about other cancer screening or preventive health behaviors.

List of Abbreviations

CRC: colorectal cancer

FIT: fecal immunochemical testing

BCT: Boot Camp Translation

UDS: Uniform Data System

SMARTER CRC: Screening More Patients for Colorectal Cancer through Adapting and Refining Targeted Evidence-based Interventions in Rural Settings

ORPRN: Oregon Rural Practice-Based Network

CCO: Coordinate Care Organization

Competing Interests: From 2020-2021, Dr. Coronado has served as a scientific advisor for Exact Sciences and Guardant Health. All other authors declare they have no conflicts of interest.

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Figure 1. Boot Camp Translation COVID-19 Adapted Workflow

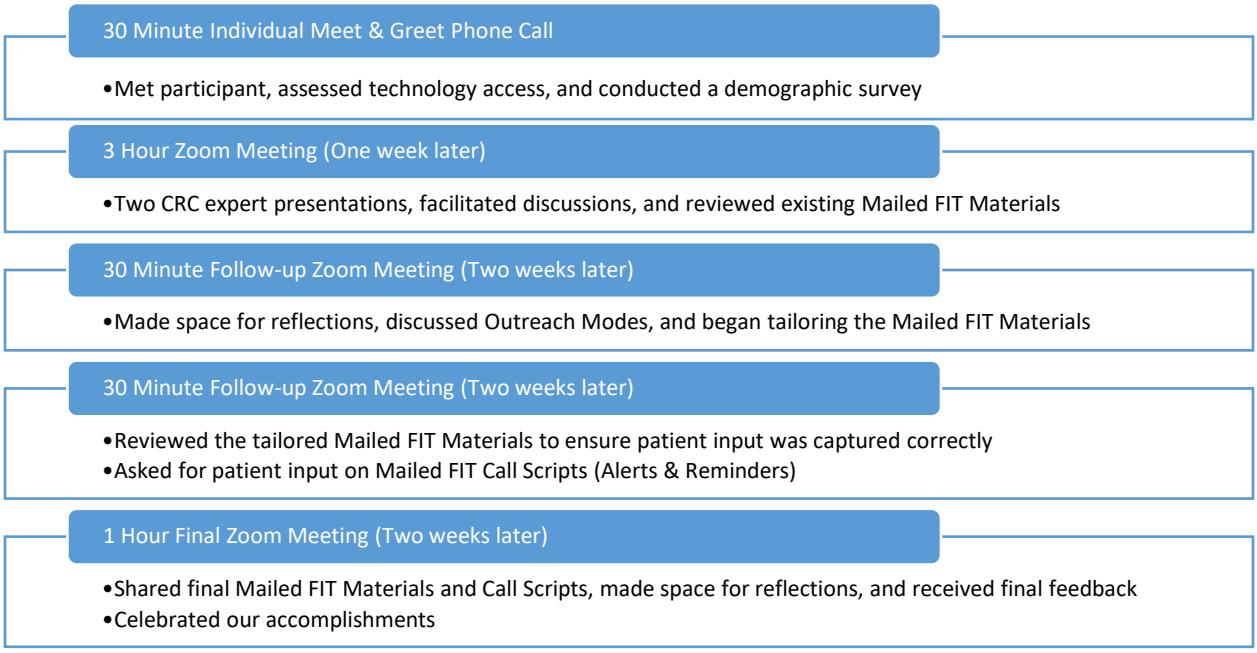

Figure 2. Mailed FIT Outreach Letter Tailored for Rural Population

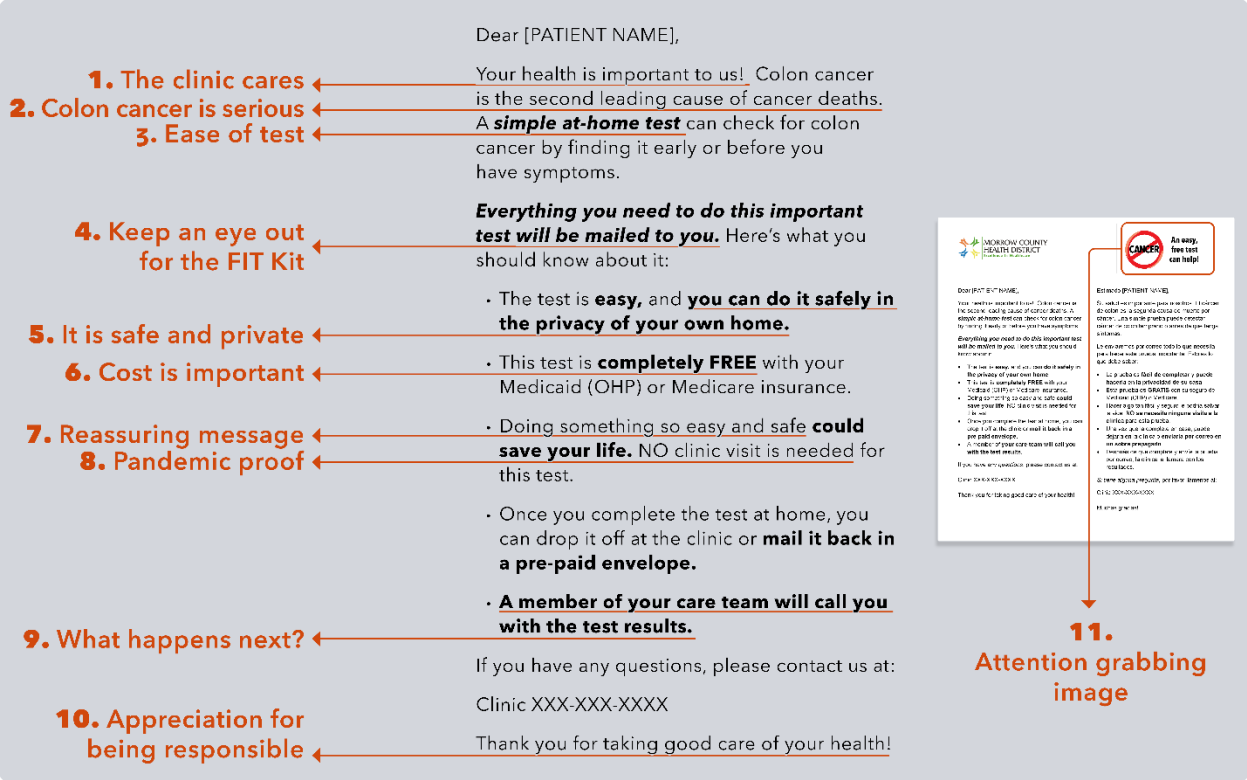

Table 1. Modifications Made to the Boot Camp Translation Process

Component	Prior BCT (PROMPT study)[28]	SMARTER CRC COVID-19 Modified Approach
Participants	Community members: (a) Latino, (b) age-eligible for CRC screening, (c) able to speak English or Spanish (d) able to participate in in-person meeting and phone calls	A mix of community members and clinical practice members. Community members were: (a) enrolled in Medicaid, other types of health insurance, or uninsured (b) eligible for CRC screening, (c) reside in a rural community. Clinical practice members were staff in rural clinical practices with active outreach experience with their patient populations, including for CRC screening. All group members: (a) were able to speak English, (b) had access to Wi-Fi by going to the clinic or at home
Sessions	One 6-hour in-person day, three 1-hour conference calls	One 30-minute 1:1 meet and greet intake phone call with each participant, one 3-hour group video

		call, two 30-minute video calls, and one final one-hour video call.
Other communication	Primarily e-mail	Primarily e-mail
Participant time	9 hours over a 3-month period	5.5 hours over a 2-month period

Table 2. Participant-Identified Barriers to Screening and Messages to Emphasize

Themes-Barriers	**Illustrative Quotes: Barriers***	**Illustrative Quotes: Messages to Emphasize**	**How Addressed in Materials/Process****
Individual Barriers			
Fear of letting family down, fear of getting bad results	"Say you are the breadwinner of the family and you have symptoms, but you're afraid to go because you may have CRC. You might think to yourself 'who is going to take care of my family?' That is a big fear of a lot of people in my area." (patient)	"Something that you could take back to your community and put them at ease, that it's not as bad as it seems, matter of fact it [screening] could save their lives." (patient) [A phone call could] "smooth over folks who are nervous or who don't understand." (patient)	1. The clinic cares 7. Reassuring message 10. Appreciation for being responsible
Lack of preventive care attitudes	"I found it a lot harder, working with men, older men, men late 50s to 60s who maybe weren't educated or didn't come in regularly for health maintenance anyway, were the hardest to get. Or it was just a flat no." (staff)	"Hey, you know, let's think about this. If you found out something was wrong, you can prevent something from happening. How does that feel?" (patient) "This isn't something to ignore or set aside, it's important, your provider cares about you, we care about you." (patient)	1. Clinic cares 10. Appreciation for being responsible
Invasiveness	"For me, it's more the process about the invasiveness of what	"This poop on a paper sounds pretty simple to me." (patient)	3. Ease of FIT test

	a colonoscopy entails." (patient)		
Stigma	"I think there's a big stigma about it. But that's what this is about, trying to work around that. I do think they feel funny about it." (staff)	"You can take it in the safety and privacy of your own home. A lot of people have an issue with privacy, especially where I live, older people do have an issue with privacy." (patient) "I understand that colons are a private area and [some individuals may say] I'm not going to discuss that with anybody…[but], I'm a farm kid and we call things by their names and it doesn't faze me. Are you hiding something you're ashamed of? We're trying to save your life, people! Maybe it does have to be a wake-up call." (patient)	5. It is safe and private 7. Reassuring message 11. Attention grabbing image
Pandemic-related fear of office visits	[Because the test doesn't require an office visit,] "I like your terminology that you use	"Well, they won't have to go in and see anybody. I mean it's a huge selling point if you're	8. Pandemic proof

	'pandemic proof', no, I love it!" (staff) "People are so freaked out by COVID but they ignore this other disease that we have. Really it should be the other way around, almost." (patient)	going to push that note. I like the idea of the mail in." (patient)	
Some patients don't/can't read	"I advocated for myself. And a lot of my patients, they don't know. And I work, I'll go to bat for them and I'll fight for them. One of my patients, he doesn't read. And we opened the box and we read through it." (staff)	N/A	Workflow suggestion made: clinic staff to reach out via phone calls.
Structural Barriers			
"Dollar factor": Too many bills or unconventional insurance	"My biggest reason for not getting screened is the cost, because I [do not] have conventional insurance. And I need to pay my bills. And that's to me, that is more important than life…but is it? Nobody wants phone calls that you're behind on your bills." (patient)	"If it's 25 dollars at worst, why are we not promoting that? Looking at a $500 bill [for a test] or a colonoscopy it's $3000…I [cannot] do that." (patient) "I like the fact the "free" is in the letters to patients. Encourages patients to do the test without a cost concern." (patient)	6. Cost is important

		"Maybe the cost is the issue. If we could say it's going to be covered and if it's not this is what your out of pocket will be." (patient)	
Lack of knowledge about CRC	"I was completely amazed that it's the second leading cause of [cancer] death. That pretty much blows me out of the water at this point. That would not have been, would have crossed my horizon. Given that fact, I'm thinking why people don't try harder to get screened, because this is so predominant of a cause of death." (patient)	"Patients who have a strong family history of colorectal cancer should really have a colonoscopy. Some of us know that, a lot of patients don't. They're unaware of that. I can start the ball rolling, but I really encourage them to come in and have that conversation with their doctor." (staff)	2. Seriousness of CRC
Lack of transportation	"Some people don't have transportation to go to the doctor." (patient)	[FITs can be mailed from home] "might be a stress point, so they know they don't have to go back out into town." (patient)	5. Safe and private 8. No visit needed
Barriers to FIT mailing and returns			
Return timing issues and postal service	"How long does it stay good, the test, the sample is it good for a day, good for a week. We have delays with our carriers." (patient)	"Yeah, … 'the kits on the way, remember your health is important! Colon cancer is the second leading death cause so we'll look forward to getting	3. Ease of test 9. What happens next?

		your returned kit within seven days.'" (patient) "And 'if you have any questions call this number.'" (patient)	
People will not know what to expect	"A lot of the people in my community don't know how to ask for that, and if you don't know how to ask sometimes the doctor will not be proactive enough to ask 'have you thought of getting a FIT' and they don't know what FIT is" (patient)	"How about 'everything you need will be mailed to you'?" (patient)	4. Keep an eye out for the FIT kit 9. What happens next?
Receiving FITs back without correct information	"I think that is one of the biggest problems we do have. And I know you guys probably already talked about that. Getting the tests and then the front desk is like who dropped that off because there is no name on it. So, definitely important." (staff)	"Be sure to write the date of the test on the bottle. Check that your name and birthdate are CORRECTLY printed on the bottle." (patient)	*(In letter not shown)* Bold or highlight the date section on the bottle, so patients see it

*Patient refers to quotes made by community members in BCT sessions; staff refers to clinical practice staff quotes.

**Numbers correspond to phrases in Figure 1 addressing these messaging elements. Some messaging elements might address multiple barriers.