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## Randomized Controlled Trial of Advance Notification Phone Calls vs Text Messages Prior to Mailed Fecal Test Outreach

Gloria D. Coronado\*, Denis B. Nyongesa\*, Amanda F. Petrik\*, Jamie H. Thompson\*, Anne L. Escaron†, Brittany Younger†, Shelby Harbison†, Michael C. Leo\*

\*Center for Health Research, Kaiser Permanente Northwest, Portland, Oregon

†AltaMed Health Services, Los Angeles, California

### Abstract

**BACKGROUND & AIMS:** Mailing fecal immunochemical test (FITs) to individuals who are due for screening (mailed FIT outreach) increases colorectal cancer (CRC) screening. Little is known about how phone-based advance notifications (primers) affect the effectiveness of mailed FIT outreach programs.

**METHODS:** We performed a prospective study of patients at a large urban health center, 50–75 years old and due for screening, with no record of a prior FIT. Participants were randomly assigned to groups that received a live phone call primer (n = 1203) or a text message primer (n = 1622), from June through December 2018. The participants were then mailed a FIT kit, followed by 2 automated calls, and live reminder calls delivered by the care team. The main outcome was completion of FIT within 3 months of assignment to the live phone call or text message group.

**RESULTS:** Participants had a FIT completion rate of 16.8%, a mean age of 58 years, and 80% were Latino. In adjusted intention to treat analyses (n = 2825), FIT completion rates were higher in the patients assigned to receive a live phone call vs text message primer (percentage point difference, 3.3%; 95% CI, 0.4%–6.2%). Between-group differences increased to 7.3% points (95%

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**Reprint requests** Address requests for reprints to: Gloria Coronado, PhD, Center for Health Research, Kaiser Permanente Northwest, 3800 North Interstate Avenue, Portland, Oregon 97227. gloria.d.coronado@kpchr.org; fax: (503) 335-2424.

Supplementary Material

Note: To access the supplementary material accompanying this article, visit the online version of *Clinical Gastroenterology and Hepatology* at [www.cghjournal.org](http://www.cghjournal.org), and at <https://doi.org/10.1016/j.cgh.2020.07.053>.

CRedit Authorship Authorization

Gloria D. Coronado, PhD (Conceptualization: Lead; Funding acquisition: Lead; Supervision: Lead; Writing – original draft: Lead)

Denis B. Nyongesa (Data curation: Lead; Formal analysis: Lead; Writing – review & editing: Supporting)

Amanda F. Petrik (Conceptualization: Supporting; Project administration: Equal; Writing – review & editing: Supporting)

Jamie H. Thompson (Project administration: Lead; Writing – review & editing: Supporting)

Anne L. Escaron (Conceptualization: Supporting; Project administration: Supporting; Writing – review & editing: Supporting)

Brittany Younger (Project administration: Supporting; Writing – review & editing: Supporting)

Shelby Harbison (Project administration: Supporting; Writing – review & editing: Supporting)

Michael C. Leo (Conceptualization: Supporting; Formal analysis: Equal; Investigation: Supporting; Writing – review & editing: Supporting)

Conflicts of interest

This author discloses the following: Dr Coronado served as the Principal Investigator on an industry funded study awarded to the Kaiser Permanente Center for Health Research to compare the clinical performance of an investigational FIT to an FDA-approved FIT. The study was funded by Quidel Corporation. The remaining authors disclose no conflicts.

CI, 3.6%–11.0%) in the per-protocol analysis of 2144 participants reached by the text message (1320/1622, 81%), live call (438/1203, 36%), or voice message (386/1203, 32%). This rate increased to 14.9% points (95% CI; 9.6%–20.1%) in the per-protocol analysis of 1758 participants reached by the text message or reached by the live call.

**CONCLUSIONS:** In a randomized trial, advance notification live phone calls outperformed text messages in prompting health center patients who had not previously completed a FIT to complete a mailed FIT. [Clinicaltrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT03167125) no: [NCT03167125](https://clinicaltrials.gov/ct2/show/study/NCT03167125)

## Keywords

Colon Cancer; Prevention; Fecal Testing; Adherence

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Fecal immunochemical testing (FIT) is an accessible and cost-effective way to improve rates of colorectal cancer (CRC) screening and represents a major strategy to redress CRC screening disparities in the United States. Previous research conducted in various settings has shown that mailing FITs to individuals who are due for screening (mailed FIT outreach) leads to substantial increases in CRC screening rates,<sup>1-7</sup> with average 22%–28% point increases reported.<sup>8,9</sup> Because mailed FIT outreach programs increase CRC screening rates, understanding how to optimize their efficiency is critical. One area that shows promise is sending advance notifications to patients before they are mailed an FIT.

Although many previous mailed FIT programs have delivered advance notifications in the form of introductory letters, text messages, or automated phone calls, relatively few programs have reported on their specific effectiveness. A recent systematic review of advance notifications for mailed FIT programs included 4 studies; each study evaluated the effect of introductory letters mailed to participants approximately 2 week before the FIT kit was sent. Findings showed a modest improvement over no advance notification (average risk ratio = 1.09; 95% CI, 1.07-1.11).<sup>10-14</sup> In a similar review (2 studies overlapped with the prior review), Issaka and colleagues showed a median CRC screening improvement for advance notification letters or automated phone calls of 4.1% (interquartile range, 3.6%–6.7%) over usual care.<sup>10,13,15-17</sup> Although these reviews show promise for advance notifications, all but 1 of the 6 unique studies evaluated advance notification letters (the other evaluated automated phone calls). We are unaware of any previous study that specifically evaluated live phone call or text message primers to a mailed FIT outreach program. Only 1 study reported findings according to patients' screening history,<sup>16</sup> even though mailed FIT return rates are substantially lower in those who have not previously completed an FIT,<sup>18,19</sup> raising the possibility that advance notifications could be more effective in this group.

To address these gaps, we compared the effectiveness of 2 advance notification approaches among a subset of patients who had no electronic health record (EHR) evidence of having completed a prior FIT using data from the Participatory Research to Advance Colorectal Cancer Prevention (PROMPT) study. Never-screened patients were randomized to receive either an advance text message or an advance live phone call as part of an organized clinic-based mailed FIT program. We hypothesized that patients assigned to receive the live phone call would be more likely to complete a FIT than patients assigned the text message.

## Methods

### Study Setting and Main Trial

The PROMPT main trial involved 15 primary care clinics within a large Los Angeles– and Orange County–based federally qualified health center that operates 27 medical/dental clinics and serves more than 280,000 patients. Eighty-five percent of the federally qualified health center patients are Hispanic.

The PROMPT study is comparing the effectiveness, cost, and cost-effectiveness of an enhanced mailed FIT outreach program with a standard mailed FIT outreach program, using a stepped-wedge design. Study design and participant eligibility criteria have been described previously.<sup>20</sup> All study procedures were reviewed and approved by the Kaiser Permanente Northwest Institutional Review Board [Study 00000630]. All authors had access to the study data and reviewed and approved the final manuscript. As a sub-study of the main trial, the present evaluation compares live call and text message advance notifications that were delivered to patients who had no health record evidence of having completed a prior FIT.

### Development and Content of Prompts and Reminders

We used boot camp translation, a validated patient engagement approach, to develop the content and format of advance notifications and reminders for the intervention arms of this study (separate sessions were held in English and in Spanish). These findings have been previously reported.<sup>21,22</sup>

### Study Procedures

Our study protocol has been previously reported.<sup>20</sup> Briefly, 15 participating clinics were randomized into wedge 1 (8 clinics; June 2018–June 2019) or wedge 2 (7 clinics; June 2019–June 2020). Eligible patients were aged 50–75 years, due for CRC screening, had a viable address, and had ever visited the clinic. A total of 6872 wedge 1 patients met eligibility criteria, 4047 of whom had EHR evidence of having completed a prior FIT, and 2825 of whom had no EHR evidence of a prior FIT. Patients were mailed FIT tests at 2 time points, July and October 2018. The current analyses include wedge 1 patients who had no EHR evidence of a prior FIT; 2155 were part of the July mailing, and 670 were part of the October mailing (Supplementary Figure 1).

For each mailing, the project analyst randomized eligible patients in wedge 1 clinics. Randomization was stratified by clinic and performed by applying the uniform random number function in SAS (Version 9.4; SAS Institute, Cary, NC). The analyst generated the allocation sequence and assigned participants to interventions; clinic staff delivered the primers (using a vendor for the text messages). For practical reasons, the research staff and clinic coordinator were not blinded to randomization assignment. The care teams (usually medical assistants) delivering reminder phone calls were blinded to randomization assignment.

For the July mailing, patients who had not completed a prior FIT were randomized in a 1:1 ratio to receive (1) a text notification or (2) a live phone call notification. Patients in the

text notification group were sent a single text message 1–2 days before anticipated receipt of the mailed FIT. Patients in the live call notification group were called up to 3 weeks before anticipated receipt of the mailed FIT by clinic health educators or health promoters, who made up to 2 attempts. After the delivery of the notifications, patients in both groups were sent a mailed FIT and 2 automated phone call reminders, followed by live reminder calls delivered at the discretion of the care team. For this mailing, the intervention was delivered from June 25–August 27, 2018; the evaluation interval was June 25–September 24, 2018.

Patients who had no managed care insurance or who were uninsured were inadvertently omitted from the July mailing. For this reason, we conducted a second mailing in October. This mailing included 1555 wedge 1 clinic patients, 885 of whom had EHR evidence of having completed a prior FIT and 670 of whom had no EHR evidence of having completed a prior FIT. Because of limited health education staff to deliver live phone calls in October (all call attempts could be delivered for up to 150 patients), a randomization ratio of 3.8:1 was used for assigning patients to the text notification or live call notification (which produced 141 patients in the live phone call condition). The timing and sequence of advance notifications and reminders were consistent with the July mailing. For this mailing, the intervention was delivered from October 1 to December 3, 2018; the evaluation interval was October 1–December 31, 2018.

Texts and automated calls were delivered and tracked by a contracted vendor (Stericycle Communication Solutions, Northbrook, IL); the outgoing phone number was a local 323 number. Health educators (n = 17) were trained to deliver live phone calls during a 4-hour training delivered by the project principal investigator that addressed CRC screening, barriers to screening, and effective messages to support screening. Health educators were provided a list of frequently asked questions (in English and Spanish), developed by the project team, which were based on prior CRC screening interventions. The training also addressed how to update the EHR for patients who report prior CRC screening. The timing and outcomes of the live call notifications were recorded by health education staff using an Excel (Microsoft, Redmond, WA) tracking tool. All health education staff were bilingual (English and Spanish).

## Data Analysis

We describe sociodemographic characteristics and health care utilization for all study participants who never completed an FIT by intervention arm (text vs live call primer) and mailing date (July vs October).

Our primary intention-to-treat analysis compared 3-month FIT completion rates and included all participants according to their original randomization assignment. We performed 2 additional per-protocol analyses. The first was limited to patients reached by the text message or phone call. For this analysis, being reached by the text message was defined as having verification from the vendor that the text message was delivered. Being reached by the phone call was defined as either having a live call discussion or being left a phone message by health education staff. For a second per-protocol analysis, we used the same definition as above and further limited the definition of being reached by the phone call as having a live discussion with a health education staff member. We

determined whether there was a difference between the arms (text = 0, live = 1) on FIT completion by using multiple logistic regression models that included clinic and mailing date (July vs October) as covariates (using dummy indicator coding). From the logistic regression models, we report crude frequencies of patients reached and adjusted odds ratios and absolute differences in marginal percentages with associated 95% CIs between arms. In this randomized comparative effectiveness sub-study, we did not perform a separate power calculation from the main trial.

For the purposes of assessing potential differences in the subsequent delivery of FIT kit reminders, we calculated the frequencies of automated and live phone reminders that were completed in our experimental groups (data not shown). Among patients in the text message and live phone call primer conditions, 66.8% and 69.2%, respectively, were reached by a subsequent automated phone call reminder (patient answered, or message was left). Similarly, 28.3% and 25.6% in text message and live phone call primer groups, respectively, were subsequently reached by a live phone call reminder delivered by a member of the care team.

We examined differences in the effectiveness of the live phone call versus text message primers across sociodemographic and health care utilization factors. In separate multivariable regression models for each factor, we included the factor and the product of factor and arm (ie, the interaction term) using the Wald test. We report the test of the interaction and the odds ratios and associated 95% CIs for the simple effects of the intervention across each subgroup (Supplementary Table 1).

## Results

A total of 2825 patients met eligibility criteria and were randomized to receive the text message notification (n = 1622) or the live call notification (n = 1203). Patients had a mean age of 58 years, and one-half were female (Table 1). Eighty percent were Latino, and 55.3% preferred speaking Spanish. The distribution of age, ethnicity, and language appeared similar across intervention arms. Nearly two-thirds of patients were publicly insured (Medicaid or Medicare), and 12% were uninsured. Fifty-nine percent of patients had at least 1 clinic visit in the past year. The 3-month FIT completion rate was 16.8%.

Among the 1622 patients who were allocated to receive the text message primer, 1320 (81%) were successfully reached (Table 2). Among the 1203 patients who were allocated to the live call primer, 438 (36%) were reached for a personal discussion, 386 (32%) were left a message, and 379 (33%) were not reached.

In adjusted intention-to-treat analyses (n = 2825), FIT completion rates were higher in the patients assigned to receive a live phone call vs text message primer (percentage point difference, 3.3%; 95% CI, 0.4%–6.2%) (Table 3). Between-group differences increased to 7.3% points (95% CI, 3.6%–11.0%) in the per-protocol analysis of 2144 participants reached by the text message (vendor-verified receipt; 1320/1622, 81%), live call (438/1203, 36%), or voice message (386/1203, 32%) (per-protocol 1). This rate increased to 14.9% points

(95% CI, 9.6%–20.1%) in the per-protocol analysis of 1758 participants reached by the text message or reached by the live call (per-protocol 2).

In subgroup analyses, none of the interactions were significant, and the differences in the magnitudes of the simple effects were very small, suggesting that the effectiveness of the program did not vary by sociodemographic and health care utilization variables (Supplementary Table 1).

## Discussion

Findings from our comparative effectiveness study showed that in intention-to-treat analysis, an advance notification phone call boosted 3-month FIT completion rates by 3.3% points over an advance notification text message among health center patients who had never completed a prior FIT. Analysis limited to participants reached by the text message (1320/1622, 81%), live call (438/1203, 36%), or voice message (386/1203, 32%) led to between-group differences of 7.3% points (per-protocol 1). Between-group differences increased to 14.9% points in the per-protocol analysis of participants reached by the text message or reached by the live call (per-protocol 2). Our findings did not appear to be explained by between-group differences in the reach of automated or live reminders sent after the FITs were mailed. Our results show promise for using an advanced notification phone call for boosting FIT completion rates in a never-screened population.

Advance phone calls can serve as a valuable prompt to encourage patients to complete CRC screening. Such calls provide entree for clinic staff to inform patients about CRC and the need for screening. During such calls, patients can get immediate answers to questions about the test, which can lessen informational, structural, or personal barriers to screening, support care access, and personalize the care experience. Moreover, advance notification phone calls can improve program efficiency by facilitating updates to address information, confirming patients' empanelment at the clinic, and verifying patients' eligibility for FIT testing (by identifying patients who are up-to-date with screening or who are at higher than average CRC risk). In some cases, these efforts can save mailing costs for patients who have invalid addresses, have transferred care, wish to opt out of the program, or are not due for screening. Our study did not quantify these potential efficiency gains, although future research may benefit from doing so.

Our findings suggest improvements can be achieved when live phone calls are directed to patients who may be least aware of CRC and the need for screening. One Italian-based study reported differences in the effectiveness of an advance notification letter based on previous screening history, showing effectiveness among those who had never previously returned a mailed FIT (odds ratio, 1.18; 95% CI, 1.01–1.38) and among those receiving their first invitation (odds ratio, 1.10; 95% CI, 1.01–1.19), but not among those who had completed screening in the past, suggesting possible efficiency gains by eliminating advance notifications for adults who have previously participated in FIT testing.<sup>16</sup> Further research is needed on how best to optimize mailed FIT outreach program components using approaches that are tailored to patients' needs. Such research should consider whether the benefits

of such improvements outweigh the added costs, and whether advance notifications, using various modalities, can offset the need for reminders.

Our study enrollment was limited to patients who had no EHR evidence of having completed an FIT, a group known to have relatively low return rates from mailed FIT outreach.<sup>19,23</sup> Moreover, our study compared the effectiveness of 2 advance notification modalities, text messages and live phone calls. As such, we cannot directly compare our findings with previous studies, which enrolled patients with varying screening history and compared an advance notification letter with a standard invitation included with the mailed FIT. Nevertheless, our effect size did not differ substantially from the 2 published meta-analyses that reported improvements ranging from 4.1 percentage points to 9 percent.<sup>10,13,15-17</sup> Nevertheless, our findings add to this literature by suggesting that advance notification text messages may be ineffective at boosting FIT completion rates in never-screeners. Our previous research has shown text messages perform worse than other modes when delivered as reminders to mailed FIT outreach.<sup>18</sup> In contrast, advance notification live phone calls may promote screening initiation, potentially lessening efforts to promote ongoing screening participation. Nevertheless, live phone calls are resource intensive,<sup>24</sup> with costs ranging from \$4.78 to \$7.90 in a recent study.<sup>19</sup> These costs need to be considered in light of available resources. Moreover, the success of the live phone call depends on its reach; we observed that 68.5% of patients either spoke with a health educator or were left a message. This compares with 81% reach for live phone calls reported by our team in a similar safety net setting and 26%–48% reach in previous published reports.<sup>6,18,25-27</sup> Further improvements in phone call reach might be achieved by increasing the number of call attempts or expanding the hours calls are delivered. The 81% reach we report for text messages was slightly higher than reported in previous studies, where reach ranged from 51% to 78%.<sup>18,26,23</sup>

Our study had several strengths. Most previous studies have used no advance notification as the comparison group. In contrast, our study's usual care group consisted of patients who received automated, low-cost text messages, which are increasingly used in clinical quality improvement initiatives. We obtained process data from the text message vendor and from the clinic staff who completed the live calls, which allowed us to discern which patients received the intended notification and to compare our findings using both intention-to-treat and per-protocol analyses. We relied on robust formative research to incorporate patient preferences (from both English- and Spanish-speaking patients) into the design of our program,<sup>21</sup> which enhanced the relevance of our findings for both patients and clinic staff.

Several weaknesses should also be noted. Our study modified its randomization allocation ratio to accommodate limited staffing to deliver phone calls for the second mailing round. While the inconsistent allocation ratio between rounds was not ideal, it allowed for standardized delivery of the live phone calls (2 phone call attempts) across rounds. We could not be sure that patients read or listened to text or voice messages delivered as part of the program. We believe that any diminished fidelity will be offset by improvements in external validity. Moreover, our study included patients who had ever had a visit, which may have diminished the effectiveness of our trial, compared with studies that limited participation to patients with a recent visit. Our study sample was more than 80% Latino, and our findings

may not generalize to all population subgroups. We do not present cost data for our live phone call or text message interventions; a future cost analysis is planned as part of our main trial.

## Conclusion

Advance notification live phone calls outperformed text message notifications in a mailed FIT outreach program delivered by a large, Latino-serving health center to patients who had never completed an FIT. Text message notifications led to no improvements in FIT completion. Our findings can inform efforts to optimize mailed FIT outreach programs.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## Abbreviations used in this paper:

<b>CI</b>	confidence interval
<b>CRC</b>	colorectal cancer
<b>EHR</b>	electronic health record
<b>FIT</b>	fecal immunochemical test
<b>PROMPT</b>	Participatory Research to Advance Colorectal Cancer Prevention
<b>RR</b>	relative risk

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## What You Need to Know

### Background

Although advance notification is widely used in screening programs that mail participants fecal immunochemical tests (FITs), it is not clear whether they are effective in promoting completion of the test.

### Findings

In a study that compared advance notification text messages vs live phone calls in 2825 randomly selected adults with no record of a prior FIT, a higher proportion of participants who received a live phone call completed the FIT compared with participants who received a text message.

### Implications for patient care

Advance notification live phone calls might promote initiation of FIT screening and optimize the effectiveness of mailed FIT outreach programs.

**Table 1.** Characteristics of Study Participants Who Never Completed a Fecal Immunochemical Test in July and October Mailings

Characteristic	Randomization condition					Total (n = 2825) N (%)
	July mailing (1:1 randomization)		October mailing (3.8:1 randomization)			
	Text message notification (n = 1093) N (%)	Live phone call notification (n = 1062) N (%)	Text message notification (n = 529) N (%)	Live phone call notification (n = 141) N (%)		
Age (y)						
Mean (standard deviation)	57.45 (5.76)	57.36 (5.91)	57.91 (6.46)	58.39 (6.67)	57.55 (6.00)	
50-64	955 (87.37)	916 (86.25)	430 (81.29)	113 (80.14)	2414 (85.45)	
65-75	138 (12.63)	146 (13.75)	99 (18.71)	28 (19.86)	411 (14.55)	
Gender						
Female	537 (49.13)	535 (50.38)	292 (55.20)	78 (55.32)	1442 (51.04)	
Male	556 (50.87)	527 (49.62)	237 (44.68)	63 (44.68)	1383 (48.96)	
Ethnicity <sup>a</sup>						
Hispanic or Latino	865 (79.14)	825 (77.68)	446 (84.31)	110 (78.01)	2246 (79.50)	
Not Hispanic or Latino	207 (18.94)	218 (20.53)	73 (13.80)	26 (18.44)	524 (18.55)	
Language <sup>b</sup>						
English	474 (43.37)	476 (44.82)	174 (32.89)	55 (39.01)	1179 (41.73)	
Spanish	584 (53.43)	549 (51.69)	343 (64.84)	85 (60.28)	1561 (55.26)	
Other	32 (2.93)	34 (3.20)	7 (1.32)	0 (0.00)	73 (2.58)	
Federal poverty level <sup>c</sup> (%)						
<100	894 (81.79)	894 (84.18)	433 (81.85)	113 (80.14)	2334 (82.62)	
100-200	149 (13.63)	128 (12.05)	69 (13.04)	21 (14.89)	367 (12.99)	
>200	41 (3.75)	37 (3.48)	27 (5.10)	7 (4.96)	112 (3.96)	
Insurance status						
Uninsured	39 (3.57)	38 (3.58)	220 (41.59)	51 (36.17)	348 (12.32)	
Medicaid	709 (64.87)	672 (63.28)	92 (17.39)	24 (17.02)	1497 (52.99)	
Medicare	85 (7.78)	79 (7.44)	72 (13.61)	20 (14.18)	256 (9.06)	
Commercial	260 (23.79)	273 (25.71)	145 (27.41)	46 (32.62)	724 (25.63)	
Clinic visits in past year						

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Characteristic	Randomization condition						Total (n = 2825) N (%)
	July mailing (1:1 randomization)			October mailing (3.8:1 randomization)			
	Text message notification (n = 1093) N (%)	Live phone call notification (n = 1062) N (%)	Text message notification (n = 529) N (%)	Text message notification (n = 529) N (%)	Live phone call notification (n = 141) N (%)	Live phone call notification (n = 141) N (%)	
Mean (standard deviation)	1.83 (2.30)	1.84 (2.53)	1.39 (2.10)	1.39 (2.10)	1.48 (1.91)	1.48 (1.91)	1.73 (2.34)
None	405 (37.05)	428 (40.30)	253 (47.83)	253 (47.83)	63 (44.68)	63 (44.68)	1149 (40.67)
1 or more	688 (62.95)	634 (59.70)	276 (52.17)	276 (52.17)	78 (55.32)	78 (55.32)	1676 (59.33)
Clinic							
Clinic 1	87 (7.96)	87 (8.19)	40 (7.56)	40 (7.56)	10 (7.09)	10 (7.09)	224 (7.93)
Clinic 2	332 (30.38)	314 (29.57)	183 (34.59)	183 (34.59)	48 (34.04)	48 (34.04)	877 (31.04)
Clinic 3	43 (3.93)	43 (4.05)	21 (3.97)	21 (3.97)	7 (4.96)	7 (4.96)	114 (4.04)
Clinic 4	93 (8.51)	93 (8.76)	14 (2.65)	14 (2.65)	2 (1.42)	2 (1.42)	202 (7.15)
Clinic 5	58 (5.31)	54 (5.08)	26 (4.91)	26 (4.91)	6 (4.26)	6 (4.26)	144 (5.10)
Clinic 6	57 (5.22)	52 (4.90)	33 (6.24)	33 (6.24)	9 (6.38)	9 (6.38)	151 (5.35)
Clinic 7	151 (13.82)	150 (14.12)	106 (20.04)	106 (20.04)	31 (21.99)	31 (21.99)	438 (15.50)
Clinic 8	272 (24.89)	269 (25.33)	106 (20.04)	106 (20.04)	28 (19.86)	28 (19.86)	675 (23.89)

<sup>a</sup>55 patients with unknown/missing ethnicity (July: 21 text, 19 live call; October: 10 text, 5 live call) were omitted.

<sup>b</sup>12 patients with missing language (July: 3 text, 3 live call; October: 5 text, 1 live call) were omitted.

<sup>c</sup>Calculated using 2018 guidelines; 12 patients with missing federal poverty level (July: 9 text, 3 live call) were omitted.

**Table 2.**

Three-Month Fecal Immunochemical Test (FIT) Completion Among Participants With No Prior FIT Who Were Allocated to Text Message Notification vs Live Call Notification<sup>a</sup>

Randomization status	Advance notifications			FIT completed (3-month) N (%)
	July mailing N (%)	October mailing N (%)	Total N (%)	
Text notification (Arm 1)				
Total	1093	529	1622	242 (14.92)
Delivered	879 (80.42)	441 (83.36)	1320 (81.38)	197 (14.92)
Not delivered	214 (19.58)	88 (16.64)	302 (18.62)	45 (14.90)
Live call notification (Arm 2)				
Total	1062	141	1203	232 (19.29)
Reached, discussion with patient	389 (36.63)	49 (34.75)	438 (36.41)	133 (30.37)
Reached, left message	340 (32.02)	46 (32.62)	386 (32.09)	59 (15.28)
Not reached	333 (31.36)	46 (32.62)	379 (31.50)	40 (10.55)

FIT, fecal immunochemical test.

<sup>a</sup>Participants also received automated phone calls and live phone calls delivered at discretion of care team; includes 113 patients who completed the FIT after randomization but before notification delivery.

**Table 3.** Effectiveness of Text Message vs Live Call Primers Among Participants With No Prior Fecal Immunochemical Test (FIT) for 3-Month FIT Completion Outcomes<sup>a</sup>

	FIT completion 3 months after randomization									
	Text notification		Live call notification		Unadjusted difference		Adjusted difference <sup>b</sup>		Adjusted OR <sup>b</sup> (reference = text primer)	
	N (denominator)	N (% FIT completion)	N (denominator)	N (% FIT completion)	Percentage point difference	Percentage point difference	95% CI	OR	95% CI	
Intention to treat	1622	242 (14.92)	1203	232 (19.29)	4.37	3.27	0.35–6.18	1.27	1.03–1.55	
Per-protocol 1 <sup>c</sup>	1320	197 (14.92)	824	192 (23.30)	8.38	7.31	3.59–11.03	1.62	1.28–2.03	
Per-protocol 2 <sup>d</sup>	1320	197 (14.92)	438	133 (30.37)	15.45	14.87	9.64–20.09	2.37	1.82–3.09	

CI, confidence interval; FIT, fecal immunochemical test; OR, odds ratio.

<sup>a</sup>Combined July and October 2018 mailings; participants also received automated phone call and live phone calls delivered at discretion of care team.

<sup>b</sup>Adjusted for clinic and mailing month (July vs October).

<sup>c</sup>Included patients reached by text message or phone call (left message or spoke to patient).

<sup>d</sup>Included patients reached by text message or phone call (spoke to patient).