

Referring Patients for Telephone Counseling to Promote Colorectal Cancer Screening

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Objective: To determine the feasibility, acceptability, and outcomes of a telephone counseling intervention promoting colorectal cancer (CRC) screening when patients are referred for counseling by primary care providers (PCPs).

Study Design: Interventional cohort study with no formal control group.

Methods: PCPs in 3 practices were prompted to address CRC screening in patient encounters and, if appropriate, to recommend referral for telephone counseling. A telephone counselor called referred patients, made an appointment for a counseling call, and mailed an educational booklet to patients. Counseling included education about CRC and screening tests, motivational interviewing, barrier counseling, and facilitated referral for colonoscopy or mailing of a fecal occult blood testing kit. About 7 months following counseling, electronic records were searched for evidence of colonoscopy.

Results: PCPs addressed CRC screening with 1945 patients, most of whom were up-to-date with CRC testing, recommended counseling referral to 362, and of these 180 (49.7%) accepted the referral. A total of 140 (77.8%) of referred patients were contacted and 67 (37.2%) received counseling. After counseling 93.9% were planning on CRC screening compared with 54.6% at the beginning of the call. Of those planning a colonoscopy, 53.2% received one within 7 months.

Conclusions: Referring patients for telephone counseling to promote CRC screening may be feasible and acceptable to PCPs and to some patients, and may increase CRC screening. Further evaluation of the intervention may be warranted to compare the rate of screening associated with the intervention to rates related to usual care and to other interventions.

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For author information and disclosures,
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Colorectal cancer (CRC) is the second-leading cause of cancer-related deaths in the United States for men and women.¹ Evidence from randomized trials and observational studies suggests that screening can reduce CRC mortality 15% to 70% or more, depending on the type of test and screening program.² The US Preventive Services Task Force and other organizations recommend CRC screening for adults 50 years and older who are at average risk for CRC at least until age 75 years.³ The most commonly recommended screening options are annual fecal occult blood test (FOBT), sigmoidoscopy every 5 years, and colonoscopy every 10 years.⁴ Although the CRC tests are among the most effective of all cancer screening tests, utilization is low. In 2008, only 53.2% of those 50 years or older were up-to-date with screening, and screening rates in minority groups were even lower.⁴

The main responsibility for promoting CRC screening rests with primary care providers (PCPs),^{5,6} who face several barriers to promoting CRC screening, including the short duration of encounters and competing demands to provide other clinical and preventive services.^{7,8}

The US Community Preventive Services Task Force recommends widespread implementation of 2 interventions to increase CRC screening: 1) prompts for PCPs at patient visits to offer screening⁹ and 2) mail and phone reminders for patients to complete mailed FOBT kits.¹⁰ Recent studies support the use of mail and telephone counseling interventions to promote colonoscopy.¹¹⁻¹⁵ Telephone interventions may be most effective when the caller is a known representative of the patient's PCP and facilitates scheduling of the test. Costanza and colleagues reported that counselor calls did not increase screening when the PCP had not personally recommended the counseling, when the counselor was unfamiliar to the patient, and when the counselor did not facilitate test scheduling.¹⁶ Based on findings from that study and from other studies cited above, we developed a hybrid intervention that includes PCP prompting to personally recommend CRC screening and counseling, mailed educational materials, and PCP referral of patients to an educational and motivational telephone intervention that offered facilitated scheduling of colonoscopy and support for FOBT testing.

METHODS

Study Settings

The study was implemented in 3 Family Medicine practices affiliated

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with UMass Memorial Health Care in central Massachusetts. Two practices (Worcester A, Worcester B) are on the urban campuses of an academic medical center and serve a population diverse in race/ethnicity and socioeconomic status. The third practice (Barre) serves a rural and less diverse population. One of the urban practices included 9 PCPs, 7 part time, and the other included 11 PCPs, all but 1 part time. The Barre practice included 7 PCPs, 4 part time. The University of Massachusetts Medical School Institutional Review Board approved the study, which took place from February 2006 to May 2007.

Referral Process

To maximize the number of referrals for counseling, we asked PCPs to refer patients at any type of visit. Study staff used an electronic scheduling system to identify patients aged 50 to 79 years scheduled for a visit with a study PCP during the upcoming week for 14 months. Clinic staff attached study referral forms to patient paper charts, which prompted PCPs to discuss CRC screening. Providers were to document on the form whether they addressed CRC screening, and if they did, the patient outcome: 1) up-to-date with screening, 2) not a candidate for screening (eg, limited life expectancy), 3) counseling not needed (eg, patient fully understands CRC screening), or 4) referred for counseling and 5) patient acceptance of the referral. Referred patients received a card with instructions to contact the counseling office to set up an appointment. If a provider indicated that he or she did not discuss CRC screening, a patient did not arrive for the scheduled appointment, or if the encounter form was not returned, additional study encounter forms were generated for any future appointments.

Referred patients who did not call the study office received up to 5 call attempts from study staff. At the first phone contact the patient was screened for study eligibility, and if eligible, was asked to schedule an appointment with a telephone counselor. Patients were eligible if they did not report any rectal bleeding that would be an indication for a diagnostic colonoscopy and did not report a screening colonoscopy in the last 10 years. Those who agreed to counseling were administered a brief survey and were mailed an educational booklet and a letter to remind them of the date and time of the counseling appointment. Survey questions addressed readiness for CRC screening.

The Intervention

The intervention had 3 components: 1) a booklet mailed to patients that reviewed CRC and CRC screening, followed

Take-Away Points

Provider referral of patients for telephone counseling to promote use of colorectal cancer (CRC) screening may increase screening, but many patients may not accept or follow through with the referral. Further research is needed to determine how to maximize patient participation in this type of intervention and to compare its effectiveness with usual care.

- Primary care providers are willing and able to refer patients for telephone counseling during many types of patient encounters.
- Even patients who accept referrals may refuse or not be available to complete counseling.
- Some patients not planning on screening change their minds after learning about CRC screening.

by 2) a telephone counseling call during which the key educational messages in the booklet were reviewed and motivational interviewing was used to promote acceptance of CRC screening, and 3) for those accepting screening, counseling to address logistical barriers to screening and facilitation of scheduling colonoscopy or mailing an FOBT kit to the patient.

Educational Booklet

The study team and a health literacy consultant edited an educational booklet developed for a previous CRC screening study to make it more accessible to patients with lower reading levels and/or low health literacy. The booklet reviewed the nature, risk, and natural history of CRC and the role of polyps in the evolution of CRC. It included an illustrated guide to completing 3 CRC screening tests (FOBT, flexible sigmoidoscopy, and colonoscopy) and a comparison of the benefits and risks of each test. The book was translated into Spanish.

Counseling Protocol and Script

The counseling protocol and script were informed by the Precaution Adoption Process Model (PAPM)¹⁷ and by motivational interviewing methods and drew on a protocol and script previously developed by Costanza and colleagues.¹⁸ The PAPM, like other stage-based theories of behavior change (eg, the Transtheoretical Model¹⁹), has roots in social learning theory and the health belief model. The PAPM predicts that counseling tailored to a subject's stage of adoption of a preventive measure will be more effective than nontailored counseling. The PAPM stages that we used to tailor the protocol and script are: 1) unaware (never heard of CRC risk or CRC screening), 2) unengaged (aware, not appreciative of the personal relevance of screening), 3) undecided on screening, 4) decided no, 5) decided yes (planning).

The counseling protocol was represented as a series of blocks of script with associated statements and questions. Movement from one block to the next was governed by a

subject's PAMM stage and response to the counselor's questions. We developed a computer-assisted telephone interview (CATI) system for guiding counselors through the protocol. The protocol included the following modules: 1) identifying the patient's PAMM stage, 2) evaluation of individual cancer risk and current colon symptoms, 3) basic education on CRC and screening, 4) motivational interviewing for patients not planning on getting screened, 5) educational counseling about the specific screening tests as needed, 6) assessment of and counseling about patient confidence and barriers to completing screening, 7) facilitated test scheduling. When a subject agreed to colonoscopy during a counseling call, his/her PCP received a request to complete a referral form, and endoscopy center staff called the patient to schedule an appointment. When a patient requested an FOBT, counseling staff mailed out an FOBT kit with instructions.

The counseling was provided by a single counselor with a master's degree in public health who had substantial experience in telephone interviewing and counseling. She had recently been a telephone counselor for another study of CRC screening for which she had received 32 hours of training about CRC and related screening tests, as well as training in motivational interviewing. Because of the similarity of the counseling protocol in this study to the one in the previous study, little additional training was needed. The counselor used a telephone interpretation service for patients whose preferred language was not English.

Determination of Screening Completion

Seven months following the completion of calls we searched records of colonoscopies at the local endoscopy center for subjects who had received a colonoscopy during or after the study period. All PCPs in the study referred patients to a single center for colonoscopy. We did not identify patients with a completed FOBT during the study period because this would have required hand searching of paper charts.

Data Analysis and Statistics

The frequency of reasons for not referring patients and the frequency of referrals by practice were calculated and *P* values comparing rates of referral and the frequency of reasons for not referring patients were determined using the χ^2 test or Fisher's exact test. The proportion of patients completing colonoscopy was compared across categories of acceptance of referral for counseling and across categories of completion of counseling for patients who had accepted a referral. *P* values were calculated for these comparisons with the χ^2 test, and 95% confidence intervals [CIs] on selected measures were calculated. To estimate the independent effect of accepting a referral and completing counseling on completion of colo-

noscopy we created a logistic regression model that included health center, gender, and age as possible confounders. All statistical analyses were conducted with Stata software.²⁰

RESULTS

Referral and Patient Contact Outcomes

During the recruitment period 2261 encounters were documented involving 1945 patients. Healthcare maintenance was the focus of 588 (26.0%) encounters. CRC screening was discussed at 1635 (72.3%) out of the 2261 encounters with 1613 patients. Discussions occurred twice with 22 patients. The **Figure** shows the interventions and outcomes for the 1613 patients. A total of 603 patients were eligible for CRC screening and of these the providers determined that 241 (40.0%) patients were adequately informed about and motivated for CRC screening and would not benefit from counseling, and the providers recommended counseling to 362 (60.0%). **Table 1** shows characteristics of patients with a completed encounter form and those eligible for and due for CRC screening. A majority of subjects eligible for screening were women. More than half of the subjects were between the ages of 50 and 59 years, and 93.5% were English speaking.

Of the 362 patients recommended for counseling, 180 (49.7%) accepted a counseling referral. Referral acceptance varied significantly by site, age, and preferred language (Table 1). A total of 140 of the 180 patients (77.8%) accepting referral were reached by phone and underwent initial screening and staging. Of 104 patients who remained eligible and scheduled an appointment for counseling, 67 (64.4%) were ultimately reached and were willing to undergo counseling. Out of 62 patients who refused counseling at the screening or the counseling call or who had a counseling appointment and could not be reached, 42 had provided information on their stages of readiness during the screening call: 45.2% were planning, 28.6% were undecided, 16.7% decided no, and 9.5% were unengaged.

Counseling Outcomes

At the beginning of the counseling call, 36 (54.5%) subjects were planning on CRC screening (19.7% colonoscopy, 3.0% FOBT, 19.7% undecided on the specific test, 12.1% other test—sigmoidoscopy, barium enema, or virtual colonoscopy). Seven (10.6%) were unengaged, 17 (25.8%) were undecided, and 6 (9.1%) were decided against screening. This distribution of stages among counseled patients was similar to the stage distribution among the 42 patients staged at screening but not counseled (*P* = .56). By the end of counseling, 62 (93.9%) of 66 counseled subjects with complete staging information were planning on getting a screening test (75.8%

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colonoscopy, 22.6% FOBT, 1.6% other test), and of the 4 who were not planning, all were undecided (Table 2). Thirty-eight of 40 patients who moved to planning during counseling (95.0%) did so following the educational module. Most calls lasted 10 to 20 minutes.

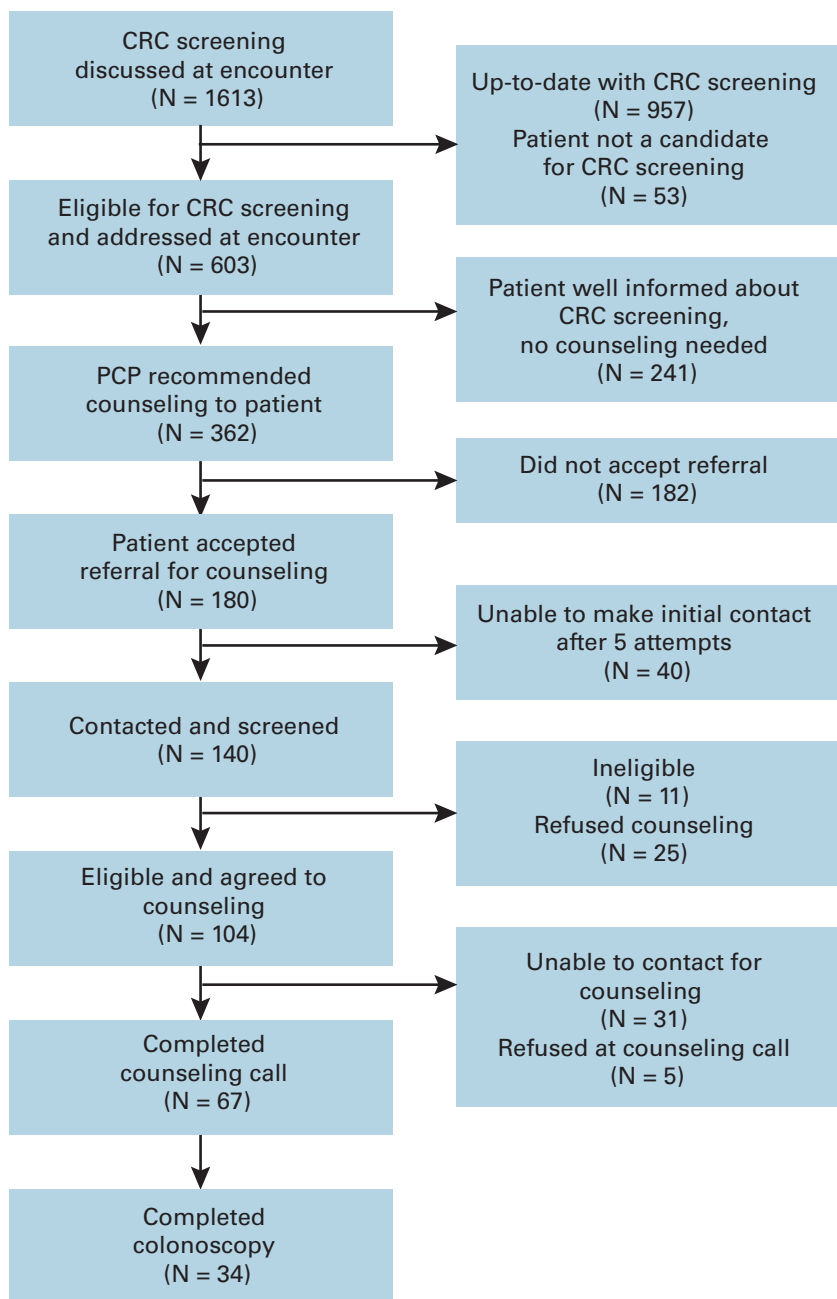
Patient Satisfaction

Twenty-three patients who completed counseling participated in a telephone interview to assess their responses to the mailed booklet and the counseling call. All agreed that the call was valuable, gave the counselor high ratings, and reported that the booklet was satisfactory. A few subjects identified questions about CRC and screening that they felt were not addressed by the booklet and call.

Colonoscopy Completion

For those planning any test at the end of the call ($n = 62$), the colonoscopy completion rate was 53.2% (95% CI: 40.1-60.0), and for those specifically planning a colonoscopy, 68.1% (95% CI: 52.9-80.9). Of the 4 patients undecided after the call, only 1 received a colonoscopy (25%, 95% CI: 6.3-80.6). Of 6 counseled patients initially decided against screening, none received a colonoscopy even though 3 were planning a colonoscopy by the end of counseling. Those completing counseling had the highest colonoscopy completion rate (50.7%), more than twice the rates for 2 other groups (those refusing referral and those referred but not counseled, $P = .0001$) (Table 3). Among patients who were staged at the screening call ($n = 107$), colonoscopy completion rates were higher within each stage for those who completed counseling and had complete staging information ($n = 66$): planning, 69.4% versus 38.9% ($P = .031$), 30.0% versus 8.7% for all other stages ($P = .089$). In a logistic regression model with the outcome of colonoscopy completion and including age, gender, and health center, outcomes for those completing counseling and those

■ **Figure.** Flow Chart of Patient Selection for Counseling, Acceptance of Counseling, and Completion of Colonoscopy



CRC indicates colorectal cancer; PCP, primary care provider.

accepting a referral and not completing counseling were compared with the outcome for those refusing the referral. Patients who completed counseling were more than 4 times as likely to complete colonoscopy as those refusing referral (adjusted odds ratio [OR] 4.35, 95% CI: 2.41-7.86). Patients not completing counseling but who did accept a referral for counseling from the PCP were more than twice as likely

■ **Table 1.** Characteristics of Patients With ≥1 Completed Visit and of Patients Accepting Referral for Counseling

Characteristic	≥1 Completed Visit and Encounter Form Returned (N = 1945)		Eligible for and Due for CRC Screen (N = 603)		Offered Referral for Counseling (N = 362)		Accepted Referral (N = 180)		P
	n ₁	(%) ^a	n ₂	n ₂ /n ₁ (%)	n ₃	n ₃ /n ₂ (%)	n ₄	n ₄ /n ₃ (%)	
Site									.002
University A	473	(24.3)	129	(27.3)	72	(55.8)	47	(65.3)	
Barre	823	(42.3)	242	(29.4)	138	(57.0)	55	(39.9)	
University B	649	(33.4)	232	(35.7)	152	(65.5)	78	(51.3)	
Gender^b									.230
Female	1064	(54.7)	322	(30.3)	203	(63.0)	95	(46.8)	
Male	880	(45.2)	280	(31.8)	158	(56.4)	84	(53.2)	
Age, y^b									.024
50-59	1048	(53.9)	332	(31.7)	189	(56.9)	105	(55.6)	
60-69	613	(31.5)	180	(29.4)	113	(62.8)	52	(46.0)	
70-79	282	(14.5)	89	(31.6)	58	(65.2)	21	(36.2)	
Preferred Language^b									.42 ^c
English	1818	(93.5)	567	(31.2)	338	(59.6)	160	(47.3)	
Spanish	78	(4.0)	22	(28.2)	14	(63.6)	12	(85.7)	
Vietnamese	16	(0.8)	5	(31.3)	2	(40.0)	2	(100.0)	
Albanian	10	(0.5)	3	(30.0)	3	(100.0)	3	(100.0)	
Other	22	(1.1)	6	(27.3)	5	(83.3)	3	(60.0)	

^aColumn percents.

^bColumns may not add to correct total due to missing data.

^cBased on comparison of all non English speaking and English speaking.

■ **Table 2.** Proportion of Counseled Patients Planning to Get CRC Screening at the End of Counseling by Initial Stage^a

Initial Stage	N	Planning at Final Stage	
		N (%)	95% CI
Planning	36	34 (97.2)	(85.1-100.0)
Unengaged	7	6 (85.7)	(42.1-99.6)
Undecided	17	15 (88.2)	(63.6-98.5)
Decided no	6	6 (100)	(54.1-100.0)
Total	66	62 (93.9)	(85.2-98.3)

CI indicates confidence interval; CRC, colorectal cancer.

^aStage missing on 1 subject.

to complete colonoscopy as those refusing referral (adjusted OR 2.38, 95% CI: 1.23-4.61). In the model health center, gender and age were all not statistically significant.

DISCUSSION

We aimed to assess the feasibility and acceptability to patients and PCPs of a CRC telephone counseling inter-

vention initiated by a PCP referral in a face-to-face patient encounter. We found that during some routine clinical encounters PCPs were willing and able to identify and refer many patients they thought could benefit from counseling on CRC screening, but that only about half of the patients asked accepted a referral. Of the 180 patients accepting referral only about one-third could be reached for counseling and accepted the call, suggesting that referral as delivered in this

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Table 3. Proportion of Patients Receiving Colonoscopy During Follow-up Period by Referral Acceptance, Eligibility for Counseling, and Counseling Call Completion

Referral and Screening and Counseling Call Status	N	Received Colonoscopy		P
		n	n/N (%)	
PCP recommended counseling	362	89	24.6	N/A
Referral not accepted	182	25	13.7	<.001 ^a
Referral accepted	180	64	35.6	
Presumed eligible for counseling	169 ^b	58	34.3	N/A
Completed counseling call	67	34	50.7	.001 ^c
Not reached at screening or counseling call	72	18	25.0	
Refused counseling at screening or at time of call	30	6	20.0	

PCP indicates primary care provider; N/A, not applicable.
^aComparing colonoscopy completion of those who accepted referral and those who did not.
^bExcludes 11 patients found ineligible at screening call. Patients not reached at screening presumed to be eligible.
^cComparing colonoscopy completion among those who completed counseling, those not reached, and those who refused counseling.

intervention was not a very powerful motivator for patients to accept and comply with telephone counseling. We did not provide any training to PCPs on how to motivate patients to accept a referral. It is possible that training PCPs to offer a brief motivational intervention could increase referral acceptance and completion. The rate of counseling could likely have been increased if counseling were performed at the initial patient telephone contact. However, we elected to separate the screening call from a subsequent counseling call that we scheduled at a time convenient for patients so they could review the print materials and set aside uninterrupted time for the counseling. Even without the expected increase in acceptance and counseling rates that we believe would occur with the modifications of the intervention described above, we believe the study demonstrates that this type of intervention is at least feasible in primary care practice given the willingness of all PCPs and some patients to engage in the intervention as designed.

Because this was a single-arm pilot study we cannot exclude selection bias as a predominant explanation for differences in screening rates across subgroups or between screening rates in this study compared with rates in other studies. The finding that patients completing counseling and those accepting referral but not completing counseling were about 4.35 and 2.38 times more likely to have a colonoscopy than those refusing counseling is consistent with an intervention effect, but could also be entirely due to self-selections of patients who would have received a colonoscopy without the intervention. Nevertheless, we believe the outcomes we found suggest that telephone counseling warrants future study. The change in stage of readiness for screening of counseled patients was significant. Nearly half (27 out of 67) of those counseled were not planning on CRC screening

at the beginning of the call. But by the end all were planning except 4 who were undecided. Since most patients who changed stage did so after the educational module, educational intervention alone may be as effective as education plus motivational interviewing.

The overall colonoscopy rate over 6 to 9 months in the referred group (24.6%) compares favorably with the rates reported in randomized trials of telephone counseling. In 4 studies the rates of colonoscopy over about 6 to 12 months ranged from about 12 to 27%.^{11-12,15,16} Ling and colleagues reported that 53.8% of patients in their intensive intervention group (a letter, followed by tailored telephone counseling and motivational interviewing) received a colonoscopy or sigmoidoscopy over a 12-month period.¹³ In a randomized trial, Costanza and colleagues evaluated a telephone counseling intervention in patients receiving care from the same group practice that providers in this study belonged to. The rate of colonoscopy in both the intervention and control group was only 12%. In the 4 other studies cited above the colonoscopy rates were significantly higher in the intervention than in the control group. While we cannot attribute the screening rate we found in the referred group to counseling, the fact that the rate is higher than the control group rates in similar studies is reason to consider further study of our intervention.

Limitations

This was a pilot study without randomized controls, so intervention effectiveness compared with usual care could not be determined. Because we sampled only patients at clinical encounters, the sample was not representative of all patients due for CRC screening, but of those who have at least 1 clinic visit per year. We did not assess fidelity of the

counseling as delivered to the protocol, so we are unable to attribute possible effects of counseling definitively to the protocol.

CONCLUSION

Prompting PCPs to recommend CRC screening to eligible patients and to refer selected patients to a telephone education and counseling service that includes facilitated completion of a CRC screening test is feasible and acceptable to PCPs and to some patients. Our findings suggest several ways to improve the referral process and support further evaluation of the intervention in studies that compare it with usual care and with other interventions.

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