

2019

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### Recommended Citation

Fairfield, Kathleen M.; Peura, Christine B.; Herrle, Elizabeth; Daniels, Lauren G.; Pyle, Debra L.; McDonough, Mary; Bouchard, Mark P.; Medd, Donald; Korsen, Neil; and Han, Paul K. J. (2019) "Improving Colorectal Cancer Screening Decision Making Processes," *Journal of Maine Medical Center*. Vol. 1 : Iss. 1 , Article 6. Available at: <https://knowledgeconnection.mainehealth.org/jmmc/vol1/iss1/6> <https://doi.org/10.46804/2641-2225.1006>

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## PATIENT SAFETY AND QUALITY IMPROVEMENT EXEMPLARS

# Improving Colorectal Cancer Screening Decision Making Processes in Primary Care Practices

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<b>Introduction:</b>	Although shared decision making is recommended for cancer screening, it is not routinely completed in practice because of time constraints. We evaluated a process for improving decision making about colorectal cancer (CRC) screening using mailed decision aids (DAs) with follow-up telephone support in primary care practices.
<b>Methods:</b>	In three primary care practices, we identified patients aged 50–75 years who were not up to date with CRC screening. DAs were distributed via mail with telephone follow-up to eligible patients. Charts were reviewed six months later for CRC screening completion.
<b>Results:</b>	Among 1,064 eligible patients who received the mailed DA, 513 (48.2%) were reached by phone. During the six months after the intervention, 148/1064 (13.9%) patients were screened for CRC (4.8% underwent a fecal immunochemical test; 9.1% underwent colonoscopy). Younger patients (aged 50–54 years) had higher rates of any screening (32.4%) compared with all other age groups (range 12.8–19.6%). Medicaid patients had the lowest rates (4.0%) and insured patients had the highest rates (45.3%) of screening. Overall, 113/513 (22.0%) of patients who were reached by phone and 35/551 (6.4%) of patients who were not reached by phone completed screening within six months.
<b>Conclusion:</b>	A standard process for identifying patients unscreened for CRC and DA distribution via mail with telephone decision support modestly increased CRC screening. This finding is consistent with the goal of providing preference-sensitive care and informed decision making. Improving care processes to include decision support outside of office visits is possible in primary care practices.
<b>Keywords:</b>	informed decision making, screening, colorectal, underserved

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Screening for colorectal cancer (CRC) is recommended by the U.S. Preventive Services Task Force and is known to reduce death from CRC.<sup>1</sup> Lack of provider recommendation<sup>2,3</sup> and patient awareness<sup>3</sup> are both important contributors to insufficient screening. CRC screening recommendations for people at average risk starting at age 50 and continuing through age 75 include either a stool-based test or a direct-visualization test (colonoscopy or sigmoidoscopy).

Offering a stool based test as an alternative to direct visualization for screening may be preferred by some patients, and it appears to increase patient participation in screening.<sup>4</sup>

Previous work highlighted the importance of improving the quality of medical decisions by eliciting and respecting patient preferences and values, and by encouraging practices, such as the use of decision aids (DAs).<sup>5</sup> In the case of cancer screening, strong evidence from national surveys suggests that patients are not routinely involved in decision making.<sup>6</sup> Providers may not have the time, skills, or resources they need to implement informed

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decision making in clinical practice, particularly in the setting of a busy outpatient visit.<sup>7</sup>

DAs can help communicate evidence-based information about the benefits and harms of health care choices, including cancer screening. In the case of CRC screening, DAs improve knowledge and interest in screening, and results in a higher likelihood of completing screening.<sup>8</sup> The many barriers that prevent routine use of DAs present daunting challenges, which have been demonstrated in prior studies.<sup>9–11</sup>

The primary aim of this work was to develop a process to identify patients who were unscreened for CRC, distribute a CRC DA outside of the office setting with telephone decision support, promote informed decision making, and evaluate the feasibility and preliminary outcomes of that process in ambulatory settings.

## METHODS

### Setting

The study setting consisted of primary care practices (two internal medicine and one family medicine) that were part of a single, large multidisciplinary practice with over 30% of patients either uninsured or receiving Medicaid. All three practices were training sites for internal medicine or family medicine residency programs, and all offered either fecal immunochemical test (FIT) or referred patients to gastroenterology for endoscopic CRC screening.

### Improvement Process

We used practice registry data to identify adults between the ages of 50 and 75 years old from the three practices in 2013 and 2014 (Figure 1). Using an algorithm-generated list of patient panels for the practices, we identified patients without documented CRC screening in electronic health record fields that corresponded to up-to-date screening by colonoscopy, flexible sigmoidoscopy, or stool testing. A member of the research team or a trained staff member from within the practice reviewed these medical records to further refine the cohort to patients who were due for CRC screening (i.e., they had not had a colonoscopy within 10 years, sigmoidoscopy within 5 years, or annual stool testing). We excluded patients who did not appear to speak English (the DA was only

available in English), were inactive (no visit within the past 2 years), or were deceased. When the study started in 2013, the CRC screening rate for the three practices together was 52.7%, which was lower than the national rate at that time of 65.1%.<sup>12</sup>

Following our screening for eligibility, primary care providers (PCPs) were given a list of their patients aged 50–75 years who appeared to be due for screening. PCPs were asked to exclude patients who had prior CRC or other indications for a different screening approach; were being actively treated for serious medical conditions, such as malignancy; or had advanced chronic disease with limited life expectancy, such as chronic obstructive pulmonary disease or chronic heart failure. PCPs were also asked to exclude patients with major mental illness, who might be more vulnerable to potential anxiety arising from receiving a mailed DA and might be better served with an in-office discussion.

A letter signed by the PCP was mailed along with a booklet and DVD DA about CRC screening, created by the Informed Medical Decisions Foundation. The DA presented a balanced discussion of the risks and benefits of CRC screening, and a description of the available screening options. The information contained in the booklet was aimed at a sixth-grade reading level.

Approximately two weeks after mailing of the DA, patients were called by a member of the primary care team at the practice site (either a registered nurse or medical assistant) for follow-up decision support. These team members underwent a one-hour training that included an opportunity to view the DA and review the study design, a script for the telephone call, and instructions for provider follow up. Up to three calls were attempted for each patient over approximately two weeks. Decision support included querying patients about whether they watched the DVD and/or read the accompanying booklet, answering questions about screening options with pros and cons of each, and asking patients if they would like to set up a screening test. If the patient agreed, an electronic flag was sent to the provider to order the desired test (FIT or colonoscopy). Patients who requested an office visit to discuss screening further were scheduled for a visit if there was no upcoming visit. Chart reviews were completed six months after the DA mailing to determine if the patient had completed screening.

**Figure 1:** Implementation of Decision Aid Distribution at Primary Care Practice Sites

Outreach to practice directors	<ul style="list-style-type: none"> <li>Discuss concept of implementing practice-based decision aid distribution to appropriate patients.</li> <li>Discuss expectations of office and of support team.</li> </ul>
Meetings with office teams	<ul style="list-style-type: none"> <li>Review principles of decision aid use and view decision aid as a team to make all members aware of content.</li> <li>Discuss roles of team members in reviewing charts, answering questions, and making phone calls.</li> </ul>
Review of registry data	<ul style="list-style-type: none"> <li>For each practice, generate list of patients aged 50-75 who appeared unscreened for colorectal cancer.</li> </ul>
Chart review	<ul style="list-style-type: none"> <li>Identify team member at each site to complete chart review for the patients identified as unscreened. Two sites used residents who had quality improvement project time, and one site used a new nurse practitioner who was awaiting licensing to see patients.</li> <li>At each site, extensive record review was completed to identify patients who had prior screening. Because two of three practices had a prior electronic record, this included searching problem lists, consultant notes, health maintenance areas of the chart, and pathology results for polyp reports.</li> </ul>
Primary care provider review	<ul style="list-style-type: none"> <li>Each primary care provider received a printed list of their patients who were unscreened. They were asked to draw a line through names of patients who did not read English, were too medically ill (in their opinion) to undergo screening at that time, or who had major mental illness and might be frightened by receiving a decision aid via the mail.</li> </ul>
Cover letter generation and mailing	<ul style="list-style-type: none"> <li>Office managers at each site used the refined patient lists to generate a cover letter for each patient signed by their primary care provider.</li> <li>Cover letters were inserted into packets with the DA (DVD and booklet) which were mailed to patients in batches every 2-3 weeks to stagger DA arrival.</li> </ul>
Telephone follow up call and decision support	<ul style="list-style-type: none"> <li>A member of the primary care team called the patient approximately 2 weeks after the decision aid was mailed. One practice used the Team RN to make the calls, the other practices used a medical assistant. Up to three call attempts were made. If the patient stated they had not yet reviewed the materials but intended to do so, the team member asked if they could call back in 1 week to offer decision support.</li> <li>If the patient had viewed the material or stated they did not intend to do so, the team member asked if the patient had any questions about CRC screening or about the materials. After answering questions, the team member asked if the patient was interested in screening at that time, by either stool testing or colonoscopy. A follow up visit to discuss the options with the primary provider was also offered. The discussion and decision were documented directly in the patient chart.</li> <li>For patients who expressed a choice to begin screening, the team member sent an electronic flag to the provider requesting an order for the desired test (stool test or colonoscopy).</li> </ul>

We used chi-square tests to compare proportions of patients receiving screening according to age, insurance type, gender, and completion of a decision support phone call. This study was reviewed and approved by the Institutional Review Board at Maine Medical Center.

## RESULTS

A cohort of 1064 patients who met inclusion criteria received the letter from their PCP along with the CRC-screening DA (Table 1). Of these patients, 36.7% were 50–54 years old, 89.1% were white, 51.4% were women, and 21.7% were uninsured. Overall 148/1064 (13.9%) patients were screened for CRC during the six months after the DA mailing (4.8% underwent FIT; 9.1% underwent colonoscopy).

After the intervention, younger patients (50–54 years) had the highest rates of any screening (32.4%) compared to all age groups (range 12.8%–19.6%;  $p = 0.026$ ). Medicaid patients had the lowest rates of screening completion (4.0%), while privately insured patients had the highest rates (45.3%;  $p = 0.003$ ). We did not observe differences according to gender.

Practice members were able to reach 513 patients by phone for the decision support phone call within two weeks. They were not able to reach 551 patients. Of those who were reached, 285 (55.6%) reported that they either watched the DVD or read the DA booklet, and 79 completed screening. While 228 (44.4%) patients reported they did not watch or read the materials, 34 of them completed screening. Overall, 113/513 (22.0%) patients who were reached by phone completed screening within six months, compared with 35/551 (6.4%) who were not reached by phone ( $p < 0.001$ ).

## DISCUSSION

In this evaluation of a process for DA distribution with telephone follow up for CRC screening in primary care practices, we observed a modest impact of our intervention on CRC-screening rates. We noted marked differences in screening rates after the intervention according to insurance type. Medicaid patients had the lowest rate of screening, and privately insured patients had the highest rate. Patients more recently eligible for screening (aged 50–54 years) were more likely to be screened than older patients.

Prior studies of mailed DAs in various settings are available for comparison of the effects on screening rates. Using a similar design of mailing letters from providers to unscreened patients and allowing the patient to request a DA, Lewis and colleagues reported a similar increase (15%) in CRC screening in the mailed DA group versus 4% in the control group.<sup>9</sup> In other larger randomized studies, DAs resulted in more substantial increases in CRC screening among previously unscreened patients. For example, 39% of an intervention group were screened at 12 months versus 32% in a usual care group.<sup>13</sup> In another randomized control trial of adults aged 70–84 years, 55% of the DA intervention group were screened at 6 months versus 45% in the control group.<sup>14</sup>

Several characteristics of our practice population are notable and limit generalizability. At the inception of the study, the common practice of most providers was to recommend CRC screening starting at age 50 years with colonoscopy. Use of FIT testing was a more recent option for the practices, and providers may not have been offering this routinely as an option. The before-after design may have resulted in observations attributed to the intervention that were due to secular trends or other local effects. From discussions with practices, we estimate that the phone calls to patients took on average 15 minutes. However, we did not record these times and the time requirements likely varied. The relatively low proportion of patients who could be reached by phone is also a limitation, but the reasons for this are unclear. Patients who allow practices to contact them in general may be more likely to accept health advice and follow provider instructions. We had a high proportion of uninsured patients in this population. Both providers and patients may not have been aware of opportunities for screening subsidized by the hospital or other programs.

Because our implementation was relatively labor-intensive, it is not clear whether other practices could reproduce this implementation model without adding responsibilities for staff members. However, use of electronic medical records that can be queried to ascertain cancer screening opportunities for patients in their population is becoming widespread. Using such queries could help improve processes to facilitate routine cancer screening and other population health management.



**Table 1:** Characteristics of the 1064 Patients in the Implementation Cohort

Characteristic	Number	Percent
Age Group (years)		
50-54	391	36.7%
55-59	257	24.2%
60-64	168	15.8%
65-69	133	12.5%
70-75	115	10.8%
Female sex	547	51.4%
Race		
White	948	89.1%
Black	22	2.0%
Other	20	1.9%
Missing	74	7.0%
Insurance		
None	231	21.7%
Medicaid	89	8.4%
Medicare	310	29.1%
Private	434	40.8%
Practice Site		
Practice 1	86	8.1%
Practice 2	527	49.5%
Practice 3	451	42.4%

DVD is an outdated technology, and newer methods of delivering DA, such as through patient portals, is an alternative to mailing.

Providing a DA to promote informed decision making and following up with patients in a timely way to support patient decisions and facilitate screening for those who desire it remains a challenge in clinical practice. Care models should incorporate best use of information systems and provide a rational process of care in a given system.<sup>7</sup> Outreach and education to patients beyond conventional office visits, but within the context of their trusted care team, may provide additional

opportunities to promote informed choices about cancer screening. One growing opportunity is the use of patient portals for distributing DAs, and this approach should be studied. Bringing DAs into cancer screening processes will help improve knowledge about screening and incorporate patient preferences into screening choices. Future improvement efforts should also examine how often screening is routinely recommended and how options are provided. However, the health care team needs to be aware of patient preferences and open to providing options about screening modality, particularly in poor and low-literacy populations.

**Conflicts of Interest:** None

## REFERENCES

1. Lin JS, Piper MA, Perdue LA, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. *Screening for Colorectal Cancer: A Systematic Review for the U.S. Preventive Services Task Force*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2016.
2. Guerra CE, Dominguez F, Shea JA. Literacy and knowledge, attitudes, and behavior about colorectal cancer screening. *J Health Commun*. 2005;10(7):651–663.
3. Wee CC, McCarthy EP, Phillips RS. Factors associated with colon cancer screening: the role of patient factors and physician counseling. *Prev Med*. 2005;41(1):23–29.
4. Quintero E, Castells A, Bujanda L, et al. Colonoscopy versus fecal immunochemical testing in colorectal-cancer screening. *N Engl J Med*. 2012;366(8):697–706.
5. Stacey D, Legare F, Lewis K, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev*. 2017;4:Cd001431.
6. Hoffman RM, Elmore JG, Fairfield KM, Gerstein BS, Levin CA, Pignone MP. Lack of Shared Decision Making in Cancer Screening Discussions: Results from a National Survey. *Am J Prev Med*. 2014;47(3):251–259.
7. Friedberg MW, Van Busum K, Wexler R, Bowen M, Schneider EC. A demonstration of shared decision making in primary care highlights barriers to adoption and potential remedies. *Health Aff (Millwood)*. 2013;32(2):268–275.
8. Volk RJ, Linder SK, Lopez-Olivo MA, et al. Patient Decision Aids for Colorectal Cancer Screening: A Systematic Review and Meta-analysis. *Am J Prev Med*. 2016;51(5):779–791.
9. Lewis CL, Brenner AT, Griffith JM, Pignone MP. The uptake and effect of a mailed multi-modal colon cancer screening intervention: a pilot controlled trial. *Implement Sci*. 2008;3:32.
10. Brackett C, Kearing S, Cochran N, Tosteson AN, Blair Brooks W. Strategies for distributing cancer screening decision aids in primary care. *Patient Educ Couns*. 2010;78(2):166–168.
11. Schroy PC, 3rd, Mylvaganam S, Davidson P. Provider perspectives on the utility of a colorectal cancer screening decision aid for facilitating shared decision making. *Health Expect*. 2014;17(1):27–35.
12. Centers for Disease Control. Vital Signs: Colorectal Cancer Screening Test Use — United States, 2012. *MMWR Morb Mortal Wkly Rep*. 2013;62(44):881–888.
13. Pignone M, Winquist A, Schild LA, et al. Effectiveness of a patient and practice-level colorectal cancer screening intervention in health plan members: the CHOICE trial. *Cancer*. 2011;117(15):3352–3362.
14. Lewis CL, Kistler CE, Dalton AF, et al. A Decision Aid to Promote Appropriate Colorectal Cancer Screening among Older Adults: A Randomized Controlled Trial. *Med Decis Making*. 2018;38(5):614–624.