

Physician Decision Making for Colorectal Cancer Screening in the Elderly

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BACKGROUND: Although individualized decision making is recommended to appropriately screen for colorectal cancer (CRC) in older adults, it is unclear whether physicians solicit input from older patients before making a recommendation for or against CRC screening.

OBJECTIVE: The purpose of this study was to examine whether physicians elect to engage older patients in individualized decision making for CRC screening.

DESIGN AND PARTICIPANTS: We surveyed a random sample of 650 US primary care physicians by mail. Physicians responded to questions about three clinical vignettes involving 80-year-old female patients in good, fair, and poor health. We examined whether physicians reported that they would initiate a discussion with the patients about CRC screening and whether they would make a recommendation about screening or seek patient input first.

RESULTS: A total of 276 eligible physicians responded (52 % corrected response rate). Whether physicians indicated they would initiate a discussion about CRC screening varied by vignette: 91 % of physicians indicated they would do so for the patient in good health and 66 % and 44 % for the patients in fair and poor health, respectively ($p < 0.0001$). The proportion of physicians that would seek patient input for their screening recommendation also varied by vignette (45 % for good, 49 % for fair, and 26 % for poor).

CONCLUSION: We found that physicians often individualize their CRC screening recommendations for older women by electing to engage patients in discussions and seeking their input before making a CRC recommendation. Physicians were more likely to elect to engage the patients represented by the good and fair health vignette, where the potential benefits likely outweigh the potential harms, than the patient in poor health, where the potential harms likely outweigh the potential benefits.

KEY WORDS: physician decision making; colorectal cancer screening; elderly; mass screening.

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The guidelines for colorectal cancer screening in older adults endorse individualized decision making;¹⁻³ many older patients will not be expected to benefit from CRC screening because of the wide variation in health states of older adults.^{4,5} Although estimates indicate at least 5 years of life expectancy is needed for patients to obtain a net benefit from CRC screening,⁶ observational studies do not show a consistent association between better health state and screening test completion, suggesting that physicians may not make CRC screening recommendations based solely on life expectancy or health state.⁷⁻¹⁰ Several recent studies demonstrate clear overuse of CRC screening in older adults,^{11,12} even in those with advanced cancer.¹³ Factors contributing to this mismatch between screening behavior and the potential to benefit have not been well characterized, but have broad implications for patient outcomes, resource use, and public trust.

Individualized decision making has been proposed to identify patients most and least likely to benefit from screening;⁴ however, the role of patients in the individualized decision-making process has been unclear. Previous studies using patient vignettes to examine physicians' practices for CRC screening¹⁴⁻¹⁶ have found recommendations are based on age and morbidity. A key aspect to individualized decision making not examined in these prior studies is whether primary care physicians elect to initiate discussions and seek patient input, thereby providing older patients the opportunity to express their preference for CRC screening. By seeking patient input, physicians risk eliciting patient preferences that contradict their assessment of the potential benefit for that individual given their health state. Further, physicians may not feel clinically or ethically obligated to offer or even discuss screening they feel may be harmful to a patient.

The purpose of this study was to examine whether physicians elect to engage older patients in individualized

decision making for CRC screening. We presented physicians three clinical vignettes of women, age 80, in poor, fair, and good health and examined for each of these scenarios: (1) whether physicians report that they would initiate discussions about CRC screening, (2) whether physicians would make a recommendation for or against CRC screening or seek patient input prior to this recommendation, and (3) whether physicians who estimated intermediate life expectancy estimates were more likely to engage patients before making a recommendation. Understanding whether and when physicians engage patients in individualized decision making for CRC screening could help explain the mismatch sometimes observed between screening behavior and the potential to benefit from screening.

METHODS

Participants

We used the American Medical Association Physician Masterfile to identify potentially eligible primary care physicians based on the self-designated primary specialty of practice code. We included both family physicians and general internists. We excluded internists who practiced a subspecialty, physicians not currently practicing, and geriatricians. Using these eligibility criteria, the Masterfile vendor Medical Marketing Service, Inc., provided a list of 5,000 randomly identified eligible general internists and family physicians. We then randomly selected 650 participants based on the expected response rate of 50 to 60%.^{17,18} This sample size would allow 80% power at an overall type I error rate of 5% in order to detect differences in pair-wise comparisons of the three vignettes using the Stuart-Maxwell test.¹⁹

Mailings and Follow-up Contacts

The Office of Human Research Ethics reviewed and approved this study and exempted it from written informed consent. The initial mailing consisted of a packet containing a cover letter, a 41-item questionnaire and a pre-addressed stamped return envelope.²⁰ Two follow-up mailings were sent to non-respondents at 2 and 4 weeks. In the event that mail was returned, a web search was conducted to find a more recent work address or fax number, and questionnaires were sent there. After three mailings, a two-page fax was sent to non-respondent physicians who were promised \$50 if they returned the questionnaire.

Questionnaire

The vignettes and questionnaire were based on pilot studies that included focus groups with primary care physicians and

a survey conducted with internal medicine residents.^{21,22} The questionnaire included several demographic questions and then presented three vignettes, each followed by a set of identical questions.

We crafted the patient vignettes to represent 80-year-old women in good, fair, and poor health that corresponded to 13, 9, and 5 years of life expectancy, respectively (Table 1). We tested them in focus groups with non-academic physicians who verified that the vignettes were clearly understandable and realistic.²² We chose to restrict patient gender and age within vignettes to hold constant non-health factors. We portrayed female patients because women generally live longer than men; therefore, primary care physicians encounter CRC screening decisions more frequently among women patients. Each vignette indicated that the patient had a negative screening colonoscopy 10 years previously.

After each vignette, we asked respondents to estimate the life expectancy of the patient in each vignette using four response options: "less than 2 years," "2 to 5 years," "6 to 10 years," and "10 or more years." We then asked, "Assuming that Mrs. X does not bring up the topic of colon cancer screening during the visit, would you initiate a discussion of cancer screening with Mrs. X during this visit?" If the respondent answered "yes," then the follow-up question was, "In my discussion with Mrs. X: (1) I would recommend that she undergo screening; (2) I would recommend that she NOT undergo screening; (3) my recommendation would depend on our discussion; (4) I would let the patient decide without providing a recommendation about screening. Because we did not want to assume that physicians who reported that they would not discuss CRC screening would also not order a screening test, those who reported that they would not discuss

Table 1. Clinical Vignettes

Good health vignette	Mrs. Watson is an 80-year-old woman with hypertension for 10 years that has been well controlled with hydrochlorothiazide. She is otherwise healthy. She walks several miles every other day, is active in her church, and travels frequently with her husband to see her grandchildren out of state
Fair health vignette	Mrs. Perry is an 80-year-old woman with moderate COPD and well-controlled hypertension. She has severe osteoarthritis in both knees, which limits her ability to walk outside her house. She experiences shortness of breath after walking up one flight of stairs
Poor health vignette	Mrs. Brandon is an 80-year-old woman with severe heart failure due to coronary artery disease. She has shortness of breath with exertion despite optimal medical management. She was revascularized more than 10 years ago but is not a candidate for repeat CABG. She is able to perform all Activities of Daily Living independently but must perform them slowly because of shortness of breath

screening were also asked in follow-up whether: “I would (1) order a screening test or (2) not order a screening test.”

Data Analysis

We first assessed the frequency of physicians who would initiate discussions about CRC for each vignette. To determine screening recommendations, we combined those who responded that they would not discuss screening but would order the test with respondents who recommended in favor of screening. Similarly, we combined respondents who would not discuss and not order a test with physicians who recommended against screening. Because very few respondents would let the patient decide without providing a specific recommendation ($\leq 5\%$), we combined these respondents and those that indicated “My recommendation would depend on our discussion” into a combined category to reflect that the physician was electing to engage the patient and offering the opportunity for patients to express a preference about screening.

Descriptive statistics [means, standard deviations (SD) and range, or frequency and proportions] are presented to describe physician characteristics. Comparisons between eligible respondents and non-respondents were made on available variables using two-sample t-tests (continuous variables) or chi-square tests of association (categorical variables). Given some small cell sizes, we used Fisher’s exact test to assess differences between Family Medicine and Internal Medicine physicians for each of the vignettes in regard to recommendations and life expectancy estimates. Findings revealed no differences between the two physician types, and thus all results are presented as combined data. We calculated the percentage of physicians’ recommendations across each health state (good, fair, poor) and category of life expectancy. We then used generalized logistic regression models to determine whether recommendations about CRC screening were associated with patients’ health state (good; fair; poor) and physicians’ estimates of life expectancy. We compared recommendations across all vignettes accounting for clustered (multiple) responses for a given physician using SAS’s (SAS, Cary, NC) PROC SURVEYLOGISTIC. Pair-wise comparisons of physicians’ recommendations across health states (good to fair, good to poor, fair to poor) were made using Stuart-Maxwell tests of marginal homogeneity.¹⁹

RESULTS

We received 276 responses from eligible physicians. After accounting for 69 physicians who reported their ineligibility and the 42 questionnaires for whom good addresses were never found, our corrected response rate was 52%.²³

Among the four demographic characteristics available, respondents and non-respondents differed only in specialty distributions: family practice physicians were more likely to respond than internists (57% vs. 43%; $p < 0.01$; Table 2). The average age of respondents was 48 years; 71% were men, and 74% were white. On average, respondents reported that 27% of their patients were age 75 or older.

Initiating Discussions About Cancer Screening with Patients

Physicians’ responses to questions about initiating discussions varied according to the health state depicted in the patient vignette. A total of 91% of physicians reported that they would initiate a discussion for the patient depicted in a

Table 2. Characteristics of Physician Respondents and Non-Respondents

	Eligible respondents <i>N</i> = 276	Non respondents <i>N</i> = 240	<i>p</i> value
Physician characteristics	Mean (SD); range		
Age	48 (9.7); 31–84	48 (9.9); 31–83	0.5
Years after medical school	21 (10.4); 5–61	20 (9.8); 4–54	0.3
Proportion of patients over age 75	27% (20%); 1%–100%		
Gender	n (%)		
Male	196 (71%)	158 (65.8%)	0.2
Female	80 (29%)	82 (34.2%)	
Specialty			
Family medicine	158 (57%)	110 (46%)	<0.001
Internal medicine	118 (43%)	130 (54%)	
Medical school affiliation			
Yes	76 (28%)		
No	199 (72%)		
Missing	1 (<1%)		
Race			
White	205 (74%)		
Black or African American	11 (4%)		
Asian	42 (15%)		
Other	15 (5%)		
Missing	3 (1%)		
Ethnicity			
Hispanic or Latino	15 (5%)		
Non-Hispanic	260 (94%)		
Missing	1 (<1%)		

good health state, while the percentage of physicians initiating discussions decreased to 67 % and 44 % for vignettes reflecting fair and poor health states, respectively ($p < 0.0001$). Among physicians who reported that they would not discuss screening, most indicated they would not order a screening test for elderly patients regardless of health state (84 %, 85 %, and 93 % for good, fair, and poor health, respectively).

Physicians' Recommendations Regarding Colorectal Cancer Screening

Physicians' recommendations about CRC screening also varied across the vignettes ($p < 0.0001$; Fig. 1). For the vignette representing a patient in good health, 47 % of physicians indicated that they would screen, with almost as many (45 %) reporting that their decision would depend upon patient input; only 8 % recommended against screening. For the vignette representing a patient in fair health, 49 % of physicians indicated that their decisions would depend upon patient input, with another 20 % in favor of screening and 31 % against screening. For the vignette representing a patient in poor health, 66 % of physicians reported that they would recommend against screening, 26 % reported that they would seek patient input first, and 8 % would recommend in favor of screening. Among respondents who reported that they would seek patient input for a given vignette, almost all would make a specific recommendation after obtaining patient input rather than let the patient decide entirely on their own (95 % of respondents regarding the good health state vignette, 98 % of respondents for the fair health state vignette, and 94 % of respondents for the poor health state vignette).

Life Expectancy Estimates and Recommendations

Physicians' recommendations about CRC screening for each vignette were strongly associated with their life expectancy estimates ($p < 0.0001$; Fig. 1). Physicians who estimated an intermediate life expectancy (2–5 or 6–10 years) were generally more likely to seek patient input prior to making a recommendation than to simply recommend in favor or against screening. Physicians who estimated more than 10 years' life expectancy generally favored screening while physicians who estimated less than 2 years' life expectancy were generally against screening.

DISCUSSION

We found that the proportion of physicians who elected to engage patients in individualized decision making varied with the health state of the patients in the clinical vignettes. For the poor health state vignette, 44 % of physicians would initiate discussions compared to 91 % and 67 % for the good and fair health states, respectively. Similarly, for all three vignettes, a significant proportion of physicians reported that their recommendation would depend on patient input (45 %, 49 %, and 26 % for good, fair, and poor health vignettes). The proportion that would recommend screening decreased as the health state of the vignette worsened. Similarly, physicians' recommendations were strongly associated with their life expectancy estimates. Physicians were found to be less likely to recommend screening when they anticipated their patients had fewer years to live and were more likely to seek patient input when they estimated an intermediate life expectancy.

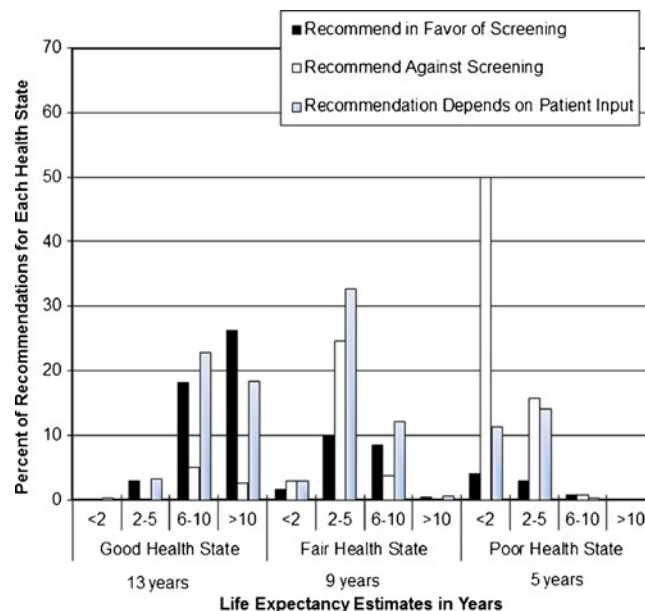


Figure 1 Physicians' recommendations about CRC screening for each vignette were associated with their life expectancy estimate.

Although previous studies have demonstrated that practicing physicians report their screening recommendations vary by their patients' health state and life expectancy,^{14–16} none to our knowledge have examined whether or not physicians elect to engage patients in individualized decision making before making CRC screening recommendations. In our pilot study involving internal medicine residents who responded to similar vignettes but at age 75 instead of aged 80, we found that 22 % of residents recommended against screening for the poor health vignette compared to 66 % of physicians in this current study. Resident physicians were also more likely to recommend in favor of screening for the good health vignette, 66 % compared to 47 % of current respondents.²¹ This study extends the pilot work in several ways. In the present study, we asked participants whether they would initiate a discussion, which provides an insight into whether physicians would choose to discuss CRC screening for elderly patients in good, fair, or poor health. Additionally, we were able to clarify whether physicians would obtain patient input and then offer their recommendation or discuss and let the patient decide without making a recommendation.

Although some researchers have expressed concern that in a patient-centered model physicians may foist decision making on patients rather than provide them with a recommendation,^{24,25} physicians reported that they would make a recommendation in almost all cases (95 % or more). However, physicians were more likely to make a recommendation against screening and less likely to seek patient input for the poor health vignette, suggesting a more directive approach in these patients. This may be an effort to avoid harm in those who they do not think would benefit from screening. In focus groups with physicians, we found this to be a concern when considering cancer screening in older adults with multi-morbidity.²²

Given that we found a significant proportion of physicians would elect to engage patients in individualized decision making and seek patient input about CRC screening for all three health states, future studies should examine whether this patient-centered approach contributes to the mismatch between screening behavior and likelihood of potential benefit. If physicians elect to engage patients in individualized decision making, they may feel obligated to follow patient preference even though patients may choose to undergo screening when they are unlikely to benefit or forgo screening when they are likely to benefit. Recent controversies about limiting cancer screening indicate that additional educational efforts may be necessary to assure that the elderly understand the potential risks and benefits of cancer screening in the context of advancing age and multi-morbidity and avoid public concerns about rationing care and cost containment.²⁶ Some evidence suggests that patient decision support could improve the decision-making process by better informing patients about the risks and

benefits of CRC screening, resulting in better informed patients, who then may choose to be screened based on their potential to benefit from CRC screening.²⁷

There are several limitations to our study. Although our response rate of 52 % is comparable to that of other physician mailed surveys,²⁸ the approach to CRC screening choices of those who did not respond might have differed from those who elected to participate; however, the direction of these biases is difficult to predict. In addition, our assessment of physicians' CRC recommendations was based on their self-reported response to clinical vignettes and may not represent decisions they would actually make in their clinical practice. In general, responses to vignettes have been shown to be consistent with actual practice.^{29,30} However, they do not capture many of the contextual factors that could influence physicians' CRC recommendations, such as the length of the relationship with patients, personal experience within that relationship, and whether physicians would offer their opinion about what they would do if they were the patient. Further, we chose not to assess the impact of variations in the patient's previous screening history or CRC screening test type. Our rationale was that to adequately explore the effect of each of these factors would add too much to the length of the questionnaire and likely result in an unacceptably low response rate. Additionally, although we had piloted our survey questions in prior work, these questions have not been validated. Finally, these data were collected before release of the most recent US Preventative Task Force Recommendations that endorse individualized decision making by recommending against routine screening for those ages 76 to 85 years.³ Our findings suggest that physicians were not routinely recommending screening for this age group even before the release of these guidelines.

We found that physicians often individualize their CRC screening recommendations for older women by electing to engage patients in discussions and seeking their input before making a CRC recommendation. Physicians were more likely to elect to engage the patients represented by the good and fair health vignette, where the potential benefits likely outweigh the potential harms, than the patient in poor health, where the potential harms likely outweigh the potential benefits.

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Dr. Lewis had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Conflict of Interest: The authors declare that they do not have any conflicts of interest.

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