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PATIENT RATED IMPORTANCE AND RECEIPT OF INFORMATION FOR COLORECTAL CANCER SCREENING

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Abstract

Background—Physician recommendation is one of the most important determinants of obtaining colorectal cancer (CRC) screening; however, little is known about the degree to which CRC screening discussions include information that patients report as important to guide screening decisions. This study examines and compares both patient rated importance and physician communication of key information elements about CRC screening during annual physical exams.

Methods—Design: Cross-sectional cohort. Setting: 26 ambulatory clinics of an integrated delivery system in the Midwest. Participants: 64 primary care physicians and 415 patients aged 50–80 due for CRC screening. Patients completed a pre-visit survey to assess importance of specific information when making a preventive screening decision. Visits were audio recorded to assess the content of screening discussions.

Results—Most patients rated test accuracy (85%), testing alternatives (83%), the pros and cons of testing (86%) and the testing process (78%) very important when making preventive screening decisions. Ninety-one percent of visits included a CRC screening discussion, however, CRC screening talk rarely included information that patients rated as important. Physicians infrequently asked if patients had questions pertaining to CRC screening (5%), however, 49% of patients asked a CRC screening question with the vast majority pertaining to screening logistics.

Conclusions—Audio recordings confirm that discussions of CRC screening are often lacking information that patients indicate is very important when making preventive health decisions and patient questions during the visit are not eliciting information to fill the gap.

Impact—These findings provide actionable information to improve CRC screening discussions.

Keywords

colorectal cancer screening; colonoscopy; communication; primary care

Introduction

Colorectal cancer is the second leading cause of cancer deaths in the United States (1). Multiple screening options are endorsed by the US Preventive Services Task Force

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(USPSTF) and the American Cancer Society. Effective implementation of the currently available screening tests could have a positive impact on the morbidity and mortality of tens of thousands of lives. However, just over 60% of eligible Americans receive CRC screening within the recommended time intervals (2).

Prior research has consistently identified physician recommendation as one of the most important factors associated with the receipt of CRC screening (3, 4). Making a clear and compelling recommendation for CRC screening is complicated by the availability of multiple modalities -- each with different procedures, risks/benefits, costs and levels of unpleasantness—making the colorectal cancer screening decision-making process ripe for shared and informed decision making (5, 6).

Informed decision making includes providing information about the nature of the procedure, alternatives and the risks and benefits of the alternatives (5). Discussions with these informational elements are consistent with the screening recommendation approach from the USPSTF (6).

Efforts to improve the quality of the decision-making process must be responsive to patient information needs as well as their screening modality and shared decision-making preferences. While others have examined patient preferences for screening modality (7–10) or test attributes (11–13) and the use of shared decision making (14), we are not aware of others who have examined different types of information about CRC screening that patients rate as important and the degree to which those key types of information are provided by their primary care physician during CRC recommendations. We compare patient ratings with actual physician communication of elements of information about colorectal cancer screening during periodic health exams. We also examine patients’ use of questioning and whether their questions serve to fill gaps in information provision during these exams.

Methods

The details of this cross-sectional observation study and the study participants have been described in detail elsewhere (14). Briefly, family medicine and internal medicine physicians from a large integrated health system in southeast Michigan were invited to participate. Physicians were informed that that this was a study about doctor-patient communication; they were not informed of the main study questions or specific hypotheses.

Patient participants included those aged 50–80 years who were due for colorectal cancer screening at the time they scheduled a routine annual physical exam with a study participating physician. Study participation included completion of a pre-visit telephone survey, audio-recording of the scheduled office visit and completion of a brief post-visit survey. Visits were audio-recorded using a small digital recording device placed in the exam room by a research assistant. The data were collected between February 2007 and June 2009. The study procedures were approved by the medical group’s Institutional Review Board.

Data collection methods

The pre-visit telephone survey assessed patient demographic information and information relevant to cancer screening tests. The primary variables for this analysis assessed patients' rated importance of types of information about screening tests based in part on Braddock's recommendation for informed decision making (5). The introduction to the question was as follows: 'There are many types of information that people may want to know before they decide to have a screening test. I'm going to read a list of different types of information.' Patients were asked to use a 7-point scale anchored by '1=very important' and '7=not at all important' to rate how important it is that they have information regarding: the screening purpose (i.e. disease addressed by screening), the likelihood that the test results would be wrong or incorrect (test accuracy), whether there are different types of tests available (test alternatives), the pros and cons of each test available, and details of the testing process (e.g., "how the test is done, how you may feel during the test, what you have to do to prepare for the test"). We included an item about the manufacturer of the test to assess if patients discriminate across types of information they rate as very important. We report the proportion of patients who rated these types of information as 'very important.'

Analysis of the audio recording

The content of the patient-physician CRC screening discussion was obtained via office visit audio-recordings. All recordings were transcribed prior to coding and organized in Atlas.ti, a program to facilitate analysis of text data. To evaluate the delivery of the information elements a structured coding template was developed using a priori working definitions. Discussion of any two alternative tests (colonoscopy, fobt, sigmoidoscopy or barium enema) qualified as discussing test alternatives. Discussion of any risks of a screening test and discussing any benefits of CRC screening was counted as discussing 'pros and cons.'

Three trained research assistants coded the visits by listening to the audio-recordings while following the associated transcript. Inter-rater reliability was assessed by having approximately 10% of recordings (n=43) coded by all three assistants. The average inter-rater reliability for the items used in this analysis was kappa=0.82.

In addition to the information regarding the disease addressed by screening, test accuracy, test alternatives, the pros and cons of testing and the testing process, we assessed if the patient asked questions about colorectal cancer screening. Using a qualitative content analysis approach, a categorization scheme for patient questions was derived based on patterns observed among the first 50 instances. A study team member (SF) reviewed and revised the categorization after examining all of the patient questions; this categorization was reviewed by two others (JEL, TW) and discrepancies in sorting were discussed and resolved by consensus. Final categorization of patient questions included: screening logistics, process, purpose, alternatives, risks/benefits and other.

Analysis

Data were collected for 500 visits resulting in 485 audible recordings. Twenty-nine cases were excluded from the analyses: the patient had screening scheduled at the time of presentation (n=25), presented with symptoms (n=1) or the pre-survey was not available (n=3). Ninety-one percent of the visits (415/456) included talk related to CRC screening. These 415 cases represent the sample for the current analyses. The proportion of patients who rated an information element as very important, and the receipt of information among those who rated the information element as very important are reported. Finally, we report whether the patient asked a question and the nature of the question as well as whether the physician solicited questions from the patient.

Results

A total of 77 of the 163 physicians approached agreed to participate in the study (47% participation rate). Physicians agreeing to participate were on average 48 years old, 57% were female and 66% were internists. Participating physicians were similar on these characteristics to those who declined participation (14). Fifty percent of patients identified as eligible for the study agreed to participate. As shown in Table 1, patient participants were on average 59 years old, 64% were female and 66% were white. Twenty-eight percent of patients had a high school degree or less and 40% reported some college or a two-year degree. Household income was $60K or greater for 55% of the sample. Patient participants were similar to non-participants in race and marital status, but were on average 2 years younger and more likely to be female (14).

The proportions of patients who rated the information elements as 'very important' are reported in the second column of Table 2. Prior to the observed visit, the large majority of patients reported that having information about the screening purpose, test accuracy, test alternatives, the pros and cons of testing and the testing process is very important when making preventive screening decisions. Few patients reported that information about the manufacturer of the test is very important (20%, data not shown).

Among those reporting that information about the disease addressed by screening is very important, 58% (214/368) received this information during the visit. Receipt of information reported as important was lowest for testing pros/cons (n=14, 4%). These 14 visits included only those instances where the physician provided information about a both pro and con of screening; either a pro (n=62) or a con (n=22) was discussed in 84 (24%) of visits of those patients who rated that information very important. Receipt of information was also low for test accuracy (7%) and moderately low for test alternatives (29%). All of those who reported that information about the testing process was important received some information about that topic.

Physicians infrequently asked patients if they had questions pertaining to CRC screening (5%). However, 49% of patients asked an unprompted question about CRC screening. Across the 415 visits, a total of 270 CRC screening related questions were asked by patients. Among those who asked a question, the average questions per visit was 1.3 (stddev 0.7, range 1–5). Table 3 shows the topic and frequency of questions asked. Most frequent were patient questions about screening logistics such as questions about who is supposed to call to schedule the appointment, clarification about the need for a referral, and questions specific to which medical group locales offered screening colonoscopies. The next most common patient questions were about the testing process. Notably infrequent were questions to fill the gaps in information elements patients indicated were important, but not discussed by the physician. Specifically, only 29 patient questions pertained to testing pros/cons, 12 pertained to test alternatives, and none pertained to test accuracy.

Discussion

The emphasis on the information elements for an informed decision for CRC screening is in part driven by the multiple modalities for screening that are available and endorsed, making CRC screening a complex decision (5). The vast majority of patients in this study reported that information about the disease addressed by screening, test accuracy, test alternatives, the pros and cons of testing and the testing process was very important to have when making a decision to be screened. Our detailed evaluation of office visit audio recordings found that patient-physician discussions of CRC screening rarely included these informational elements with the exception of the testing process. These findings provide actionable information to address the problem that information necessary for an informed decision is not being provided during primary care office-based discussions of CRC screening (15, 16). In addition, we found that while patient questions occur in half of the visits, the questions posed by patients do not serve to fill the gap between patient expressed importance of information and physician provided information.

There are several potential explanations for the observation that patient-physician discussions of CRC screening rarely included key informational elements that patients indicate they want. First, many of the elements for informed decision making are germane to comparisons across screening options (e.g. pros / cons, accuracy). Like others (17), we found that CRC discussions tend to focus on colonoscopy and rarely involve discussion of alternatives. When only one screening modality offered, the relevance of some of the information elements may be perceived as low by the physician.

Second, discussing CRC screening alternatives and the accuracy, pros and cons, process, for each test during every discussion of CRC screening may be unrealistic when CRC screening is one of many prevention and health promotion topics recommended to be addressed during a health maintenance visit (18, 19). Limiting the conversation about colorectal cancer screening to a single test option may represent an effort to be time efficient. An alternative approach that is centered on the information needs of the patient may help balance the information preferences of patients and competing demands for time during the visit. Matching the provision of information to patients' information needs requires an assessment of what the patient currently knows and what he/she would like to know. In this study, such an assessment was not observed. Indeed, physicians explicitly prompted patient questions about colorectal cancer screening in just 5% of the visits. Another possible explanation is that continuity of primary care relationships create opportunities to attend to health promotion and prevention topics across visits such that the topic of colorectal cancer screening and the provision of additional information or questioning could have occurred. Longitudinal data across multiple visits would be helpful to inform the degree to which CRC screening discussions evolve over time.

Information gaps may adversely affect subsequent screening (20). Others found that patient report of additional information they wanted about CRC screening but were unable to ask their physician were less likely to have been screened for CRC (21). Interestingly, in our study, patient questions were common (almost 1/2 of the visits), however, questions were predominately about screening logistics (e.g. how to schedule the test and where to go to obtain the test) and the testing process (e.g. whether sedation is required, polyp removal, preparation for the test, and the frequency of testing). The questions asked by patients rarely addressed test alternatives, test accuracy or other topics that patients indicated as very important to guide a decision about a screening test prior to the observed visit. We do not know if these are the only topics about which patients wanted more information. But, it seems reasonable that a level of “readiness to screen” may be evident by the content of a patient’s question. For example, questions about where to go in order to get a colonoscopy screening test may indicate that the patient is further down the path of intending to do a screening test. On the other hand, a patient asking questions to clarify what the test is for and if it is really necessary may be in the earlier stages of making a decision about testing or expressing a preference to not screen. The information needs for these two examples are very different. Perhaps our focus should move away from a rigid notion of the kinds of information that ought to be provided for an informed decision process for screening and move towards a patient-centered approach (22). Such an approach may involve simply asking what the patient already knows about CRC screening and what they want to know to guide a screening decision (23). Further examination of an approach centered on eliciting and responding to the informational needs of the patient will be helpful in guiding the development of effective and time efficient strategies for improving the communication of relevant CRC screening information.

These data are limited to insured patients and physicians from one large health care organization. While this study represents 415 patient visits across 63 physicians in 26 community outpatient clinics, and the patients and physicians are largely similar to those eligible but not participating in the study from this organization, the findings may not generalize to other types of health care settings. Another potential limitation is that the assessment of patient rated importance of screening information was asked in a generic way for screening tests. While this strategy minimized the likelihood of tipping off patients and physicians about the focus of the study, it is possible that patients' rated importance of information could vary by screening purpose. The method of rating the importance of the information elements created a ceiling effect requiring us to dichotomize responses into very important vs. others. Other methods such as ranking or tradeoffs would have allowed us to examine the proportion of patients who received the pieces of information they indicated as most important. In addition, we did not collect information about patients' knowledge about test types and the potential benefits or risks of different tests; this could affect patient question asking. Finally, we only know about the importance of the types of information derived from Braddock's criteria (5) assessed on the patient survey, however, there may be other kinds of information important to patients. Future work should evaluate the association of the provision of information that patients rate as very important and receipt of recommended screening services. One could hypothesize that the greater degree of match of provision of important information would result in a better informed patient prepared to make a decision about screening. In addition, patient activation, perhaps marked by patient questions, may be associated with an increased likelihood of screening.

Conclusions

Audio recordings confirm that discussions of CRC screening are often lacking information that patients indicate is very important when making preventive health decisions and patient questions during the visit are not eliciting information to fill the gap. Whether the provision of certain types of information during CRC screening discussions leads to increased adherence to recommended CRC screening warrants further investigation.

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References

1. American Cancer Society. Colorectal Cancer Facts & Figures 2011–2013. 2011. Available from: http://www.cancer.org/Research/CancerFactsFigures/ColorectalCancerFactsFigures/colorectal-cancer-facts-figures-2011-2013-page.
2. Rim SH, Joseph DA, Steele CB, Thompson TD, Seeff LC. Colorectal Cancer Screening: United States, 2002, 2004, 2006 and 2008. MMWR. 2011; 60 Supplement:42–48. [PubMed: 21430619]
3. Beydoun HA, Beydoun MA. Predictors of colorectal cancer screening behaviors among average-risk older adults in the United States. Cancer Causes Control. 2008; 19(4):339–359. [PubMed: 18085415]
4. Guessous I, Dash C, Lapin P, Doroshenk M, Smith RA, Klabunde CN. Colorectal cancer screening barriers and facilitators in older persons. Prev Med. 2010; 50(1–2):3–10. [PubMed: 20006644]
5. Braddock CH 3rd, Edwards KA, Hasenberg NM, Laidley TL, Levinson W. Informed decision making in outpatient practice: time to get back to basics. JAMA. 1999; 282(24):2313–2320. [PubMed: 10612318]
6. Sheridan SL, Harris RP, Woolf SH. Shared decision making about screening and chemoprevention. a suggested approach from the U.S. Preventive Services Task Force. Am J Prev Med. 2004; 26(1): 56–66. [PubMed: 14700714]

7. Schroy PC 3rd, Emmons K, Peters E, Glick JT, Robinson PA, Lydotes MA, et al. The Impact of a Novel Computer-Based Decision Aid on Shared Decision Making for Colorectal Cancer Screening: A Randomized Trial. Med Decis Making. 2010

8. Hawley ST, Volk RJ, Krishnamurthy P, Jibaja-Weiss M, Vernon SW, Kneuper S. Preferences for colorectal cancer screening among racially/ethnically diverse primary care patients. Med Care. 2008; 46(9 Suppl 1):S10–S16. [PubMed: 18725820]

9. Ling BS, Moskowitz MA, Wachs D, Pearson B, Schroy PC. Attitudes toward colorectal cancer screening tests. J Gen Intern Med. 2001; 16(12):822–830. [PubMed: 11903761]

10. DeBourcy AC, Lichtenberger S, Felton S, Butterfield KT, Ahnen DJ, Denberg TD. Community-based preferences for stool cards versus colonoscopy in colorectal cancer screening. J Gen Intern Med. 2008; 23(2):169–174. [PubMed: 18157581]

11. Shokar NK, Carlson CA, Weller SC. Informed decision making changes test preferences for colorectal cancer screening in a diverse population. Ann Fam Med. 2010; 8(2):141–150. [PubMed: 20212301]

12. Marshall DA, Johnson FR, Phillips KA, Marshall JK, Thabane L, Kulin NA. Measuring patient preferences for colorectal cancer screening using a choice-format survey. Value Health. 2007; 10(5):415–430. [PubMed: 17888107]

13. Imaeda A, Bender D, Fraenkel L. What is most important to patients when deciding about colorectal screening? J Gen Intern Med. 2010; 25(7):688–693. [PubMed: 20309740]

14. Wunderlich T, Cooper G, Divine G, Flocke S, Oja-Tebbe N, Stange K, et al. Inconsistencies in patient perceptions and observer ratings of shared decision making: the case of colorectal cancer screening. Patient Educ Couns. 2010; 80(3):358–363. [PubMed: 20667678]

15. Ling BS, Trauth JM, Fine MJ, Mor MK, Resnick A, Braddock CH, et al. Informed decision-making and colorectal cancer screening: is it occurring in primary care? Med Care. 2008; 46(9 Suppl 1):S23–S29. [PubMed: 18725829]

16. Hoffman RM, Lewis CL, Pignone MP, Couper MP, Barry MJ, Elmore JG, et al. Decision-making processes for breast, colorectal, and prostate cancer screening: the DECISIONS survey. Med Decis Making. 2010; 30(5 Suppl):53S–64S. [PubMed: 20881154]

17. McQueen A, Bartholomew LK, Greisinger AJ, Medina GG, Hawley ST, Haidet P, et al. Behind closed doors: physician-patient discussions about colorectal cancer screening. J Gen Intern Med. 2009; 24(11):1228–1235. [PubMed: 19763699]

18. U.S. Preventive Services Task Force. [cited 2011 February 25] Recommended Services. 2011. Available from: http://www.uspreventiveservicestaskforce.org/index.html.

19. Yarnall KS, Pollak KI, Ostbye T, Krause KM, Michener JL. Primary care: is there enough time for prevention? Amer J Public Health. 2003; 93(4):635–641. [PubMed: 12660210]

20. Pignone M. Cancer screening in primary care. Are we communicating? J Gen Intern Med. 2001; 16(12):867. [PubMed: 11903768]

21. Elston-Lafata J, Divine G, Moon C, Williams LK. Patient-physician colorectal cancer screening discussions and screening use. Am J Prev Med. 2006; 31(3):202–209. [PubMed: 16905030]

22. Brown J, Stewart M, McCracken E, McWhinney IR, Levenstein J. The patient-centered clinical method. 2. Definition and application. Fam Pract. 1986; 3(2):75–79. [PubMed: 3721098]

23. Stewart, M.; Weston, WW.; Brown, JB.; McWhinney, IR.; McWilliam, CL.; Freeman, TR. Patient-centered medicine: Transforming the clinical method. Thousand Oaks, CA: Sage Publications; 1995.

Table 1

Patient Characteristics (n=415)

Patient Characteristics		**n (%)**
Age	*mean, (stddev)*	58.8 (7.9)
Gender	Female	266 (64%)
Ethnicity	Non-Hispanic/Latino	406 (98%)
Race	Caucasian	272 (66%)
	African American	114 (27%)
	Other	29 (7%)
Education	Less than high school degree	16 (4%)
	High school degree /GED	98 (24%)
	Some college or 2-yr degree	164 (40%)
	4 year college degree	74 (18%)
	More than 4 year college degree	63 (15%)
Income	< $20K	25 (7%)
	$20–<$60K	144 (38%)
	> $60K	209 (55%)

Table 2

Patient rated importance of screening information and proportion that received information from physician (n=415)

Type of Information	**Patients Who Rated Information 'Very Important'**	**Patients Receiving Information** ***(of those who wanted the info)***
Screening Purpose	368/415 (88.7%)	214/368 (58.2%)
Test Accuracy	354/415 (85.3%)	26/354 (7.3%)
Testing Alternatives	346/415 (83.4%)	101/346 (29.2%)
Testing Pros/Cons	356/415 (85.8%)	14/356 (3.9%)
Testing Process	323/415 (77.8%)	323/323 (100.0%)

Table 3

Patient questions raised in the context of CRC screening (n=270 patient questions)

Question Category	Question Topic Definition	Frequency (%)
Screening Logistics		**121 (45%)**
	Questions regarding **scheduling** the screening (i.e. who calls, who to call, when to schedule, appointments are not available on Saturday, referral is needed)	83 (31%)
	Questions regarding **where** does the testing take place	34 (12%)
	Questions regarding **needing a driver** in order to have the colonoscopy	4 (2%)
Screening Process		**79 (29%)**
	Questions regarding the **test process** (e.g. what's involved with the test itself including sedation, pain, polyp removal)	49 (18%)
	Questions regarding **test preparation** (e.g. diet or bowel cleansing)	18 (7%)
	Questions about test **frequency**	8 (3%)
	Questions about anticipated **test results or steps following the test**	4 (2%)
Screening Purpose		**25 (9%)**
	Questions requesting **clarification of test or testing purpose** (e.g. what are stool cards for?, what is that? [colonoscopy], what is it for?, is that for lung cancer?, what is a GI specialist?)	25 (9%)
Screening Alternatives		**12 (4%)**
	Questions about alternative tests (e.g. virtual colonoscopy)	12 (4%)
Screening Risks / Benefits		**6 (2%)**
	Questions about risk for colon cancer	4 (2%)
	Questions about the risk of the test	2 (1%)
Other		**27 (10%)**
	Questions about other conditions and colonoscopy (e.g. diverticulitis, hemorrhoids)	5 (2%)
	Questions / request to delay getting the test	3 (1%)
	Questions seeking physician advice about screening(e.g., "Should I get it?" "which GI specialist do you recommend?")	19 (7%)