Physician and Staff Perceptions of Barriers to Colorectal Cancer Screening in Appalachian Kentucky

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Background: *Data indicate that in 1997 to 1999, only 44% of Appalachian Kentuckians underwent colorectal cancer screening consistent with guidelines. We investigated the reasons for, barriers to, and follow-up of colorectal cancer (CRC) screening recommendations in primary care practices seeing patients from Appalachian Kentucky.*

Methods: *A mixed-methods [qualitative (focus group) and quantitative (survey)] approach was used to gather and analyze data in five primary care practices. A total of 34 participated in the focus groups.*

Results: *In focus groups, physicians and office staff reported a number of indicators for CRC screening; physician, patient, and procedural barriers to CRC screening; and strategies to overcome these barriers to screening. Most physicians used personal experience to guide screening, but it was unclear what was meant by personal experience. Commonly cited patient barriers to screening were fear and embarrassment. Physicians reported several approaches to overcome these barriers, including establishing trust and educating patients. Survey data identified a number of resources to assist practices in promoting screening, most commonly, patient educational materials. Finally, fecal occult blood test was most commonly recommended because it is inexpensive and easy to administer.*

Conclusions: *Our mixed methods approach not only helped to understand the physicians' perceptions of the problems and barriers to CRC screening in Appalachian Kentucky, but also elucidated how practices endeavor to overcome these barriers and identified the additional resources practices would like in order to promote CRC screening.*

Introduction

Colorectal cancer (CRC) is the second-leading cause of cancer-related deaths in the United States and a significant health concern in Kentucky. In 2000, the Kentucky Cancer Registry recorded 945 deaths due to CRC.[1] Furthermore, the mortality rate from CRC is higher for Kentucky residents (23.7 per 100,000) than for residents of the United States as a whole (21.2 per 100,000 for 1996–2000).[1-3] CRC screening prevents cancer through the removal of precancerous polyps and detects cancer at an earlier, more curable stage.[4-6] Many organizations provide recommendations for routine CRC screening. The American Cancer Society (ACS) recommends that men and women 50 years of age and older should undergo an annual fecal occult blood test (FOBT), annual FOBT with flexible sigmoidoscopy (FS) every 5 years, FS every 5 years, or colonoscopy every 10 years.[7] Recommendations notwithstanding, a national survey of CRC screening recommendations by primary care physicians found that approximately 2% never recommended CRC screening.[8] Family practice physicians and internists

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most commonly reported screening with combined FOBT and FS (47% to 55%), while general practitioners most commonly reported screening with FOBT alone (41%). Recommendations for colonoscopy (3% to 9%) or FS alone (0% to 4%) were low. Although physicians report recommending these procedures, it is difficult to know how many of their patients actually do receive such recommendations.

Appalachia

Appalachia is a geopolitically designated, culturally diverse region associated with the Appalachian Mountains encompassing 13 states from New York to Mississippi.[9] Appalachia, particularly the central Appalachian region that includes Kentucky, suffers from higher unemployment, fewer college graduates, higher poverty rates, lower levels of health insurance coverage, greater shortages of health care providers, and underfinanced health services compared to the United States as a whole.[9-13] When considering risk factors for cancer, areas within the Appalachian region report some of the highest rates of obesity,[14] smoking, and physical inactivity.[15] Furthermore, certain cultural factors might serve as risk factors for lack of prevention or late detection of cancer. For example, one study found that most Appalachians believed health status was affected by God's will, while comparatively few believed health status was affected by exercise and nutrition,[16] which may result in less interest in preventive care. According to Shell and Tudiver,[17] providers believed Appalachian patients would frequently not comply with recommended screenings or refuse them altogether due to beliefs that cancer is inevitably fatal or due to religious beliefs advocating the predetermination of health and illness by a higher power. Finally, Appalachians have been described as living day-to-day rather than planning for the future, leading to a lack of appreciation for cancer screening, which leads to a delay in cancer detection, which reinforces present-oriented thinking.[17]

The elevated rates of cancer morbidity and mortality in Appalachia have led the National Cancer Institute to include the region among its special populations.[9,10] Even though Appalachian Kentuckians have a lower incidence of CRC than the rest of the state, this relationship does not hold for mortality: CRC mortality rates in Appalachian Kentucky (23.5 per 100,000) are similar to those of Kentucky as a whole.[1,2] The "catch-up" in CRC mortality in Appalachian Kentucky may be due in part to lower cancer screening rates. According to the 2002 Behavioral Risk Factor Surveillance System (BRFSS), approximately half of US adults (53.1%) and Kentucky adults (51%) aged 50 years and over reported having had either an FOBT within the past year or FS/colonoscopy within the past 10 years. The data are less encouraging for Appalachian Kentuckians; only 44% reported CRC screening consistent with guidelines.[18]

Physician Perception of Barriers

Lack of physician recommendation is perhaps the most frequently noted barrier to CRC screening.[19-22] However, physicians' perceptions of barriers to CRC screening include competing demands such as comorbidity (ie, the patient may have more pressing medical needs),[23,24] inadequate preparation by patients for procedure/compliance, patient fear/anxiety, unpleasantness of procedure (ie, FOBT), cost or lack of insurance, and lack of time, training, and efficacy data.[24-26]

Examining only physician perceptions when analyzing cancer screening recommendations[8,25,27] is problematic because primary care staff members (1) play a role in CRC screening (ie, scheduling, managing charts and, in the case of nurses and physician assistants, actually recommending screening themselves), (2) may have more contact with patients than physicians, and (3) may have different perspectives about CRC screening. A previous study of Appalachian primary care practices in Tennessee found that barriers to general cancer screening as perceived by physicians included time constraints, a belief that patients did not value screening, conflicting guidelines, Appalachian culture, and fatalism.[17] Neither a quantitative assessment nor questions about patient counseling or patient follow-up were included. Further, this study did not focus on any particular cancer.

Additional studies are needed to examine perceptions of CRC screening of primary care practices (ie, physicians, nurses, and office staff) as the population of Appalachian Kentucky has high rates of cancer mortality. Our goal with the current study was to understand the reasons for, barriers to, and follow-up of CRC screening recommendations in primary care practices in Appalachian Kentucky.

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Abbreviations used in this paper: CRC = colorectal cancer, FOBT = fecal occult blood test, FS = flexible sigmoidoscopy.

Methods

Design

A mixed-methods (qualitative and quantitative) approach[28,29] was used to gather and analyze data. A focus group method was chosen to better understand the opinions of the primary care practice as a whole. Further, a survey methodology was chosen to increase participation from primary care office staff. Thus, each individual completed a survey in addition to participating in the focus group.

Participants

Five primary care offices serving rural Appalachian patients participated in the current study. Four of the offices were located in rural Appalachian Kentucky. The fifth office was located in a nearby city. Both the primary care physicians and their staff (nurses, receptionists, assistants, etc) were invited to participate. Ten physicians in the study came from a variety of types of practices: 2 from single-physician practices, 2 from a two-physician practice (including a third-year resident), and 6 from three-physician practices. The remaining 24 individuals included 5 nurses, 1 physician assistant, 16 other office staff such as schedulers and receptionists, and 2 unspecified. All physicians and staff in the relevant practices participated, and all members of a given practice participated together. The total number of participants was 34. The five focus groups ranged in number of participants from 4 to 10. Thirty-four questionnaires were received.

Procedure

Institutional Review Board approval was obtained. The first practice, located in Lexington, was chosen for convenience purposes, as a preliminary test of our methods. The remaining four practices were recruited by a regional cancer control specialist (providing local support for cancer control efforts) with the Kentucky Cancer Program, a community outreach program throughout the state of Kentucky. Practices were selected from the northeast of Kentucky to decrease contamination of a pilot intervention project in the southeastern part of the state.

Qualitative Procedure: Consent forms were distributed and signed before the focus groups began. Focus groups were used to collect qualitative information through group interaction. Using focus groups in this study allowed for more in-depth conversations about primary care practices' perceptions of barriers to CRC screening. A series of questions based on public health literature were used to guide the discussion in groups and expansion around the topic depended on the interaction between the participants. The questions focused on five issues: (1) factors used to decide to recommend screening, (2) perceived barriers to screening, (3) physician counseling for reluctant patients, (4) roles of office staff in screening, and (5) follow-up (Appendix A). The use of a common protocol permitted cross-site examination of the interpersonal and institutional barriers that might mitigate CRC screening. The focus groups were conducted in the conference room at the respective primary care offices. All groups were conducted by the fourth author, a moderator trained in conducting focus groups. A recorder took field notes and operated a tape recorder and reviewed the transcripts against tapes for accuracy.

Quantitative Procedure: Following each focus group, a one-page survey was distributed to physicians and office staff. Survey items focused on the types of CRC screening procedures used, the screenings most commonly recommended, the screenings performed at the physician's office, and the location where screening supplies were purchased. The purpose of the survey was to verify and to augment information collected during focus groups.

Measures: All participants in the focus groups were asked to respond to a questionnaire regarding CRC screening practices. Seven questions were asked, and most questions were open-ended (Appendix B). Most questions were addressed to providers; however, office staff also responded to these questions. Six questions were included in the present analysis. These questions assessed (1) resources that could be added to increase CRC screening, (2) the practice's preferred method for receiving information regarding CRC screening, (3) types and frequency of CRC screening performed, (4) reasons why certain screening options were most recommended, (5) reasons why certain screening options were never recommended, and (6) which CRC screening tests were performed in-house. The seventh question, where FOBT kits were purchased, was not included in this study.

Data Analysis

As a common population was utilized to glean qualitative and quantitative data, a methodological triangulation approach was used.[30] In terms of a model of combining qualitative and quantitative date by Morse,[31] a sequential timing of data analysis was used.[32] Data from focus groups were analyzed qualitatively, and quantitative analysis of surveys was used to enhance, augment, and verify the data gleaned from qualitative, thematic coding. First, a modified grounded theory approach was used[33] for qualitative analysis. Three researchers individually reviewed the transcripts, and the emerging themes were agreed upon by discussion. This was followed by analyses of survey data. Some open-ended responses with similar meanings were collapsed together. Frequencies were computed for most survey responses and tabulated. Means and standard deviations were computed for the importance of each type of screening.

Results

Qualitative Analysis

Five significant themes emerged from the focus groups: screening indicators, strategies employed to encourage patients to comply with screening, patients' personal barriers, health profession barriers, and procedure barriers.

Indicators Used by Physicians for Colorectal Screening: Several physicians noted using guidelines, such as those of the American Academy of Family Physicians and the American Gastroenterologist Association. One third-year resident reported, "I did a rotation with a gastroenterologist, and I think the American Gastroenterology guidelines…, the literature that I have read, American Family Physicians, and then also discussing with my colleagues… those things influence my decision." However, some more established physicians debated the usefulness of guidelines, relying on their own personal experience. For example, one physician noted, "The guidelines are changing, okay. So, I think we have our own personal guidelines." Another physician noted the importance of combining guidelines and personal experience, "It is that [personal experience], plus the guidelines also. Because if the patient is totally asymptomatic… we have to start screening them with stool cards."

The most often cited indicators for using CRC screening were patient symptoms and family history. As one physician stated, "If their hemoccults are positive, or if they present with a history of melanoma, or if they are having unexplained weight loss or a declining hemoglobin, and I can't find the source, [those are] all reasons why I would refer." However, one physician noted that when symptoms are present, CRC tests are for diagnosis (rather than screening), "By the time they come in with belly pain and rectal bleeding it is really kind of a given that you are going to do that [CRC testing]. And that's not screening — that's just taking care of a medical problem."

Physician Perceptions of Patients' Personal Barriers: Patient barriers included fear, lack of knowledge, other life/health situations, and other personal feelings. According to physicians, the greatest patient barrier to screening is fear of diagnosis. "I think that subconsciously they are afraid they are going to find something wrong. They won't tell you that 'I don't want to be screened because I am afraid you will find cancer and if I have cancer I don't want to know about it.'" Similarly, patients may fear screening procedures and accompanying discomfort, "I think one is just fear of the procedure. They have said, 'Oh, my friend told me how terrible that was. They have done that before and it was uncomfortable.'" Lastly, patients may fear treatment. "I think that the people who say they don't want to know if they have cancer are actually afraid of the cancer treatment more than not really wanting to know if they have the disease."

Another reported barrier is lack of knowledge or understanding of the importance of cancer screening. Specifically, patients may not understand asymptomatic diseases. One participant reported, "They have a real hard time understanding that because they don't have any problems they still need to be tested for this disease." Similarly, one staff member stated, "They just don't understand what the procedure is and why we are doing it, which is unfortunately true in a lot of patients." Further, participants indicated that other life demands take precedence over CRC screening, such as a patient's poor health or other acute problems. Physicians also indicated that family concerns and work schedules were impediments to screening. Another difficulty for patients was having the resources to pay for the procedure. "Patients are concerned about their own personal cost after insurance pays for these exams."

The most commonly cited barrier was patient embarrassment. As one participant reported, "I think we get a lot of resistance from embarrassment, even doing the stool hemoccult cards. They are embarrassed to actually do it, bring it in, [and] give it to the people." Another said, "Embarrassment, I think is a reason. I think that a lot of people don't want to have a digital rectal examination." Other barriers listed were denial and distrust of physicians.

Medical Profession Barriers: Participants noted limited physician time and high patient volume as two barriers to CRC screening. As one physician stated, "It depends on how backed up I am. If I don't feel pressured by a room full of waiting people I'll spend more time to try to talk them into [screening]." Another physician noted, "We see over 100 patients a day, and time is a factor. You don't always have 10 minutes to sit down and explain the risks and encourage the patient to get the test." Another physician added, "I think the barriers are more us not mentioning it to the patient rather than the patient not accepting it." This physician also indicated that poor documentation and charting within the office often means that patients are not screened.

Respondents also indicated that treating more acute illnesses is often the priority for them. As one physician stated, "Sad to say, sometimes it is a real busy day and they are here for something completely unrelated for an acute care appointment. Then, they are here for a sore throat and they feel like crap and they have a temperature of 102. This is not really when they want to talk to me about getting their screening colonoscopy done." Another noted, "I have a patient who is in and out of the hospital with heart failure and things like that and he has never been screened for colon cancer… I'll say what we are going to accomplish right now because they have got so many other problems."

Another barrier they cited is insurance reimbursement and precertification. One respondent noted that patients must "have a strong family history or some serious problems, symptoms" in order for insurance to pay for the procedure. Some office staff reported delaying screenings until insurance, Medicaid, or Medicare agreed to the procedures. Several participants reported that primary care offices lack the capacity to perform different tests and have limited access to equipment, which means they must refer out. When referring out, some specialist physicians require a consultation requirement. As one respondent reported, "Here the gastroenterologist prefers to see their patients prior to doing the procedure… so it requires a consultation visit, then a follow-up visit, and so I think it is one more barrier."

Barriers Posed by Screening Procedure: The most commonly reported screening procedure barrier was the preparation requirements. As one respondent noted, "It's usually the prep. They tell me the prep makes them so sick they can't stand it." Another common barrier was the invasiveness of the procedures, particularly for Appalachians. One physician reported, "There is somewhat of a cultural barrier about having a sigmoidoscopy in the first place. I mean it is more invasive. It's a lack of privacy. It's not sort of something that people are terribly familiar with." Physicians also mentioned that male patients were uncomfortable with digital rectal examinations. Female practitioners indicated that they often had to reschedule digital rectal examinations of male patients at a time when the male physician was available: "I know my experience; men don't like to talk about it [CRC screening] with a woman."

The use of anesthesia was listed as a deterrent for some patients. One physician reported, "They just don't like the thought of going to sleep. They have never had anesthesia before." Another physician noted patient discomfort during screening and the painfulness of FS as a deterrent to colonoscopy, "It is not an easy test, and most patients have either had experience or they had a family member with experience, and sometimes they confuse the sigmoidoscopy, which is very painful, to a colonoscopy, which is usually painless because they are anesthetized." Perforations and bleeding risks were also listed as barriers.

Strategies to Encourage Patients to Receive Screening: Strategies to encourage patient compliance with a CRC screening recommendation included education, interoffice procedures, patient-physician interaction, and patient resources. The most commonly reported strategy was educating patients about CRC and the purpose of screening. For example, one physician stated, "You try to explain why the procedure is recommended and ask why (their reasons) they don't want to have the procedure. And explain by those reasons like fear of pain… You explain they are going to be asleep or they won't feel it." Office staff indicated they discuss risks and benefits of CRC screening and explain the procedure in detail. Several respondents indicated that they attempt to educate patients about the benefits of being focused on prevention. One office handed out patients informational brochures.

Procedural issues — eg, a tracking system that reminds office staff to follow-up with patients about screening and results — were important. All respondents indicated chart documentation is key. Respondents also reported sending reminder letters to patients. Office staff said they scheduled screening appointments for patients and contacted the screening physician prior to and after the procedure date. Further, procedures to address specific screening-related barriers were also considered. Office staff provided tips on the preparation stage for colonoscopy, such as drinking a carbonated beverage. One physician shared a successful approach in his practice: "The best thing to do on the preps that we have found over the years is… if they are going to have a colonoscopy next week we tell them to slow down their eating, if it's not in you don't have to get rid of it. The old GoLYTELY stuff, we no longer do that. We use Fleet's phosphate."

Physicians also relied on the strength of their relationships with their patients, indicating that trust was imperative. For example, in describing his experience as a physician in a rural Appalachian community doing cancer screening and the importance of trust (and early distrust) in his practice, one physician noted, "Trust handles a lot of these things. I have been here 30+ years. When I first came to town, I was the 'dirty young doctor who did Pap smears' because nobody did Pap smears. 'You go in with a sore foot and Dr. X [referring to himself] wants to do a Pap smear.' That's gone, I mean Pap smears and mammograms are a way of life. And so too will be colon screening. There has been a lot of improvement in colon screening with endoscopies. But it is trust — like the guy that Dr. Y [another physician in the focus group] is talking about — sooner or later that guy is going to trust him, and he is going to get a scope test."

Another strategy used was simply repeatedly asking patients to be screened. As one respondent noted, "You just keep mentioning these little things. Nagging!" One physician said he used humor to alleviate fear. Another stated that he explained a positive test result is not likely cancer. Many staff members reported encouraging patients to use family members as resource persons for instrumental, emotional, and financial support. One physician indicated that he encourages his patients to do their own research on the benefits of CRC screening.

Quantitative Analysis

Survey responses to the six questions and frequencies for each response are included in the Table.

Resources to Increase CRC Screening: Physicians and office staff most frequently responded that reminders would be helpful to ensure that eligible patients received CRC screening. Patient information was the second most frequently cited resource to increase CRC screening. However, when this resouce was combined with other specific types of patient information, such as videos, posters, and brochures, the category of expanded patient information (patient information plus videos, posters, etc) was the most frequently endorsed resource needed to increase CRC screening. One office staff member noted that ever-changing patient contact information posed problems for follow-up, and a resource that could track patients would be helpful.

Preferred Method for Receiving Additional Information: The most commonly cited method for receiving additional information was via mail. One participant noted enjoying the opportunity to speak about CRC in the form of group discussion and suggested this as a method for receiving additional information. For others, the focus remained on patient intervention, with communication being requested in the form of patient information.

Types of CRC Screening: Participants most frequently reported that stool guaiac (ie, FOBT) was the most recommended form of CRC screening. On the other hand, participants most frequently reported that they rarely or never recommended FS. Other screening options included referral to a specialist; however, this was endorsed by only one participant.

CRC Screening Offered In-House: Stool guaiac was the most commonly reported CRC screening test performed in-house. Dual-contrast barium enema and colonoscopy were the least commonly performed CRC screening tests performed in-house. Although FS was rarely recommended, 12 participants reported FS capabilities in-house.

Reasons for Recommending Screening: Participants included a number of reasons why particular screening tests were endorsed over others. One was convenience/ease. This most frequently corresponded

Table. — Survey Responses Regarding Colorectal Cancer Screening and Primary Care Practices Serving Rural Appalachians*

Resources and Method of Delivery

Resources to Increase Colorectal Cancer Screening	Posters 2 (5.71%)	Brochures/ pamphlets 4 (11.43%)	Patient information 6 (17.14%)	Communication tools 5 (14.29%)	Meetings/ presentations (workshops, health fairs) 3 (8.57%)	Technology (videos) 1 (2.86%)	Contact information (patients) 1 (2.86%)	Prompts (reminders, chart feedback) 12 (34.29%)	Other locations 1 (2.86%)
Preferred Method for Receiving Additional Information	Posters 1 (3.57%)	Brochures/ pamphlets 4 (14.29%)	Patient information 2 (7.14%)	Communication tools 2 (7.14%)	Meetings/ presentations (group discussions, conferences) 2 (7.14%)	Technology (CD-ROM) 1 (3.57%)	Contact (mailings, e-mails) 10 (35.71%)	Written materials (guidelines, bulletins, literature) 6 (21.43%)	

Reasons Why a Particular Screening Method Was or Was Not Recommended

Reasons Why Screening Was Recommended	Comfort (less uncomfortable) 2 (4.44%)	Quality (quality better than clinical exam, information generated) 13 (28.89%)	Complications (not invasive, low risk) 4 (8.89%)	Patient acceptance 2 (4.44%)	Convenience (convenience, in-house) 16 (35.56%)	Treatment 2 (4.44%)	Time frame 1 (2.22%)	Preliminary step 1 (2.22%)	Cost 3 (6.67%)	Guidelines 1 (2.22%)
Reasons Why Screening Was Not Recommended	Comfort (discomfort) 2 (28.57%)	Quality (not thorough, miss right-sided tumors) 3 (42.86%)	Not my job 1 (14.29%)	Decrease future screening 1 (14.29%)						

Screening Importance and Availability

Type of Screening:	Other Specialists	Colonoscopy	Dual-Contrast Barium Enema	Digital Rectal Examination	Fecal Occult Blood Test	Stool Guaiac	Sigmoidoscopy
Importance** Mean (SD)	2.00 (1.14)	3.35 (.83)	2.23 (.69)	3.50 (.78)	3.12 (1.13)	3.38 (1.06)	2.26 (.81)
Available in-house	—	1 (1.56%)	1 (1.56%)	18 (28.13%)	12 (18.75%)	20 (31.25%)	12 (18.75%)

* The numbers listed in the table represent the number of responses to each question.
** Range: 1 (not important) to 4 (important)

to stool guaiac or FOBT. Quality of test (including sensitivity) was endorsed by 6 participants.

Reasons for Not Recommending Screening: Participants identified a number of reasons why particular screening tests were not recommended as compared to others. Two physicians reported patient discomfort as a reason why they did not endorse a particular screening test. One participant cited that the reason why he did not recommend barium enema was that it would decrease future screening. The participant did not explain this comment; however, barium enema might decrease screening due to the unpleasantness of the procedure.

Discussion

This mixed-methods study examined barriers to CRC screening in primary care practices. In focus groups, physicians and office staff reported a number of indicators for CRC screening; physician, patient, and procedural barriers to CRC screening; and strategies to overcome barriers to screening. Consistent with a previous qualitative study of general cancer screening in Appalachia,[17] guidelines were an area of concern. Physicians seemed to debate the importance of guidelines in contrast with personal experience. However, it is unclear what physicians meant when they referred to using their personal experience. Further, they agreed that CRC tests were needed when symptoms were present, but some physicians acknowledged that this was diagnostic rather than screening. It appears that screening is done selectively for those with symptoms (in which case it is actually diagnostic) and for those with family history. However, as many as 75% of CRC cases occur in individuals with average risk,[34] and thus family history is not a good indicator of those needing screening. General population screening is needed.

A variety of barriers were noted as reasons for not screening. Consistent with prior research, fear and embarrassment were perceived as patient barriers to screening.[25,26] Physician/practice barriers included limited time, more pressing medical concerns, and reimbursement issues. Since many rural Appalachians lack insurance that covers CRC screening and some lack insurance to even go to the doctor,[13] reimbursement issues may be the most difficult for researchers to overcome. Procedural barriers to screening included preparation required for some types of screening, anesthesia for colonoscopy, and pain or discomfort from FS and barium enema. Focus groups also revealed a number of ways in which physicians endeavored to overcome these barriers by developing trust, easing preparation for screening, establishing follow-up procedures, and educating patients about screening. Participants admitted these efforts were met with mixed success.

Survey data identified resources to assist practices in promoting screening. Many of these resources focused on patient education such as videos, posters, and brochures. The patient education resources mentioned required minimal practice involvement. Hence, it appears that practices may want patients to initiate discussions about CRC screening rather than taking the time to encourage their patients to screen. Consistent with this, some noted that reminder systems were needed. In addition, practices desired more knowledge and information about how to encourage patients to screen. For example, some noted that communication tools and workshops were needed to promote CRC screening. Practices would like communications about CRC screening via mail. Some preferred communications via more recent technology including e-mail and CD-ROM. However, a number of participants desired communications about CRC screening to go directly to patients.

Prior research indicated that FOBT was the most commonly recommended form of CRC screening[8]; however, stool guaiac was not presented as an option. Instead, Klabunde et al[8] differentiated between office-based and home-based FOBT. As our focus groups were conducted before the availability of the data and methods of Klabunde et al,[8] community-based members of our research team believed that Appalachian primary care physicians would understand "stool guaiac" to mean an office-based FOBT, but in most cases stool guaiac is synonymous with FOBT. Our sample reported stool guaiac was the most frequently recommended procedure. The FOBT was also frequently recommended, but it was less frequently endorsed than stool guaiac. We are uncertain if participants in our focus groups viewed the stool guaiac and FOBT as two unique procedures, with stool guaiac being an office-based test and FOBT being a home-based test as we had intended, or if some physicians were more familiar with the terminology stool guaiac than FOBT. This, along with limited demographic data on participants and lack of information on individuals who do not go to primary care practices for treatment, is a limitation to our research and merits further study.

Digital rectal examination (DRE) was also commonly recommended. DRE is not included in guidelines for CRC screening from the American Cancer Society, the United States Preventive Task Force, or the American Gastroenterological Association.[34-37] Practices reported preferences for CRC screening methods that were convenient, inexpensive, low risk, acceptable to patients, and capable of being performed in-house. These characteristics are consistent with stool guaiac, DRE, and FOBT. Although prior research found FS was more commonly recommended than colonoscopy in other populations,[8] FS was the least commonly recommended screening procedure in our sample. FS was even less commonly endorsed than double-contrast barium enema, the latter questioned for its screening efficacy.[38]

Rather than FS, physicians seemed to prefer colonoscopy; although practices were more likely to have FS available in-house. Apparently, physicians preferred colonoscopy to FS as colonoscopy is less painful, is less likely to deter future screening, and provides more information.

Conclusions

Our mixed-methods approach not only helped to understand problems and barriers to CRC screening but also elucidated how practices endeavor to overcome these barriers and which additional resources practices want in order to promote CRC screening. Approaches to promote CRC screening in primary care practice should require little time and effort from physicians and office staff and should address patient fear and embarrassment in a culturally sensitive manner. In addition, CRC screening tests will be more acceptable if they can be performed in-house, require little patient preparation, yield high-quality (eg, sensitive) information, are not painful or uncomfortable, and are affordable. Further, in rural Appalachian practices, patient trust and persistence based on long-standing relationships are critical to promoting CRC screening as well as other types of cancer screening.

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Appendix A. — Focus Group Guide

1. Please tell us your first name, your position, and how long you have worked in this office. **(3 minutes)**

2. Tell us your individual role in colorectal cancer screening (eg, billing, performing the test, referrals).

(5 minutes)

3. What factors influence your decision to recommend colorectal cancer screening (eg, published guidelines, medical journals)? **(3 minutes)**

4. Usually, when patients tell you they do not want to be screened, what are the reasons for their unwillingness (eg, fear of procedure, fear of diagnosis, lack of knowledge, not convinced of reliability of test, financial reasons)?

(10 minutes)

5. Think back to a patient to whom you have recently recommended colorectal cancer screening who is unwilling to get screened. Typically what happens in those situations? How do you deal with a patient's unwillingness to get screened? Have you been successful in changing their attitudes? **(10 minutes)**

6. Describe a situation where preventive measures, such as colorectal cancer screening, have not been recommended or postponed due to patient barriers such as age, income, other health issues or mental status.

(10 minutes)

7. For the office staff: what role do you play in ensuring that eligible patients receive colorectal cancer screening (eg, chart markers, arranging referrals)? **(5 minutes)**

8. How do you ensure that patients who have been referred for screening (flexible sigmoidoscopy, colonoscopy) follow through with the procedure? **(5 minutes)**

9. Our purpose for this discussion was to identify key issues (Appalachian) faced by primary care practices regarding colorectal cancer screening. Have we missed anything? Is there anything you would like to add to today's discussion? **(5 minutes)**

10. How do you ensure that patients who have been referred for screening (flexible sigmoidoscopy, colonoscopy) follow through with the procedure? **(5 minutes)**

11. Our purpose for this discussion was to identify key issues (Appalachian) faced by primary care practices regarding colorectal cancer screening. Have we missed anything? Is there anything you would like to add to today's discussion? **(5 minutes)**

Appendix B. — Survey

Please complete the following questions and return them to the moderator before you leave. Thank you for your time.

1. What resource(s) could be added to your practice to ensure that more eligible patients receive colorectal cancer screening? *Examples: reminder system, audit and feedback of medical charts, patient communication tools for use during medical encounter, workshop on colorectal cancer screening.*

2. What would be your preferred method for receiving additional information on colorectal cancer screening?

PROVIDERS

3. For each of the following colorectal cancer screening procedures, tell us how often you recommend the procedure to your asymptomatic, average-risk patients.

1 MOST recommended
2 SOMETIMES recommended
3 RARELY recommended
4 NEVER recommended

_____ Flexible sigmoidoscopy
_____ Stool guaiac
_____ Fecal occult blood test (FOBT)
_____ Digital rectal examination
_____ Double-contrast barium enema
_____ Colonoscopy
_____ Other:

4. For any of the answers you chose as "most recommended" (1), please tell us why you prefer this screening option.

5. For any of the answers you chose as "never recommended" (4), please explain why you do not use this screening option.

6. Which of these tests is performed in-house?

7. Where do you buy your testing supplies (ie, FOBT kits)?