



Published in final edited form as:

*J Cancer Educ.* 2015 June ; 30(2): 294–300. doi:10.1007/s13187-014-0733-8.

## Patients' Perceptions of Colorectal Cancer Screening Tests and Preparatory Education in Federally Qualified Health Centers<sup>1</sup>

Dr. Clement K. Gwede, PhD, Dr. Alexis M. Koskan, PhD, Dr. Gwendolyn P. Quinn, PhD, Dr. Stacy N. Davis, PhD, Ms. Jamila Ealey, MS, Ms. Rania Abdulla, MS, Dr. Susan T. Vadaparampil, PhD, Ms. Gloria Elliott, RN, Ms. Diana Lopez, RN, Dr. David Shibata, MD, Dr. Richard G. Roetzheim, MD, Dr. Cathy D. Meade, PhD, and the Tampa Bay Community Cancer Network (TBCCN)

Moffitt Cancer Center, Division of Cancer Prevention and Control (Drs. Gwede, Quinn, Davis, Vadaparampil, Shibata, Roetzheim, and Meade; Ms. Ealey, Abdulla); University of Miami School of Nursing and Health Studies (Dr. Koskan); University of South Florida, College of Medicine (Drs. Gwede, Quinn, Vadaparampil, Roetzheim, Meade); Tampa Family Health Centers (Ms. Elliott); Suncoast Community Health Centers, Inc. (Ms. Lopez)

### Abstract

**Background**—This study explored federally qualified health center (FQHC) patients' perceptions about colorectal cancer screening (CRCS) tests, including immunochemical fecal occult blood tests (iFOBT), as well as preferences for receiving in-clinic education about CRCS.

**Methods**—Eight mixed-gender focus groups were conducted with 53 patients.

**Results**—Findings centered on three thematic factors: 1) motivators and impediments to CRCS, 2) test-specific preferences and receptivity to iFOBTs, and 3) preferences for entertaining and engaging plain language materials.

**Conclusion**—Results informed the development of educational priming materials to increase CRCS using iFOBT in FQHCs.

### Keywords

colorectal cancer; screening; health education

### Introduction

Colorectal cancer (CRC) is the third most commonly diagnosed cancer and the third leading cause of cancer death among men and women in the United States (U.S.). Estimates suggest there were 143,460 new cases and 51,690 deaths attributed to CRC by the end of 2012 [1]. Despite the availability of various CRC screening (CRCS) options, half of all U.S. adults

<sup>1</sup>This manuscript was supported by a grant, U54 CA153509, from the National Cancer Institute. Its content is solely the responsibility of the authors and does not necessarily represent the official views of the National Cancer Institute. The authors have no conflicts of interest to disclose.

Correspondence: Clement K. Gwede, Ph.D., MPH, RN, Moffitt Cancer Center, 12902 Magnolia Drive, MRC-CANCONT, Tampa, FL 33612, Clement.Gwede@Moffitt.org.

age 50 years and older are not up-to-date with the national screening guidelines [2]. CRCS tests are especially underutilized among at-risk vulnerable groups (i.e., medically underserved, racial/ethnic minorities, recent immigrants), and groups with low socioeconomic status [3, 4]. As such, nurses and other clinicians are at the forefront of efforts to promote CRCS among many vulnerable and at-risk groups, especially patients receiving care in federally qualified health centers (FQHCs) and other safety net community-based primary care clinics. Given the growing national imperative to improve CRCS, a critical challenge remains to develop effective patient-centered and clinic-based strategies to improve screening rates in FQHCs using tests that are most accessible to this population.

The American Cancer Society and the U.S. Preventive Services Task Force recommend that asymptomatic adults at average risk for CRC begin screening at age 50 years, utilizing a variety of options which include but are not limited to the following: 1) a colonoscopy every 10 years, and 2) annual fecal occult blood test (FOBT) or high sensitivity immunochemical fecal occult blood test (iFOBT) which is also known as FIT, fecal immunochemical test [5, 6]. Whereas the traditional FOBT requires the patient to collect stool samples from three different bowel movements, the iFOBT, a similar but more sensitive screening test that detects hemoglobin in stool samples, only requires one sample and has no dietary restrictions [7]. The sampling procedure is relatively simple, making it a more patient-friendly procedure compared to guaiac-based or other forms of FOBT [8–10]. Although colonoscopy is considered to be the most thorough screening test, FOBTs/iFOBTs have strong evidence of clinical effectiveness [11], and have been shown to lead to a 30% reduction in CRC mortality and a 20% reduction in CRC incidence with acceptable cost-effectiveness [12–15]. As a first line strategy, this easy-to use screening modality may offer a promising way to reach those patients who already face a number of impediments to timely health care.

A number of reported impediments to CRCS have been previously reported which include lack of provider recommendation [4, 16], patients' lack of perceived need to screen [16, 17], financial barriers [4], and attitudes towards CRCS tests [17, 18]. While these CRCS impediments have been identified for the general population, less is known about CRCS inhibiting factors among patients who receive care in FQHCs. To reduce screening disparities, it is critical to explore FQHC patients' CRCS preferences and behaviors. It is important to further understand these patients' perspectives about test-specific factors that facilitate or preclude use of the two most commonly used tests in FQHCs such as high-sensitivity FOBTs and colonoscopy [19, 20]. Such data can inform the development of more effective communication strategies for clinicians involved in making CRCS recommendations in FQHCs [21, 22]. This study explored perceptions (motivators and impediments) related to obtaining CRCS (specifically iFOBTs and colonoscopies) and preferences for receiving in-clinic education among patients who receive care in FQHCs.

## Methods

### Sample

This qualitative study was conceptualized, designed, and implemented within the context of a larger ongoing community-based participatory project which is part of a National Cancer Institute-funded Community Network Program Center. This center aims to reduce cancer disparities among medically underserved populations in three southwestern Florida counties [22]. Purposive sampling techniques were utilized to recruit participants for focus groups. The intended participants were a racially and ethnically diverse sample of adult male and female FQHC patients between ages 50 and 75 years old who were at average-risk and asymptomatic for CRC. The study team partnered with providers working in FQHCs to recruit the study sample via informational flyers posted in the clinics. Respondents were eligible for the study if they met the following criteria: 1) received care in a partnering FQHC, 2) were between 50 and 75 years of age, 3) could speak, read, and write in English (a separate Spanish language pilot project is underway), and 4) had no previous CRC diagnosis. To include the vast range of personal experiences with CRCS, patients were eligible for the study regardless of whether or not they were current for CRCS based on the national CRCS guidelines. Individuals who met eligibility criteria were asked to complete both a written informed consent and a demographic survey.

### Instrumentation and Data Collection

The focus group guide was developed based on previous published studies and contributions from community stakeholders, including FQHC providers [23, 24]. The goal of the focus groups was to assess the following information about FQHC patients: 1) perceptions of factors that impede or motivate CRCS uptake, 2) awareness and receptivity of CRCS options and test-specific perceptions, and 3) preferences for future in-clinic CRCS preparatory education. Due to the shared recruitment context (FQHCs) of the participants, groups were not segmented by race/ethnicity or by gender as it was expected there would be common shared experiences among patients receiving care in this setting. Between May and July 2011 researchers conducted eight focus groups with a total of 53 adults (five to eight participants per focus group). Overall, 76 age-eligible men and women responded to flyers or were approached by master's prepared research assistants to participate in the study. Twenty-three individuals did not participate in focus groups due to time constraints and inability to find a suitable date to attend a focus group.

The audio-taped focus groups were conducted by two behavioral scientists with extensive experience as focus group moderators. Sessions ran approximately 1.5 hours, and participants received a \$25 gift card for their participation. Focus groups were audio-recorded and transcribed verbatim by a professional transcription service. The University of South Florida Institutional Review Board approved this study.

### Data Analysis

Using content analysis and constant comparison techniques for qualitative data analysis, transcripts were coded and analyzed by three Ph.D.-prepared researchers who have extensive experience conducting qualitative content analyses. These researchers read

through all transcripts to create an initial codebook based on a priori codes from the interview questions. The same researchers independently hand-coded two focus group transcripts with the initial code list, and created and refined additional codes based on team discussion aimed at resolving any possible coding discrepancies [25, 26]. Upon reaching optimal interrater agreement (95%) on the themes and subthemes derived from the data, researchers coded the remaining focus group transcripts and entered codes into ATLAS.ti software for organizational purposes [27]. Participant demographic information was entered into SPSS, Version 19 [28], and researchers calculated frequencies and means of patients' demographic information.

## Results

A total of 53 patients participated in eight focus groups (Table 1). The mean age of participants was 56.7 (SD = 6.0), and approximately half were female (51%). The majority of participants were Black (n=22, 41.5%), followed by White (n=19, 35.8%), Hispanic (n=7, 13.2%), and "other" (n=5, 9.4%). Slightly more than half of the participants (55%) had a high school diploma or less. Of the 53 participants, only 22 (41.5%) were up-to-date on their CRCS.

Three important themes were evident among participants' responses: 1) motivators and impediments to screen for CRC, 2) test-specific perceptions and preferences about iFOBTs and colonoscopies, and 3) preferences for future in-clinic CRCS educational materials.

### Motivators to CRCS

Facilitators (motivators) and impediments to screen for CRCS were identified at the intrapersonal, interpersonal (i.e., physician recommendation), environmental (i.e., media), and health systems levels (See Table 2). Patients generally agreed and were aware that early detection and prevention were the key motivators for obtaining CRCS. One respondent described relief after receiving normal results of a CRCS test. *"I could breathe reassuringly and know, for a fact, that I do not have colon cancer."*

Intrapersonal motivators to screen for CRC included age and having a close friend or family member who had CRC. The two most commonly reported interpersonal motivators to seek CRCS were provider recommendation and family encouragement. Patient motivation was highest when their physicians strongly recommended CRCS and also provided detailed information to proceed with testing.

*"I think the doctors are too lenient on a person when it comes to letting a person know they need to get screened. They need to say, 'You really need this. This is important. You really, really need to be checked.' I believe that doctors should stress how important it is to check for that cancer."*

Many participants described how the media promotes CRCS. For example, billboards, commercials, newspaper articles, and other media outlets influenced them to seek testing. One participant described how he received information about CRC through various forms of media: *"I got my information [about CRC] through commercials, ads [advertisements], and a pamphlet..., stuff that I happened to be reading."*

## Impediments to CRCS

Lack of both the perceived need to screen and provider recommendation to screen for CRC was the two most commonly cited impediments to CRCS. Many participants neither realized that all adults over the age of 50 are recommended to screen for CRC nor knew the risk factors for developing the disease. One female participant thought she did not need to screen for CRC, believing that only men were at risk for this specific type of cancer. Some patients also reported lack of healthcare providers' recommendation to obtain CRCS. *"The doctors don't bring that one up to some patients."*

Other intrapersonal barriers to CRCS utilization included fear of receiving a cancer diagnosis as well as the CRCS procedures (i.e., bowel preparation for colonoscopy, receiving anesthetics or sedation). *"It is a scary thought in your mind [to have a cancer diagnosis], and it seems like once you hear that you might have it and you are testing for it, it puts you in a depressed state."* A few patients who had a previously undergone a colonoscopy described their discomfort with the preparation, such as the inconvenience of planning transportation for the colonoscopy, the dietary preparation, and the use of anesthetics during the procedure.

At a systemic level, lack of health insurance and the cost of screening were other barriers to screening for CRC. One patient noted, *"For people who don't have insurance --- they can't get the exams."* Another patient described how even if he screened for cancer and found it at an early stage, he would have difficulty paying for the treatment.

## Test-Specific Perceptions and Preferences

When participants were asked if they had been previously screened for CRC, one individual reported a prior CRCS test but then described a CAT scan, thus incorrectly differentiating between CRCS and other medical tests. Participants were shown photos and an actual iFOBT test kit, and the focus group moderators described how to use this particular screening test during the focus groups. After providing this explanation, moderators asked participants about their willingness to use an iFOBT (FIT) and also a colonoscopy to screen for CRC. Most participants stated their preference to screen for CRC using an iFOBT due to its less invasive nature as compared to a colonoscopy. *"It sounds like that (iFOBT/FIT) would really be a lot easier than getting put out, going to sleep, and getting invaded."* Another participant noted, *"It's easy. I have one every year. It seems to be a lot easier."* The majority of participants believed the iFOBT was easy to use and enhanced privacy since the test could be completed at home. While the majority of participants felt the iFOBT was a more convenient method of testing for CRC, others felt collecting stool samples was unsanitary. One patient noted that without prior physician recommendation to complete a home stool test, he would not want to handle the stool. *"It is unsanitary... putting your hand on that. That will just get me, especially if my doctor had not mentioned I would have to do this."*

Many participants discussed negative aspects of colonoscopies, which include the anticipation of pain/discomfort, preparation involved (i.e., fasting, dietary restrictions), and fear of the procedure. Although both male and female participants agreed CRCS was critical

to their health, men reported hesitation about receiving a colonoscopy, believing the procedure was embarrassing and invasive. *“I don’t have any aversion to any needles or tests, but when you go prodding back there...nobody goes prodding back there. I don’t even go prodding back there.”* Participants described reservations about having a doctor “go down there” (i.e., rectum), and some men considered the procedure to be a threat to their masculinity and sexuality. *“I’ve heard some men say that they are going to turn gay with that test.”* Other participants believed undergoing a colonoscopy was “no big deal” since in past medical experiences they were administered anesthesia and slept through the procedure.

### **In-Clinic Patient Preparatory Education**

When asked about the best format for future in-clinic CRCS education, participants confirmed their preference for a video/DVD format with a supplemental informational pamphlet. For the video, participants preferred a physician to serve as the narrator and featured expert. They requested the physician provide facts about CRC, the need for CRCS, and detailed instructions and processes of CRCS tests, particularly of the FOBT. Participants also wanted a video that was both engaging and entertaining, one that would grab their attention about CRC and CRCS. Overall, they preferred messages presented in a “lighter tone” as opposed to using fear appeals. For the informational pamphlets, participants preferred the use of pictures, particularly those demonstrating friends and familial support of the decision to screen for CRC. They emphasized the importance of clear and plain language in both the video and the informational pamphlet.

### **Discussion**

Researchers assessed patients’ perceptions about factors that both motivate and impede CRCS uptake, perceptions of CRCS, and preferences for in-clinic CRCS educational materials. Overall, most participants were not knowledgeable about actual CRC risks factors. Results also revealed negative perceptions of colonoscopy and FOBT tests, which, similar to past research, included dislike of test preparation [29], test affordability and lack of health insurance [30], perceptions that CRCS tests are invasive and uncomfortable [31], and embarrassment related to CRCS procedures [32, 33].

In this study, the most commonly cited barriers for any test included lack of health insurance, lack of perceived need to be screened, lack of provider recommendation, and fear of the abnormal results leading to a cancer diagnosis. Two important motivating factors for getting screened were the benefits of early detection and the importance of known risk status (such as family history). Taken together, these findings regarding motivators and impediments are well aligned with the literature [4, 16, 17, 18]. New findings in this study include participants’ overall positive receptivity to the iFOBT, a relatively new screening test. Due to its convenience and ease of use, as well the need to prepare one, not three, stool samples, the iFOBT was considered to be more user-friendly and acceptable compared with the traditional FOBT.

Respondents demonstrated general support for receiving information about the need for CRCS, test procedure, accuracy, availability, and the importance of undergoing CRCS. They wanted the educational materials to feature physicians as the main focal point for delivering

the screening message. Similar to past research, they acknowledged that healthcare provider discussion and encouragement to screen for CRC was one of the more influential methods to encourage CRCS [4, 16, 21]. There was significant endorsement for in-clinic preparatory education as a way of empowering patients with information to increase receptivity and follow up with screening recommendations. When taken together with data from healthcare provider interviews in the FQHC setting [22] and other published literature [34, 35], our findings suggest an important opportunity to enhance patient education materials by focusing on a test-specific strategy, particularly iFOBT/FIT as an initial modality for improving screening rates among medically underserved populations in FQHCs. Participants also preferred clearly communicated, easy-to-understand health education materials. These findings reinforce the attention that should be placed on health literacy and CRC communications [36], as well as on actionable health information as purported in the Health Communication and Information Technology objectives reported in Healthy People 2020 [37].

When considering the limited availability of colonoscopies in FQHCs combined with the reported fear or concerns about the colonoscopy procedure, our study supports the need for health care strategies that capitalize on the patient-preferred and non-invasive iFOBT as an initial screening option. Our data suggests that both positive and negative test-specific perceptions should be addressed in patient-centered educational materials. It is important to address the perceived value and ease of use of iFOBT, while at the same time reminding patients about the importance of following up with colonoscopies when providers recommend them.

The current findings support the potential feasibility of preparatory patient education, and reinforce the idea of capitalizing on teachable moments in the clinic setting. Physicians, advance practice nurses, physician assistants, staff nurses, and other primary care providers in FQHCs are ideally situated to educate and recommend CRCS tests and follow-up among their patients. Awareness of patients' test-specific preferences may also facilitate communications for encouraging test utilization to improve screening rates. Patients' high receptivity to the readily available and affordable iFOBT is an important diagnostic tool which health providers can use to improve CRCS among medically underserved populations. Most importantly, these findings demonstrate the critical need to create and test educational messages paired with newer CRCS test (iFOBT) to empower patients about screening for the preventable and detectable disease. As such these findings informed the production of an educational toolkit that included a video and photo novella booklet to be shown in clinics at partnering FQHCs. A randomized controlled trial (RCT) is currently underway to explore the feasibility, acceptability, and efficacy of this newly developed educational toolkit to communicate CRC health messages and influence much higher uptake of CRCS using the iFOBT.

This study has several limitations. First, participants were selected via purposive sampling; thus selection bias should be noted. Second, recruiting participants from FQHCs in one county of a southern state provided limited external validity to populations with no regular source of healthcare providers and people in other counties and states. In addition, only English-speaking participants were included at this time. Therefore, potentially unique

perceptions of non-English-speaking populations were not considered [38]. However, a pilot study is currently underway to develop and test a series of Spanish language CRC materials.

## Conclusions and Implications for Practice

This study describes important factors related to CRCS in a patient population that receives care in FQHCs. Study findings highlight the preference of the iFOBT test, as well as educational preferences for in-clinic patient education. This information is critical as the Patient Protection and Affordable Care Act is beginning to be implemented, and states are varying in their coverage of CRCS tests. Currently 28 states will provide coverage for a full range of cancer screening tests, and in six states, insurers will be required to cover some, but not all, CRCS tests [39]. Further, the coverage and price of the “gold standard” screening test, the colonoscopy, will vary by insurer [40]. Therefore, it is essential that healthcare providers based in FQHCs identify strategies to promote the FOBT and iFOBT/FIT among their patients. These findings are of high salience to healthcare providers working in FQHCs and other public health primary care settings engaged in CRCS efforts.

Because CRC is a preventable and potentially treatable disease when detected early, it is a public health imperative to increase timely CRCS for all populations, particularly among the medically underserved. This study has direct relevance for healthcare providers who offer CRCS to age- and risk-appropriate patients. Patients are ready to receive CRC education in clinics and are receptive to simpler or non-invasive iFOBTs. As such a clear next step is for FQHCs to implement interventions that leverage both the increasing access to iFOBTs and FQHC patients’ readiness to utilize these tests.

## References

1. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2012. *CA Cancer J Clin*. 2012; 62(1):10–29. [PubMed: 22237781]
2. Centers for Disease Control & Prevention . [Accessed August 28, 2013] Behavioral Risk Factor Surveillance System. 2012. Available at: [http://www.cdc.gov/brfss/annual\\_data/annual\\_2012.html](http://www.cdc.gov/brfss/annual_data/annual_2012.html)
3. James AS, Campbell MK, DeVellis B, Reedy J, et al. Health behavior correlates among colon cancer survivors: NC STRIDES baseline results. *Am J Health Behav*. 2006; 30(6):720–730. [PubMed: 17096628]
4. Khankari K, Clayman M, Skripkauskas S, Diamond-Shapiro L, et al. Improving colorectal cancer screening among the medically underserved: a pilot study within a federally qualified health center. *J Gen Intern Med*. 2007; 22(10):1410–1414. [PubMed: 17653808]
5. American Cancer Society. [Accessed August 28, 2013] Cancer Facts & Figures for 2011–2013. Available at: <http://www.cancer.org/research/cancerfactsfigures/colorectalcancerfactsfigures/colorectal-cancer-facts-figures-2011-2013-page>
6. Pignone M, Sox HC. Screening for colorectal cancer: US Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2008; 149(9):627–637. [PubMed: 18838716]
7. Ransohoff DF. What is the role of iFOBT in screening for colorectal cancer? *Gut*. 2007; 56(10): 1343–1344. [PubMed: 17872566]
8. Greenwald B. From guaiac to immune fecal occult blood tests: the emergence of technology in colorectal cancer screening. *Gastroenterol Nurs*. 2005; 28(2):90–96. [PubMed: 15832108]
9. Van Rossum L, Van Rijn A, Laheij R, van Oijen M, et al. Cutoff value determines the performance of a semi-quantitative immunochemical faecal occult blood test in a colorectal cancer screening programme. *British J Cancer*. 2009; 101(8):1274–1281.



10. Quintero E. Chemical or immunological tests for the detection of fecal occult blood in colorectal cancer screening? *Gastroenterol Hepatol.* 2009; 32(8):565–576. [PubMed: 19577340]
11. Sanford KW, McPherson RA. Fecal occult blood testing. *Clin Lab Med.* 2009; 29(3):523–541. [PubMed: 19840685]
12. Allison JE. Colon cancer screening guidelines 2005: the fecal occult blood test option has become a better FIT. *Gastroenterol.* 2005; 129(2):745–748.
13. Levin TR, Jamieson L, Burley DA, Reyes J, et al. Organized colorectal cancer screening in integrated health care systems. *Epidemiol Rev.* 2011; 33(1):101–110. [PubMed: 21709143]
14. Mandel JS. Screening for colorectal cancer. *Gastrointest Clin N Am.* 2008; 37(1):97–115.
15. Quintero E, Castells A, Bujanda L, Cubiella J, et al. Colonoscopy versus fecal immunochemical testing in colorectal-cancer screening. *N Engl J Med.* 2012; 366(8):697–706. [PubMed: 22356323]
16. Berkowitz Z, Hawkins NA, Peipins LA, White MC, et al. Beliefs, risk perceptions, and gaps in knowledge as barriers to colorectal cancer screening in older adults. *J Am Geriatr Soc.* 2008; 56(2):307–314. [PubMed: 18070002]
17. Lasser KE, Ayanian JZ, Fletcher RH, Good M-JD. Barriers to colorectal cancer screening in community health centers: a qualitative study. *BMC Fam Pract.* 2008; 9:15.10.1186/1471-2296-9-15 [PubMed: 18304342]
18. Ling BS, Klein WM, Dang Q. Relationship of communication and information measures to colorectal cancer screening utilization: results from HINTS. *J Health Commun.* 2006; 11(S1):181–190. [PubMed: 16641083]
19. Seeff LC, Rohan EA. Lessons learned from the CDC's Colorectal Cancer Screening Demonstration Program. *Cancer.* 2013; 119(S15):2817–2819. [PubMed: 23868475]
20. Seeff LC, Royalty J, Helsel WE, Kammerer WG, et al. Clinical outcomes from the CDC's colorectal cancer screening demonstration program. *Cancer.* 2013; 119(S15):2820–2833. [PubMed: 23868476]
21. Davis T, Arnold C, Rademaker A, Bennett C, et al. Improving colon cancer screening in community clinics. *Cancer.* 2013; 119(21):3879–3886. [PubMed: 24037721]
22. Gwede CK, Davis SN, Quinn GP, Koskan AM, et al. Making it work: health care provider perspectives on strategies to increase colorectal cancer screening in federally qualified health centers. *J Cancer Educ.* 2013; 28(4):777–783. [PubMed: 23943277]
23. Gwede CK, Jean-Francois E, Quinn GP, Wilson S, et al. Perceptions of colorectal cancer among three ethnic subgroups of US blacks: a qualitative study. *J Natl Med Assoc.* 2011; 103(8):669–680. [PubMed: 22046844]
24. Kelly KM, Phillips CM, Jenkins C, Norling G, et al. Physician and staff perceptions of barriers to colorectal cancer screening in Appalachian Kentucky. *Cancer Control.* 2007; 14(2):167–175. [PubMed: 17387302]
25. Corbin, J.; Strauss, A. *Basics of qualitative research: techniques and procedures for developing grounded theory.* Thousand Oaks, CA: Sage Publications; 2007.
26. Patton, MQ. *Qualitative research.* Thousand Oaks, CA: Sage Publications; 2005.
27. Berlin Scientific Software Development. *ATLAS.t.* [software]. Hapberg, Germany: 2010.
28. SPSS V 19. [software]. Armonk, NY:
29. Condon A, Graff L, Elliot L, Ilnyckyj A. Acceptance of colonoscopy requires more than test tolerance. *Can J Gastroenterol Hepatol.* 2008; 22(1):41–47.
30. Meissner HI, Breen N, Klabunde CN, Vernon SW. Patterns of colorectal cancer screening uptake among men and women in the United States. *Cancer Epidemiol Biomarkers Prev.* 2006; 15(2): 389–394. [PubMed: 16492934]
31. Greiner KA, James AS, Born W, Hall S, Engelman KK, et al. Predictors of fecal occult blood test (FOBT) completion among low-income adults. *Prev Med.* 2005; 41(2):676–684. [PubMed: 15917068]
32. Farraye FA, Wong M, Hurwitz S, Puleo E, et al. Barriers to endoscopic colorectal cancer screening: are women different from men. *Cancer Epidemiol Biomarkers Prev.* 2004; 99(2):341–349.

33. Klabunde CN, Vernon SW, Nadel MR, Breen N, et al. Barriers to colorectal cancer screening: a comparison of reports from primary care physicians and average-risk adults. *Med Care*. 2005; 43(9):939–944. [PubMed: 16116360]
34. Gupta S, Tong L, Anderson P, Rose B, et al. Measurement of colorectal cancer test use using medical claims data in a safety-net health system. *Am J Med Sci*. 2013; 345(2):99–103. [PubMed: 22814361]
35. Gonzalez SA, Ziebarth TH, Wang J, Noor AB, et al. Interventions promoting colorectal cancer screening in the Hispanic population: A review of the literature. *J Nurs Scholarsh*. 2012; 44(4): 332–340. [PubMed: 23078262]
36. Arnold CL, Rademaker A, Bailey SC, Esparza JM, et al. Literacy barriers to colorectal cancer screening in community clinics. *J Health Commun*. 2012; 17(sup3):252–264. [PubMed: 23030574]
37. US Department of Health and Human Service . [Accessed August 28, 2013] Healthy People 2020 topics and objectives: Health Communicaitons and Health Information Technology. 2014. Available at: <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=18>
38. Diaz J, Roberts M, Clarke J, Simmons E, et al. Colorectal cancer screening: language is a greater barrier for Latino men than Latino women. *J Immigr Minor Health*. 2013; 15(3):472–475. [PubMed: 22752660]
39. American Cancer Society . [Accessed September 5, 2013] Colorectal cancer screening – State and federal coverage laws. 2013. Available at: <http://www.cancer.org/cancer/colonandrectumcancer/moreinformation/colonandrectumcancerearlydetection/colorectal-cancer-early-detection-screening-coverage-laws>
40. Fight Colorectal Cancer. [Accessed September 5, 2013] Detailing inconsistencies on who has to pay for their polyps. 2012. Available at: [http://fightcolorectalcancer.org/detailing\\_inconsistencies\\_on\\_who\\_has\\_to\\_pay\\_for\\_their\\_polyps/](http://fightcolorectalcancer.org/detailing_inconsistencies_on_who_has_to_pay_for_their_polyps/)

**Table 1**

## Characteristics of Participants

Participant Demographics <sup>a</sup>	Total (N=53)	Men (n=26)	Women (n=27)
Age, y (mean [SD])	56.7 (6.0)	56.9 (5.5)	56.6 (6.6)
	n(%)	n(%)	n(%)
Married or living as married	20 (37.7)	11 (42)	9 (33)
Employed or self-employed	9 (17.0)	3 (12)	6 (22)
High school graduate or less	29 (54.7)	16 (62)	13 (48)
Race/Ethnicity			
White	19 (35.8)	7 (27)	12 (44)
Black	22 (41.5)	12 (46)	10 (37)
Hispanic	7 (13.2)	5 (19)	2 (7)
Other	5 (9.4)	2 (8)	3 (11)
Household income \$25,000	38 (73.1)	17 (65)	21 (78)
No health insurance	10 (18.9)	5 (19)	5 (19)
Positive family history of cancer	32 (60.1)	15 (57)	17 (63)
Regular physician	46 (88.5)	23 (88)	23 (85)
Born in the United States	46 (90.2)	22 (85)	24 (92)
Up-to-date CRC screening	23 (43.4)	12 (46.2)	11 (40.7)
Colonoscopy within past 10 years	12 (52.2)	8 (66.7)	4 (36.4)
Sigmoidoscopy within past 5 years	1 (8.3)	1 (12.5)	0
Home FOBT within past year	3 (13.0)	0	3 (27.3)
Colonoscopy with FOBT	5 (21.7)	2 (16.7)	3 (27.3)
Sigmoidoscopy with FOBT	1 (4.3)	1 (12.5)	0
Sigmoidoscopy with follow-up colonoscopy	1 (4.3)	0	1 (9.0)

<sup>a</sup>The above demographics represent male and female patients of FQHCs in Hillsborough County, Florida, recruited between the months of May–July 2011.

**Table 2**

Key Colorectal Cancer Screening Themes and Data Exemplars

<p>Perceptions (motivators and impediments) to screening for CRC</p>	<ul style="list-style-type: none"> <li>• <b>Lack of health insurance (barrier):</b> <i>For people who don't have insurance they can't get the exams.</i></li> <li>• <b>Lack of perceived need to screen (barrier):</b> <i>I'm not feeling anything negative [symptoms or side effects], so I haven't thought of going to have one [colonoscopy] because I'm ok.</i></li> <li>• <b>Lack of physician recommendation (barrier):</b> <i>That's the problem that I have with a lot of doctors; they don't bring things up that you need to know.</i></li> <li>• <b>Fear of being diagnosed with cancer (barrier):</b> <i>I think most people are just scared; one thing, they're scared to test or another, they're scared they do have cancer and they don't want to find out.</i></li> <li>• <b>Cancer prevention and control (motivator):</b> <i>If they find something in there like a polyp...and then they can remove it and then you feel free and clear and feel better about everything.</i></li> <li>• <b>Family history of CRC (motivator):</b> <i>If somebody else in the family had colon cancer, they're more likely to have it, too...so it is important to get tested</i></li> </ul>
<p>Perceptions and preference for CRCS tests</p>	<ul style="list-style-type: none"> <li>• <b>FOBT procedures are unpleasant:</b> <i>It is unsanitary... putting your hand on that. That will just get me, especially if my doctor had not mentioned I would have to do this.</i></li> <li>• <b>FOBT vs. colonoscopy:</b> <i>It sounds like that (iFOBT) would really be a lot easier than getting put out, going to sleep and getting invaded. It's easy; I have one every year. It seems to be a lot easier.</i></li> <li>• <b>Colonoscopy as invasive:</b> <i>I don't have any aversion to any needles or tests but when you go prodding back there...nobody goes prodding back there. I don't even go prodding back there.</i></li> <li>• <b>Fear of colonoscopy procedure:</b> <i>The idea that I get to swallow all that horrible stuff and then clear myself out and then be put out, the worst part is the idea that I get to be knocked out and because I am afraid about being knocked out. I am not worried that the doctors look at your butt; it is being unconscious that worries me.</i></li> <li>• <b>Colonoscopy as challenging sexuality:</b> <i>I've heard some men say that they are going to turn gay with that test.</i></li> <li>• <b>Colonoscopy as a life-saving screening test:</b> <i>I had to explain it to some people that you get put down; you're eased into the thing. When you wake up, everything's fine, and then hopefully you get the good news that you're fine. It [colonoscopy] is one of those things that save lives and doesn't hurt.</i></li> </ul>
<p>Preferences for in-clinic educational materials about CRCS</p>	<ul style="list-style-type: none"> <li>• <b>Involvement of healthcare providers:</b> <i>I prefer to see a doctor or somebody taking time to explain the screening.</i></li> <li>• <b>Tone of educational materials:</b> <i>I like when the tone is just relaxing...not too forward... just straight up.</i></li> <li>• <b>Literacy and health literacy demands:</b> <i>I want something easy, simple, easy to understand...</i></li> <li>• <b>Preferences for type and formal of information:</b> <i>The more visual, the better...like, what will go on during a screening test.</i></li> </ul>

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript