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Culturally Targeted Decision Aid Use in Intention to Complete Colorectal Cancer Screening among African American Women

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Culturally Targeted Decision Aid Use in Intention to Complete Colorectal Cancer Screening
among African American Women

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Abstract:

Title: Culturally Targeted Decision Aid Use in Intention to Complete Colorectal Cancer Screening among African American Women

Purpose: African American (AA) women experienced approximately 41% more deaths related to Colorectal Cancer (CRC) than White women in 2016. Provider recommendation has been a positive predictor of screening behavior. Along with provider recommendation, decision aids (DAs) can be useful tools to decrease health disparities and increase screening rates in racial, sex, and gender minorities. The purpose of the project is to determine if the use of DAs along with provider recommendation improve intention to complete CRC screening.

Method: 21 AA women ages 45-75 years were recruited from a primary care office and asked to complete a 5 question survey gauging intention to complete CRC screening. They then viewed a culturally targeted DA regarding CRC screening. After viewing the DA, they completed the same 5-question survey regarding intention to complete CRC screening.

Results: Twenty-one AA women aged 47-69 years completed the project. A Wilcoxon Signed rank test was conducted to evaluate the changes in intentions following of the culturally targeted DA intervention on AA women's intention to complete CRC screening. Level of intention to complete screening did not differ significantly from the pre (M rank=8.44) to the post intervention group (M rank=9.50) where the sum of the ranks was 67.50 and 85.50 respectively and $z=.666$.

Conclusion: Though the study did not show statistical significance in intention to complete screening, it did seem to increase knowledge of CRC screening. Addressing social issues and bringing awareness to the AA community about CRC screening is imperative to reduce

morbidity and mortality related to CRC. More research is needed on the use of decision aids specifically targeting high-risk populations such as African American women.

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Decision Aid Use in Improving Intention to Perform Colorectal Cancer Screening among
African American Women

Colorectal Cancer (CRC) is the third most diagnosed cancer in the United States and the third leading cause of cancer related mortality in the United States (American Cancer Society, 2016). The American Cancer Society (2017) estimated that 95,520 new cases of colon cancer and 39,910 new cases of rectal cancer would occur in 2017. The incidence of mortality and morbidity among African Americans is higher than that of Whites. AAs have the shortest survival and overall highest death rates of CRC (Williams et.al, 2016). According to the American Cancer Society (2017), African American women experienced approximately 41% more deaths than White women in 2016 accounting for nearly 8,550 deaths. This is a major concern because most deaths related to CRC are preventable by early screening.

African Americans have lower rates of screening for CRC cancer (Blumenthal, Smith, Majetta & Alema-Mensah, 2010, May, Whitman, Varlyguina, Bromley & Spiegel, 2015, Purmell, et al, 2008). Many factors attributing to lower screening rates among African American women are found in current literature. Lack of insurance, lack of provider recommendation for CRC screening, lack of understanding of CRC procedures, and a lack of culturally targeted materials to educate this population are some reasons noted in reviewing the literature (Blumenthal, et.al, 2010, Hoffman, et.al, 2017).

The use of culturally targeted decision aids to influence willingness to complete colorectal cancer screening among African Americans holds promise (Hoffman, et. al, 2017). Use of decision aids in minority patients, can be useful, tools to decrease health disparities in racial, sex, and gender minorities (Nathan, Marshall, Cooper & Haung, 2016). In a systematic

review, culturally tailored aids had a seemingly greater impact on clinical decisions than those that were not tailored (Nathan, et. al, 2016).

The overall goal of this Doctor of Nursing Practice (DNP) project is to perform a pilot study comparing the effectiveness of provider recommendation for CRC screening in African American (AA) women ages 45-75, to the use of a culturally targeted educational decision aide (DA's) in conjunction with provider recommendation.

Background/Significance

Colorectal cancer is a disease that can be prevented through lifestyle behaviors and recommended screenings. Risk factors for the development of colorectal cancer noted to be modifiable are: obesity, smoking, high consumption of red or processed meat, low fruit and vegetable intake, high alcohol intake, and low calcium intake (ACS, 2017). Some genetic conditions and chronic disease states may also predispose a person to colorectal cancer. The American Cancer Society (2018) screening recommendations for early detection of colorectal cancer in average-risk asymptomatic patients begin at age 45 regardless of race or gender. This is a change from the recommendation of 50 years regardless of race or gender in previous years. Individuals with increased risk, such as family history of CRC, or symptoms such as abdominal pain, irregular or bloody bowel movements may be screened earlier than age 50 (See Appendix B). The five currently available screening tests include; fecal occult blood testing (FOBT), stool DNA test, flexible Sigmoidoscopy (FSIG), double contrast barium enema, colonoscopy or CT colonography (US Task Preventative Task Force, 2016). However, direct endoscopy is still the most accurate for visualization and removal of pre-cancerous polyps (Blumenthal, et.al, 2010).

Screenings at the earliest recommended times have been associated with decreased mortality across all races and genders. Regardless of the risk or patient history, colorectal

screening that can detect and remove polyps is the best method of cancer prevention (ACS, 2017). Polyps are growths in the lining of the colon or rectum (National Institute of Diabetes and Digestive and Kidney Diseases, 2018). Not all polyps are cancerous, however, some may become cancerous over time. Therefore, undergoing a colonoscopy or flexible sigmoidoscopy to identify and remove polyps is critical for preventing cancer (NIDDK, 2018).

The United States Department of Health and Human Services set forth a healthy people 2020 initiative in which objective C-1 is to reduce the overall cancer rate (Healthypeople.gov, 2016). A goal within the objective is to assess understanding of information patients received from their health care providers. Provider recommendation continues to positively influence completion of CRC screening (Reiter & Linnan, 2011). However, recommendations alone have not been as effective in increasing overall screening rates among African American women (Reiter & Linnan, 2011).

Practice decision aids are tools used to help patients understand risk of disease (e.g. cancer development), provide options available for screening and time intervals for screening in the context of the patient's preference for an outcome (Jimbo et. al, 2013). Decision aids should also include the choice of not getting screened. The decision aid is designed to complement the discussion with the health care provider regarding a particular cancer screening (Jimbo et. al, 2013). Some examples of decision aids currently available on CRC screening can be found at <https://ncbi.nlm.nih.gov/pmc/articles/PMC3644368/>

In a meta-analysis conducted on patient decision aids for colorectal cancer screening, patients in the decision aid group expressed greater intention to be screened and were 1.3 times more likely to complete screening at 16-52 weeks compared with patient in control groups (Volk, et al., 2016). Despite the evidence of the benefits of DAs for CRC screening, the use of

DAs in minority populations has received little attention. One systematic review on the use of decision aids with minority populations had a small body of evidence supporting the use of DAs in African Americans and the DA were not specific to CRC. Of the 22 articles included in the review, only 10 were tailored or customized for ethnic, sexual or racial differences (Nathan, et.al, 2016). Despite this, researchers concluded that DA's could be effective at improving screenings within minority populations (Nathan, et.al. 2016).

Despite African American women being at high risk of CRC and having low screening rates, there is an absence of culturally targeted decision aids on CRC screening to address their needs and preferences. This presents a potential barrier to effective communication and decisions to agree to CRC screening.

Provider recommendation is a positive indicator in completion of CRC screening (Reiter & Linnan, 2011, Nathan, et.al, 2016). Identifying ways to better provide education and encouragement for preventative screenings can reduce the mortality and morbidity of a preventable disease process. As a diverse nation, implementing decisions aids in primary care settings that are more age, gender and culturally targeted may improve screening in populations that otherwise would continue to suffer disparities in mortality and morbidity from conditions such as CRC. The population of interest for the proposed project is African American women ages 45-75 years, since they continue to lag behind on improvement of colorectal cancer screening rates.

Primary care providers in family and internal medicine care settings have the unique opportunity to promote preventative health to patients. These providers can discuss how best to prevent disease and improve the quality of patient health. As care providers, patients rely on providers' quality of knowledge, care and recommendations of good health practice. Nurse

practitioner roles also incorporate aspects of nursing such as patient advocacy and holistic care. The literature review regards provider recommendation as an effective way to improve CRC screening among African American women (Bazargan, et.al, 2015, Reiter & Linnan, 2011).

Along with provider recommendation, evidence -based medicine and shared decision-making (SDM) are crucial parts of quality health care (Hoffman, Montori & Mar, 2014). Shared decision making is “the process of clinician and patient jointly participating in a health decision after discussing the options, the benefits and harms and considering the patient’s values, preferences and circumstances (Hoffman, et. Al, 2014). [See Appendix B] Providers in primary care settings are also responsible for promoting health improvement, patient empowerment and education. In the SDM process, providers present patients with information about benefits and harms of alternative options and help them with decisions for screenings that also support the patient personal values (Hoffman, R. et. al, 2014). By incorporating SDM in patient encounters, education and CRC screening discussion may be improved. (Hoffman, R. et al, 2014).

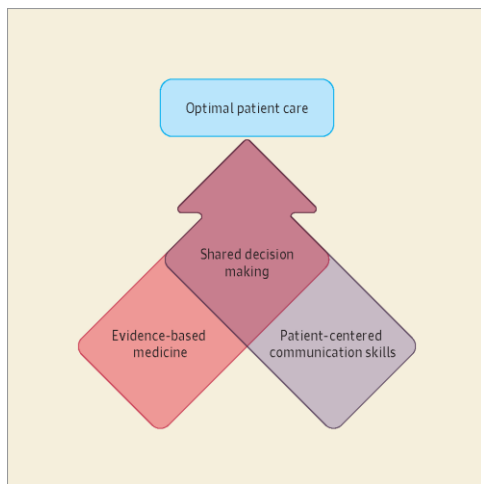


FIGURE 1: The Connection Between Evidence-Based Medicine and Shared

Decision Making Adapted From: Hoffmann TC, Montori VM, Del Mar C. The Connection Between Evidence-Based Medicine and Shared Decision Making. *JAMA*. 2014;312(13):1295–1296. doi:10.1001/jama.2014.10186

Provider recommendation alone has not improved overall CRC screening rates in African American women. Specific concerns should acknowledge variables specific to African American women that can negatively affect screening, when deciding on education materials and teaching methods. It has been noted in the literature that more effective, culturally targeted teaching is needed (Hoffman, et. al, 2017, Nathan, et al, 2016). The goal of this Doctor of Nursing Practice project is to utilize the recommendations in the literature to develop culturally tailored education materials for African American women in regards to CRC screening.

Clinical Question

In African American women age 45-75 years (P) how does the use of a culturally targeted decision aid in combination with provider recommendation (I) compare to provider recommendation alone (C) in improving intention to complete CRC screening (O)?

The population (P) of interest is African American women ages 45-75 years. The intervention (I) is provider recommendation for CRC screening along with a culturally targeted decision aid. The comparison (C) is provider recommendation CRC screening alone, without the decision aid. The outcome (O) to be measured is intention to complete CRC screening.

The expected outcome is that the addition of the culturally targeted decision aid will increase intentions to complete CRC screening among AA women. The long-term outcome is that adherence to recommended screenings is expected to improve overall mortality and morbidity from CRC among AA women. If this tool is shown to increase intention to complete CRC screening it will support the evidence for the use of decision aids, and may provide an option for other practitioners to implement in practice.

Review of Literature

Search Strategy

A systematic search of the literature was conducted to identify interventions designed to increase CRC screening in African American women and to determine factors that influence and interventions that improve CRC screening in African American women. Searches were conducted in the following databases: CINAHL, MEDLINE, COCHRANE review, PUB MED, and Psychology and Behavioral Sciences collection. Key terms for the original search were African American, women, colorectal cancer, screening and cultural. The search was narrowed to articles that were peer reviewed, published within the last ten years (2007-2017), performed within the United States and in English. Up To Date was also included but did not yield scholarly articles that were included in the review. Types of evidence included were systematic reviews, quantitative studies, qualitative studies, clinical practice guidelines, correlational analysis and educational decision aid. The exception to the search criteria was made for articles that were used to aide in evaluating the literature, or for research that may be foundational findings to support the research.

Search Results

The search criteria not including the word “cultural” and excluding the date yielded 174,240 articles. Including the word cultural and limiting to articles within 10 years narrowed articles fitting the criteria to 44 articles. Thirty articles were excluded for not pertaining directly to African American women and colorectal cancer. Four articles could not be obtained electronically for review within the time frame indicated. Ten articles were selected to include in the evidence (See Appendix A- Evidence Matrix).

The Evidence Hierarchy of designs was used to identify the level of evidence for each article. (Polit & Beck, 2017). Using the evidence matrix, articles included, level II randomized clinical trials, level III systematic review of correlational or observational studies, Level IV single correlational/observational studies, and levels V and VI, which includes qualitative research studies. Appraisal of the literature was also done using the ten-question Critical Appraisal Skills Programme (CASP) tool for appraising qualitative research and systematic reviews (CASP, 2017). The CASP appraisal tool uses a 10-question questionnaire to determine how robust the study is and if it can be beneficial for future use. For the qualitative studies included in the evidence base, the CASP tool was used to assess rigor, credibility and relevance. This was used to determine the articles suitability for inclusion in the evidence matrix. The following studies were selected for discussion as they represent the ten articles that were included in the review.

Synthesis of the Evidence

There are few examples of culturally targeted decision aids currently being consistently used in primary care settings. For the seven studies that explored factors that influence CRC screening among African Americans the consistencies found were barriers to timely CRC screening, financial/cost, lack of knowledge, lack of perceived benefit and fear of CRC screening. Sociocultural factors also considered barriers to improving screening were lack of culturally targeted information, medical mistrust and group susceptibility, underutilization of information sources about health from media and Internet and a perception of low risk of CRC cancer among African Americans (Hoffman, et.al, 2017). Perceived benefits of early detection was associated with cancer knowledge and discussion with primary care provider (Bazargan,

et.al, 2015, Purnell et.al, 2009). Relevance of empowerment, privacy and collectivism and understanding mistrust are all barriers to screening (Purnell, et. al, 2009).

Although there is limited literature on the use of DA to promote CRC screening among African American women, the existing literature suggests that DAs may be useful in practice and the literature on factors that influence CRC screening decisions can provide direction for designing culturally targeted DA for this high-risk group.

Interventions to Increase CRC Screening

Three interventions using DAs to promote screening among African Americans were identified. The first study, a randomized controlled trial published in *Cancer* provided an example of cultural decision aides (Hoffman, et. al, 2017). Researchers utilized a conceptual framework of colorectal cancer screening decisions. In the study 89 African American participants aged 49-75 years were randomized to view a control video about hypertension or a decision aid video of culturally tailored CRC screening options and theory -based support in decisions in an educational entertainment format. Patients were recruited from internal medicine and family practice clinics, with diverse economic and cultural populations from November 2012 to June 2013. The authors concluded that viewing the entertainment CRC decision aide significantly increased screening knowledge, decreased decisional conflict and improved self - advocacy. However, more participants in the control group actually completed the screening than the intervention group.

In the second randomized clinical trial, three interventions intended to promote colorectal cancer screening in African Americans were tested (Blumenthal, et.al, 2010). The three interventions were group education, one-on-one education and financial support. The outcome of the study was that the cohort receiving group education had a significant increase in knowledge

of CRC screening. They also had statistically significant increases in completion of CRC screening compared to the financial support group. However, that only ended up being 33% of the 259 participants. Limitations of the study included significant attrition for participants over the six-month time frame of the study completion. More than 40% of participants did not complete the study.

Phillip, Duhmael, & Jandorf conducted a study to evaluate the impact of an educational intervention to increase CRC screening rates in the African American Community (2010). The study noted there were a few interventions designed that address CRC screening behavior in underserved or diverse communities, including the African American community. The study consisted of 118 African American participants from two primary care sites in New York. The majority of the participants were women (75.4%). Participants received printed materials on CRC screening. They either received a standard brochure or a brochure developed and designed by the authors. The materials created by the authors were culturally targeted and provided information on types of screening for CRC with emphasis on colonoscopy. Of the participants who completed screenings, 25% reported significant reduction in fatalistic beliefs and increase in decisional balance.

Factors that Influence CRC Screening

Learning the behavior of any population is prudent when examining how to improve adherence to a behavior. The same is true for African American women's CRC screening behavior. The following studies involve exploring social or cultural constructs affecting willingness to complete CRC screening.

In a qualitative study using focus groups of African Americans that explore factors that influence screening habits for colorectal cancer screening, (May et. al, 2016) participants of the

study listed how they receive information best and what would influence their behavior. Participants noted they receive information from medical staff and media outlets. Group participants had a positive reaction to the use of African American celebrities or community figures to endorse screening, improve awareness and promote timely screening. The findings should be interpreted with caution, as sample size was small. However, in a society that is so driven by social media the author feels that appropriate culturally targeted and entertainment-based ads may hold promise for improving CRC screening rates among African American women.

A cross sectional study by Patel and colleagues (2011), looked at factors that influenced CRC screening in low income African Americans in Tennessee. Participants ages 50 years and older were selected from a database from Meharry CNP community survey database. The study was conducted in three cities in West, East and Middle Tennessee and included a sample of 460 men and women. Participants in the study had lower screening rates for CRC (35%) compared to African Americans in the state of Tennessee (59%). An explanation may be that the participants did not have the resources or health insurance in order to receive appropriate screening. Factors reported, as barriers to screening included cost, time, transportation, where to get screening and fear of finding cancer. These did vary by geographic region. Predictors of completing screening were being married and having health insurance. Information about predictors to screening, obstacles, demographics and lifestyle predictors to screening should be incorporated into education for improving CRC screening rates.

In a study by Reiter & Linnan (2011) results of a survey given to African American women noted women who reported a recent Pap smear test were likely to be current on mammography, and those that had current mammography were more likely to be within

recommended guidelines for CRC screening. This finding suggest that women who screen for one form of cancer may be more likely to screen for other forms of cancer. The most frequently reported barriers were, lack of knowledge of test, lack of physician recommendation, not knowing when to have test, lack of interest in getting test, worrying about screening results, belief of test being painful or embarrassing and lack of cancer history of family members. The study noted that 94% of the women involved in the study completed Pap smear testing, 70% completed mammograms and 64% completed CRC screening. Correlational studies are not classified as high levels of evidence. However, this study does give insight to the behaviors of African American women in regards to cancer screenings in general with CRC screening being the lowest.

A study exploring social and cultural factors related to African Americans perceptions on colorectal cancer screening was conducted (Purnell, et al, 2009). The study included 198 participants age 45 years or older (n=198). A cross sectional study was conducted among twelve social groups (fraternities). The study explored variables that contribute to lack of CRC screening in African Americans. The focus was on medical mistrust, physician ethnicity, group susceptibility, and traditional strategies. Outcomes of the study suggested perceived benefit and intent are highest in African Americans within a group. Those likely to screen had less mistrust of the medical system, high traditional cultural orientation and had an African American physician (Purnell et. al, 2009). It will be important to consider social as well as cultural variables to proceed with the best level of education materials.

A study consisting of 513 African American women from 11 churches explored the perceived benefits of early cancer detection, in Los Angeles. Researchers concluded that 74% of study participants believed the chances for survival of early detection of breast cancer survival

were good, whereas, only 52% felt the same for cervical cancer and only 51% for colorectal cancer (Bazargan et. al, 2015). The perceived benefit of early cancer detection was associated with having had a discussion of risk with a doctor and of having higher cancer knowledge. Perceived benefit was a positive predictor of completing screening. Creating programs that increase knowledge of colorectal cancer and discussions that focus on risk education, may have a positive effect on intention to complete screening. One of the limitations of the study was, non-random sampling. It may not, be representative of all African American women in Los Angeles due to the small sample size. Nonetheless, the study may be useful in confirming physician impact on screening and tailoring information to include perceived benefits.

To continue with the social cultural constructs relevant to African American CRC screening, the author located a study in *Psychology, Health and Medicine Journal* (Thompson, Harris, Clark, Purnell & Deshpande, 2015). A total of 1,021 African-Americans participated in the telephone survey to assess sociocultural attitudes regarding CRC screening (Thompson, et.al, 2015). Confirmatory factor analysis was performed to determine the perceived benefits and barriers to CRC screening. The three sociocultural constructs that showed significantly contributed to CRC screening were empowerment, collectivism and privacy. The importance of this study for future interventions regarding CRC screening is to consider empowerment and privacy concerns for African Americans in regards to CRC screening. Using findings from a psychology study within a nursing research project adds dimension and quality to the social and cultural components of the research.

The highest level of evidence according to the hierarchy of evidence (Polit and Beck, 2017) is the metaanalysis of randomized clinical trials. The author was able to locate one systematic review of literature exploring persistent underuse of colon cancer screening in African

Americans (Bromley, Folasade, Federer, Spiegel, and Van Oijen, 2015). A conceptual framework was also included in the review identifying barriers to colonoscopic screening. Nineteen studies met the inclusion criteria and were included in the systematic review. The results were consistent with other findings noted within the literature. Barriers to screening included fear, lack of knowledge of CRC risk and low perceived benefit. It also included factors such as failure of provider to recommend and lack of provider knowledge of screening. Less influential barriers were financial, no consistent primary care and lack of insurance (Bromley et al, 2015).

Appraisal of the Overall Evidence

The ten articles reviewed were comprised of diverse strategies to determine how to improve CRC screening among AAs. The overall quality of the articles reviewed was moderate considering there was only one systematic review and two randomized clinical trials included. A consistent limitation was small sample size across studies. Another limitation was attrition. However, the use and impact of educational interventions that address the perceived barriers, risk and benefits as noted within the literature review may be useful in designing education materials for AA women.

Conceptual Framework

Key Concepts

In addressing the clinical question regarding improving CRC screening among African American women, one should investigate conceptual frameworks that can be used to guide practice improvement. Many conceptual frameworks exist in healthcare to support various types of research. The focus of the clinical question is whether a culturally targeted DA can improve

intention to complete CRC screening in African American women. In order to improve screening rates, the provider must understand what barriers the patient may be experiencing.

The Health Belief Model (HBM) explores how personal beliefs influence health behaviors (Petiparin, 2016). The Health Belief Model is widely used in nursing and in preventative health study (Polit & Beck, 2016). The model was originally created by social psychologist in the 1950's Hochbaum, Rosenstock, and Kegell (1974). It was derived from the U.S. Public Health Service questioning why a free health screening for tuberculosis had not been successful (Rosenstock, 1974).

Four major constructs of the HBM are: perceived susceptibility, perceived seriousness, perceived benefits and perceived barriers (Polit and Beck, 2016). Perceived susceptibility is how likely a person believes a condition will occur or affect them. The greater the perceived susceptibility of a disease (CRC), the more likely a person will do something to prevent it (Petiparin, 2016). Perceived seriousness is a person's belief about how severe or debilitating an illness or disease (CRC) may be (Petiparin, 2016). Perceived barriers are things that a person views as obstacles to performing a particular task. These can include cost, time and complexity (Polit & Beck, 2016). Perceived benefits are favorable outcomes an individual expects to occur if a behavior is completed in response to the threat of an illness or disease state. The constructs may occur individually or simultaneously to explain and predict health behavior.

Application

The HBM has been used in prior research promoting CRC screening. A secondary observational analysis of data from an RCT was conducted to test a CRC intervention based on factors from an Expanded Health Belief Model (Sohler, Jerant, Franks, 2015). The goal of the intervention was to encourage and improve CRC screening rates, however it did not have the

desired changes in improving screening behavior. Their research noted five independent factors instead of all of the constructs of the theory simultaneously. These factors were screening knowledge, self- efficacy, barriers, and stage of readiness and discussion with a provider with CRC screening after one year. Sohler et. al, (2015) looked at why interventions had not been successful in an effort to improve interventions in the future. The one-year follow up results showed that self -efficacy, readiness and discussion with a healthcare provider were positive predictors of completing screening (Sohler, et. al, 2015). Researchers concluded that there is value in the provider discussion and supplementing patients with materials and interventions that are HBM based may be promising for improving CRC screening (Sohler, et. al, 2015). The focus of the study was not African American females but the results may translate into utilizing the HBM more effectively for further work within the DNP project.

The Health Belief Model served as the framework for answering the project clinical question regarding African American women and CRC screening. Women who perceive high susceptibility and seriousness for CRC, perceive few barriers and high benefits to CRC screening will more likely have intentions to complete CRC screening. The goal of the decision aid is to improve those perceptions and beliefs. This is consistent with the goal of shared decision making.

A self reported participant pre and post survey was used in order to gauge participants' level of susceptibility, seriousness, barriers and benefits to CRC screening in the DNP project. The student investigator for the purpose of the DNP project developed the survey. The self reported response to the statement; "Colorectal cancer is rare among African Americans" was designed to assess the participant level of susceptibility. To gauge the perceived level of seriousness participants responded to the statement, " I am at risk of becoming ill or dying from

colorectal cancer”. Using information found in the literature on common barriers for screening, participants were asked to respond the statements “I can’t take off from work to have the colorectal cancer screening done”, “The screening for colorectal cancer cost too much” and “I am uncomfortable with the bowel prep for the colorectal cancer screening.” Benefits of screening were assessed when participants responded the statement “Colorectal cancer death is preventable through screening”.

The DNP project focused on intervening on barriers of CRC screening in order to improve health outcomes. By introducing a more culturally appropriate, targeted decision aide as opposed to provider recommendation only, the hope was to improve knowledge of susceptibility and seriousness to influence screening.

Methodology

Project Implementation

The Institutional Review Board (IRB) of Georgia State University granted approval for this project.

Setting

The project location is a primary care practice located in the United States. The location is within 11 miles southeast of a metropolitan area. The population of recruitment is 86,261 where 39.7% are white, 37.6% are black and 16.7% are Hispanic (Bestplaces.net, 2018).

The family practice provides primary care services to men, women, children and newborns. They provide treatments and care for a variety of conditions including dermatology, orthopedic joint injections, immunizations and well woman exams. The clinic has 14 patient treatment rooms, an in-house lab, and an in-house radiology room. The full time staff includes a physician, two nurse practitioners, several medical assistants, front office staff and an in-house manager. Once a week

a cardiologist and a general surgeon are on site to evaluate patients. The clinic accepts all forms of commercial insurance, Medicare, and one provider accepts Medicaid.

Subjects

The target sample size was 30 AA women receiving primary care at the family practice clinic. Convenience sampling was used to recruit 21 AA women receiving primary care at the family practice. Inclusion criteria were women ages 45-75 years of age who were English speaking, identified as AA and were naïve to colorectal cancer screening or refuse further screening. Exclusion criteria were outside of age 45-75, non-African American, male and non-English speaking. Participants were identified by the primary care provider as being female and within the criteria age of 45-75.

Instrument/Tools

The instrument used to evaluate intention to complete colorectal cancer screening is a pre and post survey the author developed. The survey consisted of 8 items. The responses were in a 5-point Likert Scale (1 = Strongly Disagree and 5=Strongly Agree). The eight items were summed to gain a total score, which ranged from 8-40. Higher scores indicated greater intention to complete CRC screening. The tool was administered in paper and pencil format. It took participants approximately 10 minutes to complete both pre and post surveys. The tool was reviewed and deemed acceptable by the project faculty. Reliability of the specific tool is unknown to date. Use of the tool in the population of interest warrants a reliability analysis upon data completion.

The outcome measures are the numeric values derived from the pre and post survey scale. The Survey scores are obtained after the participant selects the numeric value that corresponds to the statement they choose. (See Appendix C) The scores totals for each question were summed

and converted to a percentage of total responses. The means of each question were also obtained. A total mean score for all of the pre-test scores and the post-test scores were obtained.

Intervention

The DA is a student investigator developed five-page color pamphlet that provides statistics on CRC. The DA explains what CRC is and provides information on different types of CRC screening options available. It includes a contact number and website where more information may be obtained. The pamphlet includes photos of AA women and information specific to them. The information contained in the pamphlet was obtained from the Centers for Disease Control (CDC) campaign entitled; *Colorectal cancer screening saves lives* (2017).

[See Appendix E]

Data Collection

Data collection was done on paper and stored without patient identifiers in a folder until the end of the project. The folder is secured in a locked office. Potential participants fitting the inclusion criteria were identified by the primary care provider through documentation in the medical record being between the age of 45-75 and female. As patients were escorted to their rooms for their appointments they were asked if they would be interested in participating and consented by the student investigator. The student investigator had no access to patient records, demographic or personal information for use in the study. The study was completed while waiting in the exam room with the door closed. The only demographic information collected was patient age.

A packet containing the consent, pre-survey, decision aid and post-survey were given to participants who agreed to participate in the study. An initial survey consisting of eight questions

regarding intention to complete CRC screening derived, from the HBM, was given to the participants. Consent and instructions for completing the survey contained the statement “Your health care provider has recommended a screening for colorectal cancer.” Participants were asked to complete the pre-survey while in the medical office.

The participants then viewed the included DA. Following viewing the DA, participants were asked to complete a post intervention survey containing the same eight questions they had been asked on the pre-survey. The participants then placed all study materials back in the packet signaling the end of the participation in the study. Participants then received a \$5 gift card to Starbucks for participating in the project. The packet was then collected and securely stored by the student investigator.

Analysis

The student leader conducted the analysis using the IBM Statistical Package for the Social Sciences (SPSS) software version 24. Descriptive statistics were used to summarize the findings. DNP committee members were consulted for appropriateness of the statistical test and review of the results for accuracy. Due to a small sample size, a Wilcoxon Matched pairs (Signed rank) test was conducted to evaluate the impact of the culturally targeted decision aid intervention on African American women’s intention to complete colorectal cancer screening. The sum scores for the pre intervention survey were compared to the sum scores for the post intervention surveys.

Results

A total of 21 African American women ranging in ages from 47-69 participated in the study. The mean age of participants was 57.24 (SD= 7.09).

Participants' responses to the pre-intervention (DA) and post-intervention (DA) Survey are presented in Table 2. The post survey responses are in red.

Table 2: Participants' response to the Pre intervention (DA) and Post Intervention (DA)

		Strongly Disagree (1)	Somewhat Disagree (2)	Neither Disagree nor Agree (3)	Agree (4)	Strongly Agree (5)
1	I am at risk of becoming ill or dying from colorectal cancer. (PRE)	52.4%	4.8%	23.8%	14.3%	4.8%
	I am at risk of becoming ill or dying from colorectal cancer. (POST)	33.3%	9.5%	23.8%	23.8%	9.5%
2	Colorectal cancer death is preventable through screening (PRE)	0%	14.3%	4.8%	23.8%	57.1%
	Colorectal cancer death is preventable through screening (POST)	0%	0%	9.5%	28.6%	61.9%
3	I am afraid of having the screening test for colorectal cancer. (PRE)	57.1%	4.8%	23.8%	9.5%	4.8%
	I am afraid of having the screening test for colorectal cancer. (POST)	52.4%	9.5%	9.5%	19.0%	9.5%
4	Colorectal cancer is rare among African Americans (PRE)	52.4%	14.3%	19%	4.8%	4.8%
	Colorectal cancer is rare among African Americans (POST)	61.9%	14.3%	14.3%	4.8%	4.8%
5	I plan to complete the screening for colorectal cancer as recommended (PRE)	9.5%	4.8%	23.8%	23.8%	38.1%
	I plan to complete the screening for colorectal cancer as recommended (POST)	0%	9.5%	4.8%	42.9%	42.9%
6	I can't take off from work to have the colorectal cancer screening done. (PRE)	57.1%	4.8%	19.0%	14.3%	4.8%
	I can't take off from work to have the colorectal cancer screening done. (POST)	57.1%	4.8%	23.8%	9.5%	4.8%
7	The screening for colorectal cancer cost too much. (PRE)	38.1%	4.8%	42.9%	9.5%	4.8%
	The screening for colorectal cancer cost too much. (POST)	47.6%	0%	42.9%	4.8%	4.8%

8	I am uncomfortable with the bowel prep for the colorectal cancer screening. (PRE)	9.5%	23.8%	28.6%	33.3%	4.8%
	I am uncomfortable with the bowel prep for the colorectal cancer screening. (POST)	23.8%	33.3%	19.0%	19.0%	4.8%

The author’s null hypothesis is: Ho= In AA women age 45-75 there was no improvement of intention to complete CRC screening with decision aid use and provider recommendation compared to provider recommendation alone. The alternative to the null is Ha= In AA women ages 45-75 there is improvement of intention to complete CRC screening with decision aide use and provider recommendation compared to provider recommendation alone. The variables are the before survey responses (v1) and the after survey responses (v2). The author has chosen a significance value (a) where a= 0.05.

The mean score of the pre test survey was 2.685 with standard deviation 1.28. The mean score of post-test survey was 2.762 with a standard deviation of 1.18. The results of the Wilcoxon (Signed Ranks) test showed level of intention to complete screening did not differ significantly from the pre (M rank=8.44) to the post intervention group (M rank=9.50) where the sum of the ranks was 67.50 and 85.50 respectively and z=. 666.

Discussion

The study results of this DNP project do not suggest that the use of culturally targeted decision aids have a greater impact on influencing intention to complete colorectal cancer screening among African American women. With a p value of .05 we must accept the null hypothesis as stated Ho= In 21 AA women ages 45-75 there is no improvement of intention to complete CRC screening with decision aid use and provider recommendation compared to provider recommendation alone. However, there where significant findings from the survey that

suggest further research with a larger sample should be performed to truly assess the value of the DA.

Prior to viewing the decision aid 61.9% of patients planned to complete a CRC screening. After viewing the DA 85.8% of participants planned to complete the screening. Also perceived benefit of screening did slightly improve after patients viewed the decision aid. In this sample, the majority of participants were aware that CRC is preventable through early screening. Though most patients understood that CRC is not rare among African Americans those that were not sure responding Neither Disagree nor agree reduced from 19% to 14.3% after viewing the decision aid.

The study did not show statistical significance in intention to complete screening; it did seem to increase knowledge of colorectal cancer screening. These results are similar to a randomized controlled trial conducted by Hoffman, et.al, in which an entertainment-education colorectal cancer screening decision aid for African American's was used and showed great promise (2017). In the study 89 participants were randomized into a decision aid video that contained culturally tailored information about colorectal cancer screening options and a control group video about hypertension. Viewing the decision aid significantly increased knowledge of colorectal cancer screening, decreased decisional conflict, and improved self-efficacy. However, the study showed no significant difference in participant attitudes, norms or intentions (Hoffman, et.al, 2017). On three month follow up only 23% of participants had completed a colonoscopy. (Hoffman, et.al, 2017).

Unexpected findings from the study were that patients did not seem to know cost of the test. This is unlike a prior study by Patel, 2011 where cost was listed as a barrier. However, it was consistent with a meta-analysis of 19 randomized clinical trials where financial barriers were

less influential in screening behavior (Bromley, et. al, 2015). This may be based on whether the patient has insurance that will greatly reduce the cost of the screening. Also, the DA did not include specific information on cost of the screening. Nearly half 42.9% of participants pre and post intervention neither agreed or nor disagreed that the screening might cost too much.

The ability to take off from work to have the screening performed did not appear to be a barrier to CRC screening for most of the study participants (62%). This did not change from the pre to the post intervention. Other screening barriers are lack of knowledge of CRC risk and low perceived benefit (Bromley, et. al, 2015). The study had similar findings. Prior to viewing the DA, 52.4% of participants strongly disagreed to the statement “I am at risk of becoming ill or dying from colorectal cancer”. After viewing the DA, only 33.3% of participants strongly disagreed to the same statement. Similarly to the study by Hoffman in 2017, viewing the study DA did seem to increase knowledge of CRC screening. Interestingly, patients reported less discomfort with the bowel prep for the CRC screening after viewing the DA than before viewing it.

Limitations

A major study limitation was the small sample size of 21. Using a different method to recruit participants and conducting the study over a longer period of time could help eliminate this limitation. Also, the study had no follow up with participants in order to determine if they completed screening in the future. The study was also conducted at one primary care office. Future research should include a larger sample size and may be benefited by using several primary care offices in the area.

Practice Implications

Colorectal cancer is the third leading cause of cancer related death in the United States is preventable through early screening (ACS, 2017). Due to a lack of early screening, AA men and women are more likely to develop colorectal cancer at a younger age and be at more advanced stages when diagnosed (Hall, 2017). Though overall incidence has declined in the last decade, the incidence of mortality is highest among AAs (Hall, 2017). Addressing social issues including lack of access and bringing awareness to the AA community about CRC screening is imperative to reduce the morbidity and mortality of a preventable disease through early screening. More research is needed on effective methods to bring awareness to CRC through the use of DA specifically targeting high-risk populations such as AA women.

The use of DA's has shown to be effective at increasing knowledge, reducing decisional conflict and reduction in fatalistic beliefs (Phillip et. al, 2010, Hoffman, et. al, 2017). Cultural considerations in teaching methods targeting populations at risk for morbidity and mortality of disease is imperative in improving screening behaviors. The use of survey's similar to the one used in this study in practice can be beneficial to understanding the patient beliefs about CRC screening. It may also promote a better decision on barriers to screening. APRNs should consider incorporating DA's into the process of recommending CRC screening for AA women as a time saving method and to enhance the shared decision making process.

Implications for policy on CRC screening have already begun to make adjustments to improve performing screening at the earliest recommended times. The current recommendations from the ACS are to begin screenings at age 45 regardless of family history or suspected risk (2018) in response to CRC prevalence in a younger population. In 2009, this same recommendation was made by the American College of Gastroenterology that all AA's begin

screening at age 45 in an effort compensate for low screening rates (ACG, 2009). The majorities of studies found in the literature were small and did not focus on AA women and CRC screening.

Conclusion

AA women show interest in learning about CRC screening as evidenced by their participation and completion of the project. Although a statistically significant difference in CRC screening intentions was not found, there is clinical significance in the percent changes from agree to disagree. The culturally targeted DA showed promise for improving knowledge of CRC screening and may help to initiate provider-patient discussions. Future research should include larger studies with follow up and focus on why increasing knowledge and decreasing decisional conflict about CRC screening does not equate to improved screening behavior among AA women.

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APPENDIX A- EVIDENCE MATRIX

Study Citation	Hypothesis/ Question	Sample	Design	Intervention/ Measurement	Results	Level
Hoffman, et. al (2017)	Does an entertainment decision aide tailored for African American Patients improve patients' decision making, attitudes, intentions, or colorectal cancer screening behavior?	89 African American male and female patients 49-75 years old	Randomized controlled trial	Pre and Post intervention Questionnaire using decisional conflict 10 item scale Chart review	Viewing education-entertainment tailored patient decision aide about colorectal cancer screening improved African American patient knowledge and self efficacy, reduced decisional conflict.	II
Blumenthal, et. al, (2010)	Does one on one education v/s group education, v/s reducing out of pocket cost increase CRC screening rates among African Americans?	369 African American men and women 50 years and older	Randomized controlled trial	Questionnaire Pre and post test screening status assessed by phone	Compared with control, group education intervention doubled the rate of participant screening.	II
Phillip, et. al, (2010)	What is the impact of a print-based educational intervention on screening behavior and associated patient-based factors including cancer related knowledge, fatalism, worry and decisional balance?	118 self identified African American men and women	Qualitative-correlational study	18 question survey assessing three domains of knowledge: knowledge of procedure, fatalism, and perceived pros and cons	Reduction of fatalistic beliefs and increased decisional balance.	VI
May, et. al, (2016)	What is the preference for mode of content of culturally tailored colorectal cancer screening intervention and dissemination?	38 African American male and female enrolled into four focus groups	Descriptive Study:	Interview/Group survey Administration of a pre and post focus group survey	Information sources about health come from media, including celebrity influence ,and internet. Colorectal cancer risk is perceived as low. Cost and fear influence screening.	VI
Reiter, et. al, (2011)	What are characteristics of cancer screening behaviors of African women?	1123 African American women at least 18 years of age	Correlational study using regression models of receiving	Screening surveys for cervical, breast and colorectal cancer screening.	94% of women received a pap in the last 3 years, 70% of women 40 years or older received a mammogram, 64% of women age 50 or over received colonoscopy	VI
Sanders, et. al, (2015)	What are sociocultural constructs associated with African American cancer screening?	1021 African American men and women	Computer database review Telephone interviews	Participants complete McQueen's eight item pros and 10 item cons scale	Relevance of empowerment privacy and collectivism play a part in colorectal cancer screening attitudes.	III
Purnell, et. al, (2009)	What is the relationship between socio-cultural factors and perceived benefits , perceived barriers, and colorectal cancer screening intentions among African Americans?	198 African American men and women ages 45 and older	Exploratory cross sectional study- Qualitative	Screening questionnaire and survey	Perceiving high susceptibility while being both more culturally sensitive and less mistrustful was associated with more perception of screening benefits.	VI
Bazargan, M. et., al (2015)	What is the perceived benefit of early breast, cervical and colorectal cancer detection among African American women?	513 African American women	Cross sectional correlational study	Survey assessing perceived benefit of screening, cancer knowledge, health status and risk of developing cancer	Perceived benefit of early cancer detection is associated with cancer knowledge and discussion with a primary care provider	IV
Bromley, et. al, (2015)	Create a systematic review that includes contributing factors and interventions to address disparities for colorectal cancer screening among African Americans	19 studies meeting criteria	Systematic review-conceptual model creation	Review only of factors affection lack of screening in peer reviewed journal articles	Modifiable factors include patient fear, knowledge and barriers to access. Future interventions should focus on improving those factors.	V
Patel, K., Hargreaves, M., Lui, J. et, al (2015)	What are the obstacles to screening for CRC in African Americans by geographic region? How do socio demographic factors influence decision to complete CRC screening	1140 African Americans in Nashville initially. Later narrowed to those greater than or equal to 50 year of age. Final sample size 460	Qualitative study	123 item community survey Chi squared used for associations of demographics and lifestyle choices	Certain demographic and lifestyle characteristics and having health insurance were positive predictors of having a CRC screening. Obstacles to screening varied by region	VI

APPENDIX B

American Cancer Society Guidelines on Screening and Surveillance for the Early Detection of Colorectal Adenomas and Cancer in People at Increased Risk or High Risk			
INCREASED RISK – People who have a history of polyps on prior colonoscopy			
Risk category	When to test	Recommended test(s)	Comment
People with small rectal hyperplastic polyps	Same age as those at average risk	Colonoscopy, or other screening options at same intervals as for those at average risk	Those with hyperplastic polyposis syndrome are at increased risk for adenomatous polyps and cancer and should have more intensive follow-up.
People with 1 or 2 small (no more than 1 cm) tubular adenomas with low-grade dysplasia	5 to 10 years after the polyps are removed	Colonoscopy	Time between tests should be based on other factors such as prior colonoscopy findings, family history, and patient and doctor preferences.
People with 3 to 10 adenomas, or a large (at least 1 cm) adenoma, or any adenomas with high-grade dysplasia or	3 years after the polyps are removed	Colonoscopy	Adenomas must have been completely removed. If colonoscopy is normal or shows only 1 or 2 small tubular adenomas with low-grade dysplasia,

villous features			future colonoscopies can be done every 5 years.
People with more than 10 adenomas on a single exam	Within 3 years after the polyps are removed	Colonoscopy	Doctor should consider possible genetic syndrome (such as FAP or Lynch syndrome).
People with sessile adenomas that are removed in pieces	2 to 6 months after adenoma removal	Colonoscopy	If entire adenoma has been removed, further testing should be based on doctor's judgment.
INCREASED RISK – People who have had colorectal cancer			
Risk category	When to test	Recommended test(s)	Comment
People diagnosed with colon or rectal cancer	At time of colorectal surgery, or can be 3 to 6 months later if person doesn't have cancer spread that can't be removed	Colonoscopy to look at the entire colon and remove all polyps	If the tumor presses on the colon/rectum and prevents colonoscopy, CT colonoscopy (with IV contrast) or DCBE may be done to look at the rest of the colon.
People who have had colon or rectal cancer removed by surgery	Within 1 year after cancer resection (or 1 year after colonoscopy to make sure the rest	Colonoscopy	If normal, repeat in 3 years. If normal then, repeat test every 5 years. Time between tests may be shorter if polyps are

	of the colon/rectum was clear)		found or there's reason to suspect Lynch syndrome. After low anterior resection for rectal cancer, exams of the rectum may be done every 3 to 6 months for the first 2 to 3 years to look for signs of recurrence.
INCREASED RISK – People with a family history			
Risk category	Age to start testing	Recommended test(s)	Comment
Colorectal cancer or adenomatous polyps in any first-degree relative before age 60, or in 2 or more first-degree relatives at any age (if not a hereditary syndrome).	Age 40, or 10 years before the youngest case in the immediate family, whichever is earlier	Colonoscopy	Every 5 years.
Colorectal cancer or adenomatous polyps in any first-degree relative aged 60 or older, or in at least 2 second-degree relatives at any age	Age 40	Same test options as for those at average risk.	Same test intervals as for those at average risk.

HIGH RISK			
Risk category	Age to start testing	Recommended test(s)	Comment
Familial adenomatous polyposis (FAP) diagnosed by genetic testing, or suspected FAP without genetic testing	Age 10 to 12	Yearly flexible sigmoidoscopy to look for signs of FAP; counseling to consider genetic testing if it hasn't been done	If genetic test is positive, removal of colon (colectomy) should be considered.
Lynch syndrome (hereditary non-polyposis colon cancer or HNPCC), or at increased risk of Lynch syndrome based on family history without genetic testing	Age 20 to 25 years, or 10 years before the youngest case in the immediate family	Colonoscopy every 1 to 2 years; counseling to consider genetic testing if it hasn't been done	Genetic testing should be offered to first-degree relatives of people found to have Lynch syndrome mutations by genetic tests. It should also be offered if 1 of the first 3 of the modified Bethesda criteria is met.*
Inflammatory bowel disease: -Chronic ulcerative colitis -Crohn's disease	Cancer risk begins to be significant 8 years after the onset of pan colitis (involvement of entire large intestine), or 12-15 years after the onset of left-sided colitis	Colonoscopy every 1 to 2 years with biopsies for dysplasia	These people are best referred to a center with experience in the surveillance and management of inflammatory bowel disease.

APPENDIX C

Directions for participating in colorectal cancer screening study:

- Your primary care provider has recommended you have a screening test for colorectal cancer. Please read the questions on the pre test and circle the number that best explains how you feel.
- Please view the educational material included.
- After you have viewed the educational material, please complete the post- test by circling the number that best explains how you feel.
- By completing the pre and post survey you are agreeing to participate in the survey.
- Please do not write your name, Date of birth or date on the survey.
- Once you have completed the surveys place them in the large envelope provided for you.
- You will receive a \$5 gift card upon completion of the surveys.

APPENDIX D

Age _____


CRC Screening Intention Pre and Post Survey

		Strongly Disagree	Somewhat Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1	I am at risk of becoming ill or dying from colorectal cancer.	1	2	3	4	5
2	Colorectal cancer death is preventable through screening.	1	2	3	4	5
3	I am afraid of having the screening test for colorectal cancer.	1	2	3	4	5
4	Colorectal cancer is rare among African Americans.	1	2	3	4	5
5	I plan to complete the screening for colorectal cancer as recommended.	1	2	3	4	5
6	I can't take off from work to have the colorectal cancer screening done.	1	2	3	4	5
7	The screening for colorectal cancer cost too much.	1	2	3	4	5
8	I am uncomfortable with the bowel prep for the colorectal cancer screening.	1	2	3	4	5

APPENDIX E

CRC Decision Aid- Culturally Targeting AA Women

African American Women and Colorectal Cancer



EARLY SCREENING SAVES LIVES

Q: How important is it that I get a colon or rectal cancer screening when I have no symptoms?

A: Most people have no symptoms of colon or rectal cancer until the disease has advanced.

Q: What will happen if I do not screen for colorectal cancer?

A: There is no way of knowing if you already have or have developed colon cancer or precancerous polyps.

DID YOU KNOW?

- 8,550 new cases of colon & rectal cancer in African American women in 2016
- 3,230 estimated deaths occurred in 2016 due to colon and rectal cancer in African American women
- The highest rates of late diagnosed colorectal cancer is among African Americans.
- Screening beginning at age 45 reduces the risk of colorectal cancer in African American Women

WHAT IS COLORECTAL CANCER?

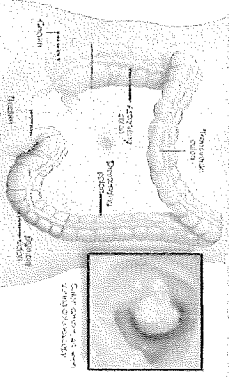
Cancer is a disease in which cells in the body grow out of control. Cancer is always named for the part of the body where it starts, even if it spreads to other parts of the body later. Colorectal cancer is cancer that occurs in the colon or rectum. The colon is the large intestine or large bowel. The rectum is the passageway that connects the colon to the anus.

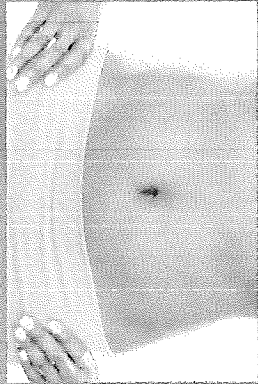
How Screening test save lives:

Colorectal cancer usually starts from precancerous polyps in the colon or rectum. A polyp is a growth that shouldn't be there. Over time, some polyps can turn into cancer. Screening tests can find precancerous polyps, so they can be removed before they turn into cancer. Screening tests also find colorectal cancer early, when treatment works best.

WHO GETS COLORECTAL CANCER?

- Colorectal cancer occurs most often in people aged 45 years or older. The risk increases with age. Both men and women can get colorectal cancer.





Your risk for colorectal cancer may be higher than average if:

- You or a close relative have had colorectal polyps or colorectal cancer.
- You have inflammatory bowel disease, Crohn's disease, or ulcerative colitis.
- You have a genetic syndrome such as familial adenomatous polyposis (FAP) or hereditary non-polyposis colorectal cancer. If you think you may be at increased risk, speak with your doctor about when to begin screening, which test is right for you, and how often you should be tested.

WHAT ARE THE SYMPTOMS OF COLORECTAL CANCER?

People who have polyps or colorectal cancer don't always have symptoms, especially at first. Someone could have polyps or colorectal cancer and not know it. If there are symptoms, they may include:

- Blood in or on your stool (bowel movement).
- Pains, aches, or cramps in your stomach that don't go away.
- Losing weight and you don't know why.

COLORECTAL SCREENING TEST



- **Stool tests / Guaiac-based Fecal Occult Blood test (gFOBT).** Uses the chemical guaiac to detect blood in stool. At home, you use a stick or brush to obtain a small amount of stool. How often: Once a year
- **Fecal Immunochemical Test (FIT):** uses antibodies to detect blood in the stool. You receive a test kit from your health care provider. This test is done the same way as FOBT. How often: FIT once a year.
- **Flexible Sigmoidoscopy (Flex Sig)** The doctor puts a short, thin, flexible, lighted tube into your rectum, and checks for polyps or cancer inside the rectum and lower third of the colon. How often: Every five years, or every 10 years with a FIT every year.
- **Colonoscopy** Similar to flexible sigmoidoscopy, except the doctor uses a longer, thin, flexible, lighted tube to check for polyps or cancer inside the rectum and the entire colon. During the test, the doctor can find and remove most polyps and some cancers. Colonoscopy also is used as a follow-up test if anything unusual is found during one of the other screening tests. How often: Every 10 years.
- **CT Colonography (Virtual Colonoscopy)** Computed tomography (CT) colonography, also called a virtual colonoscopy, uses X-rays and computers to produce images of the entire colon. The images are displayed on a computer screen for the doctor to analyze. How often: Every five years.

For More information about Colorectal Cancer Screening Please speak with your primary care provider and visit this website

Centers for Disease Control (2017). *Colorectal cancer screening saves lives*.
https://www.cdc.gov/cancer/colorectal/pdf/no_pocket_brochure.pdf

1-800-CDC-INFO

TTY 1-888-232-6384

www.cdc.gov/SCREENFORLIFE

Thank You!!