

Increasing the Colorectal Cancer Screening

Maria Flora, ARNP, DNP Student

Florida Atlantic University

Christine E. Lynn College of Nursing

2019

Dr. Tamara Love, DNP, MSN, ARNP, FNP-BC

Mr. Serge Valme, ARNP, FNP-BC

Abstract

Background: Worldwide, Colorectal cancer (CRC) is the third leading cause of death (Bevan & Rutter, 2018). In the United States of America, Colorectal cancer is the second leading cause of death related to cancer (Green et al., 2019). The Center for Disease Control and Prevention (CDC) reports that millions of people are not screening as recommended and thus missing the chance to prevent or detect early CRC when treatment could often lead to a cure (CDC, 2016). CRC is a highly valued preventive service, but sadly underused.

Purpose: The project goal was to evaluate the Colorectal screening program in one of the Florida Community Health Centers (FCHC) to determine if the center meets the National goal of 80% within the past 10 months, and to provide recommendations for future screening practices.

Methods: This project was conducted using retrospective chart reviews to calculate the CRC screening rates from July to September of 2019. Recommendations were made using the best available evidence.

Results: The clinical analyses of the CRC screening of the FCHC revealed only 60% of patients were screened by September 2019. As per the survey conducted among the providers showed 100% awareness on all aspects except there is no designated staff that follows the CRC screening.

Implications: The Florida Community Health Center (FCHC), failed to reach the National goal of 80% and the Health 2020 people goal of 70%. To increase the CRC screening rates, it is suggested that a new project champion be assigned to ensure the program's success.

Increasing Colorectal Cancer Screening in Florida Community Health Center

Introduction

The planet Earth is populated by more than 7 billion of people. On a daily basis, many people are born but many people also die. With the advanced technology and the improvement in early detection and better drugs, people are living longer. However, cancer in general is the second leading cause of death in the United States of America (Issaka, Avila, Whitaker, Bent, & Somsouk, 2019). The third-leading cause of death worldwide is colorectal cancer (Bevan & Rutter, 2018). In the United States of America, Colorectal cancer (CRC) is the second leading cause for death related to cancer (Green et al., 2019). The Center for Disease Control and Prevention (CDC), reports that among all cancers in the United States, CRC is ranked at 38% and fourth for cancer deaths at 14% (CDC, 2017). CRC is screening premalignant, latent, early, and curable lesions (Bevan & Rutter, 2018). The CRC screening helps find the precancerous polyp, which can be removed before it turns into cancer (CDC, 2019). The different types of CRC screening tests are fecal immunochemical test (yearly), high-sensitivity, guaiac-based fecal occult blood test (yearly), multi-target stool DNA test (every 3 years), colonoscopy (every 10 years), flexible sigmoidoscopy (every 5 years), and CT Colonography (every 5 years) (CDC, 2019).

The U. S. Preventive Service Task Force (USPSTF) recommends that adults aged 50 to 75 years be screened for CRC (USPSTF, 2016). This applies only to those adults who do not have any signs or symptoms of CRC. This age does not apply to people who have increased risk due to family history of certain genetic conditions such as Lynch syndrome, familial adenomatous polyposis, and history of inflammatory bowel disease and previous history of non-cancerous growth in the colon or rectum who would need earlier screening (USPSTF, 2016). The

median age at diagnosis of colon cancer is 67 years in males and 71 years in females. The median age at diagnosis of rectal cancer is 62 years in males and 63 years in females (Isaak & Inadomi, 2018). The American Cancer Society (ACS) recommends that adults aged 45 years and older with an average risk of CRC undergo reliable screening with either a high-sensitivity stool-based test or a structural (visual) examination, depending on patient liking and test convenience (ACS, 2017). The CDC (2019), reports that millions of people are not screening as recommended, and thus missing the chance to prevent or detect early CRC, when treatment could often lead to a cure.

Significance and Background

In the United States of America, CRC causes severe Morbidity and Mortality (USPSTF, 2016). The Surveillance, epidemiology, and End Results Program (SEER) 2019, reports the number of new cases of CRC is 145,600, and estimated death is 51,020. In 2015, only 63% of adults aged 50 and older were up to date with CRC screening in United States of America (ACS, 2017). The rate was below the National Colorectal Cancer Roundtable (NCCR) 80% (ACS, 2017). The CRC screening rate was also below The Healthy people 2020 recommendation of 70.5% (Office of Disease Prevention and Health Promotion, 2017). If screened early, this potentially fatal disease can be prevented or even cured (CDC, 2019).

The CRC is more common in African Americans, among men (52%), and women (39%) (SEER, 2019). The incidence of CRC has declined due to increase screening and changes in exposure to risk factors. A recent study found that adults born around 1990 had twice the risk of colon cancer, and 4 times the risk of rectal cancer compared to adults born around 1950 (Wolf AMD, 2018). The Florida CRC screening rates in 2014 was 65.5% and in 2016 was 67.3% (CDC, 2017). In the state of Florida, the CRC screening test was used mostly by whites (69.2%)

as compared to African Americans (65.5%), and Hispanics /Latinos (56.2%) (CDC, 2017), However, it was not surprising to see that patients who were insured for the CRC screening were higher with 62.9% as compared to uninsured with 35.2%. In the State of Florida, women (67.2%) were more compliant in screening for CRC than men (64.2%), but the interesting factor in Florida was that residents who were among the population older than 65 -75 years (80.1%) were more compliant with CRC screening than the population who were aged 50-64 years (58.8%) (CDC, 2017).

Project Evolution

The project evolved after extensive discussion regarding the priority needs and fallouts of the Florida Community Health Center Screening (FCHC) programs. The Project Leader along with the Quality program (QI) manager of the FCHC discussed various aspects of the Screening programs. The vast number of fall outs for CRC screening was a major concern to the Quality Program Manager. After discussing and researching various aspects of the screening program, the need for a program evaluation on Increasing CRC Screenings Adherence was identified. The program evaluation will help us to identify the areas of fall outs, and would enable the DNP project leader to make valuable recommendations.

Clinical question

Among adults aged 50-75 years, what is the effect of the Colorectal Screening Protocol on clinician adherence and patient outcomes with in a time range of 3 months?

Program Evaluation Purpose, Goals, and Objectives

The purpose of evaluating the FCHC CRC screening program was to determine program effectiveness as demonstrated by the following parameters:

- Current rates of CRC screening of adults aged 50 years to 75 years compared to

the target goals.

- Percent of staff and providers who are following screening procedures (or clinical protocols), as indicated in the CRC screening protocol.
- Percentage rate of practitioners currently adhering to the CRC screening protocol.
- The percent of patients who receive follow up care or referral after screening.
- The percentage and difference among the ethnic groups.
- Identification of strengths and weakness of the CRC screening program.
- Recommendations for improvements on current practices/procedures.

If program adaptations (modifications) are necessary, recommendations for program improvement will be discussed with the Medical Director and facility administrator of the FCHC. Information about the program will be systematically collected to identify the target population, provider characteristics, provider and staff. Adherence to protocols, fallouts and outcomes of the program, particularly colorectal screening rates, were accounted for. The program evaluation will help determine if areas for improvement exist and suggest potential improvement strategies to promote achievement of the FCHC target compliance for CRC screening rates.

Literature Review and Synthesis

In a review of literature, a comprehensive search was conducted from January 2012 to February 2019. PubMed, MEDLINE, Cochrane Review and CINAHL Plus were searched using the keywords; Colorectal Cancer Screening, Barriers, and Adherence. In addition, reference lists were searched for relevant studies related to this phenomenon. A randomized controlled study done by Larkey, Szalacha, Herman, Gonzalez, & Menon (2017) on community-to clinic navigation to promote CRC screening showed lowest prevalence for person aged 50-59 years

(53%), Hispanics (49.8%), persons with lower income (47.6%) and those with lower education (46.1%). In the United States of America, the highest incidence and mortality rate of CRC is among African Americans (Augustus & Ellis, 2018). The Piper et al. (2018) study demonstrated how increased education and the use of colorectal cancer and risk calculators can help in overcoming the de-implementation of CRC screening. There is strong evidence that early screening for CRC can reduce the risk of death from colon or rectal cancer (USPSTF, 2016).

Patient Barriers of CRC Screening

The barriers to CRC screening for patients include insurance, cost issues, transportation, and other challenges such as family, time off work, ineffective doctor–patient communication, lack of knowledge, misconceptions and fear (Larkey et al., 2017). The other barrier is that absence of symptoms has shown higher non-adherence for CRC screening and failure of the health care provider to recommend the CRC screening (Larkey et al., 2017). The first national study to provide a comparison of physician-perceived barriers to breast and CRC screening was done by Meissner, Klabunde, Breen & Zapka (2012). This study by PCPs reported greater barriers for CRC screening than for mammography (Meissner et al., 2012). Lack of patient follow-through to complete recommended screening and the inability to pay for tests were the chief barriers observed by PCPs for both types of screening (Meissner et al., 2012). As per PCPs, another major barrier is that patients don't perceive that CRC is a threat (Meissner et al., 2012). Some specific barriers among the Hispanic population for CRC screening are low literacy/educational levels, lack of provider recommendation, fear, cost and lack of awareness. (Wang, Moehring, Stuhr, & Krug, 2013). Another study done by Nagelhout, Comarell, Samadder & Wu (2017), was done to evaluate the differences in the endorsement of barriers to CRC screening and to evaluate the association between the provider recommendation and CRC screening adherence.

This suggested that the common barrier was fear of the results (27.6%). In addition, inability to leave work for appointments (26.9%), being unaware of the need for colonoscopy (25.4%), and lack of provider recommendation for CRC screening (24.9%) was reported as a barrier (Nagelhout et al., 2017). Nagelhout et al. (2017) showed that only 16.2% of the participants reported provider discussed CRC screening option. It was noted that white patients reported that provider discussed CRC screening than the Hispanics (Nagelhout et al., 2017).

Higher rates of CRC Screening

A pilot study done by Larkey et al. (2017) demonstrated that CRC screening rates were higher among those who received education plus navigation such as guided via phone calls and tailored response (35%), compared to those who just received education (11.8%).

Clinician Attitudes, Practices and Perceived Barriers to CRC Screening

Colonoscopy is the gold standard for CRC. Still no randomized controlled trial has been done to see the effect of colonoscopy on mortality (Brown et al., 2015). There is no evidence that colonoscopy is more effective than fecal occult blood test (FOBT), especially with the improved fecal immunochemical tests (FIT). The other barriers to screening with FOBT are annual testing (Liss, Petit-Homme, Feinglass, Buchanan, & Baker, 2013). Most of the clinicians do not believe that FOBT is effective for patients to screen CRC (Brown et al., 2015). In the same study, the perception of the clinicians showed that 92.7% believed colonoscopy is very effective, 24.6% believed the FIT was effective, and 12.8% reported that FOBT was not effective (Brown et al., 2015). Biennial screening with FOBT has been found to reduce colorectal cancer mortality (Vart, Banzi & Minozzi, 2012). Fecal immunochemical tests (FITs) are superior to guaiac fecal occult blood tests (G-FOBTs) due to their enhanced sensitivity and specificity (Vart, et al., 2012).

Strategies to facilitate CRC screening

In one of the studies that was done by Brown et al., (2015), the strategies to facilitate CRC screening among the clinicians was the health maintenance flow sheet where it was found out that even when Electronic Health Record (EHR) usage was 89.2%, only 37.3 % reported having the EHR alerts to remind that a patient is due for CRC screening. It was also interesting to see that most of the respondents wanted the FOBT to be completed at home (84.4%) (Brown et al., 2015). A randomized study done by Green et al., (2019) revealed that increase in FIT uptake and was significant for patients who received mail and monetary incentive than just mail.

Conceptual Framework

The conceptual or theoretical framework for this project was the Centers for Disease Control and Prevention's (CDC) model for program evaluation (Appendix A). This framework provides a theoretical tool for health professionals to systematically evaluate existing programs and demonstrate results of resource investments (HHS, 1999). The model incorporates the following six steps: engage stakeholders, describe the program, focus the evaluation design, gather credible evidence, justify conclusions, and ensure use and share lessons learned (CDC, 2017).

The implementation of this project also amalgamated the Quality-Caring Model designed by nursing theorist Joanne Duffy. The model has three components such as structure-process-outcomes with the Human Caring Model (Duffy & Hoskins, 2003). Under this model, a collaborative partnership was proven among nurses, patients, families, and other healthcare providers ensuing in positive alterations in health (Duffy & Hoskins, 2003). The concept was that the nurse not only offers a caring atmosphere for the patient but also promotes a caring relationship within the entire healthcare team. Incorporating this model into the project began

with establishing a professional interdisciplinary caring relationship with the entire healthcare team. The relationship was nurtured and upheld throughout the program evaluation process and stemmed in a caring/healing environment among all members that fostered therapeutic communication which was essential to the project.

Team Development

Student Team Leader: Maria Catherine Flora, BSN, is the Student Team leader of the proposed DNP project. She is experienced in Cardiovascular ICU, Step-down, and is currently managing an Infectious Disease Office. The student leader obtained her BSN in 1999 from India. She obtained Registered Nurse Licensure in 2002 and later migrated to the United States of America in 2004. She has worked in CVICU of Delray Medical Center and she is presently in the BSN to Doctorate of Nursing (DNP) Program of Florida Atlantic University (FAU).

The Faculty Team Leader: Dr. Tamara Love, DNP, MSN, ARNP, FNP-BC, is an Assistant Professor at FAU College of Nursing. She graduated as a Registered Nurse in 1997 and has worked in healthcare since that time. She went on to receive her Master's Degree in Nursing and certification as a Family Nurse Practitioner in 2009 from California State University. With a strong commitment to decreasing healthcare disparities, she worked in Primary Care, Shelter Nursing, and Retail Health as an Advanced Practice Nurse. Dr. Love later went on to receive her Doctor of Nursing Practice Degree from the University of Wisconsin. She completed a residency at the Kenosha County Department of Health. Her doctoral project focused on Cancer Prevention. Dr. Love has since worked as an educator for undergraduate and graduate programs in Nursing. Her experience has exemplified her role as a clinician and educator. She also maintains a strong commitment to Cancer Prevention, decreasing healthcare disparities, and the education of future Registered Nurses and Advanced Registered Nurse Practitioners.

The Community Team Leader: Mr. Serge Valme is the Clinical Director of the FCHC. He obtained his ARNP, FNP-BC from Keiser University of Miami. He is a physician of 10 years from Haiti. He has had a vast experience as a professor, mentor, director and a clinician. He speaks four languages: including English, French, Creole and Spanish. He is a great clinician and all his patients love him for his commitment and service in managing the patient's care. Currently, he is preparing to take the United States Medical Licensing Examination (USMLE) Board to be a licensed physician in the United States.

Project Processed

The DNP Project began following approval from the FAU DNP Committee and written permission from the Florida Community Health Center (FCHC) facility Director (Appendix C). The CRC Screening program evaluation was performed over three months from July to September 2019. The CDC's framework for program evaluation was used as follows:

1. Engage stakeholders: The Director of the FCHC provided a letter of permission for evaluation of the CRC screening program in April 2019 (Appendix C). The Project Leader met with the appropriate providers and staff members explained the need for the program evaluation and outlined the processes. The staff verbalized understanding.

2. Describe the program: The project leader did a program evaluation of the CRC screening at the FCHC, of Fort Pierce. The purpose of evaluating the FCHC CRC screening program was to determine program effectiveness as demonstrated by the following parameters:

- The Current rates of CRC screening of adults aged 50 years to 75 years compared to the national CRC goals (80%).
- Percent of staff and providers who have followed the screening procedures (or clinical protocols), as indicated in the CRC screening protocol.

- The percentage rate of practitioners currently adhering to the CRC screening protocol.
- The Percentage and difference among the ethnic groups.
- The Percent of patients who received follow-up care or referral after screening.
- Identified the strengths and weaknesses of the CRC screening program.
- Recommendations for improvements to current practices/procedures.

The CRC screening program needs, modifications and recommendations for the program improvement were discussed with the Medical Director and facility administrator of the FCHC. Information about the program was systematically collected to identify the target population, provider characteristics, provider and staff. Adherence to protocols, fallouts, and outcomes of the program particularly colorectal screening rates. The program evaluation helped to determine the areas for improvement and suggested the potential improvement strategies to promote the achievement of the FCHC target compliance for CRC screening rates.

3. Focus evaluation design: The Project Leader determined the program protocols were being followed by reviewing electronic health records, assessing aggregate data, and collecting information through direct observation. The data collection tool (Appendix Figure 2). The Project Leader used tables to document the response of the providers regarding the CRC screening protocols, barriers, facilitators, and outcomes.

4. Justify conclusions: The Project Leader analyzed the data and determined whether to recommend that the CRC screening protocol be adopted, adapted or abandoned. The DNP leader assessed the adherence of the providers and the barriers to CRC screening. Based on the program evaluation the DNP Project Leader discussed the recommendations for program improvement with the Medical Director of the FCHC.

5. Ensure use and share lessons: The Project findings were disseminated through poster presentations to the FAU faculty, students, and community. The program evaluation results were discussed in all other FCHC centers, and flyers were provided.

6. Permission from Agency: FCHC is comprised of many centers and the project was completed at the FCHC location. Permission was obtained by the Director of the FCHC.

7. Recruitment of Participants: Participants included all patients 50 years to 75 years old who received care at the FCHC locations. Sample sizes of 50 patients per provider were randomly selected from the Athena website of FCHC. A retrospective chart review was conducted to identify patients that were screened for CRC from July 1st, 2019 to October 1st, 2019. The healthcare teams chosen by FCHC administrations were observed regarding the adherence to CRC screening. These healthcare team members consist of physicians and nurse practitioners (NPs) and finally.

8. Protection of Participants: Patient rights and confidentiality were protected because retrospective data was collected from standard care practices and analyzed anonymously. There was no need for further consent, as a part of the healthcare team was notified and consent was obtained to observe and confidentiality was maintained by keeping the records under lock and key.

9. Tools/ Instruments: The CRC screening tool kit (Appendix B) was intended to help communities to evaluate a wide variety of interventions designed to increase awareness and use of CRC screening (Sarfaty, 2008). This tool was valid and reliable. The questions of this were slightly modified for the FCHC center and the needs of the facility. This self-assessment survey tool helped in identifying the necessary resources and the mechanisms that are already in place in

the FCHC site and where are the gaps. Thus, by collecting this data, it helped in determining the areas of modification or adoption or corrections.

Timeline

After the approval of the DNP graduate committee and permission from the Florida Community Health Centers in Fort Pierce, the implementation of the program started in May 2019.

- April 2019: Project proposal approval
- May 2019: Survey and direct observation
- June 2019: Collection of data (Pre) Record review, observations, interviews
- July-August 2019: Recruitment of participants
- September 2019: Final data collection
- October 2019: Project evaluation and manuscript completion
- November 2019: Project Dissemination and presentation to faculty and students.

Resources

To determine CRC screening rates, the student team leader obtained access to the FCHC, Fort Pierce patient database and ran a retrospective chart reviews on patients previously screened for CRC as well as current screening processes. Also, a copy machine was used to print data analysis reports and other reference material used for data collection. Finally, a computer with Microsoft Office and internet access was used for database access. The student also attended the boot camp by Dr. Newman for expert opinion on statistics interpretations.

Evaluation Plan

Evaluation of the CRC screening adherence program was done during the three-month Project period. Components of the CRC screening management program was identified, such as

the program and its protocols were compared to best available evidence (i.e. Guidelines, high-level evidence-based studies) to determine alignment with the National Roundtable benchmark target of 80% or Healthy People 2020 target of 70.5%. The Project leader obtained consent from the Director of the FCHC to conduct the program evaluation on the CRC screening, (Appendix D).

The self-assessment survey was conducted by reviewing the charts and interviewing with the medical professionals. The project leader used Tool A (Appendix B) to collect the date of the FCHC center. The providers were interviewed and direct observation was done to determine current practice, barriers, follow up and management of CRC screening. This helped to determine the barriers and the gaps.

The Project leader determined the total population of the center by checking the medical records, and then the data was collected from the Medical records by randomly selecting every 10th patient according to the calculated sample size. The Project Leader used a Microsoft Excel data collection sheet to log all information and data (Appendix C). The results were tallied and calculated such as the adherence, barriers, and the benchmark of the FCHC center. These results were discussed with the Director and gave the recommendations. Objectives and goals of the CRC screening guidelines were identified and compared to the National round table benchmark. Project results were analyzed and determined the current CRC screening program needed for recommendations for adaptation. The program needed adaptations and the DNP Project Leader met with the Medical Director and facility administrator of the FCHC and discussed the recommendations for program improvement.

Results

The results of the Program evaluation on CRC screening in FCHC, Fort Pierce from July to September 2019 (Appendix E & F) are: The total patients who screened for CRC is 60%.

Providers Compliance (CRC screening and age differences) (Appendix J): Provider 1

(APRN): CRC screening was recommended to all 50 patients and only 31 patients were compliant; the percentage of patients who completed the screening was 52%. The CRC screening rates among different age groups are 50-55 years (16%), 56-60 years (16%), 61-65years (22%), 66-70years (6%), and 71-75years (2%). Provider 2 (MD): CRC recommended to 50 patients and 23 patients were compliant, and the percentage of patients who completed the screening is 30%. The CRC screening rates among different age groups are: 50-55years, 4 patient (8%), 56-60 years 9 patients (18 %), 61-65 years, 6 patients (12%), 66 -70 years , 3 patients (6 %) , and among 71-75 years 1 patient (2%). Provider 3 (APRN): CRC was recommended to 50 patients, 37 were compliant and the percentage of patients who completed the screening is 68%. The CRC screening rates among different age groups are 50-55years, 1 patient (2%), 56-60years, 3 patients, (3%), 61-65 years, 17 patients (34%), 66-70 years, 12 patients (24%), and 71-75 years. 4 patients (8%). The combined CRC screening rates are Provider 1-34%, Provider 2-25% and Provider 3 -41%.

Difference among age groups (Appendix G) : The CRC screening rates among different age groups are as follows : 50-55years , 13 patients (14%), 56-60years, 20 patients (22%), 61-65years, 34 patients (37%), 66-70 years, 18 patients (20%), and 71-75years, 6 patients (7%).

Insured and Uninsured: The patients insured were 81% and uninsured was 19%.

Ethnic group differences (Appendix F): Among the ethnic groups, the CRC screening rates were African Americans with 49.45 %, Hispanics 34% and whites 16 .48%. When checked

among the different ethnic groups and gender the rates were: African American, Males, 25 patients (56%), compared to females 20 patients (44%). Whereas among the Hispanics, Males 8 patients (26%) and females 23 patients (74%), and among the white males, 11 patients (74%), and females 4 patients (26%).

Methods, Results, and referrals of CRC screenings: The patients who completed the FOBT/ FIT were 39%, Colonoscopy was 21%, Sigmoidoscopy, 1%, and none were 39%. The total patients who used either method of screening were 61%. When analyzed the high-risk status for CRC total was 17% and no risk was 83%. Out of 150 patients, who had no results in the EMR were 15%, FOBT/ FIT/ Colonoscopy negative results were 76%, positive results were 6%, and those results pending were about 3%. The results of the CRC results were reported to 55% of patients, 41% non-applicable and 4% pending results, yet to be reported. The total patients who were referred were 25%, and 75% were not applicable.

The survey conducted among the professionals revealed (Appendix B):

Medical Records

1. Do patient charts indicate current CRC screening status? 100% said yes
2. Do patient charts indicate the method and date of last screening? 100% yes
3. Do patient charts indicate high-risk status due history? 100% yes
4. Does your medical record system have the capacity to provide a list of patients' ages?
50- 75yrs who are not up to date on their screening? 100% yes

Staff Roles

5. Is there a designated staff member who provides information to patients about
CRC Screening? 100% No
6. Is there a designated staff member who recommends CRC Screening to patients? No

100%, except the Provider and the Lab check staff

7. Is there a designated staff member who follows up with patients who agree to be tested? 100% No, except the Provider

Resources

8. Are the FCHC Clinical Practice Guidelines for CRC screening easily available for Clinician reference? 100% yes
9. Does your clinic have free materials available to patients on CRC screening? 75% yes

Follow-up

10. Does your clinic have a process for following up with patients who have not returned their FOBT/FIT kit cards? 100% yes
11. Does your clinic have a process for receiving and documenting test results for? patients who choose flexible sigmoidoscopy or colonoscopy? 100% yes

Project Evaluation

The goals and objectives of this project were met. Key facilitators of project success included the Providers (MDs and ARNPs), medical techs, phlebotomists, and quality managers. There were no unintended consequences. The data analysis helped in providing meaningful information in making clinical decisions regarding the colorectal screening status. It allowed the researcher to see the bigger picture of the screening rates, differences among the providers, ethnic groups, compare the rates and see meeting the demands of the National guidelines, and etc. It also helped in simplifying the actual problem and presenting it to the board of the FCHC center to take the needed action to improve the CRC screening rates. Data collection started from the Athena website for the past 3 months in the Microsoft excel for all the patients above 50 years to 75 years. Their colorectal screening statuses per data sheet were assessed (Appendix C),

provider name, gender, ethnic group, insurance details, follow-up, and referral. The selection was randomly done for every 10 patients; the total sample size of 150 patients. The sample size was divided for three providers, each with a sample size of 50 patients. Then the differences between gender, ethnicity, compliance, results, follow up, and the referral for positive results was checked. Moreover, to analyze the data, the frequency was calculated for the overall FCHC center for 2019, from January to September for Colorectal screening. The percentage screening rates were calculated for a total of five providers (one MD and four ARNPs). The total percentage for FCHC was 59%. The paired t-test was used to compare the differences among the genders, different ethnic groups such as African Americans, Hispanics, and whites. A dataset spreadsheet was used to transfer data to SPSS Statistics software to generate the results.

After the analysis, it showed that the CRC screening rates were higher among the APRN (68%) than the MD (30%) (Appendix E). The CRC rates among each provider within different age groups: Provider 1 (APRN): CRC screening was recommended to 100% of all patients, and the percentage of patients who completed the screening is 52%. The highest CRC screening rates were seen among the 60-65 years (22 %), then among 50-55years and 56-60 years were at (16 %). Among 66-70 years, it was (6 %) and (2%) among 71-75 years. Provider 2 (MD) recommended CRC to 100% of patients, and the percentage of patients who completed the screening is 30%. The highest CRC screening rates were seen among the age groups 56-60 years (18 %), then 61-65 years, (12 %), 50-55years, (8%), 66 -70 years, (6 %), and lowest among 71-75 years (2%). For provider 3 (APRN), CRC was recommended to 100% of all patients, and among them who completed the CRC screening are 68%. The highest CRC screening rates were among the age group 61-65 years (34%), 66-70 years (24%), 71-75 years (8 %), and 56-60 years (6 %), and least among the 50-55 years (2 %).

The frequency checked among the genders, the African American males had a higher screening rate (56%) than the females (44 %); this can be attributed to proper communication. Hispanics rates were higher among the females (76 %), than Males (24 %), and among whites it was higher among the males (76 %), than the females (24 %). In overall ages groups, the highest screening rates were seen among the age groups 61-65 years (37 %), followed by 56-60 years (22%), 66-70 years (20 %), 50-55 years (14%), and least among the 71-75 years (7%) respectively. The patients who completed the FOBT/ FIT were 39%, Colonoscopy was 21%, Sigmoidoscopy, 1 %, and none were 39%. Total patients who used either method of screening were 61%. When analyzed, the high-risk status for CRC total was 17% and no risk showed 83%. Out of 150 patients, who had no results in the EMR were 15%, FOBT/ FIT/ Colonoscopy results negative were 76%, positive results were found among 6%, and pending results were about 3 %. The CRC screening results were reported to 55% of patients, 41% were non-applicable and 4 % pending results, yet to be reported. As per the table all the patients who had positive results were referred to the specialty MD.

As per the survey conducted (Appendix B) among the providers revealed, the providers are 100% aware of the medical records, staff roles, resources, and follow-up. There is no designated staff for checking the CRC screening status like a diabetes coordinator. The lab personnel follow up with the patients regarding the status of the sample and they maintain a log.

Recommendations

The FCHC is dedicated to serving the community through the promotion of health care to all patients in and around the community. After completing the program evaluation on colorectal screening in FCHC, and reviewing the results, it was evident that the colorectal screening rates are below the National Colorectal Roundtable (2017) 80%, and Healthy people 2020, 70%.

However, the FCHC Screening goal rate is only 39% (2018), and the APRNs, have achieved higher rates than the MD. There is a difference in the rates among the MD and the APRNs. It was evident that the CRC screening rates were higher among the APRNs (68% and 54%) than the MD (30%). This can be possibly attributed to the time spent by the providers in explaining the need for the CRC.

Interdisciplinary team approach

It is recommended that the CRC screening brochures be placed in patient rooms so that the MA can start the conversation about CRC screening and provide the patients with an educational reference. This will likely reduce the amount of time the provider will need to spend explaining the risks and benefits of CRC screening and thus allow for more time for addressing other health problems.

Enhance communications

The fallouts are seen from the patient's side; it will be a great idea to give a phone reminder to drop off the stool samples. Client reminders are written (letter, postcard, email) or telephone messages (including automated messages) advising people that they are due for screening. Client reminders may be enhanced by one or more of the following including follow-up printed or telephone reminders, additional text or discussion with information about indications for, benefits, and ways to overcome barriers to screening.

Appoint Project Champion

To increase the CRC screening rates, it is suggested that a new project champion be assigned to ensure the program's success. At the project's end, there is the potential for the next DNP student assigned to FCHC to pick up where this project left off and implement the

recommendations outlined here. That student may make a good nominee as the new CRC screening project champion and help in achieving the National goal of CRC screening rates.

Monetary Benefits for Screening

Another way to increase compliance is by providing a monetary benefit of \$5 for completing the FOBT/ FIT.

Dissemination

This DNP project and its results will be disseminated in various ways. The Student Leader will provide a PowerPoint presentation to the FAU faculty, students, and community as a requirement for the DNP degree. Additionally, an oral presentation will be provided to the Medical Director, facility administrator, and staff of the FCHC. The information will be formatted appropriately and submitted to other Centers of FCHC. There is also a possibility to submit this manuscript for publication.

References

American Cancer Society, (2017). The National Colorectal Cancer Roundtable.

<http://www.cancer.org.offcampus.lib.washington.edu/healthy/informationforhealthcare/Professionals/colonmdcliniciansinformationsource/nationalcolorectalcanцерroundtable/National-colorectal-cancer-roundtable>. Accessed February 2019.

Augustus, G. J., & Ellis, N. A. (2018). Colorectal Cancer Disparity in African Americans. *The American Journal of Pathology*, 188(2), 291-303.

Bevan, R. & Rutter, M. D. (2018). Colorectal Cancer Screening—Who, How, and When? *Clinical Endoscopy*, 51(1), 37-49. doi:10.5946/ce.2017.141.

Brown, T., Lee, J. Y., Park, J., Nelson, C. A., Mcburnie, M. A., Liss, D. T., et al. (2015). Colorectal cancer screening at community health centers: A survey of clinicians' attitudes, practices, and perceived barriers. *Preventive Medicine Report*, 2, 886-891. doi:10.1016/j.pmedr.2015.09.003.

Clinical Preventive Services. (n.d.). Retrieved from <https://www.healthypeople.gov/2020/leading-health-indicators/2020-topics/Clinical-Preventive-Services/data>.

Centers for Disease Control and Prevention (CDC). (2017). A framework for program evaluation. Retrieved November 2019, from Center for Disease Control and Prevention <https://www.cdc.gov/eval/framework/index.htm>.

CDC (2019, February 4).Colorectal Cancer. Retrieved July 9, 2019, from Center for Disease Control and Prevention: <https://www.cdc.gov/cancer/colorectal/statistics/index.html>.

Duffy, J., & Hoskins, L. (2003). The quality-caring model: Blending dual paradigms. *Advances in Nursing Science*, 26(1), 77-88.

Green, B. B., Anderson, M. L., Cook, A. J., Chubak, J., Fuller, S., Kimbel, K. J., ... Vernon, S.

W. (2019). Financial Incentives to Increase Colorectal Cancer Screening Uptake and Decrease Disparities. *JAMA Network Open*, 2(7), 1–14.

doi:10.1001/jamanetworkopen.2019.6570

Department of Health and Human Services, Centers for Disease Control and Prevention (1999).

Framework for Program Evaluation in Public Health (No. RR-11). Retrieved from

<https://www.cdc.gov/mmwr/PDF/rr/rr4811.pdf>

Issaka, R. B., & Inadomi, J. M. (2018). Low-Value Colorectal Cancer Screening. *JAMA*

Network, 1(8): e185445. doi:10.1001/jamanetworkopen.2018.5445

Issaka, R. B., Avila, P., Whitaker, E., Bent, S., & Somsouk, M. (2019). Review Article:

Population health interventions to improve colorectal screening by fecal

Immunochemical tests: Systemic review. *Preventive Medicine*, 118, 113-121.

ODPHP, (2017). Toolkit: Colorectal Cancer Awareness Month. Retrieved July 19, 2019 from

Office of Disease Prevention and Health Promotion:

<https://health.gov/news/blog/2017/03/toolkit-colorectal-cancer-awareness-month-2/>

Larkey, L., Szalacha, L., Herman, P., Gonzalez, J., & Menon, U. (2017). Randomized

Controlled dissemination study of community-to-clinic navigation to promote CRC

Screening: Study design and implications. *Contemporary Clinical Trials*, 53, 106-114.

Liss, D. T., Petit-Homme, A., Feinglass, J., Buchanan, D. R., & Baker, D. W. (2013). Adherence

to Repeat Fecal Occult Blood Testing in an Urban Community Health Center Network.

Journal of Community Health, 38(5), 829-833.

Meissner, H. I., Klabunde, C. N., Breen, N., & Zapka, J. M. (2012). Breast and Colorectal

Cancer Screening: U.S. Primary Care Physicians' Reports of Barriers. *American*

- Journal of Preventive Medicine*, December, Vol 43, Issue 6, 584-589.
- Nagelhout, E., Comarell, K., Samdder, J., & Wu, Y. (2017). Barriers to Colorectal Cancer Screening in a Racially Diverse Population Served by a Safety-Net Clinic. *Journal of Community Health*, August, Vol 42, Issue 4, 791-791
- Piper, M. S., Maratt, J. K., Zikmund-Fisher, B. J., Lewis, C., Forman, J., Vijan, S., et al. (2018). Patients Attitudes toward Individualized Recommendations to Stop Low-Value Colorectal Cancer Screening. *JAMA Network Open*, 1 (8):e185461. doi:10.1001/jamanetworkopen.2018.5461.
- Surveillance, epidemiology, and End Results Program*. (2019, April). Retrieved November 21, 2019, from National Cancer institute:
- Sarafaty, Mona (2008). How to Increase Colorectal Cancer Screening Rates in Practice: A Primary Care Clinician's Evidence Based Toolbox and Guide 2008. Eds. Karen Peterson and Richard Wender. Atlanta: The American Cancer Society, the National Colorectal Cancer Roundtable, and Thomas Jefferson University 2006, Revised 2008. <https://seer.cancer.gov/statfacts/html/colorect.html>.
- Vart, G., Banzi, R., & Minozzi, S. (2012). Comparing Participation rates between Immunochemical and guaiac fecal occult blood test: A systematic review and meta-analysis. *Preventive Medicine*, 55 (2), 87-92.
- U. S. Preventive Services Task Force. (June 2016). Final Update Summary: Colorectal Cancer: Screening. [https://www.uspreventiveservicestaskforce.org/Page/document/UpdateSummaryFinal/colorectal Cancer-screening](https://www.uspreventiveservicestaskforce.org/Page/document/UpdateSummaryFinal/colorectal%20Cancer-screening).
- Wang, Jing, Jody, M., Susan, S., & Molly, K. (2013). Barriers to colorectal cancer screening in Hispanics in the United States: An integrative review. *Applied Nursing Research*,

26(4), 218-224.

Wolf AMD, F. E.-B. (2018).Colorectal cancer screening for average-risk adults: 2018 guideline update from the American Cancer Society. *CA Cancer J Clinical*, 68 (4). 250-281.
doi10.3322/caac.21457.

Appendix A

Centers for Disease Control and Prevention Framework for program evaluation in public health.



Retrieved February 25, 2019 from <https://www.cdc.gov/eval/framework/index.htm>

Tool A: Appendix B

Yes	No	Medical Records
		1. Do patient charts indicate current CRC screening status? 2. Do patient charts indicate method and date of last screening? 3. Do patient charts indicate high-risk status due history? 4. Does your medical record system have the capacity to provide a list of patients ages 50- 75yrs who are not up to date on their screening?
Yes	No	Staff Roles
		5. Is there a designated staff member who provides information to patients about CRC screening? 6. Is there a designated staff member who recommends CRC Screening to patients? 7. Is there a designated staff member who follows up with patients who agree to be tested?
Yes	No	Resources
		8. Are the FCHC Clinical Practice Guidelines for CRC screening easily available for clinician reference? 9. Does your clinic have free materials available to patients on CRC screening?

Yes	No	Follow-up
		<p>10. Does your clinic have a process for following up with patients who have not returned their FOBT/FIT kit cards?</p> <p>11. Does your clinic have a process for receiving and documenting test results for patients who choose flexible sigmoidoscopy or colonoscopy?</p>

Appendix D



FLORIDA COMMUNITY HEALTH CENTERS, INC.

"Working Together For Healthier Communities" Since 1976

5827 CORPORATE WAY
WEST PALM BEACH, FL 33407-2000

TELEPHONE: 561-844-9443

Date: 4/15/2019



Dr. Serge Valme
1505 Delaware Ave,
Fort Pierce, FL 34950

Dr. Susan Bulfin
DNP Program Director
Christine E. Lynn College of Nursing
777 Glades Road
Boca Raton,
Florida -33431

OFFICERS

Brian Rucks
Chair

Tammy Jackson-Moore
Vice-Chair

Aletris Farnam
Secretary

Rev. Kenneth Mills Sr.
Treasurer

*President and
Chief Executive Office*

Dear Dr. Bulfin,

This letter is to confirm that we have granted Maria Catherine Flora, Doctor of Nursing Practice student, approval to complete her DNP Project at Florida Community Health Center (FCHC). The project entitled Program Evaluation on Increasing Colorectal Screening Adherence is based on the clinical question: Among patients aged 45 -75years is Colorectal Screening protocols followed by the Clinicians, identify the barriers, and the adherence of patient and providers, within a time range of 3 months.

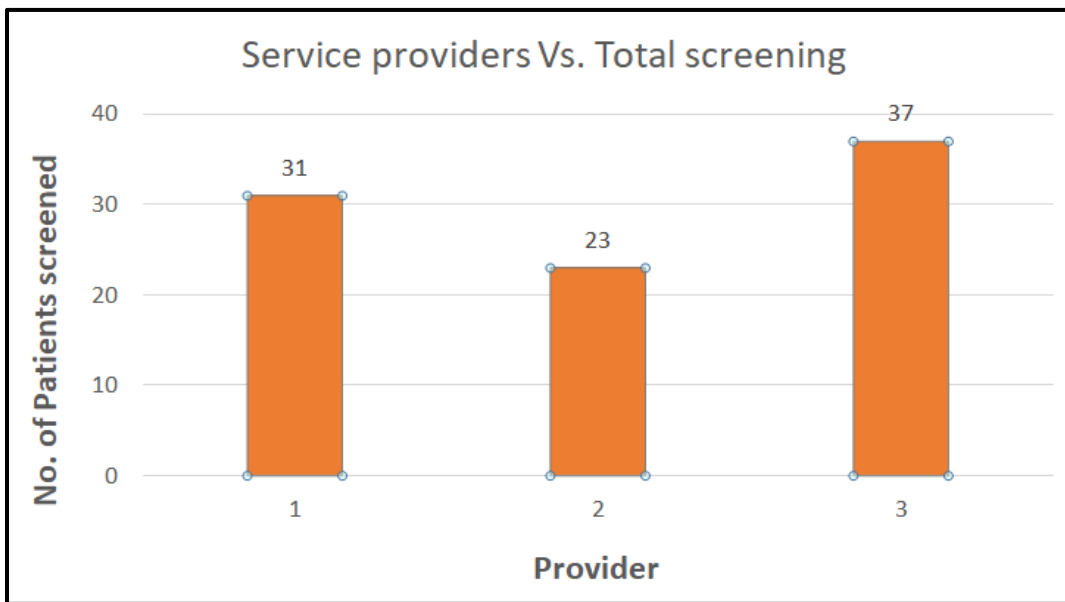
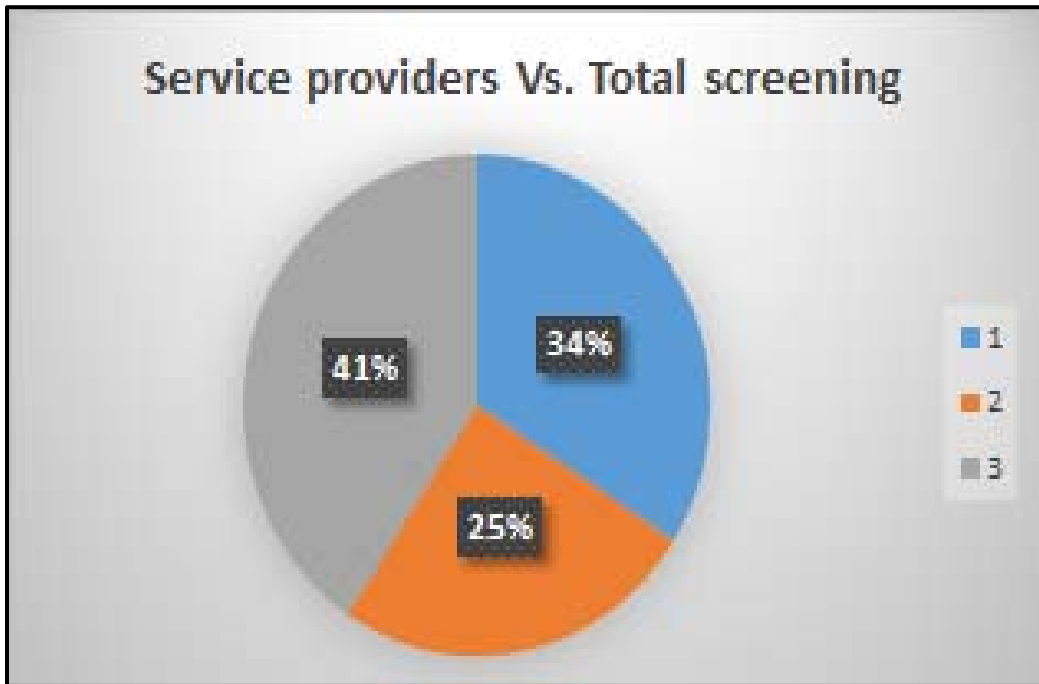
Working Together for Healthier Communities since 1976


Serge Valme

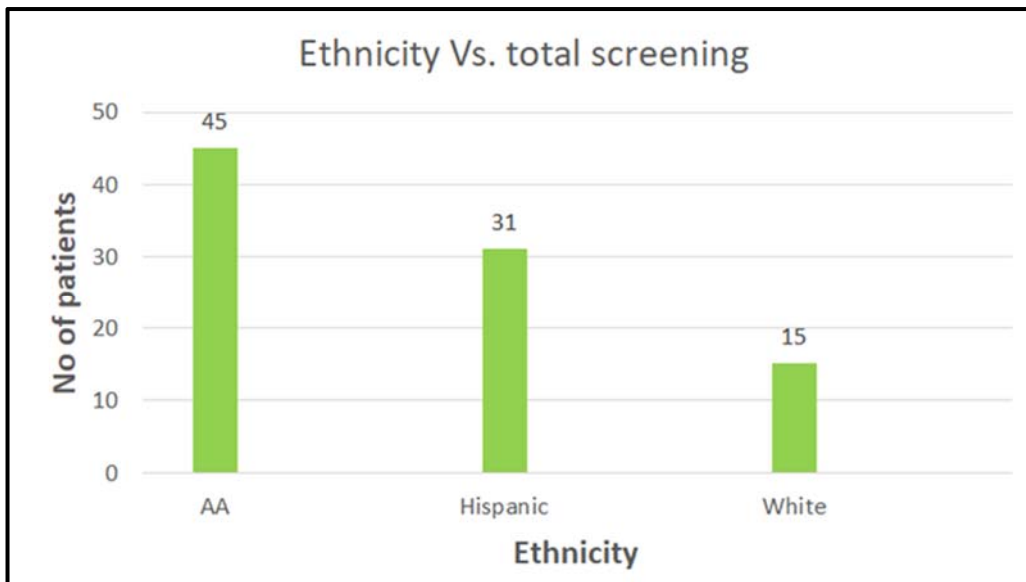
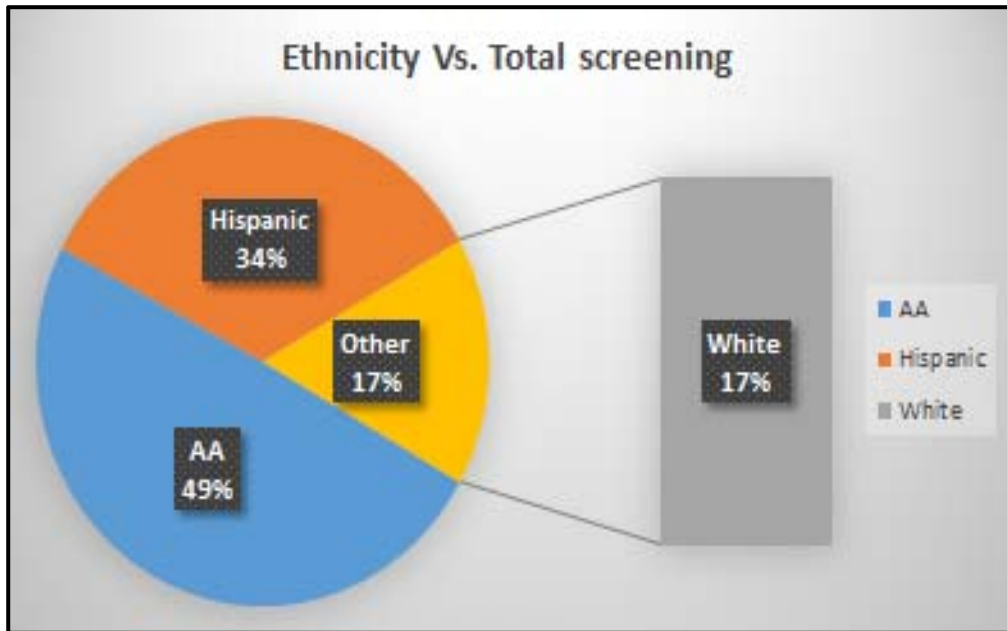
Fort Pierce Center Clinical Director
Florida Community Health Center

FLORIDA COMMUNITY HEALTH CENTERS, INC.
FORT PIERCE CENTER
1505 DELAWARE AVE.
FT. PIERCE, FL 34950
(772) 461-1402

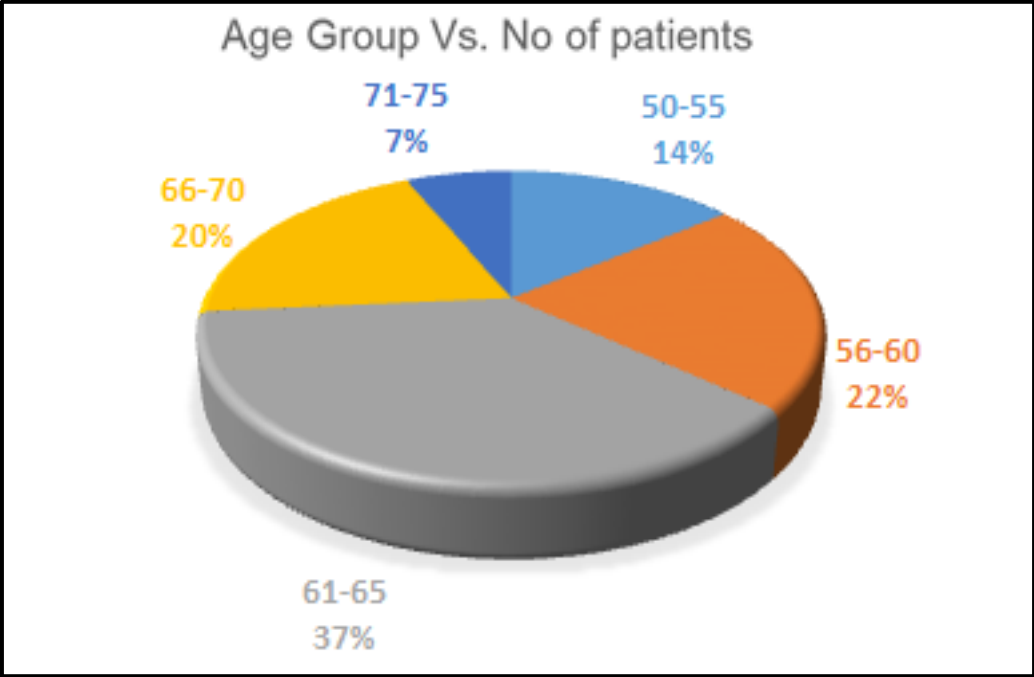
Appendix E



Appendix F



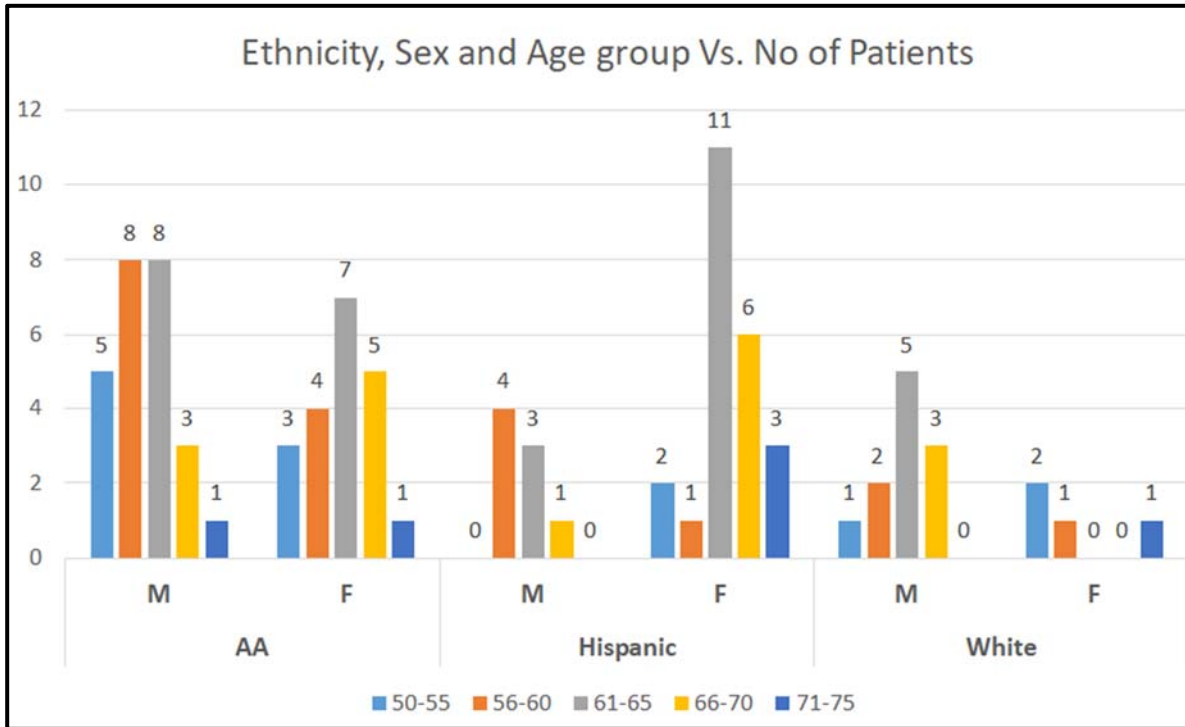
Appendix G



Appendix H

<i>Number of Colorectal screening</i>										
Age Group	Ethnicity						Provider			
	AA		Hispanic		White		1	2	3	
Sex -->	M	F	M	F	M	F				Total
50-55	5	3	0	2	1	2	8	4	1	13
56-60	8	4	4	1	2	1	8	9	3	20
61-65	8	7	3	11	5	0	11	6	17	34
66-70	3	5	1	6	3	0	3	3	12	18
71-75	1	1	0	3	0	1	1	1	4	6
Total -->	45		31		15		31	23	37	

Appendix I



Appendix J

