Improving Colorectal Cancer Screening in a Rural Community during a Global Pandemic

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Notes from the Author

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Abstract

Colorectal cancer is a leading cause of death in North Carolina and the United States. Colorectal cancer is detectable and preventable through screening, including visualization tests or stool-based testing. One county in Eastern North Carolina, colorectal cancer has been identified as a leading cause of cancer death and the county has a high mortality rate from colorectal cancer. During the COVID-19 pandemic in 2020, the number of screenings performed at the local cancer center had declined, as they did nationwide. This project was implemented to improve colorectal cancer education and screenings in this county during the pandemic by utilizing virtual appointments and mailout stool-based screening kits, as well as the development of an educational video that was posted on the site's social media page. The project was implemented over 12 weeks from September to December 2020 and resulted in one screening appointment and 184 full views of the educational video.

Keywords: colorectal cancer, screening, education, pandemic, virtual health

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Section I. Introduction

Background

Colorectal cancer is both detectable and preventable, however it continues to be one of the most common causes of cancer death in North Carolina (Centers for Disease Control and Prevention [CDC], 2016; North Carolina Department of Health and Human Services [DHHS], 2019; Siegel et al., 2015). Screening has increased survival rates and decreased deaths from colorectal cancer in several ways, including early detection and removal of lesions that may become cancer, as well diagnosing cancerous lesions at early stages which can improve treatment outcomes and overall survival (American Cancer Society [ACS], 2018; Doubeni, 2020; Harvin, 2016; National Foundation for Cancer Research [NCRF], 2017; Siegel et al., 2015; U.S. Preventative Services Task Force [USPSTF], 2016). Cancer has negative emotional, psychosocial and economic impacts on both patients and the community (N.C. Advisory Committee on Cancer Coordination and Control & N.C. Cancer Prevention and Control Branch [NCACCCC & NCCPCB], 2014, 2017). The average cost of cancer care per patient case was over $40,000 in the state of North Carolina in 2010, and it is likely higher now (NCACCCC & NCCPCB, 2014, 2017).

Colorectal cancer screenings continue to be under implemented across the nation, and North Carolina has been identified as an area where colorectal cancer rates remain elevated compared to the nation, particularly in rural areas (Harvin, 2016; NCACCCC & NCCPCB, 2017; Siegel et al., 2015). Potential barriers related to screening adherence may include impaired access to care, lack of insurance, cost, education and socioeconomic factors (Siegel et al., 2015). Lack of insurance and limited access to care have also been identified as risk factors for delayed or late-stage cancer diagnosis, which leads to poor outcomes and lower survival rates

(NCACCCC & NCCPCB, 2014, 2017). In addition to these barriers and risks for colorectal cancer screening completion, the global pandemic of the COVID-19 virus has added further complications and delays to the screening process (National Colorectal Cancer Round Table [NCCRT], 2020b).

Screening modalities for colorectal cancer include fecal detection tests or direct visualization tests (USPSTF, 2016). While colonoscopy remains the gold standard for screening, the cost of the procedure, as well as fear of possible risks involved, have been identified as barriers to completing this method of colorectal cancer screening, especially during the global pandemic of COVID-19 (NCCRT, 2020b; Yang et al., 2018). Fecal tests, such as FIT testing, are an affordable and practical option for screening when a colonoscopy is unavailable, and can be performed with compliance to social distancing guidelines in place during the global pandemic.

Organizational Needs Statement

In one rural county in Eastern North Carolina an outpatient cancer center is working to improve colorectal cancer screening rates within the county. The need for increased colorectal cancer screenings in this county is derived from the associated cost burden, mortality rates, and survival outcomes of colorectal cancer incidence for this community. According to the North Carolina State Center for Health Statistics (NCSCHS) (2020b), from 2011-2015 this county's mortality rate due to colorectal cancer was listed among the highest 20% as compared to other counties. The county has a population of over 50,000 people, where about 14 % of the residents are uninsured and over 20% of the residents are living in poverty (Lenoir County, n.d.; U.S. Census Bureau, 2019). The county is considered a Tier 1 county, which designates it as one of the 40 most distressed counties statewide based on factors such as unemployment rates and average household income (N.C. Department of Commerce, 2019).

The cancer center is an outpatient extension of the local hospital, which is affiliated with a larger healthcare system, that provides outpatient chemotherapy and radiation treatments to cancer patients in the community. The cancer center also promotes health education and preventative screenings to members of the community (UNC Lenoir Health Care, 2019). The facility is accredited by the American College of Surgeons' Commission on Cancer (n.d.), which measures quality and compliance in cancer care settings (UNC Lenoir Health Care, 2019). As a part of the credentialing requirements for the American College of Surgeons, the center is required to hold one cancer screening event per year, and have chosen colorectal cancer screening as their focus (D. Potter, personal communication, March 2020).

Implementing colorectal cancer screenings in this county will assist in reaching goals and compliance with local, state, and national benchmarks. One objective listed in the *Healthy North Carolina 2020* report was to reduce the mortality rate of colorectal cancer in the state, down to a goal of 10.1 per 100,000 population (North Carolina Institute of Medicine [NCIOM], 2011). According to the CDC (2016), North Carolina was noted to have over 800,000 residents who were at the appropriate screening age but had not been screened for colorectal cancer in 2016. The goal set by the National Colorectal Cancer Roundtable [NCCRT] (2020), is to have 80% of the population in every community screened for colorectal cancer at age 50; however, in 2016 only about 72% of the state's population was up to date on screening (CDC, 2016).

Colorectal cancer was the second leading cause of death in North Carolina in 2018, and deaths were noted to be higher among African Americans and males (NCACCCC & NCCPCB, 2020). The mortality rate from colorectal cancer at baseline is 12.6/100,000 with an aim of reaching 11.0/100,000 (NCACCCC & NCCPCB, 2020).

The cancer center's ability to increase colorectal cancer screenings would aid in achieving the Healthy People 2020 goals and objectives concerning cancer, specifically to increase the number of adults receiving colorectal cancer screenings to the goal of 70.5 by 2020, as the rate in 2018 was 65.2 (Office of Disease Prevention and Health Promotion [ODPHP], 2020). Additional goals outlined in Healthy People 2020, such as reducing the colorectal cancer death rate and reducing the rate of invasive colorectal cancer, would be impacted by improved screening and early detection (ODPHP,2020). Prior to the COVID-19 pandemic, the center was completing over 50 colorectal cancer screenings per year, but since the onset of the pandemic in March of 2020 the total number of screenings dropped to zero (D. Potter, personal communication, August 2020).

The Institute for Healthcare Improvement (IHI) Triple Aim initiative looks to reduce the cost of healthcare, improve the health of populations, and improve patient experiences (IHI, 2020b). The community served by the cancer center has been identified as a rural area where poverty and lack of insurance are risk factors for cancer vulnerability if screening guidelines are not followed (Lenoir County, n.d.; NCACCCC & NCCPCB, 2014, 2017; NCIOM, n.d.; Siegel et al., 2015). Increasing colorectal screenings and adherence to guidelines in this rural county increases the likelihood of detecting and preventing cancer, which improves patient outcomes and satisfaction, as well as reduces the financial burden of cancer care for both the patient and the community (NCACCCC & NCCPCB, 2014, 2017; Rex et al., 2017).

Problem Statement

The population in this rural Eastern North Carolina county has an identified increased rate of colorectal cancer mortality (NCIOM, n.d.; NCSCHS, 2020a, 2020b; Siegel et al., 2015). Due to the current health pandemic of COVID-19, the already limited access to care has become

even more strained and cancer screenings have been put on hold (Amit et al., 2020, NCCRT, 2020b). The deficit of colorectal cancer screenings could negatively impact the community's cost of healthcare, cancer incidence, and cancer mortality rates. To continue improve the health outcomes of this population, implementation of an accessible method of screening is needed.

Purpose Statement

The purpose of the project is to provide a virtual platform for continued colorectal cancer education and screenings performed by the cancer center in this rural Eastern North Carolina county during the pandemic called COVID-19. A potential long-term goal of this project would be to lead to the overall decrease of colorectal cancer deaths in the county, but that will not be measured in the length of this project due to the limited time frame for implementation and evaluation.

Section II. Evidence

Literature Review

A literature review was completed to assess the current state of knowledge and interventions related to colorectal cancer screenings, specifically related to the COVID-19 pandemic. The databases used in the search were PubMed, New PubMed, and CINAHL. The MeSH terms used in the search included “colonoscopy”, “screening”, “colorectal cancer”, “barriers”, “facilitators”, “fears”, “improvement”, and “adherence”. MeSH terms “COVID”, “coronavirus”, and “telehealth” were used in a separate search. The initial searches resulted in 266 articles for review. The levels of evidence included in the search were meta-analysis, systematic reviews, and randomized controlled trials. Further inclusion criteria used to narrow the results were articles published within the last 5 years, written in the English language, human species, subject age, and type of research, such as systematic reviews. With the filters applied, the searches were narrowed down to 45 articles. Redundant titles and citations were further excluded. For the remaining articles, the abstracts were read and if the abstract was pertinent to the project, including interventions to improve screening and identify barriers to screening, then the article was read in full to determine usefulness. A total of 9 articles were kept following the literature review, of these articles there were varying levels of evidence as the selected articles pertained to the problem statement (see Appendix E).

Current State of Knowledge

Among the reviewed literature, it was repeatedly noted that there is a need to investigate the lack of, and increase the number of, colorectal cancer screenings and adherence in the United States (Domingo & Braun, 2017; Dougherty et al., 2018; Hunleth et al., 2016; Issaka et al., 2019; Wang et al., 2019; Weiner et al., 2017; Yang et al., 2018; Ylitalo et al., 2019). The literature

consistently mentioned that nationally, the United States has noted disparities related to colorectal cancer screenings, and no particular method of best practice has been reached for improving these rates (Dougherty et al., 2018; Hunleth et al., 2016; Ylitalo, 2019). In one article, it was noted that North Carolina does not provide state funding to assist patients without insurance in colorectal cancer screening costs (Weiner et al., 2017). Several articles noted that the national level for CRC screening completion is around 60%, while the NCCRT has set a standard for 80% completion (Domingo & Braun, 2017; NCCRT, 2020a; Weiner et al., 2017).

Much of the literature focused on factors that may influence the rates of screening, such as patient education, insurance, socioeconomic factors, and personal beliefs regarding colorectal cancer screening and adherence (Domingo & Braun, 2017; Dougherty et al., 2018; Hunleth et al., 2016; Issaka et al., 2019; Wang et al., 2019; Yang et al., 2018; Ylitalo et al., 2019). Fear was reported as an emotion that many patients correlated to colorectal cancer screenings, including fear of diagnosis, fear of pain, and fear of the bowel preparation that may be needed for the screening test (Domingo & Braun, 2017; Ernst, 2019; Hunleth et al., 2016; Wang et al., 2019; Yang et al., 2018). Socioeconomic and racial disparities were apparent as a common theme in several studies as well, especially among rural populations (Domingo & Braun, 2017; Hunleth et al., 2016; Ylitalo et al., 2019; Wang et al., 2019).

Current Approaches to Solving Population Problem(s)

There have been many methods that attempt to improve or increase colorectal cancer screening rates, many of which involved patient navigation, patient education, or outreach (Domingo & Braun, 2017; Dougherty et al., 2018; Hunleth et al., 2016; Issaka et al., 2019; Yang et al., 2018). Current interventions are typically aimed at one of three levels including patient,

provider, or system level which may affect the implementation of the intervention (Domingo & Braun, 2017; Wang et al., 2019).

Patient navigation, patient education, improved access, and patient outreach were common interventions noted to influence screening rates, although no one approach was found to be the most successful (Domingo & Braun, 2017; Dougherty et al., 2018; Issaka et al., 2019). One systematic review reported compelling evidence of a significant increase in initial screening rates, which were linked to patient navigation and fecal test outreach and suggested that combining the two interventions may further amplify the success of increasing screening rates (Dougherty et al., 2018). Addressing the disparities and barriers noted in the literature and assessing the beliefs and current knowledge of the patient population in rural Eastern North Carolina, may be of benefit to allow a personalized approach to patient navigation and outreach (Domingo & Braun, 2017).

Detecting or preventing colon cancer is the priority goal in screening. Colonoscopy is known as the gold standard method for colorectal cancer screening, as it allows for both detection and removal of lesions with direct visualization, however the cost and fear associated with the colonoscopy, limit the availability to patients (Ernst, 2019; Hunleth et al., 2016; Issaka et al., 2019; Yang et al., 2018). The use of fecal tests to detect colorectal cancer has allowed for increased access to those with limited finances and has improved screening rates in the past, however, adherence to returning the test or having follow up from an abnormal result are still areas with needed improvement (Domingo & Braun, 2017; Dougherty et al., 2018; Issaka et al., 2019; Ylitalo et al., 2019).

If patient navigation was specifically formatted to meet the needs of the rural patient population it could be utilized along with the appropriate screening method to ensure availability,

completion, and follow up are sustained (Domingo & Braun, 2017; Dougherty et al., 2018). In collaboration with the partnering organization, who employs a patient navigator, the best approach for this project will involve implementing patient navigation to assess the patient population's beliefs regarding screening (Dougherty et al., 2018; Issaka et al., 2019). By formally assessing the needs of this population, the patient navigator may be able to tailor the outreach methods to best meet the needs of the patient.

Evidence to Support the Intervention

According to the literature, patient navigation, education, and outreach, either by mail or phone, increased colorectal cancer screening completion (Dougherty et al., 2018; Issaka et al., 2019). Patient-level reminders and provider communication increased screening by 5-15%, patient navigation increased screening rates by 10-15%, and FIT test outreach improved rates by 15-40%, according to a systematic review by Domingo & Braun (2017). In another review by Issaka et al. (2019), mail outreach increased screening by over 20% and pre- and post- FIT test reminders increased completion by 3-4%, where a one-on-one patient or provider interactions were excluded. Patient navigation could be incorporated with outreach and FIT testing to increase accessibility and adherence to screening in a multilevel intervention (Domingo & Braun, 2017; Dougherty et al., 2018; Issaka et al., 2019).

There was little evidence available at the time of the literature review in regard to the effect of the COVID-19 pandemic on colorectal cancer screenings and the best interventions to improve outcomes, as this was a developing topic. In an article by the Colorectal Cancer Roundtable (2020), it was noted that due to the delayed or cancelled colonoscopies and colorectal cancer screenings from COVID-19 there is raised concern that missed or delayed detection of colorectal cancer will lead to an increase in mortality in the future, which could total

over 4,000 excess deaths from this type of cancer in the next 10 years. In this article the CCRT recommends and supports the use of mail out stool-based kits to continue screenings, as well as developing new ways to approach screening during the pandemic.

Evidence-Based Practice Framework

Identification of the Framework

To increase colorectal cancer screenings in this rural population, the framework for the project was based on the RE-AIM model, which focuses on interpreting research into practice, impacting public health, and aiming for sustainability (Holtrop et al., 2018; Re-aim, 2020). By using the RE-AIM framework, the goal of the project was to reach the population, evaluate the effectiveness of the intervention, allow for adoption of the intervention by the institution, ensure proper delivery of the intervention and maintain the process for the long term (Re-aim, 2020). The specific outline for this project continued to develop in a virtual appointment system and education platform on colorectal cancer and screenings.

The Plan-Do-Study-Act [PDSA] cycle was also utilized as the specific project idea and topic were edited and determined in a collaborative effort between the DNP project team members. The PDSA cycle (IHI, 2020d) allowed for continued analysis of the project and what was working versus what was not working in accomplishing the goals. Several barriers and limitations were encountered along the planning and implementation process which led to the overall development of the final project, which are mentioned later in this paper.

Ethical Consideration & Protection of Human Subjects

In any type of research study involving human subjects, the three basic ethical principles of justice, respect for persons, and beneficence, must be applied to the study through utilization of informed consent, a thorough assessment of risks and benefits associated with the study, and

subject selection (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). The written material used in this project was evidence based and was provided at an approved literacy level to allow equal opportunity for all subjects to learn and understand any educational material. The educational material may also be presented in two forms (visual and verbal) to allow for different learning capabilities for the study participants. The potential harm from this project may include embarrassment, related to the nature of the study material, no other risks have been identified. There will be no patient identifiers collected in the study, and all data will be thoroughly reviewed for removal of any personal identifiers.

In preparation for ethical review and approval, CITI Program (n.d.) training modules were completed, and risks and benefits of the potential project have been considered. This project went through an exemption for IRB review and approval (CITI, n.d.). The study will not involve vulnerable populations, therefor no informed consent process for participation is required (CITI, n.d.; National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

The project site's IRB team reviewed the project design and agreed the project did not require formal IRB approval. The DNP student also went through a Qualtrics survey through East Carolina University that noted no need for a formal IRB approval due to the nature of the project, as noted in Appendix F.

Section III. Project Design

Patient education and navigation have been proven in the literature to increase screening rates, especially in rural community settings; however, considering the current COVID-19 situation, in-person appointments and group education has become difficult due to restrictions, distancing, and fear of exposure (Domingo & Braun, 2017; Dougherty et al., 2018; Issaka et al., 2019). The DNP student proposed a project to implement a virtual platform to continue screening appointments and education for the cancer center. With successful implementation, the cancer center may grow this process into other areas of the community and continue to utilize this method of patient outreach beyond the timeline of the project.

Project Site and Population

Description of the Setting. The cancer center where this project took place is an outpatient healthcare ambulatory center with radiation and chemotherapy treatment, that also focuses on community screening and education (ULH, 2020). The center is a part of the local hospital and associated with a large health organization. The county in which the project takes place has a population of over 50,000 people (Lenoir County, n.d.). In this county, about 14 % of the residents are uninsured and over 20% of the residents are living in poverty (Lenoir County, n.d.; U.S. Census Bureau, 2019). The county is considered one of the 40 most distressed counties statewide, based on factors such as unemployment rates and average household income (N.C. Department of Commerce, 2019).

The cancer center holds one screening event per year at minimum in accordance with the guidelines set forth by the American College of Surgeons, and the cancer center has chosen colorectal cancer for their screening event annually (D. Potter, personal communication, March 2020). The program navigator and site champion had implemented an in person, one-on-one

patient education and appointment system since taking over the event in 2018 and has increased the program participation and return rate of screening kits (D. Potter, personal communication, March 2020). However, in light of the current COVID-19 situation, in-person appointments and group education has become difficult due to restrictions, distancing, and fear of exposure.

Description of the Population. The population which was involved in this project were the citizens of this rural county, some may have insurance or may be uninsured, and were interested in having a screening for colorectal cancer but may have had limited knowledge prior to participation in this project. The project was held at the cancer center, but advertised throughout the community, with the hope of reaching a diverse population of participants. The age range of eligible participants was 45-75, to cover the recommended ages for colorectal cancer screening from various organizations (ACS, 2018; USPSTF, 2016).

Project Team

The project team consisted of the DNP student, the site champion, the project faculty and the director of the cancer program at the hospital. The site champion is a Registered Nurse and Oncology Nurse Navigator at the cancer center and worked with the DNP student to assess the current practices and needs of the cancer program. The director of the cancer program worked with the student and site champion to coordinate approval of the project design and planning. The project faculty was a guide and mentor to the student during the planning and implementation phases of the project.

Project Goals and Outcome Measures

The project goals were to provide a virtual platform to continue colorectal cancer education and screenings. The outcome measures included measuring the number of views of the educational video posted on the site's social media page, attendance of participants to their

virtual appointments, the number of FIT test kits and surveys sent out to participants and the number returned after the appointment. To gather feedback for project revisions and changes, satisfaction of the participants was measured using a Likert scale survey.

Description of the Methods and Measurement. The methods used for this project included utilizing Driver Diagrams to focus on the goals and needs of the project during implementation (IHI, 2020a). To guide the project along, the team followed the RE-AIM framework and PDSA cycles, in a way that shows what hindrances may exist in completing the project. The RE-AIM Planning tool helps plan the intervention and questions the design of the venture during the planning process (Re-aim, 2020). The PDSA cycle was used to update the project biweekly with changes due to barriers and limitations encountered (IHI, 2020d). Measurements were recorded by asking the participant at the time of their virtual appointment if they learned about the screening from the project advertisement and video or not. The educational video on colorectal cancer and colonoscopy education was uploaded to the cancer center's social media website, and the team was able to track the number of views it received.

Discussion of the Data Collection Process. The data collected included the number of views of the educational video, participation in the virtual appointments, FIT tests sent and returned, surveys sent and returned, and satisfaction of the virtual appointment. Data was collected manually by the DNP student via a paper trail and transferred to an Excel spreadsheet. The data was analyzed and tracked using a run chart. Run charts can track data points over time; therefore, the participation rate and knowledge level of participants could be monitored and tracked during the project (IHI, 2020c). These data points were noted on the run chart with analysis of the chart to note shifts and trends in the results.

Implementation Plan

Timeline. The project was implemented over 12 weeks from in the fall of 2020. The timeline for the proposed project included: staff education, advertising, mailing out packets with educational information and screening kit (FIT tests), and scheduling sessions during the first month, actual appointments virtually the following month with plans for at least two appointments each week for four weeks, then data collection and returned kits in the next two months. The student visited the project site at least once every two weeks. The virtual appointments were planned to be accomplished via a telehealth platform, to comply with social distancing in regards to the COVID-19 pandemic, however due to barriers and limitations the appointment was instead held via telephone.

Starting in the first two weeks of implementation, the student visited the project site at least once every two weeks. Two training and education sessions were held with the project champion and site to learn to use the virtual platform and review appointment scheduling and mailed kit setup. Advertising for the project participants involved development of a flyer and educational video. The flier was distributed throughout the community at churches, barber shops, clinical waiting rooms, and the hospital wellness center. An educational video developed and scripted by the student was uploaded to the cancer center's social media website with the assistance of the organization's Public Relations person, and information was provided at the end of the video regarding how to schedule a virtual appointment for screening with the cancer center. As participants called to schedule appointments, the FIT testing kits and educational packet were mailed to the participant. At the time of the appointment scheduling, the participant was informed to use their phone for the virtual appointment. All virtual appointments were to be scheduled to begin two weeks after training.

The virtual appointments were planned to be scheduled on two days weekly for four weeks. During the appointment, the participant was instructed on how to properly preform their FIT test, educated on the basic principles of colorectal cancer risk, prevention, detection, and screening. At one week following the appointment, if the kit had not been returned the patient would have been mailed a reminder card to return their kit and survey. At two weeks following their appointment, participants would be called to remind them to return their kit and survey, if not already returned. The participant that we had returned the kit within the week of the appointment.

In the final two months, the project team worked together to collect and analyze data from returned kits and surveys. The team discussed ways to develop ideas to further improve or disseminate the project for the future.

Section IV. Results and Findings

Results

The project measured several points, the first of which included the number of views and shares of the video which was posted on the project site's social media page. The views were broken down into full views or total views by the social media page. Full views mean the video was watched in its entirety, while the total views include the number of times which the video was viewed for more than 3 seconds (Facebook, 2020). This information was then compared to the measurements obtained for the number of calls received at the site for appointments for colorectal cancer screenings, the number of screening appointments held, and number of kits sent and received back for screening. The demographics of the participants who called for appointments was recorded, however there was no demographical target for this project beyond the site location.

The expectation of this project was to provide increased education to the community on colorectal cancer and increase the number of screenings at the center by sharing the educational information and holding contactless screening methods. It was also an expectation of the project that as the number of views of the informational video increased, the number of screening appointments would also increase. This would impact and correlate with the number of screening kits and surveys sent out and received, as well.

The number of views of the informational video during the implementation period was 184 full views and 387 total views. The results at the completion of the implementation period included one screening appointment made, although two calls for appointments were made. One screening kit was sent out and returned for screening. One satisfaction survey was sent to the participant and was completed and returned. The patient who made the appointment was a

Caucasian female between 50-60 years old without insurance and she reported overall satisfaction on the survey.

In developing and sharing the informational video, which was just over 7 minutes in length and used verbal and written graphical data, multiple modalities for learning were involved. The intent of sharing this information via a video platform was to increase community awareness and provide the site with a digital resource as a means to reach with the public. As the number of views increased, the hope was that the information reached more members of the community that may have otherwise not had the information. The number of views and response in appointments were likely influenced by many factors and limitations, noted in another section of this paper.

Outcomes Data

The data gathered in this project includes the number of views of the informational video, the demographics of the participant in the screening appointment, how and if the number of views correlated with the appointments made, and finally if the addition of having an advertisement in the local newspaper would make a difference in the number of views or calls.

The process measures in the project involved the use of social media to distribute the video, one advertisement in the local Sunday newspaper, and flyers (Appendix C) which were created, printed, and handed out in the community at locations including hair salons, barber shops, laundry mats, the community health clinic and local pastors in the area.

The outcome measures for the project were expected to include attendance rates to screening appointments, also counted by views of the informational video, and kit return rates, and a Likert scale satisfaction survey to measure the participants satisfaction. The satisfaction survey as noted in Appendix D, included 10 questions on the informational video, appointment,

and feedback on ease and understanding of the project. The goal of the project was to have at least 10 participants, with at least 50% return rate on kits sent out and positive feedback on satisfaction surveys, but the goal was not met by the end of the implementation period.

Discussion of Major Findings

The gaps in the results found compared to what was expected in the project included a lack of participation in the screening portion of the project. The project was two-fold, including a community education portion through the development and distribution of a colorectal cancer awareness informational video and transitioning the screening process to virtual process, which included patient navigation and mail-out kits. Unfortunately, the virtual appointments for screening had little participation and therefore did not have many results to measure outcomes of this intervention. The educational video was viewed on the social media platform, but the number of views did not appear to impact the participation in screening. One appointment was made for screening and that was attributed to seeing a flyer advertisement, another call was made inquiring about an appointment and that call was attributed to seeing the advertisement in the newspaper. No calls were made in relation to the video on the social media platform.

Section V. Interpretation and Implications

Cost Benefit Analysis

In general, the cost associated with this project were already being covered by the organization in their face-to-face screening appointments. It is reasonable to assume then that if this project was fully executed by the organization, there would be some cost involved, but it would depend on the complexity of the intervention. Some costs may include mailing costs screening kit at the local post office, staff costs such as time or employment pay, virtual platform installation/training if used, and advertising costs. There would not be a need for additional staff to be hired, but some additional team members from within the organization may be helpful to add to the team. The overall budget is included in Appendix B.

This project would have brought process and quality improvement to the organization, as the number of screenings occurring at the site has decreased due to COVID-19. The project also offers a new process for educating the public and utilizing screenings which had not been started. It may even prove to be more efficient than the previous method of face-to-face appointments with the participants picking up the kit in person and mailing it back to the center.

Originally, the project plan did not include utilizing advertisements such as the flyers, newspaper or television, but due to lack of participation the process evolved to include newspaper advertisement, which can be costly over time. One color advertisement in the local newspaper can cost about $200.00 (D. Potter, personal communication, 2020). The one-time advertisement cost for this project was donated by the newspaper. Printing of flyers for the project costs $25.00 to this student.

In general, this project would benefit the organization and the community by increasing the knowledge of colorectal cancer risks and screenings, increasing screenings and therefore

reducing the burden of colorectal cancer in the community. This also helps the organization meet their requirements for cancer screening by their accrediting body. The overall estimated cost, expense, or burden of colorectal cancer in the United States in 2018 was over 16 million dollars (National Cancer Institute, 2020). Therefore, the benefit of spending hundreds of dollars by the organization on this project compared to the cost burden of a case of colorectal cancer is noticeably beneficial.

Resource Management

The organization had the means to utilize a social media platform to get the video out to the public. The organization also has a public relations coordinator who was able to film and edit the educational video with the student. The organization has a print shop that could be used for printing needs and advertisement but was not used in this project. The patient nurse navigator is one of the key resources in this project who helps guide the patient through the screening process and would be the main person carrying the project forward in the future.

The organization needed a telemedicine or telehealth platform in place that was vetted and ready to use in the appointments for screening. This was one of the biggest barriers to the project being completed as planned, as the organization was undergoing a transition to a new electronic health record system and would not approve a platform for the use of this project. The organization may also benefit from a graphic designer or technology expert that could help with the development of the video and the electronic distribution of the information. This could also be accomplished by utilizing the existing Information Technology (IT) team within the organization.

The organization did have resources that were not used. The IT team was involved in the project briefly when the use of telehealth was being discussed but were not involved in any other

part of the project. The IT team could have been helpful in finding alternate means of getting the informational video out into the community digitally. Also, the print shop in the organization was not used in the student's project but could be used in order to increase advertisement and even printed information. The organization may have other resources available that were unable to be used at this time due to COVID-19, such as use of the wellness center or health coaches.

Communication within the organization and between the organization and student was a barrier at times during this project implementation; therefore, it is not clear how difficult the additional resources would have been to add to the project process and outcomes. There was a change in leadership during the project timeline at the organization as well as the transition to a new EHR during this time which limited communication at times.

Implications of the Findings

The implications of the project allow for an alternate way to educate the public on the risks, signs, and screening methods for colorectal cancer. The type of intervention that was developed was compliant with restrictions from the current pandemic. The video was viewed 184 times, and since the project was implemented one screening appointment was made and kept. The screening kit for this appointment was mailed to the participant, the appointment was held via the telephone, and the screening was completed, sample returned, and the satisfaction survey completed. This provided the basis for alternate methods for continuing screenings amid the pandemic. There was minimal cost involved in implementing the project and the potential benefit would impact the community and the healthcare organization.

Implications for Patients

The implications for patients would be continued education and screening for colorectal cancer, even when physically going to the office or center is restricted or not an option due to the

global pandemic. Preventing future cases of colorectal cancer or death from colorectal cancer would alleviate some of the healthcare burden on the patients in this region. The accessibility and availability of these resources would have a positive impact on the patients in this community. The project also allowed for various educational modalities in order to meet the needs of the participants in the community with different learning needs.

Implications for nursing practice. Due to the COVID-19 pandemic the ability of the center to hold their usual face-to-face appointments for colorectal cancer screenings is restricted, so providing this alternate way to educate and conduct the screenings could impact how care is provided for the population. The project met the essentials of a DNP project (see Appendix A) and implications for nursing practice include improving access to care and improved outcomes.

Impact for Healthcare System(s) Utilizing this alternative method of screening and education would allow for continued outreach and education to the community. The organization continues to provide screenings which are required for their accreditation. The model used for making the educational video was adopted by the organization and was used for making educational videos on breast cancer to educate the public, separately from this project.

Sustainability

The director of the cancer program has shown interest in continuing the project (D. Vestal, personal communication, October 2020). The center will continue to show the video, and once the electronic medical record has transitioned later next year, they hope to have a working telemedicine platform in which to hold virtual appointments with anyone screening. This should not require additional staff as the team at the center would be able to hold the appointments. The site champion can also continue to mail out the screening kits to reduce personal interaction at this time.

The organization can afford to continue the project as the overall cost is not much more than what they were spending on screening already. The organization can use the in-house print shop to print flyers and advertisements in house at reduced cost. No additional staff members would be required to implement the intervention at the most basic level; however, more team members could be utilized for a larger scale version of the project.

Dissemination Plan

Potentially, the project information could be shared with the healthcare organization's leadership team, which consists of the management council and board of directors. Another opportunity to share is with the community leaders such as the Director of Health or County Commissioners at their weekly meetings. On a larger scale the project could be shared with colorectal cancer awareness organizations such as the Colorectal Cancer Alliance or American Cancer Society. Finally, sharing this information may be helpful with the county health department or free clinics in the area.

The project was shared at the East Carolina University College of Nursing, which allowed educators and fellow students to hear about the project and potential scaffolding with future student projects on this same topic or other cancers.

Section VI. Conclusion

Limitations

Limitations were noted during planning and implementation. The limitations in planning occurred due to changes in the world and healthcare system related to the COVID-19 pandemic, including restricted ability to interact in person. These limitations were discussed in the planning period and methods were adjusted to maintain social distancing.

Limitations in the implementation period also involved the global pandemic COVID-19, as well as interference in the instillation of a virtual (telehealth) platform being installed at the site for the project by the organization's Information Technology team. The short time frame of the implementation period may have also been a limitation as more time could have allowed for further screenings to be scheduled. Use of a social media platform to distribute the educational video may have limited the number of views as some of the population of this community may not have access to social media or internet access in the rural area. The small size of the team at the project site could have caused a limitation of the resources available for this project.

Recommendations for Others

In planning for this project, the key recommendation would be to make alternative options in case of barriers that interfere with the original plan. A beneficial recommendation may also be to try to involve more team members from the organization in planning and development of the project, bringing more resources to the project such as involving the site's information technology team. Choosing a specific population, such as a faith-based organization or community group to distribute the information to and observe the results, rather than the community at large would be another recommendation for planning.

In implementation, recommendations for others would include using multiple sources of distribution of the video to include members of the population without internet access or social media. As the pandemic continues and vaccines are becoming more available, the potential of reduced restrictions such as social distancing and isolation occur, the possibility of showing the video in person to groups or in waiting rooms at clinics may become possible. Also, the video could be distributed to patients of the healthcare system via their patient portal in future.

Recommendations for evaluation would include a follow up to the video to assess the barriers to scheduling the screening appointment. Utilizing statistical analysis for a project with more participation would also be recommended in order to validate study findings, such as a study addressing barriers.

Recommendations Further Study

Further concepts and research to be done would include assessing barriers to having free screenings completed from the participants who viewed the video but did not schedule an appointment. Another area of research would be to determine how and if other facilities were able to continue screenings during the pandemic. Investigating available grants or resources that can help with the cost of screenings in the area, such as resources from American Cancer Society or the Colorectal Cancer Alliance. Assessing for baseline knowledge of the community and general public on colorectal cancer risks and screening information would be helpful. This model could be used, and is now being used by the site, for other cancers including breast cancer to get information to the public regarding screenings.

In summary, this project had a positive impact in the organization and the community by spreading education and awareness on colorectal cancer and providing one screening for colorectal cancer. Hopefully, this model can continue to be used and expanded upon by the

organization in the future. With continued efforts and support this project may grow and expand to reduce the overall burden of colorectal cancer in this community.

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Appendix A

Doctor of Nursing Practice Essentials

	Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	**Competency** – Analyzes and uses information to develop practice **Competency** -Integrates knowledge from humanities and science into context of nursing **Competency** -Translates research to improve practice **Competency** -Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	Researching and analyzing project topic and using evidenced based resources to develop project idea. Using and translating the research into a QI project to improve practice outcomes as related to colorectal cancer.
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	**Competency** –Develops and evaluates practice based on science and integrates policy and humanities **Competency** –Assumes and ensures accountability for quality care and patient safety **Competency** -Demonstrates critical and reflective thinking **Competency** -Advocates for improved quality, access, and cost of health care; monitors costs and budgets **Competency** -Develops and implements innovations incorporating principles of change **Competency** - Effectively communicates practice knowledge in writing and orally to improve quality **Competency** - Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	Developed project outline and presented to leadership of project team. Advocated and developed project that has potential to improve education and access to care during global pandemic.
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	**Competency** - Critically analyzes literature to determine best practices **Competency** - Implements evaluation processes to measure process and patient outcomes **Competency** - Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients **Competency** - Applies knowledge to develop practice guidelines **Competency** - Uses informatics to identify, analyze, and predict best practice and patient outcomes **Competency** - Collaborate in research and disseminate findings	Literature review and analysis of literature used to determine best intervention for project that would improve outcomes for the patients, nursing community and healthcare organization.
Essential IV ***Information Systems – Technology & Patient Care Technology for the Improvement & Transformation of Health Care***	**Competency** - Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery & quality of care **Competency** - Analyze and operationalize patient care technologies **Competency** - Evaluate technology regarding ethics, efficiency and accuracy **Competency** - Evaluates systems of care using health information technologies	Utilized technology to develop educational video to be used on social media site and intent of using a telemedicine platform for project to become virtual in nature.
	Description	**Demonstration of Knowledge**

Essential V ***Health Care Policy of Advocacy in Health Care***	**Competency**- Analyzes health policy from the perspective of patients, nursing and other stakeholders **Competency** – Provides leadership in developing and implementing health policy **Competency** –Influences policymakers, formally and informally, in local and global settings **Competency** – Educates stakeholders regarding policy **Competency** – Advocates for nursing within the policy arena **Competency**- Participates in policy agendas that assist with finance, regulation and health care delivery **Competency** – Advocates for equitable and ethical health care	Educational video and meetings with stakeholders to discuss development of project prior to implementation.
Essential VI ***Interprofessional Collaboration for Improving Patient & Population Health Outcomes***	**Competency**- Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship **Competency** – Provide leadership to interprofessional care teams **Competency** – Consult intraprofessionally and interprofessionally to develop systems of care in complex settings	Worked with patient navigator, public relations, information technology, and leadership director of cancer center to develop and communicate project ideas.
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	**Competency**- Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery **Competency** – Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care **Competency** – Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity	Utilized change models including the PDSA cycle and RE-Aim framework to develop and continue to modify project when barriers arose to improve outcomes related to colorectal cancer.
Essential VIII ***Advanced Nursing Practice***	**Competency**- Melds diversity & cultural sensitivity to conduct systematic assessment of health parameters in varied settings **Competency** – Design, implement & evaluate nursing interventions to promote quality **Competency** – Develop & maintain patient relationships **Competency** –Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes **Competency** – Mentor and support fellow nurses **Competency**- Provide support for individuals and systems experiencing change and transitions **Competency** –Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	Included diversity and cultural findings of the community where project was performed and needs of that region. Also designed, implemented and evaluated interventions to improve outcomes including quality outcome measures, care delivery and fiscal responsibility.

Appendix B

Budget

Costs	Quantity	Individual cost	Tax	Total
CRC Screening kit (mailed)	1	$3.88	$0.27	$4.15
Printing fliers	50 fliers	$25.00	$1.75	$26.75
Printing documents for project	100 pages	$10.00	$0.70	$10.70
Envelopes	1 pack	$2.19	$0.15	$2.34
Clear Tape (mailing tape)	1 roll	$3.49	$0.24	$3.73
Gifts/Thank you for staff (Breakfast)	1 box of pastries	$40.00	$2.80	$42.80
				$90.48

Appendix C

Flyer

FREE
COLORECTAL CANCER SCREENINGS

Are you 45-75 years old? Have you been screened for colorectal cancer?

Colorectal cancer is a pain in the butt! It also is the 2nd leading cause of cancer death in the U.S. but is preventable through screening! Don't let COVID keep you from being screened. We will bring the screening to you! For more information watch the video on our Facebook page at

LENOIR
UNC HEALTH CARE
CANCER CENTER

YOU NEED TO BE SCREENED FOR COLON CANCER

—

BUT COVID HAS YOU STUCK IN THE HOUSE

—

LET US HELP YOU

—

WATCH THE VIDEO AT
HTTPS://WWW.FACEBOOK.COM/UNCLENOIRCANCERCENTER/VIDEOS/932973200541905

—

CALL 252-522-7815 FOR MORE INFORMATION AND TO SET UP YOUR SCREENING

UNC-LENOIR CANCER CENTER
703 Doctors Drive
Kinston, NC
252-522-7600
or 252-522-7815

https://www.facebook.com/UNCLenoirCancerCenter/

Appendix D

Satisfaction Survey

Patient satisfaction survey

Please mark in the box with an X or check mark. Your feedback is greatly appreciated and will be anonymous.

	Strongly Disagree 1	Disagree 2	Neither agree or disagree 3	Agree 4	Strongly Agree 5	N/A
1. I learned something new by watching the informational video on colorectal cancer screening						
2. The videos were easy to understand						
3. The video prompted me to make an appointment for colorectal cancer screening						
4. I was already planning to be screened for colorectal cancer prior to the video/flyer						
5. The staff at the Cancer Center was helpful and answered my questions during my appointment						
6. The FIT testing was easy to understand and perform						
7. I was satisfied with my appointment (phone or virtual) for my FIT test screening						
8. I would recommend colorectal cancer screening to my friends and family.						
9. The process of mailing the kit in was easy to understand						
10. The educational materials were helpful and easy to understand.						

One new piece of information learned from the video was:

_____

_____

This process could be improved by:

_____

_____

Additional comments:

_____

_____

_____

Thank you for your feedback!

Appendix E

Literature Review

Authors	Year Pub	Article Title	Theory	Journal	Purpose and take home message	Design/Analysis/Level of Evidence	IV DV or Themes concepts and categories	Instr. Used	Sample Size	Sample method	Subject Charac.	Comments/critique of the article/methods GAPS
Ernst, D.	2019	Tricks of the Trade to ease the fear and anxiety in patients undergoing colonoscopy	N/A	*Gastroenterology Nursing*	To provide tips for decreasing fear and anxiety in patients undergoing colonoscopy	Level VII- Opinion of expert	Themes: decreasing fear and anxiety in patients will increase the number of colonoscopy screenings	N/A	N/A	N/A	N/A	The author found that colonoscopy adherence is influenced by patient anxiety Limitations: N/A Usefulness: Not a high level of evidence, but provides insight from a topic expert Synthesis: Decreasing anxiety and fear by talking with patients and making them comfortable prior to the colonoscopy can increase adherence
Hunleth, J. M., Steinmetz, E. K., McQueen, A., James, A. S.	2016	Beyond Adherence	Foucalt's neoliberal governmentality and "responsibilization"	*Qualitative Health Research*	To determine themes, behaviors and beleifs in people who had CRC screening colonoscopies and address barriers	Level VI- Qualitative study	Themes: cost, limited information and access, social connections and support, and emotions related to colonoscopy (fear)	Photovoice: taking photographs to facilitate discussions among groups; statistics	18	Chart review and invitation	13 female, 5 male, 13 black, 5 white, ages 51-69	Authors approached this study from the perspective of people who were already screened for CRC via colonoscopy in an area with a large population of underinsured or low income do to determine what common themes were found between these people that may affect the number of people getting a colonoscopy or other screening
Wang H, Roy S, Kim J, Farazi PA, Siahpush M, Su D.	2019	Barriers of Colorectal Cancer Screening in Rural USA: A systematic review	PRISMA	*Rural and Remote Health*	Barriers identified were cost, lack of insurance, embarassment, lack of knowledge and lack of physician reommendation	Level I-Systematic Review	Themes: frequently recorded barriers	Literature search using Medline, CINAHL, Embase and Scopus	Found 83 articles but filtered down to 27 articles used in review	Applied inclusion and exclusion criteria- English language, no interventional studies, no international studies (only US included)	Empirical studies in English language focused on barriers to CRC screening	Authors found that the most frequently recorded barriers for CRC screening included cost, lack of insurance, embarassment, lack of knowledge and lack of physician recommendation. They noted that there are multiple levels in which barriers can occur such as the patient level, provider level and clinic level. Limitations: The limitations noted in this study included various definitions of rurality or rural populations, including both qualatative and quantitative studies and some articles that may be helpful were not included due to inclusion and exclusion criteria
Dougherty, M. K., Brenner, A. T., Crockett, S. D., Gupta, S., Wheeler, S. B., Coker-Schwimmer, M., Cubillos, L., Malo, T., Reuland, D. S.	2018	Evaluation of interventions intended to increase colorectal cancer screening rates in the United States: A systematic review and meta-analysis	PRISMA	*JAMA Internal Medicine*	Investigated the interventions that improved three questions regarding colorectal cancer screenings: 1- Completion of any screening, 2- Colonoscopy after an abnormal screening result, 3- Completion of annual screenings of FBT	Level I-Systematic Review	Interventions that had significant increase on number of CRC screenings	Literature search using PubMed, CINAHL, Cochrane Library and ClinicaTrials.gov	73 RCT's	Inclusion and exclusion criteria applied including US only, RCT	RCT's in US	Authors found that patient navigation and outreach (fecal test) had the strongest evidence in increasing completion of initial screening; and that combining interventions may lead to even higher rates of adherence and completion Limitations: only analyzed results in US studies, publication or report bias was possible, found substantial heterogeneity among study effects
Domingo, J. B., Braun, K. L.	2017	Characteristics of Effective Colorectal Screening Navigation Programs in Federally Qualified Health Centers: A systematic review	PRISMA	*Journal of Health Care for the Poor and Underserved*	To investigate patient navigation in FQHC's and determine what strengths and barriers were found in literature	Systematic Review	Current interventions are aimed at patient, provider or system level	Freeman's definition of patient navigation; literature review using PubMed, CINAHL and PsychINFO; PRISMA guidelines used	Total articles found was 620, filtered down to 8 total	Used inclusion and exclusion criteria	Used modified version of The Community Preventative Task Force's assessment tool and PRISMA guidelines	Article reviewed current knowledge and levels of known interventions including patient level, provider level and system level interventions and shows the percentage increase with each intervention Limitations: Possible publication bias, narrow inclusion criteria in systematic review, exclusion of descriptive or qualitative studies, selected articles primarily focused on two minority populations Usefulness:Very Synthesis: Education, outreach, patient navigators and access (fecal tests) have improved CRC screening
Yang, C., Sriranjan, V., Abou-Setta, A. M., Poluha, W., Walker, J. R., Singh, H.	2018	Anxiety associated with colonoscopy and flexible sigmoidoscopy: A systematic review	MECIR and PRISMA; also noted the Health anxiety perspective	*American Journal of Gastroenterology*	To review the reasons patients have concerns about having endoscopic procedures that may relate to lower rates of CRC screening	Level I-Systematic Review	IV Health anxiety perspective DV Procedure numbers	Literature search in MEDLINE, EMBASE, CINAHL, PsychInfo, Web of Science, Cochrane Library, and Scopus	58 studies included	Applied inclusion and exclusion criteria- English and French language, 2005-2017	Observational studies, 17 RCTs and one case study	The outcome measures were the magnitude of anxiety, patient-reported concerns related to anxiety, predictors of anxiety, and efectiveness of anxiety-lowering interventions in patients having colonoscopy or FS.
Ylitalo, K. R., Camp, B. G., Umstattd Meyer, M. R., Barron, L. A., Benavidez, G., Hess, B., Laschober, R., Griggs, J. O.	2019	Barriers and facilitators of colorectal cancer screening in a Federally Qualified Health Center (FQHC)	Not found	*Journal of the American Board of Family Medicine*	To identify patient characteristics and perceived barriers or facilitators to screening through FIT return and to assess clinician perceptions of patient barriers and facilitators and screening recommendations	Level VI	Themes: FQHC have low rate of CRC screenings (38%); common reasons for non-return of FIT tests were forgetfulness and lack of motivation; facilitators to return were reminder calls and prepaid postage (for mail outreach); providers wanted to recommend insured patients for colonoscopy	Epic used for chart queries; SAS used for statistical analysis; Qualtrics for survey	875 charts reviewed, 121 phone surveys, 31 clinician surveys	Chart review/query at large Texas FQHC, of the 875 patients that received a FIT test, 435 did not return and 121 completed the phone survey; 87 clinicians sent invitation for Qualtrics survey, 31 responded	Patients: 63% female, ages 50-75 years, 44% Hispanic/Latino, 24.3% black, 29.5% white; Clinicians: included physicians, fellows, PAs and NPs	The authors found that the most common reasons barriers for returning FIT test included lack of motivation and forgetfulness, while facilitators included prepaid postage and reminder calls, smokers had a higher rate of not returning tests than non-smokers, of 875 tests 435 were not returned; clinicians were highly likely to refer for colonoscopy (30/31) if patient was insured and somewhat likely (21/31) to order FIT test if uninsured. Limitations: Inaccurate or out of service phone numbers for patients in survey call; possible selection bias Usefulness:Somewhat Synthesis: Interaction with patients helps facilitate return of tests
Weiner, B. J., Rohweder, C. L., Scott, J. E., Teal, R., Slade, A., Deal, A. M., Jihad, N., Wolf, M.	2017	Using practice facilitation to increase rates of colorectal cancer screeing in community health centers, North Carolina, 2012-2013: Feasability, facilitators, and barriers	Organizational model of implementation	*Preventing Chronic Disease*	To examine the effect of using "practice facilitators" to assist 3 FQHC's in NC to increase the number of CRC screenings	Level VI	IV FQHC screening rates DV practice facilitators	SAS used for statistical analysis	3 FQHC	mix-methods, one-group, pre/post study design	FQHC in NC interested in increasing CRC screening rates	The authors found that implementing office system changes to support screenings such as reminders, tracking software, and referral systems would be helpful to the FQHC but limitations included funding, change of staff and NC has no state funding for CRC screening.
Issaka, R. B., Avila, P., Whitaker, E., Bent, S., Somsouk, M.	2019	Population health interventions to improve colorectal cancer screening by fecal immunochemical tests: A systematic review	PRISMA and Cochrane Handbook for Systematic Reviews of Interventions	*Preventive Medicine*	Using FIT tests and mail outreach have increased the rates of colorectal cancer screenings	Level I-Systematic Review	IV CRC screening DV Access, reminders	N/A	20 articles with 25 studies	Searched provider or system level articles using PubMed, Embase, CINAHL and Web of Science	RCT, using FIT test, no patient navigation or one-on-one interventions included	Using FIT testing is affordable and easily implemented on system level versus provider level interventions; mail outreach increased screening rates but magnitude varied; may need multilevel interventions

Appendix F

IRB Qualtrics Survey

ECU

Click "download PDF" to save a copy of this page for your records.
Note: The IRB Office does not maintain copies of your responses.

Below is a summary of your responses — Download PDF

Quality Improvement/Program Evaluation Self-Certification Tool

Purpose:
Projects that do not meet the federal definition of human research pursuant to 45 CFR 46 do not require IRB review. This tool was developed to assist in the determination of when a project falls outside of the IRB's purview.

Instructions:
Please complete the requested project information, as this document may be used for documentation that IRB review is not required. Select the appropriate answers to each question in the order they appear below. Additional questions may appear based on your answers. If you do not receive a STOP HERE message, the form may be printed as certification that the project is "not research", and does not require IRB review. The IRB will not review your responses as part of the self-certification process.

Name of Project Leader:
Dara English

Project Title:
Improving Rates of Colorectal Cancer Screening in a Rural Community

Brief description of Project/Goals:
The purpose of the project is to increase the number of colorectal cancer screenings performed by a cancer center in a rural county in eastern North Carolina. A potential long-term goal of this project would be to lead to the overall decrease of colorectal cancer deaths in the county, but that will not be measured in the length of this project.

Will the project involve testing an experimental drug, device (including medical software or assays), or biologic?
- ○ Yes
- ● No

Has the project received funding (e.g. federal, industry) to be conducted as a human subject research study?
- ○ Yes
- ● No

Is this a multi-site project (e.g. there is a coordinating or lead center, more than one site participating, and/or a study-wide protocol)?
- ○ Yes
- ● No

Is this a systematic investigation designed with the intent to contribute to generalizable knowledge (e.g. testing a hypothesis; randomization of subjects; comparison of case vs. control; observational research; comparative effectiveness research; or comparable criteria in alternative research paradigms)?
- ○ Yes
- ● No

Will the results of the project be published, presented or disseminated outside of the institution or program conducting it?
- ● Yes
- ○ No

Would the project occur regardless of whether individuals conducting it may benefit professionally from it?
- ● Yes
- ○ No

Does the project involve "no more than minimal risk" procedures (meaning the probability and magnitude of harm or discomfort anticipated are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests)?
- ● Yes
- ○ No

Is the project intended to improve or evaluate the practice or process within a particular institution or a specific program, and falls under well-accepted care practices/guidelines?
- ● Yes
- ○ No

Based on your responses, the project appears to constitute QI and/or Program Evaluation and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as QI and/or Program Evaluation findings. Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 7/29/2020

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