

Spring 5-30-2016

# Increasing Colorectal Cancer Screening Rates in a Rural Health Clinic through Practice Change

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*Doctoral Theses*. Paper 19.

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**Kirsten S. Johanson, BSN, MSN, RN, CNP**

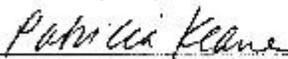
Otterbein University

In partial fulfillment of the requirements for the degree Doctor of Nursing Practice

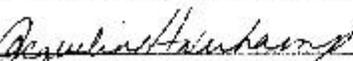
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DNP Final Project Report

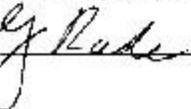
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### **Executive Summary**

Colorectal cancer (CRC) is the third leading cause of cancer deaths in the United States (Siegel, DeSantis, & Jemal, 2014). The United States Preventative Services Task Force (2008) “recommends screening for CRC using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at age 50 years and continuing until age 75 years” to decrease CRC rates (p. 627). In May 2015, CRC screening rates were 70.65% at the Monroe Clinic-Durand Primary Care branch (D. Dubs, personal communication, May 18, 2015). Increasing CRC screening rates in the Monroe Clinic-Primary Care branch office could decrease CRC rates and deaths in the area.

Current literature supports the use of provider-directed interventions, education, and staff involvement to increase CRC screening rates (Atassi, 2012). This DNP project implemented two 45 minute education sessions with staff and providers at the Monroe Clinic-Durand Primary Care branch office, incorporating the Health Belief Model, the Change Model, and Motivational Interviewing. The sessions reviewed CRC and CRC screening and encouraged staff involvement in creating change.

Data was collected for patients seen in the Monroe Clinic-Primary Care branch office during a three month time period, comparing CRC screening rates prior to and following the intervention. The goal was a 2% increase in CRC screening rates. Through implementing a practice change in a rural health care office, a 15.9% increase in CRC screening rates was noted over a three month time period. Interventions utilized in the project are transferable to other quality initiatives in a clinic setting.

## **Introduction**

### **Identify Clinical Problem**

CRC was estimated to be the third leading cause of cancer death in the United States in 2015 (Siegel, Miller, & Jemal, 2015). In Illinois, it was estimated that there would be 2090 deaths related to CRC in 2015 (Siegel, et al., 2015). The United States Preventive Services Task Force (2008) noted that through appropriate CRC screening, 18,800 lives could be saved each year in the United States.

### **Clinical Needs Assessment**

The Monroe Clinic-Durand Primary Care branch had a 70.65% rate of CRC screening as of March 2015 (D. Dubs, personal communication, May 18, 2015). Approximately thirty percent of the practice's population aged 50-75 had not received appropriate screening for CRC. The Monroe Clinic-Durand Primary Care branch is located in Durand, Illinois, which is a town located two hours north of Chicago, Illinois and one hour south of Madison, Wisconsin. One physician and one nurse practitioner provide primary care for the practice's patients. Statistics note CRC to be a leading cause of death that can be prevented with appropriate screening, but CRC screening rates remain low.

### **Problem Statement**

Low CRC screenings rates in the Monroe Clinic-Durand Primary Care branch office contribute to increased rates of CRC incidence and death in the state of Illinois.

## **Background and Significance of Problem**

### **Colorectal Cancer**

CRC was estimated to be the third most commonly diagnosed cancer, as well as the third most common cause of cancer death in 2015 (Siegel, et al., 2015). In 2014, there were 50,310 deaths related to CRC in the United States (Siegel, et al., 2014). About seventy percent of these deaths were in people ages sixty-five and older (Siegel, et al., 2014). CRC mortality has been decreasing since the 1970's (Siegel, et al., 2014). The decline in mortality has been attributed to increased screening rates, a change in prevalence of CRC risk factors, and improved treatment options (Siegel, et al., 2014).

### **Significance of Problem to Nursing**

Health promotion, screening, and education are core components of nursing care. Low rates of appropriate screening for CRC represent a deficit in nursing care, which can be addressed through a quality improvement project. Nurses and Advanced Practice Nurses can implement change through education, thereby promoting health, increasing screening rates, and decreasing cancer rates.

### **Colorectal Cancer Screening Guidelines**

The United States Preventative Services Task Force (USPSTF) updated their guidelines regarding CRC screening in 2008. The USPSTF regularly performs systematic reviews of evidence to provide updated guidelines regarding screening and health care. The USPSTF's 2008 update "recommends screening for CRC using fecal occult blood testing (FOBT), sigmoidoscopy, or colonoscopy in adults, beginning at age 50 years and continuing until age 75 years" (p. 627). The USPSTF (2008) also notes that all screening methods have similar efficacy, so efforts "should focus on implementation of strategies that maximize the number of individuals

who get screening of some type” (p. 692). The United States has three available CRC screening modalities that have been tested and found to be effective in decreasing CRC.

### **Use of Colorectal Cancer Screening**

In the 1940’s and 1950’s, CRC was the most common cause of cancer death in the United States (Siegel, et al., 2014). The morbidity and mortality of CRC has decreased over the past seven decades due to historical lifestyle changes and the introduction of screening tests (Siegel, et al., 2014). Three factors have been attributed to part of the epidemiologic progression of decreased CRC rates, including decreased consumption of red meat, decreased smoking rates, and increased daily use of aspirin (Siegel, et al., 2014).

About forty percent of all CRC cases are diagnosed at a local stage; cases diagnosed at this early stage have a 90.3% 5-year survival rate (Siegel, et al., 2014). CRC “survival declines to 70.4% and 12.5% for patients diagnosed with regional and distant-stage disease, respectively” (Siegel, et al., 2014, p. 111). The earlier CRC is diagnosed, the greater the survival rate. From 2001 to 2010, the incidence of CRC has decreased by approximately 3.4% yearly (Siegel, et al., 2014). Declines in CRC incidence during this period have been strongly attributed to increased screening, as screening rates were 19% in 2000 and increased to 55% in 2010 (Siegel, et al., 2014).

Zauber, et al. (2012) tested different CRC screening techniques at different rates to find the most effective screening technique and utilization. The information gathered utilized the concept of “life-years gained”, which indicates the potential years of life gained due to CRC screening, to decipher the most effective screening technique. With equal adherence to screening, colonoscopy every ten years, flexible sigmoidoscopy every five years in combination with Hemocult Sensa® every two to three years, and FOBT every year all provide similar life-

years gained (Zauber, et al., 2012). The authors noted that “when adherence was relatively high at 80%, the colonoscopy strategy (that is, screening every 10 years from age 50 to 75) was the most effective in terms of life-years gained” (Zauber, et al., 2012, p. 665). Zauber, et al.’s (2012) research was utilized in the update of the USPSTF screening guidelines.

In 2012, about two thirds of the United States population was up to date with CRC screening, with most utilizing colonoscopy (Center for Disease Control and Prevention, 2013). As noted by Zauber et al. (2012), there is not current evidence to denote the superiority of one screening method over another as long as individuals are being screened. However, more providers report recommending colonoscopy over any other screening technique (Center for Disease Control and Prevention, 2013).

### **Interventions to Increase Colorectal Cancer Screening Rates**

Several literature reviews have evaluated studies that have implemented interventions with the goal of increasing CRC screening rates. Atassi (2012) performed a literature review of provider-led interventions to increase CRC screening and concluded that combining two or more provider-directed interventions was an effective way to increase CRC screening rates. Some researchers (Garcia, Buylla, Nicolas-Perez, & Quintero, 2014) have found that the literature reflects increased CRC screening with interventions, including patient reminders, the use of small media, one-on-one education, group education, the reduction of out-of-pocket costs, and removal of structural barriers to screening. Shaw, et al. (2013) did not find CRC screening rates to statistically increase using a multiple intervention trial performed in primary care. However, the study noted that “when stakeholders identify problems and generate their own solutions, they are more likely to engage in and sustain change processes” (Shaw, et al., 2013, p. 221). Current literature reviews provide a variety of ideas to increase CRC screening rates in primary care.

Specific research has been dedicated to implementing provider and staff-led interventions designed to increase CRC screening rates in the primary care office. Academic detailing, which is the concept of educating providers one-on-one regarding a specific topic, increased CRC screening rates in Appalachian Kentucky (Dignan, et al., 2014). Dignan, et al. (2014) used four modules to educate physicians on “screening efficacy, clinical performance measures, patient counseling, and creating a screening-friendly practice environment”, which increased screening rates (p. 71). Green, et al. (2013) utilized the current research to implement a project that employed patient reminders, one-on-one communication, and the removal of structural barriers. The study doubled the number of patients being screened for CRC by mailing information directly to the patient, sending a FOBT in the mail, and following up with a phone call from a staff member (Green, et al., 2013). Specific interventions implemented by staff and providers in primary care offices have effectively increased CRC screening rates.

The studies noted above have included the use of any type of CRC screening, including colonoscopy, sigmoidoscopy, and FOBT. The research can be unclear in regards to which type of screening test providers should be offering to patients. Partin, Powell, Burgess, and Wilt (2011) review the evidence and conclude that “the number of CRC screening options offered is unlikely to appreciably affect adherence either positively or negatively” (p. 378). The conclusion is that effective processes should be created to increase screening rates based on any mode of screening (Partin, et al., 2011).

### **Project Implementation and Measures**

#### **Identify Theoretical Framework**

Godfrey Hochbaum developed the initial concepts for the Health Belief Model (HBM) in the 1950’s when free public screening for tuberculosis was becoming common. Although the

screenings through chest X-ray were free and readily available to the public, there were still people not being screened. Hochbaum began researching why people chose not to be screened and hypothesized that these reasons could be applicable to screenings for other chronic diseases (Hochbaum, 1958). In 1966, Irwin Rosenstock wrote to further define the HBM and cited Kurt Lewin's social psychology work on the subjective nature of human beings and their behaviors as an influence. Rosenstock's (1966) goal was to apply the HBM to subjective individuals.

The HBM has changed over time and is utilized in different ways. The theory includes criteria that the theorists state influence an individual's readiness to act. Rosenstock's initial publication in 1966 notes that "reasons why people use health care" include perceived susceptibility, perceived seriousness or severity, perceived benefits, perceived barriers, and cue to action (p. 1). Over time, theorists added self-efficacy as a sixth criteria, but this criteria has been more difficult to define. Many studies utilize the first four criteria: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. The final two criteria of cue to action and self-efficacy are often left out. Carpenter (2010) states that the original author and other reviewers of the HBM found that the cue to action criteria has been the least researched and underdeveloped criteria of the theory. Carpenter's (2010) meta-analysis of the HBM did conclude that perceived severity, perceived barriers, and perceived benefits were all predictive of behavior change.

Nurse scientists have applied the HBM to improve cancer screening and identify why patients choose not to be screened for cancer. Researchers have used the criteria to create interventions that affect CRC screening rates. Causey and Greenwald (2011) created a pretest and posttest along with a one-hour educational session for patients to increase awareness of CRC screening. The questions on the test utilized the HBM criteria and proved that the educational

session did increase awareness of CRC screening (Causey & Greenwald, 2011). Perceived barriers was the criteria that showed the largest increase in score from pretest to posttest, indicating that this criteria could have the most effect on lack of CRC screening (Causey & Greenwald, 2011). The first four criteria of the HBM (perceived susceptibility, perceived severity, perceived benefits, and perceived barriers) were included in this DNP project's intervention, utilizing two 45-minute educational sessions with the providers and staff in a primary care office.

John Kotter's Change Model was utilized in conjunction with the HBM to create change. While the HBM provides a framework of motives for patients to change, which supports the project intervention content, Kotter's Change Model provides a framework of directives for the health care team to create change. The Change Model includes the following steps to effectively create change: establishing a sense of urgency, building a team to implement change, creating or constructing a plan, communicating the vision, empowering the team to make the change, creating short term goals, being persistent, and making the change permanent (Varkey & Antonio, 2010).

The previous process for encouraging CRC screening for patients seen at the Monroe Clinic-Durand Family Practice office branch involved the entire staff, including providers and nursing staff. The staff member (a registered nurse or medical assistant) who roomed the patient for the office visit reviewed any health maintenance deficiencies for the patient, including vaccines and cancer screenings. The previous protocol was for staff to review health maintenance topics at any visit, including acute care visits. If the patient was due for CRC screening, the staff member offered a colonoscopy. If the patient was interested in a colonoscopy, the staff member would assist the patient in scheduling the procedure. If the

patient was not interested in a colonoscopy, the staff member would notify the provider. The provider then decided whether or not to further discuss CRC screening with the patient. The staff and providers were already engaged in encouraged CRC screening with patients. However, there was a lack of education for the staff and providers regarding CRC, CRC screening, and how to encourage patients to be screened. Previously, if a patient told a staff member that he or she was not interested in a colonoscopy, the staff member notified the provider and the staff member was no longer involved in the process. Prior to the implementation of the project, the staff member did not have further knowledge or resources to engage in education with the patient regarding CRC screening. Using Kotter's Change Model concepts with education sessions (Dignan, et al., 2014), the staff and providers would be better educated to discuss CRC and CRC screening with patients.

The education sessions included epidemiologic information regarding CRC and CRC screening in order to help establish a sense of urgency. Input from the staff was utilized throughout the education sessions and the entirety of the quality improvement initiative. Varkey and Antonio (2010) state that "it is crucial to focus on people and relationships as a part of change" (p. 268). The team included the staff of the Monroe Clinic-Durand Primary Care branch office. Support members from the Quality Management, Electronic Medical Records, Gastroenterology, and General Surgery departments were included as needed.

### **Develop Project Purpose and Specific Objectives**

The project purpose was to increase CRC screening rates in the Monroe Clinic-Durand Primary Care branch by 2% in three months. The first objective was to create and implement two 45-minute educational sessions for primary care providers and staff regarding CRC, CRC screening, and how to increase CRC screening rates. The second objective was to promote a

standard work process for the staff and providers to encourage CRC screening and to involve staff in creating new ideas for the process.

### **Define Method to be Used**

Quantitative data was used to document the percentage of adults who were up to date with CRC screening prior to and following the intervention. The denominator included adults ages 50-75 who received care at the Monroe Clinic-Durand Primary Care branch. The sample size was created by the patients who were seen in the Monroe Clinic-Durand Primary Care branch office for an office visit with Dr. Timothy Hamel, Kirsten Johanson, CNP, or any provider covering in the office between the dates of September 1, 2015 and December 1, 2015. The numerator was defined as any of these patients in the denominator who had a colonoscopy in the past ten years, a flexible sigmoidoscopy in the past five years, or a fecal occult blood test in the past twelve months, based on current USPSTF (2008) guidelines. CRC screening rates were compared prior to the intervention, utilizing retrospective data, and after the intervention, utilizing prospective data. The CRC screening status of each patient in the denominator who was seen during the defined time frame was noted prior to the visit. The CRC screening status of these patients was again noted February 1, 2016, five months after the start of the intervention. The comparison of the two screening rates reflected any improvement in overall CRC screening in the sample after the intervention.

### **Discuss Target Population and Sample**

The target population included adults ages 50-75, both male and female, who sought care at the Monroe Clinic-Durand Primary Care branch. The project's target population was further defined using the Wisconsin Collaborative for Healthcare Quality's (WCHQ) criteria. The WCHQ is an organization that "publicly reports and brings meaning to performance

measurement information that improves the quality and affordability of healthcare in Wisconsin, in turn improving the health of individuals and communities” (WCHQ, 2015b). The Monroe Clinic-Durand Primary Care branch is located in Durand, Illinois, but it is based out of a healthcare system in Monroe, Wisconsin. The Durand branch’s quality scores are reported to and publicly reported by the WCHQ. The WCHQ criteria includes patients seen in the Durand branch office for two office visits in the past 36 months and for one office visit in the past 24 months (WCHQ, 2015a). The DNP project was focused on patients seen during the data collection period and did not include this criteria used by the WCHQ. Any patient with a history of a colectomy was excluded from the target population, based on the WCHQ criteria (WCHQ, 2015a). Further exclusions for the target population included patients who were receiving hospice care and patients with a current diagnosis of colorectal cancer. Patients who “aged out” or turned 76 during the collection period were also excluded from the target population, as well as any patients who died during the data collection period.

### **Protection of Human Subjects**

Patients from the defined population were included in the sample if they were seen for an office visit in the Durand branch office between the dates of September 1, 2015 and December 1, 2015. Patients in the sample were recruited upon arrival to their office appointment. Any patient who met the inclusion criteria was included in the study. Data obtained, both prospectively and retrospectively, was part of the data that was collected in an ongoing way for both maintenance of patient EMR and for quality review. Since the data was already being collected by a data analyst for the WCHQ, permission was not requested from patients in the target population to be included in the study. No personal data from patients was needed. Data collection was obtained primarily by the DNP student with the assistance of a data analyst and through chart review of

patients seeking care in the clinic. The intervention included the Monroe Clinic-Durand Family Practice office branch staff and providers. Staff members and providers signed consent forms indicating their voluntary participation prior to the education sessions.

### **Instruments and Tools**

The project tool involved two education sessions regarding CRC, CRC screening, and how to increase CRC screening rates for providers and staff at the Monroe Clinic-Durand Primary Care branch office. The content of the education sessions was evidence-based and included up to date research. The content was reviewed by the DNP Committee prior to its implementation, which provided content validity. Current CRC screening rates, goals for CRC screening rates, the process of CRC, and the two options for CRC screening (colonoscopy and fecal immunochemical test) were reviewed at the first session. The second session included methods for increasing CRC screening rates by reviewing components of the Health Belief Model, utilizing components of Kotter's Change Model, and reviewing concepts of Motivational Interviewing. The second session also allowed time for staff to provide input and ideas for increasing CRC screening rates.

### **Data Collection**

Quantitative data was collected to assess the change in percentage of patients up-to-date with colorectal cancer screening prior to and following the intervention. The data consisted of two percentages: the percentage of patients up-to-date with CRC screening prior to the intervention and the percentage of patients up-to-date with CRC screening after the intervention. A defined numerator and denominator were set, which provided the final percentages. The denominator included any patient seen by Family Physician A, Nurse Practitioner A, or any provider covering in the office in the Monroe Clinic-Durand Primary Care branch office age 50-

75 without a history of CRC or colectomy. The patient must have been seen for an office visit between the dates of September 1, 2015 and December 1, 2015 to be included in the sample.

The numerator was defined as any patient in the denominator who had either a colonoscopy in the past ten years, a flexible sigmoidoscopy in the past five years, or a fecal immunochemical test (FIT) in the past one year.

Retrospective data provided the percentage of patients up-to-date with CRC screening who were seen in the office between September 1, 2015 and December 1, 2015. Prospective data followed these patients through February 1, 2016 to identify how many become up to date with CRC screening following the intervention. The sample was followed for two to five months following their office visits, as the visits took place from September 1 to December 1, 2015, but the data continued to be collected through February 1, 2016.

Jody Menzel, an analyst within Monroe Clinic's Epic Electronic Medical Record (EMR) department ran a monthly report using the defined numerator and denominator. The report included the CRC screening rates after the intervention. The project leader collected the CRC screening rates prior to the intervention and then compared this with the post-intervention data provided by Jody. The data was collected for the sample population through February 1, 2016. The extra two months of data collection time allowed for FITs to be returned to the lab or for a colonoscopy to be scheduled and completed. The extension of time for data collection was necessary as CRC screening is not a service that is able to be provided in the office on the same day. A FIT takes up to two weeks for a result to be complete and available once a patient mails the sample to the office. The current wait time for a colonoscopy with Monroe Clinic is approximately three to four weeks.

The data was initially in the form of a numerator and denominator. For example, if patient A had a colonoscopy in July 2015, his score was 1/1 prior to the intervention and 1/1 after the intervention. If patient B had not had any CRC screening in the past, his score was 0/1 prior to the intervention. If patient B was seen in September 2015 and completed a colonoscopy in January 2016, his score would be 1/1 after the intervention. The proportions were then converted to percentages to compare pre- and post-intervention percentages.

### **Data Analysis**

The data collected was presented using descriptive statistics. The EMR system, Epic, was utilized to obtain the necessary data. Jody Menzel provided a monthly report of CRC screening rates using the defined numerator and denominator. The project data analysis describes the percentage of patients who were up-to-date with CRC screening prior to the intervention and the percentage of patients who were up-to-date with CRC screening following the intervention.

### **Measure of Project Success**

Most quality improvement initiatives focusing on CRC rates run for a minimum of six to twelve months. This project was limited to three months of data collection, so there was less time for a significant increase in percentage of patients up-to-date with screening. Essentially any improvement in colorectal cancer screening rates for the clinic's population would reflect a successful project.

### **Potential Limitations and Barriers**

A few limitations were present within the project design. Most quality improvement initiatives related to increasing CRC screening rates have a goal of a 2-5% increase in screening rates over a one to five year time frame. The project was limited in time due to the time

constraints of the doctoral program. The short three month time frame limited the ability to see a significant increase in a screening that must be completed outside of the office. The Monroe Clinic had approximately a three to four week wait list for scheduling a colonoscopy. So, this added another potential barrier to the data results. However, extending the time frame for data collection by two additional months helped to alleviate part of this concern. The project was also implemented in the fall and winter; the seasonal timing could have affected a patient's willingness to be screened.

The intervention involved the staff and providers in the office. The initial plan involved the two main providers in the office: Family Physician A and Nurse Practitioner A. However, the team leader, Nurse Practitioner A, went on leave six weeks into the data collection period. The intervention then included data from four providers who each covered for one to two days and Family Physician B who covered part time while Nurse Practitioner A was on leave. The staff followed the same process with the new providers. However, the covering providers were not involved in the education sessions and were unaware of the main focus of the project.

The daily follow-through of the intervention required complete staff engagement. If a staff member was not engaged in working to implement the intervention, the most ideal results would not be noted. The office had just hired a new registered nurse prior to the start of the project. She was not yet in the office when the education sessions were implemented, so there was a slight knowledge deficit present. The team leader did provide some one-on-one education with the new registered nurse later in the data collection period. The team leader for the project was not present for half of the data collection time period. So, daily check in with the staff and the presence of the team leader were lacking during the second half of data collection.

**Timeline**

The official project implementation began in August 2015 following the completion of the intervention preparation and approval of the intervention by the committee. In July 2015, the two education sessions were researched and created by the author. Handouts were created and reproduced to be utilized in the education sessions. Once the sessions and handouts were created, they were sent to the DNP committee and were approved mid-August 2015. The project officially began with the first education session at the Monroe Clinic-Durand Primary Care branch office in August 2015. Attendees of the session included the author (Nurse Practitioner A, as the project leader), Family Physician A, one nurse, one medical assistant, one radiology technician (who also functions as a phlebotomist and office assistant), one office assistant, and one coach. The coach is a registered nurse who functions as a nurse manager and nurse educator in the office. The coach served as a support person during the education sessions. The providers and staff implemented the use of education and practice change during the data collection period of September 1, 2015 through December 1, 2015. Data was collated monthly throughout the intervention so that progress could be monitored. The project concluded with the final data collection on February 1, 2016.

Table 1. Project Timeline

Date	Objective	Outcome/Deliverable
August 7, 2015	Final draft of intervention completed and approved by committee	Education packets printed, PowerPoint presentation complete
August 24, 2015	Began intervention	1st education session

		conducted at lunch hour
August 25, 2015	Continued intervention	2nd education session conducted at lunch hour
September 1, 2015	Data collection began	Providers and staff implemented education and practice change to increase CRC screening rates
October 1, 2015	First update of data	Pre- and post-intervention CRC screening rates noted
November 1, 2015	Second update of data	Pre- and post-intervention CRC screening rates noted
December 1, 2015	Third update of data	Pre- and post-intervention CRC screening rates noted
February 1, 2016	Final update of data	Post-intervention CRC screening rates noted

**Budget**

The budget for the project was measured in work hours. There was no additional monetary cost associated with the project. The development of the education sessions took 24 hours. The majority of the research for the education sessions was completed throughout the NURS 7900 coursework. An additional ten hours was needed to read *Motivational Interviewing*

*in Health Care: Helping Patients Change Behavior* by Rollnick, Miller, and Butler (2008).

Once the education sessions were completed, it took one to two hours to prepare for and deliver each session in the office. Data collection was completed by Jody Menzel and the team leader. Ten hours were spent prior to the data collection period to ensure that the appropriate data could be collected. Four hours were spent weekly reviewing and collecting pre-intervention data. An additional ten hours were spent monthly reviewing the month's data and comparing to the pre-intervention data collected by the project leader. After the data collection was completed on February 1, 2016, ten hours were spent reviewing, correcting, and finalizing the data.

### **Project Implementation**

The project was implemented on August 24 and 25 with the two education sessions with the staff. All members of the staff were present for each of the two sessions. Each session ran for 45 minutes and included information regarding CRC, CRC screening, and how to increase CRC screening rates. PowerPoint presentations were used to present the education sessions and handouts were provided for the staff.

The project implementation started with the education sessions. The two other main components were the fact that the project was provider-led and that the project included input from the staff. The two ideas raised by the staff were discussed and eventually implemented as part of the practice change to increase CRC screening rates in the office.

For the first seven weeks of the project data collection the project leader, Nurse Practitioner A, was in the office regularly. The project leader and the staff discussed the project and its implementation throughout the week. After the first seven weeks of data collection, the project leader was on leave from work and the regularly weekly contact with the staff was no longer present. The staff continued with their work to increase CRC screening rates. A daily

email was still sent with those patients who were due for CRC screening. The staff continued to discuss and educate patients regarding CRC screening.

### **Analysis and Outcome Evaluation**

#### **Objectives**

The project included two measurable objectives. The first objective was to create and implement two 45 minute education sessions for the staff. The second objective was to promote a standard work process with staff input. The goal of the two objectives was to increase overall CRC screening rates in the Monroe Clinic-Durand Family Primary Care branch office, thereby decreasing CRC rates.

The first objective was completed in August 2015. A literature review and use of parts of The American Cancer Society's preexisting patient and provider education were utilized to create the first education session. The session provided basic information regarding colorectal cancer, using colonoscopy and FIT to detect and screen for CRC, and how the two screening techniques are used within Monroe Clinic. *Motivational Interviewing in Health Care: Helping Patients Change Behavior* by Rollnick, Miller, and Butler (2008) was read and utilized to create the second education session. The session provided background information on the technique of Motivational Interviewing and how to use apply the technique to discuss CRC screening with patients in the office. Both education sessions were presented to the staff over the lunch break. All staff in the office attended the sessions. The first objective of the project was achieved as the education sessions were created and presented.

The second objective was completed during the education sessions in August. Staff input was utilized to personalize the current work flows to further improve CRC screening rates. During the education sessions, the staff was encouraged to discuss any concerns or ideas to aide

in increasing CRC screening rates in the office. One nurse found an existing mechanism in the clinic's EMR that provided a list of any FIT that had been ordered for a patient in the office in the past three months. The staff worked together to decide that any patient agreeable to a FIT should have the FIT ordered during the office visit. Weekly, the nursing staff would check the list of patients who had a FIT ordered, but had not returned the test. The staff would call each of these patients once about a month after the FIT was ordered to remind the patient to submit the test sample.

A medical assistant mentioned that Jody Menzel was sending daily email reminder for pediatric vaccines. There was another quality improvement project at the clinic to raise pediatric vaccine rates. In an attempt to increase rates, a daily email was sent to each clinic with a list of scheduled pediatric patients who were due for vaccines that day in the office. The medical assistant advised that the clinic consider having a daily list of patients due for CRC screening to be emailed to the clinic. Jody Menzel was able to create an automated email that listed the patients who were scheduled each day who were due for CRC screening. The list was another reminder for the nursing staff. The current work flow was reviewed and two additions were made with staff input, so the second objective was met.

### **Outcome Analysis**

The goal was a 2% increase in CRC screening rates. The final data noted a 15.9% increase in CRC screening rates during the data collection period. The data was found to be statistically significant at  $p < 0.001\%$  using McNemar's test. The data was run through Minitab. The increase in screening rates infers that the interventions utilized to increase CRC screening rates helped to exceed the goal in increased screening in the Monroe Clinic-Durand Family

Practice office branch. The table below denotes the monthly and total rates, comparing the pre- and post-intervention CRC screening rates.

Table 2. CRC Screening Rates

Dates Patients Seen	Pre-Intervention CRC Screening Rates	Post-Intervention CRC Screening Rates as of 2/1/16	Percentage of Improvement
9/1/15-9/30/15	85/123 69.11%	100/123 81.3%	12.19%
10/1/15-10/31/15	45/88 51.14%	64/88 72.73%	21.59%
11/1/15-12/1/15	41/59 69.49%	50/59 84.75%	15.26%
Total 9/1/15-12/1/15	171/270 63.33%	214/270 79.26%	15.9%

The patients who were included in the above sample were ages 50-75 and were seen in the Monroe Clinic-Durand Family Practice branch office between September 1, 2015 and December 1, 2015. Of the 270 patients included in the sample population, 50.4% were female and 49.6% were male. Essentially half of the sample was female and half were male. The end results showed a similar pattern in screening by sex as 51.4% of the patients who were up to date on screening at the end of the data collection period were female, with the remaining 48.6% being male. 40.2% of the patients who were up to date on CRC screening were ages 65-75 and eligible for Medicare. The remaining 59.8% included a payor mix of self pay, state Medicaid, or private insurance.

## **Conclusion and Recommendations**

### **Conclusion**

The project concluded that implementing a practice change with education, leadership from within the clinic, and staff input can help to increase CRC cancer screening in a primary care office. The final percentage comparisons allow the project leader to infer that the interventions successfully increased CRC screening rates in the office. Comparing an initial screening rate of 63.33% prior to the intervention and a screening rate of 79.26% after the intervention denotes an increase in screening rates of 15.9%. The conclusions of the initial literature review were reflected in the project. Multiple interventions are necessary to create practice change that increases CRC screening rates in primary care offices.

### **Recommendations**

A similar project could be implemented in other primary care settings. The literature search revealed a variety of interventions in a primary care setting to increase CRC screening rates. The project leader reviewed the literature and took note of interventions that had not yet been utilized in the Monroe Clinic-Durand Primary Care branch office. A similar approach could be taken by other providers to identify potential interventions that are not yet being utilized in their practice setting. The literature repeatedly notes that there has not been one factor alone that influences CRC screening rates. So, it is pertinent to identify current interventions that are being utilized.

A nurse or advanced practice nurse could also replicate the project directly. One could provide education sessions for the staff utilizing resources that are already available regarding CRC and CRC screening. This project utilized information that is publicly available through the American Cancer Society. Then discussion could be held regarding current work place

procedures for CRC screening and how these could be updated or revised to improve the process. A nurse team leader from within the clinic could help to organize a brief education session and discussion at a staff meeting. Any use of a few new interventions is likely to affect CRC screening rates positively.

The project is able to be replicated in other settings. The Monroe Clinic has a registered nurse in each clinic that has been identified as a Population Health Specialist (PHS). The project leader of this project presented the first education session at a PHS meeting. The PHS's are now presenting this information to their clinics or departments. They will then lead discussion about what process changes could occur in their area.

### **Summary**

With such a high prevalence of CRC and CRC deaths in the United States, action should be taken to increase the use of screening mechanisms that are known to decrease CRC incidence and death. A practice change within a rural health clinic can increase CRC screening rates. An advanced practice nurse can effectively create change through provider-directed interventions, staff and provider education, and creating a team environment with staff involvement. This DNP project increased CRC screening rates by 15.9% in a rural health clinic through practice change.

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Appendix A

IRB Approval

INSTITUTIONAL REVIEW BOARD  
RESEARCH INVOLVING HUMAN SUBJECTS  
OF FERRELL UNIVERSITY

- Original Review
- Continuing Review
- Five-Year Review
- Amendment

ACTION OF THE INSTITUTIONAL REVIEW BOARD

With regard to the employment of human subjects in the proposed research:

IIS # 15/16-13

Keane & Johnson: Increasing colorectal cancer screening rates in a rural ...

THE INSTITUTIONAL REVIEW BOARD HAS TAKEN THE FOLLOWING ACTION:

- |                                                                 |                                                            |
|-----------------------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> Approved                               | <input type="checkbox"/> Disapproved                       |
| <input checked="" type="checkbox"/> Approved with Stipulations* | <input type="checkbox"/> Waiver of Written Consent Granted |
| <input type="checkbox"/> Deferred                               |                                                            |

\*Stipulations stated by the IRB have been met by the investigator and, therefore, the protocol is APPROVED.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the college, signed consent forms are to be transferred to the Institutional Review Board for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the IRB, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: 8 September 2015

Signed: [Signature]  
Chairperson

OC HS Form AF

*This is approved but we need a cover sheet with Dr. Keane's actual signature*

*— Kirby*

## Appendix B

## Informed Consent

The Department of Nursing at Otterbein University supports the practice of protection for people participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are interested in studying the effects of academic detailing with staff on rates of colorectal cancer screening in the clinic. You will be participating in two education sessions that will detail information on colorectal cancer, colorectal cancer screening, and techniques to increase colorectal cancer screening rates. Each education session will last 45 minutes. Your participation is solicited although strictly voluntary. We assure you that your participation is voluntary and your privacy will be maintained. If you would like additional information concerning this study before or after it is complete, please feel free to contact me by phone or mail.

Sincerely,

Dr. Patricia Keane, Principal Investigator  
1 South Grove  
Westerville, OH 43081  
(614) 823-1678

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Signature of participant agreeing to participate

With my signature I affirm that I am at least 18 years of age.

## Appendix C

## Handout for Education Session 1

**Colorectal Cancer and Colorectal Cancer Screening****How common is CRC?**

- CRC is estimated to be the **third leading cause of cancer** death in the United States in 2015 (Siegel, Miller, & Jemal, 2015).
- An estimated **5720** people in Illinois will be diagnosed with CRC in 2015 (Siegel, et al., 2015).
- In Illinois, it is estimated that there will be **2090** deaths related to CRC in 2015 (Siegel, et al., 2015).

**What is CRC?**

- Cancer within the colon (large intestine) or rectum.

**What causes CRC?**

- Genes
- Risk factors

**What are the risk factors for CRC?**

- Age, over 50
- Diet, high in red meats and processed meats
- Sedentary lifestyle
- Obesity
- Cigarette smoking, heavy alcohol use
- Type 2 Diabetes
- Significant risk for those with inflammatory bowel disease (ulcerative colitis or Crohn's, personal history of colon polyps, family history of CRC or polyps, personal history of CRC

**Can CRC be prevented?**

- Yes.
- Reduce risk factors.
- Regular screening

## **CRC Screening**

USPSTF Guidelines:

--The USPSTF's 2008 update "recommends screening for CRC using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at age 50 years and continuing until age 75 years" (United States Preventive Services Task Force, 2008, p. 627).

## **Colonoscopy**

## **FIT**

The first slideshow used today was created by the American Cancer Society for use by healthcare providers for educational purposes.

The additional handout was created by Monroe Clinic for use by patients and healthcare providers for educational purposes.

Additional information is cited below.

### References

Siegel, R. L., Miller, K.D., & Jemal, A. (2015). Cancer statistics, 2015. *CA: A Cancer Journal for Clinicians* (65) 1, 5-29.

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## Colonoscopy Screening

### **What is a colonoscopy?**

A colonoscopy is a procedure that uses a long flexible tube with a camera to look at the rectum and colon, which are the last parts of the digestive system. The camera can identify cancerous or precancerous areas in the colon and rectum. Precancerous lesions, or polyps, can be removed during the colonoscopy in order to prevent cancer.

### **Who needs a colonoscopy?**

The United States Preventative Services Task Force recommends that most adults ages 50-75 have a colonoscopy every ten years. Your provider might recommend a colonoscopy sooner or at shorter intervals based on personal risk factors or family history.

### **Why do I need a colonoscopy?**

A colonoscopy screens for colorectal cancer. Colorectal cancer is the third leading cause of cancer deaths for both men and women in the United States.

- Wisconsin is ranked fifth in the United States for colorectal cancer prevalence;
- Illinois is ranked 36<sup>th</sup> in the United States for colorectal cancer prevalence.

The decrease in colorectal cancer rates and deaths over the past few decades has been attributed to an increased use of colonoscopy for screening.

### **What are risk factors for colorectal cancer?**

Your risk for colorectal cancer increases with age. It is much more common in men and women over age 50, with over 90% of cases occurring after age 50. A family history of colorectal cancer increases your risk. A personal history of certain gastrointestinal diseases, including inflammatory bowel disease, Crohn's disease, or ulcerative colitis increases your risk. Certain lifestyle factors can also increase your risk for colorectal cancer, including cigarette smoking, being overweight or obese, a low fiber and high fat diet, alcohol consumption, and a lack of physical activity.

### **What do I do?**

If you are interested in a colonoscopy, speak with your primary care provider. He or she can help decide if a colonoscopy is right for you at this time. Your primary care provider's office can then order the colonoscopy, which will be performed by either Dr. Mattar (Gastroenterology), Dr. Maxwell (General Surgery), or Dr. Ridders (General Surgery). You will receive information about preparing for the procedure from our procedure scheduler.

For more info go to [www.monroeclinic.org/colon](http://www.monroeclinic.org/colon)

Appendix E  
Handout for Education Session 2

Colorectal Cancer

--Third leading cause of cancer death in the United States

--Risks for CRC include age over 50, sedentary lifestyle, diet high in processed foods, cigarette smoking, heavy alcohol use, type 2 diabetes, history of inflammatory bowel disease, history of colon polyps, family history of CRC

--FIT can detect blood in the stool

--A positive FIT indicates possible CRC and should be further evaluated by colonoscopy

--Colonoscopy is a procedure that can identify and prevent CRC

--Polyps can be removed to prevent future CRC

Appendix F

Timeline

Timeline

