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# Implementing a Tracking and Referral Follow-up Process to Increase Screening Colonoscopy Adherence Within a Primary Care Setting

Stephanie Villanueva

*University of the Incarnate Word*, [stvilla1@student.uiwtx.edu](mailto:stvilla1@student.uiwtx.edu)

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IMPLEMENTING A TRACKING AND REFERRAL FOLLOW-UP PROCESS  
TO INCREASE SCREENING COLONOSCOPY ADHERENCE  
WITHIN A PRIMARY CARE SETTING

by

STEPHANIE VILLANUEVA BSN, RN

DNP PROJECT ADVISOR

Holly A. DiLeo PhD, RN, FNP-BC  
Ila Faye Miller School of Nursing and Health Professions

CLINICAL MENTOR

Alicia Valdez MD

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Stephanie Villanueva

TABLE OF CONTENTS

LIST OF TABLES .....4

ABSTRACT.....5

STATEMENT OF THE PROBLEM .....7

HEALTH SYSTEM ASSESSMENT .....8

    Needs Assessment.....11

    Readiness for Change .....13

PROJECT IDENTIFICATION.....14

    Purpose.....14

    Objectives .....14

    Anticipated Outcomes.....15

SUMMARY AND STRENGTH OF THE EVIDENCE .....15

PROJECT RESULTS .....18

DISCUSSION.....21

    Summary of Outcomes .....21

    Results in Relation to Evidence .....22

    Limitations .....23

    Recommendations.....24

    Implication for Practice.....24

REFERENCES .....26

## LIST OF TABLES

## Table

1.	Charts Reviewed .....	18
2.	Charts Kept .....	20
3.	Outcomes .....	21

### Abstract

Within the United States, colorectal cancer is the fourth most common cancer diagnosed in both women and men. The American Cancer Society approximated that 97,220 new colon cancer cases and 43,030 rectal cancer cases would occur within 2018. Overall, it was estimated there were approximately 50,630 colorectal cancer deaths in 2018. Despite recommended guidelines, reported screening rates are only 31% to 55%, well below the goal of 75% set by the American Cancer Society. The purpose of this project was to increase preventative colorectal cancer screening referrals and completion of colonoscopies for qualified individuals age 50 to 75 years within a family practice setting. Anticipated outcomes were (a) 100% of qualified patients would be assessed for preventative colonoscopy status, (b) 85% of patients would be provided a referral for a preventative colonoscopy on the same day as their visit, and (c) 95% of those patients would complete a screening colonoscopy. Guidelines recommend that women and men begin routine screening starting at age 50 years and every 10 years thereafter. This process improvement project resulted in 100% of qualified patients being identified when the primary medical assistant was present, 51% of identified patients being referred, and 45% of those referred for screening completed a colonoscopy. Preventative screenings can provide early identification and removal of colorectal polyps before cancer develops or provide for early cancer diagnosis that allows initiation of treatment in the early stages to reduce morbidity and mortality.

*Keywords:* colonoscopy, preventative, screening, referring, process improvement, primary care

Within the United States, colorectal cancer is the fourth most common cancer diagnosed in both women and men and the second leading cause of death from cancer (American Cancer Society [ACS], 2018b). The lifetime risk of developing colorectal cancer is 1 in 24 for women, equating to 4.15%, and 1 in 22, or 4.49%, for men (ACS, 2018b). The ACS (2018a) approximated that there would be 97,220 new colon cancer cases and 43,030 rectal cancer cases within 2018. Overall, it was estimated approximately 50,630 colorectal deaths would occur during 2018 (ACS, 2018a). Preventative screenings can provide early identification of potential colorectal polyps that can be removed before cancer develops or an early diagnosis allowing initiation of treatment in the beginning stages (ACS, 2018b). Within Texas, there are an estimated 10,080 new cases of colorectal cancer with an estimated death rate of 3,740 annually (ACS, 2018a).

Individuals at average risk for developing colorectal cancer should start screening at the age of 50 years (ACS, 2018b). Individuals can choose several options as an initial screening, however, this paper focused on the visual exam of the colon and rectum through colonoscopy. Those individuals with a life expectancy of more than 10 years and in good health should continue colonoscopy screenings every 10 years until the age of 75 years (ACS, 2018a). After the age of 76 up to 85 years, screening should be based on prior screening history, the individuals' overall health, life expectancy, and of course, patient preference (ACS, 2018a). After the age of 85 years, individuals should no longer get colorectal cancer screenings. Many individuals over the age of 50 years are not having colorectal screenings completed for a multitude of reasons, which may put them at risk for a diagnostic delay of colorectal cancer (Kalayjian et al., 2015).

### **Statement of the Problem**

Recommended colorectal cancer screenings by colonoscopy for individuals age 50 years and older are not being completed for a variety of reasons (Kalayjian et al., 2015). Delayed or complete absence of screening places qualified individuals at risk for late identification, diagnosis, and initiation of treatment (Kalayjian et al., 2015). These individuals are then placed at increased risk for future complications resulting in comorbidities and even mortality (Kalayjian et al., 2015). Within the primary care setting, there may be a delay in colonoscopy referrals and completion due to several obstacles such as a lack of reminder systems, provider forgetfulness, patient reluctance, or patient refusal (Sriphanlop, Hennelly, Sperling, Villagra, & Jandorf, 2016).

Despite the recommended guidelines, reported screening rates are only 31% to 55%, which are considerably below the goal of 75% set by the ACS (2018a). Primary care providers in partnership with patients may increase referrals and the likelihood of adherence with colonoscopy recommendations. Referral reminders and adequate education to patients and providers may also increase the colonoscopy referral and completion adherence (Sriphanlop et al., 2016). Within previous research, it was estimated that 68% of patients reported never having a colonoscopy preventative screening due to a lack of recommendation by the provider (Ramdass, Petraro, Via, Shahrokni, & Nawaz, 2014). Those patients reported they would be more likely to get the procedure completed if there was a strong recommendation from their healthcare provider (Ramdass et al., 2014).

Negative correlations have also been discovered between preventative colorectal colonoscopy screenings and variables such as social support and positive attitude toward screenings. Individuals who are lacking a preventative screening present with a negative attitude



with external variables such as time and cost, as well as internal factors such as fear, embarrassment, and pain (Bronner et al., 2013).

An identified 30% of patients also reported not completing their recommended screening due to knowledge deficiencies as to the reasons why the screening was needed, what to expect, and their potential risk factors (Ramdass et al., 2014).

### **Health System Assessment**

The health system of interest was a family practice located in south central Texas. The practice was located within the medical center area of a major metropolitan city, however, patients from all over the urban area and surrounding municipalities were provided health care services in the clinic. As of July 1, 2017, the major city had an estimated total population of over 1.5 million, which was a 13.9% increase from 2010 (United States Census Bureau [USCB], 2017). The population was predominantly White at 78.8%, followed by Hispanic or Latino at 63.6%, and Black or African American at 7.1% (USCB, 2017). Asians were an estimated 2.7%, and less than 1% of the population were American Indian or Alaskan Native, and Native Hawaiian or other Pacific Islander (USCB, 2017). Within the area, there was also an equal gender distribution, with females at 50.9% and males equaling 49.1% (USCB, 2017). The median household income from 2012–2016 was \$48,183, with approximately 19.5% of persons residing in poverty (USCB, 2017). The population with at least a high school diploma or higher between 2012–2016 was 81.6%, with an estimated 25.2% obtaining a bachelor's degree or higher (USCB, 2017). In regard to the age range for individuals where colorectal screening is recommended, within that metropolitan area, an estimated 134,196 individuals were between the ages of 50 to 74 years (USCB, 2017).

A clinical microsystem assessment was performed to examine the purpose, patients, professionals, patterns, and processes of the practice (Nelson, Batalden, Godfrey, & Lazar, 2011). The family practice clinic was established in 2012 and was part of a mesosystem consisting of two clinics and an administrative office. The clinic was in a multilevel facility with an abundance of free parking and the options for both elevator and stairs. The clinic was within close radius to 54 additional medical-related facilities including hospitals, specialty facilities, pharmacies, and medical, nursing, and dental schools, which were within walking distance. In addition to the close proximity to other medical facilities, there were residential areas, shopping centers, and multiple opportunities for public transportation.

The specific family practice clinic location was operated and owned by a board-certified physician with 15 years of experience. The staffing consisted of the physician 2 days a week, one family nurse practitioner (FNP) 5 days a week, one medical assistance (MA) 5 days a week, and one receptionist 5 days a week. The practice offered care starting from birth through the final stages of life. The clinic provided primary care, well child exams, well women exams, annual physicals, sports physicals, chronic care management, and pre-operative clearance. Onsite venipuncture blood draws could be obtained for specimens to be properly stored and sent to an offsite lab for processing. The practice welcomed same day appointments as well as walk-ins for acute care needs depending on the availability of providers and seriousness of the illness. No after-hours services or call service was available. However, patients could leave a voice message on the provider's after-hours line and were instructed to call 911 in case of medical emergency. The practice accepted most private insurance, Medicaid and CHIP, Medicare, and self-pay for service. Upon establishing care, patients were not required or asked to provide information regarding income or education on which to base self-pay services. Patients were provided a

discount for families depending on the services provided, as well as the acuity and complexity of care.

The clinic maintained inhouse medications consisting of samples that were free of charge, oral medications for inhouse administration, and frequently administered intramuscular injections. Only medications that could be stored at room temperature were allowed to be maintained within the clinic. That family practice location was not equipped to maintain vaccinations, therefore, should patients require vaccinations, they were scheduled at the alternate clinic location.

The practice utilized an electronic health record (EHR) to maintain patient information. All information that was physically obtained from the patient, outside providers such as specialists, hospitals, urgent care clinics, or offsite laboratories were scanned and placed into the patient's EHR for easy retrieval. Information that was electronically faxed was also redirected to the patient's chart and deleted from the que by the MA or receptionist. No paper charts were maintained by the facility. The ERH had limited abilities in narrowing search criteria such as separating patients by visits by clinic location. In 2017 within the two clinics, there were a total of 16,133 visits, with females accounting for 69% and males the remaining 31%. According to the EHR, Whites accounted for the largest portion of patients at 44%, followed by Hispanics at 36%, and Unreported/refused to report were 15%, Other races accounted for 3%, Black or African American were at 2%, and Asians accounted for 1% of the patient population. With limited EHR search capabilities, the top 10 diagnosis seen within the practice were obtained from the billing department. The diagnoses were essential hypertension, hyperlipidemia, type II diabetes, hypothyroidism, depression, urinary tract infection, anxiety, vitamin D deficiency, allergic rhinitis, and complaints of obesity.

## Needs Assessment

After general baseline information was collected, a needs assessment was conducted for patients seen in the project practice location. The Doctor of Nursing Practice (DNP) student spoke with the physician, FNP, MA, and receptionist at the location to determine why they felt there were gaps in patient care, what they felt they did well, and where they felt there was a need for improvement. After interviews, all staff and providers identified the following gaps:

- Lack in the ability to provide immunizations to children and adults. Many patients who qualified and needed vaccinations were redirected to the alternate clinic location or provided a prescription to take to a local pharmacy.
- Need to cluster care and provide preventative care especially when there was concern for a lack of patient follow-through for various reasons.
- Concern about patients' knowledge deficiencies regarding their medications. A majority of patients did not know the name, dose, or sometimes the indication of medications.
- Getting patients to comply with preventative referrals. Patients received preventative screenings during patient prep by the MA the day prior to the scheduled visit. Upon patients being seen by the provider, they were notified there was a need for preventative referrals, but no further tracking was done until the patients' next visit.

The physician directed the DNP student to meet with the office manager to determine which potential project topic would be most beneficial to the practice and for the patients from an administrator's perspective. After the presentation of information gathered, it was determined that all topics were relevant and important to the clinic, as well as the patients. After analyzing the data collected, presenting them to the office manager, and getting approval from the

physician and all office staff, however, preventative screenings were selected. The office manager stated that not only had the clinic suffered “fall outs” from missed opportunities but had the risk of losing out on reimbursements. The DNP student met with the referral coordinator to determine which outgoing referrals were the most common. The coordinator did not track the total number of referrals that were sent out, however, she stated that she tracked gastroenterology referrals for preventative colonoscopy screenings the most due to their pertaining to both women and men. Due to restrictions of the EHR, there was no way to separate patients between locations or to identify if a referral was due to a complaint or screening. Therefore, the DNP student conducted a chart review of patients scheduled from February 1, 2018, through March 31, 2018.

Each day was examined, and patients identified as age 50 to 75 years had their chart reviewed for colonoscopy preventative screening referral. During the month of February, a total of 175 charts were reviewed. During the review, 43 patients were excluded due to having a complaint attached to the referral and 5 patients for having a charted refusal to treat. During the month of March, a total of 126 charts were reviewed. During the March review, 35 patients were excluded due to complaints attached to the referral, as well as 5 who had a charted refusal to treat.

The DNP student shadowed and observed the MA conducting patient prep for the next day. The process started with the MA reviewing the scheduled patients’ charts and verifying if there were any Healthcare Effectiveness Data and Information Set (HEDIS) measures that were pending for the patients to be completed the next day by herself or the provider. The HEDIS measures are quality indicators that are set by the National Committee for Quality Assurance; colorectal cancer screenings fall under effectiveness of care indicator (National Committee for Quality Assurance, 2018). If a preventative colonoscopy screening was identified, she made a

note within the “health maintenance” section of the chart as a reminder for the next day. The next day when the MA prepped the patient for the provider, she asked the patients if they had had their colonoscopy completed since the last visit. Once the patients were marked as “ready” for the provider, the MA verbally let the provider know, in addition to the chart reminder, that a colonoscopy was needed.

During the visit, there was an opportunity to discuss the preventative screening, to provide education on the importance of the screening, and to explain how the process was initiated. After the patients’ visit was over, the next step was for the provider to submit a gastroenterology referral to the outgoing referral coordinator. The referral was submitted electronically through the EHR.

The outgoing referral coordinator was notified of the new referral through an EHR notification called a “jellybean” by the staff. The coordinator reviewed the patients’ insurance to locate an appropriate provider, filled out needed information, and reviewed ICD 10 codes that were also listed within the referral. Once completed, the referral was faxed to the specialist. The referral coordinator next placed a telephone call to the patients and left a message if necessary. The referral was also printed and mailed to the patients. After completion of the process, no additional tracking was in place to verify if the patients received information through the phone call or mail. Also, no follow-up was scheduled to verify if the patients made contact to schedule the appointment, showed up for the appointment, or verified the date of the procedure to ensure a referral note was obtained. There was also no follow-up for the provider to determine if the referral was received by the referral coordinator. The gaps identified within the colonoscopy referral process for the provider, clinic, and patients supported the need for this DNP project.

**Readiness for Change**

The structure and support that staff provide to each other within a clinic may increase the likelihood of accepting change and reducing fear and anxiety that comes with change (Rodriguez, Chen, Martinez, & Friedberg, 2016). Participants are also more likely to be accepting of change when they have access to the leader of the project (Rodriguez et al., 2016). Therefore, the DNP student was physically present or available by cell phone during the duration of the project.

During discussions with the FNP, MA, and receptionist regarding the topic of the DNP project, they expressed agreement to participate in implanting a change to the current process. Due to having only one MA and one receptionist on site, even when two providers were present on certain days, they requested that they be assisted through reminders when days were very busy. The FNP agreed that primary care, including prevention, was key to keeping individuals healthy and out of the hospital setting. All staff members who were routinely at that location agreed and expressed excitement to see how the process might be improved and the positive results that were anticipated.

**Project Identification****Purpose**

The purpose of this process improvement project was to increase preventative colorectal cancer screening referrals and to complete colonoscopies for qualified individuals age 50 to 75 years within a family practice setting.

**Objectives**

The objectives of the project were as follows:

- Identify all potential patients age 50 through 75 years who were lacking a preventative colonoscopy referral.
- Provide a preventative colonoscopy referral to all individuals who were age 50 through 75 years the same day of their appointment.
- Increase patient adherence to scheduling and completing a preventative colonoscopy referral.

### **Anticipated Outcomes**

- One hundred percent of patients age 50 through 75 years would be screened for the need of a preventative colonoscopy.
- Eighty-five percent of eligible patients age 50 through 75 years would be provided with a referral for a preventative colonoscopy on the same day as their visit.
- Ninety-five percent of patients who were provided referrals would schedule an appointment and complete a colonoscopy as verified by a returned referral note.

### **Summary and Strength of the Evidence**

The ACS (2018a) guidelines for colorectal screenings strongly recommend that both women and men with average risk begin routine screening starting at the age of 50 years. Average risk individuals are those identified as not having a personal or family history of colorectal cancer or a previous diagnosis to specific types of polyps (ACS, 2018a). In addition, average risk individuals should not have a history of Crohn's disease, ulcerative colitis, or history of prior radiation to the pelvic or abdomen treating other cancers (ACS, 2018a). There should also be an absence of a suspected or diagnosed hereditary colorectal cancer syndrome (ACS, 2018a).



Visual examination through colonoscopy of the structures of the colon should be completed every 10 years. Individuals with a good quality life expectancy of 10 years or more should continue routine screenings every 10 years through the age of 75 (ACS, 2018a). Individuals between the ages of 76 through 84 years should base screenings on life expectancy, preference, and personal history (ACS, 2018a). After the age of 85 years, there is no recommendation to continue colorectal cancer screenings (ACS, 2018a). The U. S. Preventive Task Force (2016) reported colonoscopy colorectal cancer screenings as a significantly under-utilized preventative option in the United States. The U. S. Preventive Task Force (2016) had a grade A recommendation for preventative colorectal cancer screenings for those 50 to 75 years of age. A U. S. Preventive Task Force (2016) grade A recommendation is supported by results from well-designed, well-conducted studies representative of primary care populations demonstrating that the net benefit is substantial.

A review of the CDC's colorectal cancer screening program suggests utilizing MAs to screen and flag charts allowing the provider to focus on the delivery (Seeff et al., 2013). Previous research demonstrated a need to overcome obstacles such as health literacy, medical mistrust, knowledge deficiencies, and fear/anxiety of the colonoscopy procedure (Jandorf et al., 2013). In addition to identifying and referring patients for a colonoscopy screening, patients need to be educated on the reason for the screening in a language and culturally relevant manner (Jandorf et al., 2013). Patients should be educated on additional individual risk factors such as being overweight or obese, physical inactivity, certain diets, smoking, and heavy alcohol use, risk factors that increase the chances of developing colon cancer further prompting a preventative screening (ACS, 2018a). Previous research estimated that 68% of patients reported never having

a colonoscopy preventative screening due to a lack of recommendation by the provider (Ramdass et al., 2014).

In a cross-sectional survey study, 332 participants were interviewed using a modified Health Information National Trends Survey to evaluate their knowledge, screening behavior, and fear regarding colon cancer, as well as colonoscopy status (Ramdass et al., 2014). In addition, further analyses were conducted to explore the impact of patient preference and provider recommendations on compliance with colonoscopy screening guidelines. The provider recommendations impacted compliance with colonoscopy guidelines. Provider recommendations based on participants reporting a screening colonoscopy was the main contributing factor (Ramdass et al., 2014). Participants' knowledge and concern for colon cancer were precipitating factors for participation in colorectal cancer screenings, however, again, the statistical significance was not present without the provider recommendation. Of participants reporting a screening colonoscopy, 82.7% reported having a provider recommendation (Ramdass et al., 2014). Among participants who reported never having a preventative screening colonoscopy, 78.1% reported they would complete the procedure if there was a strong recommendation (Ramdass et al., 2014).

A single-blinded, cluster randomized, controlled trial was conducted within a primary care setting to compare the use of an electronic alert in the EHR to address colorectal cancer screenings to usual care without the alert as a reminder for the provider (Guiriguet et al., 2016). The study was conducted in 10 primary care settings with men and women between the ages of 50 to 69-years-old (Guiriguet et al., 2016). After adjusting for other variables, targeting those participants who would benefit from an electronic reminder demonstrated a statistically significant increase in colorectal cancer screenings (Guiriguet et al., 2016).

### Project Results

The project intervention was implemented and continuously evaluated from February 1, 2019, through April 30, 2019. The timeline allowed for 3 months of intervention, evaluation, and data collection. The initial project objective was to identify all potential patients age 50 through 75 years who were lacking a preventative colonoscopy referral (Table 1). During the month of February 2019, the practice had a total of 353 patient visits. March 2019 had 361 visits, and April 2019 had a total of 386 visits. For February, 101 patient charts were reviewed for patient referral status, which included both females and males who met the requirement of 50 to 75 years of age. During the month of March, 80 charts were reviewed for referral status. Finally, during the month of April, a total of 78 charts were reviewed.

Table 1

#### *Charts Reviewed*

Month 2019	Total patients	Actual charts reviewed
February	353	101
March	361	82
April	386	78

During the 3-month duration of the project implementation, when the designated MA was present, 100% of patients were screened and validated through the EHR documentation of patient referral status. In addition, the chart review revealed 100% of patients were provided with a preventative colonoscopy referral the same day as their scheduled appointment (Table 2).

During the month of February, out of the 101 charts reviewed, 24 patients were excluded due to having a complaint necessitating a referral and three for utilizing an alternative method for screening other than colonoscopy. An additional five patients also were excluded due to having a documented refusal of the preventative service. Therefore, 69 patients remained, with 52 being

females and 17 being males. Of those remaining, 42 patients were up to date with preventative colonoscopy referrals and completion of service, while 27 remained pending for the referral and service. For the 27 patients who remained pending, 24 had no referral documented and three had a referral but no follow-up.

During the month of March, out of 80 charts reviewed, 11 patients were excluded due to having a complaint attached to their referral and one for utilizing an alternative method other than colonoscopy. An additional patient also was excluded due to having a documented refusal of the preventative service. After exclusions, a total of 67 patients remained, with 48 females and 19 males. Of those remaining, a total of 29 were up to date with preventative colonoscopy referrals and completion of services. Therefore, 39 patients were still pending the referral and services. Out of the 39 pending patients, 27 had no date documented and 12 had dates and no completion of services.

The month of April was also included for the chart review to increase data collection opportunities due to having multiple patients attending multiple appointments within the allotted timeframe of February and March. During the month of April, out of 78 total charts reviewed, 5 patients were excluded due to having a complaint associated with their referral, as well as one additional patient for the utilization of an alternative method of screening. In addition, two patients were excluded due to having a documented refusal form within the chart. There were 70 patients remaining: 52 females and 18 males. Of those remaining patients, 30 were up to date with preventative colonoscopy referrals, as well as completion of services. Out of the 40 who remained pending, 31 patients had no date of referral documented and nine had a referral date and no documentation of completion of services.

Table 2

*Charts Kept*

Month 2019	Charts Kept	Excluded for complaint	Excluded for refusal
February	69	27	5
Female	52		
Males	17		
March	67	13	2
Female	47		
Males	19		
April	70	6	2
Female	52		
Males	18		
Mean age	62.09		

For the 206 patients who were included, only 49% (101) of patients were up to date with preventative colonoscopy services and 51% (105) of patients were pending for referral and/or completion of services (Table 3). Of the 105 patients who remained pending, 77% (82) of patients were missing a documented referral date. Therefore, the process improvement project failed to meet the 95% outcome of patients who were provided referrals would follow up with an appointment and complete the colonoscopy with a returned referral note. The project did meet the anticipated outcomes for the screening of qualified patients by the designated MA and for a provided referral on the same day as the patients’ appointment.

During the 3-month duration of the project intervention, occasions arose when the designated MA was out sick or on vacation and substitutes were not familiar with the process intervention or their role, resulting in missed opportunities. In addition, there were periods of time when the primary nurse practitioner was out sick and on vacation that led to alternative providers in the office unfamiliar with the process improvement project.

Table 3

*Outcomes*

	<i>N</i>	Anticipated	Result
Eligible patients ages 50 to 75 screened	206	100%	100%
Same day referral	206	100%	100%
Colonoscopy completion	101	95%	49%
Pending colonoscopy	105		51%

**Discussion****Summary of Outcomes**

The purpose of this project was to increase preventative colorectal cancer screening referrals and completion of colonoscopies for qualified individuals age 50 to 75 years within a family practice setting. When utilizing designated staff members who were invested in the project, the process appeared to work well and demonstrated closed-loop communication that benefited the patients as well as the clinic. Staff performance of patient screenings with validated documentation of patient status in the EHR increased. Part of the data collected during chart review was updated preventative colonoscopy completion status. When the designated MA was present, 100% of screens were done on females and males between the ages of 50 to 75 years.

During the times that the primary MA and FNP were present, closed-loop communication was demonstrated with a verbal reminder of the patient completion status by the MA as the provider was entering the patient exam room for the medical visit. The MA would also remind the FNP that the status was current in the chart for review with patients.

During the time that the MA was out on either vacation or sick leave, the practice found it difficult to provide extra support for the covering MA. In addition, the covering staff were not familiar with the clinic's processes, location of needed equipment, and the preferences of the FNP. Therefore, screening of qualified patients, along with providing written and verbal

communication to the provider prior to each visit, was difficult. That also resulted in the verbal communication between the MA and the provider just prior to entering the patient exam room not being tracked. In addition, there were difficulties when the visiting physician conducted clinic at the project location. That led to doubling the daily patient census with only the one MA for both providers. During the 3-month project intervention, multiple students also were completing clinical hours, which likely had a negative impact on preventative service referrals.

One of the most important impacts from the process improvement project was the implemented routine of screening patients for preventative care services especially during episodic sick visits in order to keep updated patient health records. Prior to the process improvement project, unless the patients were present for a health insurance annual exam, the patients were not being screened for preventative services on an intentionally regular basis. In addition, there was a definite change in the staffs' communication skills, appearing as if they all had a common goal.

### **Results in Relation to the Evidence**

As recommended by the ACS, the staff of the family practice clinic screened all women and men between the ages of 50 to 75 years for preventative colonoscopy screening needs (ACS, 2018a). The U. S. Preventive Task Force (2016) also had a Grade A recommendation for preventative colorectal cancer screening for those 50 to 75 years of age to which the clinic adhered by screening all potential individuals within the defined age range.

As in the CDC's colorectal cancer screening program project that utilized MAs to screen and flag patient charts (Seeff et al., 2013), this process improvement project utilized existing staff members in that delegated role. When using the MAs as the initial screeners, it allowed the provider to focus his or her time on educating the patients about the needed preventative

colorectal screening similar to the CDC project (Seeff et al., 2013). The provider's time was spent on assessing the individuals' needs or perceived obstacles such health literacy, knowledge deficiencies, and fear or anxiety about the colonoscopy procedure (Jandorf et al., 2013).

During data collection through chart reviews, it was evident that the process improvement project mirrored previous research where it was estimated that 68% of patients reported never having a preventative colonoscopy screening due to the lack of a provider recommendation (Ramdass et al., 2014).

### **Limitations**

The first limitation of the project was the short 3-month duration for project solidification. The researcher felt that if the period of time were extended, there would have been more opportunity to anticipate and address the obstacles that arose during the project. There was also the issue with employee turnover, which impacted the outgoing referral specialist, modifying her work responsibilities several times throughout the 3-month project period. An additional limitation to the process improvement project was the limited availability of staff during the times when there were multiple providers working on the same days. That limitation was mainly related to the little or no notification of when the delegated individual for the project would be out, thereby not allowing an opportunity to educate the covering employee. Another limitation was that during the 3-month implementation period several students, who were not necessarily aware of the project, were completing clinic hours in the office, which may have played a role in the data results.

Additional limitations were associated with the EHR and the lack of ability to tease out particular information. Patient visits were unable to be separated between the two clinic locations. There was also an inability to track submitted outgoing referrals or to run reports to



determine the differentiation between referral for prevention or complaint. The EHR did have noted and specific locations for documentation of patient status that was always visible, however, it would have been extremely beneficial if there was an integrated patient or provider reminder system such as popups, hard stops, or automatic notifications.

### **Recommendations**

Based on the results, recommendations for the sustainability of the project include continued staff reminders and the training of additional staff who may cover during the absence of the primary clinic staff. In addition, more time is needed to allow the office manager to see a return on the investment of keeping up with preventative services by designated office staff, such as the outgoing referral coordinator. In addition, it would be beneficial for the outgoing referral coordinator to work from the project clinic location on occasion to foster the communication needed for sustainment. Once sustainability of the screening and referral process for preventative colonoscopy screening is demonstrated to a gastroenterologist, then the same improved process might be carried over to other preventative screenings such as mammograms, diabetic eye exams, or podiatry for routine diabetic foot exams. Lastly, the crucial role that primary care providers play in ensuring these important preventative screenings are completed would be easier to accomplish with some modifications to the current EHR.

### **Implications for Practice**

The Doctor of Nursing Practice program prepares advanced practice registered nurses to organize and facilitate systemwide process improvement projects with techniques founded in evidence-based practice (Walker & Polancich, 2015). Advanced practice registered nurses may use the technique of translation to facilitate projects such as the improvement of preventative health screenings and increasing the utilization of closed-loop communication processes within

primary care clinics. The doctorally prepared nurses' leadership role may take place within an inter-professional team to improve system-based measurable outcomes and reduce the risk of patient harm (Walker & Polancich, 2015).

Doctorally prepared nurses are educated and trained to analyze critically evidence through literature reviews to determine the most beneficial strategies that will promote quality patient population outcomes (Walker & Polancich, 2015). Advanced practice nurses are able to evaluate clinical practice situations parallel to the steps of meticulous diagnosis and treatment of a patient illness (Walker & Polancich, 2015). As a provider, leader, and change agent, the DNP utilizes an inter-professional collaboration to improve the practice setting with safe, effective, timely, and equitable patient centered-care (Walker & Polancich, 2015).

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