DEVELOPMENT AND IMPLEMENTATION OF A PANEL MANAGED PREVENTATIVE HEALTH SEVICES PROTOCOL IN A RURAL PRIMARY CARE CLINICAL TO IMPROVE PATIENT ACCESS TO CARE

by

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DEDICATION

This is dedicated to my mom for being the most amazing example of a nurse, a friend, and most off all, a mother.

ACKNOWLEDGEMENTS

I would like to thank all of those involved in allowing this project to be possible. The time and expertise of my Scholarly Project Committee members, especially my chair, Dr. Jennifer Sofie, is greatly appreciated. Dr. Sofie's guidance and encouragement was essentially in the materialization of this Scholarly Project.

I am most grateful for the support my family provided me through this process. Without my family, especially my dad, my goal of returning and getting through graduate school would have been nearly impossible. My girls, Ella and Lucy, were very patient with their mom spending days away for school and many hours working on school assignments—I will forever by indebted for their patience and understanding.

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ABSTRACT

Due to a lack of primary care providers (PCP) in a rural family practice clinic, patient access to health care is being compromised with patients experiencing difficulties scheduling appointments within a timely manner. Periodic health exams (PHE) can be time consuming and lack strong evidence that they improve patient outcomes, however, the actual preventative health services (PHS) reduce morbidity and mortality rates. Suggestions have been made to incorporate preventative health services counseling into other office visits to eliminate lengthy PHE or by use of a panel managed approach. A panel managed preventative health service protocol was developed and implementation was piloted by two PCP at the clinical project site. The goal of this project was to improve patient access by decreasing the number of days to schedule an appointment with a PCP in a rural family practice clinic over a 3-months. A secondary aim was to decrease the daily patient census of the urgent care walk-in clinic partially related to inappropriate use. Thirty days prior to the implementation of the panel managed preventative health service protocol, the mean number of days to schedule an appointment with a PCP was 42.57 days and 50.87 days of month one and 52.19 days of month three of project implementation. The mean daily patient census count in the urgent care walk-in clinic for 30 days prior to project implementation, was 73.57 days and month three of the project implementation was 57.07 days, reflecting the expected change. Despite somewhat conflicting results and several limitations experienced in the implementation portion of this project, a panel managed preventative health service protocol has the potential to benefit the healthcare system by displacing some of the workload from PCP to nonclinican staff and improve compliance of recommended PHS. Recommendations of implementation over a longer timeframe, appropriate allocated staff, and data collection of the recommended PHS patients obtained, may strengthen future, similar projects.

INTRODUCTION

Background

Health Promotion and clinical prevention are essential components to people's health (Raingruber, 2014). Health promotion and preventative health services can dramatically reduce morbidity and mortality and also reduce healthcare costs (Krogsboll, Jorgensen, Larsen, & Gotzsche, 2012; U.S. Department of Health and Human Services, Center of Disease Control, 2016). The World Health Organization (2016) defines health promotion as, "the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions." The American Association of Colleges of Nursing (AACN, 2006, p. 15) defines clinical prevention as "health promotion and risk reduction/illness prevention for individual and families."

Preventative health services provide an opportunity to identify a disease in its infancy, which has been associated with a reduction in morbidity and mortality. Preventative health services include immunizations and screenings such as mammography, colonoscopies, fasting blood sugars, depression, and tobacco use. Primary care providers (PCP) are traditionally the healthcare providers responsible for educating and recommending appropriate preventative health screenings (U.S. Department of Health and Human Services, Center of Disease Control, 2016.)

The Institute of Medicine (IOM) (2001) identified a lack in quality of preventative health care services within our national healthcare system, partially due to inconsistencies

in recommended, evidenced-based preventative services and what was actually being done in practice. Preventative care was highlighted even brighter by the implementation of the Patient Protection and Affordable Care Act (PPACA) that expanded health coverage to include specifically selected clinical preventive services, with grade A or B recommendation by the U.S. Preventative Services Task Force (USPSTF), with no charge or co-payment to the patients carrying health insurance (HealthCare.gov, n.d.). Some of these preventative services include: cervical cancer screening, alcohol screening, tobacco screening, depression screening, and sexually transmitting infection screening (HealthCare.gov, n.d.). The USPSTF was established in 1984 to identify, develop, and recommend comprehensive preventative health services for all ages. The USPSTF is supported by and works in close conjunction with the Agency for Healthcare Research and Quality, which is part of the U.S. Public Health Services (U.S. Department of Health and Human Services, 2016).

Periodic health evaluations (PHE), also referred to as health maintenance exams or annual physicals, have been performed in primary care settings for decades, despite the lack of strong evidence that they improve patient outcomes (Krogsboll, Jorgensen, Larsen, and Gotzsche, 2012; Obole and Laforce, 1989). Early detection using prevention health services has shown to dramatically reduce morbidity and mortality, however, there is not strong evidence that PHE reduce mortality, cardiovascular disease, or cancer-related conditions (Krogsboll, Jorgensen, Larsen, and Gotzsche, 2012). Some research has concluded that PHE improve delivery of some preventive services, such as

Papanicolaou smears, cholesterol screening and fecal occult blood testing and also lessen patient worry (Boulware et al, 2007).

During the PHE is typically when preventative care services are addressed, recommended, and scheduled. Periodic health evaluations are often time-consuming visits, taking up large portions of a primary care provider's schedule. Recommendations have been made nationally to incorporate preventative health services into other health care visits. Despite these findings, most PCP continue to practice using PHE as it is their own personal beliefs that PHE are important and effective for preventative health care (Krogsboll, Jorgensen, Larsen, & Gotzsche, 2012; Obole & Laforce, 1989; Prochazka, Lundahl, Pearson, Oboler, & Anderson, 2005).

Healthy People 2020 (2014) has identified patient access to primary care as one of the key elements for social determinants of health that need improvement. A lack of PCP, along with an increased number of Americans with healthcare coverage are contributing to compromised patient access to healthcare (Bodenheimer & Pham, 2010). Longer wait times have been linked to poorer quality of care and higher mortality rates (Altschuler, Margoliu, Bodenheimer, & Grumbach, 2012; Stefos et al., 2011).

Primary care is facing a supply and demand imbalance with PCP and patients, respectively (Bodenheimer & Pham, 2010). Multiple factors are contributing to a projected shortage of PCP. Bodenheimer and Pham (2010, p. 801) estimate an increased workload of 29% of adult PCP with only a 2-7% estimated growth in number of adult PCP. Gentili, Harati, and Serban (2016) estimated PCP will increase from 9.2% to 11.7% by 2025, but the number of necessary visits will increase by 20%. The Association of

American Medical Colleges (2014) estimates the United States to face a shortage of primary care physicians of 45,000 by 2020. There is an expected shortage of adult PCP of 35,000-40,000 by 2025 (Bodenheimer & Pham, 2010). The PPACA (HHS.org/Healthcare, 2012) has expanded the eligibility for people to receive health insurance coverage, increasing the number of American's with health insurance and seeking medical care. According to the National Institute for HealthCare Reform (NIHCR) (2011), an expected 32 million previously uninsured Americans will have health coverage by 2019.

A PCPs' patient panel is considered the patients in which they are responsible for the long-term care (Ozen & Balasubramanian, 2013). The lack of PCP is reflected in growing patient panel sizes in the United States (U.S.) with an average of approximately 2,300 (Altschuler, Margolius, Bodenheimer, & Grumbach, 2012). It is estimated that this problem will likely worsen due to fewer medical students choosing specialties in primary care and that an increasing number of American's are gaining health coverage including expanded preventative health services since the PPACA (BesRoches, Buerhaus, Dittus, & Donelan, 2015). A patient panel size of 2,500 is estimated to require almost 22 hours per day to provide all the recommended preventative, acute, and chronic care (Altschuler, Margoliu, Bodenheimer, & Grumbach, 2012). Patient panel size along with the type of patients, such as mostly healthy versus multiple chronic disease, in the panel effects the continuity of care provided by PCP (Ozen & Balasubramanian, 2013).

Inadequate access to healthcare is problematic across the country, but even more so in rural areas (HRSA, 1995). Rural areas are even more challenged for adequate access

to healthcare (Bodenheimer & Pharm, 2010, p.801), "Twenty-one percent of the U.S. population lives in rural areas, but only 10% of physicians practice in these areas." There is a maldistribution of healthcare workers in rural areas worldwide. Primary care providers, physician assistants, and nurse practitioners are more likely to practice in a rural setting than other specialist, but there still remains a disproportionate number in urban settings (AHRQ, 2014). The WHO (2010) did recognized this problem and subsequently developed a set of recommendations to improve retention of health care workers in rural areas.

Team-based, interprofessional collaborative approaches have been associated with improved care and reduced cost (Ladden, Bodenheimer, Fishman, Flinter, Hsu, Parchman, & Wagner, 2013; Zwarenstein, Goldman, & Scott, 2009). Altschuler, Margolius, Bodenheimer, and Grumbach (2012) and Ghorob and Bodenheimer (2012) recommended the use of team-based task delegation for portions of preventative and chronic disease services to help providers manage patient panel size. There is very minimal research regarding interprofessional collaboration, specifically, in rural settings (Mitchell et al, 2013)

The need for redesigning primary care in order to meet the needs of patient care due to lack of PCP and improve patient access to care has been documented and several strategies attempted (DesRoche, Buerhaus, Dittus & Donelan, 2015; Ladden, Bodenheimer, Fishman, Flinter, Hsu, Parchman, & Wagner; 2013; Porter, Pablo, & Lee, 2013). It is suggested moving to a team-based approach and by using subgroups according to patients' similarities and needs to provide care (Bodenheimer & Pham,

2010; Ladden, Bodenheimer, Fishman, Flinter, Hsu, Parchman, & Wagner; 2013; Porter, Pablo, & Lee, 2013). Medical home models and nurse-managed clinics (NMC) have been proposed as an effective alternative to traditional primary care, which could lessen the workload of primary care physicians by delegating responsibilities that are not necessary to be completed by PCP to nonclinicians (Auerbach et al, 2013; Ghorob & Bodenheimer, 2012; Marshall et al., 2011). Nurse-managed clinics have been used in the healthcare system for several decades, which have historically been used to serve the uninsured or underserved populations (Coddington, et al, 2011; Coddington & Sands, 2008). Nurse-managed clinics' focus is typically health promotion, disease prevention, and education pertaining to management of chronic disease. The use of protocols in team-based NMC has demonstrated positive effects on outpatient management of chronic diseases that can provide more consistent patient education and improved compliance (Ladden, Bodenheimer, Fishman, Flinter, Hsu, Parchman, & Wagner, 2013; Shaw, et al, 2014; Zwarenstein, Goldman, and Scott, 2009).

Ghorob and Bodenheimer (2012) propose changes that can be made in primary care to improve patient access to primary care. A team-based approach, using a computer based panel management to identify those in need of certain preventive health services or chronic disease management. Nonclinicians, using standing orders, contact patients to inform them of identified services independently, without provider involvement. The U.S. Department of Health and Human Services, CDC (2016) also proposes that preventative health services be addressed outside a PHE or annual physicals.

Local Problem

Due to a lack of PCP, in a rural family practice clinic in North Dakota, patients are experiencing difficulties scheduling appointments within a timely manner, waiting up to several months. The PCP at the clinical project site have high patient panel size with an average of 2,312, which is above the average of 2,300 in the United States (Altschuler, Margoliu, Bodenheimer, & Grumbach, 2012). However, four of the six family practice physicians have patient panel sizes greater than 3,000. For a patient panel size of 2,500, it is estimated that it would take almost 22 hours per day to provide all the recommended preventative, acute, and chronic care (Altschuler, Margoliu, Bodenheimer, & Grumbach, 2012). Literature suggests that longer wait times leads to poorer quality of care and higher mortality rates (Altschuler, Margoliu, Bodenheimer, & Grumbach, 2012; Stefos et al., 2011). Significant portion of PCPs' schedules are booked with PHE that have little evidence supporting their use. Periodic health examinations are scheduled for 20-60 minutes compared with routine office visits, such as diabetes management, hypertension management, or obstetric visit, that are scheduled for 10-30 minutes, depending on the provider.

The urgent care walk-in clinic that is affiliated with the primary care clinic is experiencing high daily patient census, where three PCP see over 100 patients in eight hour day. This is partially linked to patients' inability to be seen within a timely manner by their PCPs' during regular clinic business hours. Consequently, the urgent care walk-in clinic is being used for chronic disease management, obstetrical (OB) visits, and other non-urgent needs. The urgent care walk-in clinic was designed to provide care to patients

with acute, non-emergent, problems, such as a sore throat or sprained ankle. Office visits are intended to be relatively short visits, very focused to the acute problem with minimal follow-up limited to the presenting problem. Therefore, urgent care walk-in clinics are not ideal settings for chronic disease management or non-urgent needs requiring continuity of care and follow-up.

Frustration from both PCP and patients have been verbalized regarding the length of time for a patients' ability to schedule an appointment with their PCP. Also, the high census of patients in the urgent care walk-in clinic caused dissatisfaction from providers and patients. The patient volumes in the urgent care walk-in clinic often lead to long work days for the PCP who are covering that walk-in clinic day. Providers will frequently eliminate or reduce their typical lunch breaks due to the amount of patients waiting and length of patients waiting to be seen in the walk-in clinic. On higher patient volume days in the walk-in clinic, documentation becomes difficult to complete in a timely manner further extending the work day up to 12 hours.

Patients frequently verbalize to clinic staff and PCP and document in patient satisfaction surveys that they are frustrated or upset with the length of wait to be seen by the provider in the walk-in clinic. Additionally, quality compliance measures regarding chronic disease management were trending downward with speculation from providers that it was related to the length of time to get an appointment with his or her PCP. The project coordinator was approached by one of the PCP, who was currently working in the project clinic site, to develop and implement a preventative health service protocol in hopes for improvements in some of these problem areas.

The implementation of a panel managed preventative health services protocol, replacing the need for a PHE, could help displace unnecessary time spent by PCP to other staff that doesn't require the same level of training. Altschuler, Margoliu, Bodenheimer, and Grumbach (2012) suggest using team-based approach, delegating services that do not need to be completed by the PCP to others, which could potentially make a patient panel size of up to 1,947 manageable. An aim would be to improve patient access to care, as providers' schedules would not be filled with PHE, allowing timelier appointments for chronic disease management, OB visits, and more urgent concerns. Consequently, the urgent care walk-in clinic census should decline and decrease inappropriate use.

Intended Improvement

The purpose of the project is to develop and implement an evidence-based panel managed preventative health service protocol using a team-based approach with the primary aim to improve patient access by decreasing the number of days to schedule an appointment with a PCP in a rural family practice clinic over a 3-month period. Subsequently, a secondary aim is that the high patient census of the urgent care walk-in clinic related to inappropriate use should improve.

Theoretical Framework

The McGill Model of Nursing (MMN) is a grand level of nursing framework that was developed by F. Moyra Allen in the 1970's in response to an increased need for health care services. The focus of the MMN is health promotion with a strong emphasis

on family; health promotion is considered the primary role of the nurse (Gottlieb & Rowat, 1987). This model has been successfully implemented in many ambulatory care settings. Murphy (1994) and Feeley and Gerez-Lirette (1992, p. 807) "with significant impact on family care, nurses' professional and personal growth, and the development of nursing knowledge and practice."

The purpose of the scholarly project is to adopt a collaboratively approached, panel-managed, preventative health service protocol for clients in a primary care setting. The MMN possesses many attributes that correlate well with the intentions of this project. Both have the central focus of health promotion with the nurse being the primary vehicle for success via a learning process. Nursing is considered complimentary to medicine and other healthcare professions, lending itself well to the interprofessional, collaboration within this project involving RN health coaches, nurse practitioners, physicians, and panel managers. The MMN views the nurse as a collaborator, facilitator, and stimulator of client learning; all of which were necessary roles within this project. The RN health coach's role is to educate the client about the recommended preventative health services with a goal of the client making an informed decision to choose to accept the identified services in order to achieve optimal health (Murphy, 1994).

Three main components of the MMN were used to guide this scholarly project. Most prominently being the ultimate goal for nursing, as identified by the MMN, "is to maintain, strengthen, and develop the client's health through actively engaging him or her in a learning process (Gottlieb & Rowat, 1987, p. 52)." Health is a learned process comprised of a complimentary system of coping and development. Learning is

considered a two-way street as the nurse learns from the client and the client learns from the nurse. The nurse-client relationship has significant weight on the project outcomes with a goal of the client, individual or family, choosing to partake in the recommended preventative health service(s).

The MMN stresses importance of a collaborative approach between the nurse and patient to set health promotion goals by building on the patient's strengths and resources (Gottlieb & Rowat, 1987). Rather than a negative or deficit approach, the nurse is to use a positive approach focusing on the client's strengths to encourage and lead in health promotion activities (Feeley & Gottlieb, 2000). A positive approach by the RN health coach, while educating the patients about recommended services and changes in the process, was important to the nurse-client relationships by inquiring about the client's strengths, available resources, and concerns.

METHODS

Ethical Issues

The preventative service protocol was collaboratively designed, guided by the national recommended guidelines for preventative services, and approved by the project coordinator and PCP involved in the pilot. Approval for implementation of the preventative service protocol was obtained from the healthcare enterprise's quality group prior to implementation. A proposal meeting was organized and held by the project coordinator with the all of the DNP project committee members prior to beginning the development and implementation. The project was designated as exempt status from Montana State University's Internal Review Board. All persons with a role in this project were employees at the clinical project site, therefore were in compliance with the HIPPA requirements. No patient names or identifiers were collected for the use in this project.

Sample and Setting

The sample population consisted of patients between the ages of 18-64 that designated either of the two participating providers in this pilot as their PCP. Patients were further filtered by those that had not seen their PCP in over 12 months. If patients had documented chronic illnesses that fell outside the preventative health service protocol, they were eliminated.

A rural clinic, in central North Dakota, consisting of 11 PCP, a general surgeon, a dermatologist, and two psychologists was used for this project setting. It serves a

community of approximately 16,000 people. The rural clinic is a satellite clinic of large medical enterprise that currently provides care in eight states and has three world clinics. All PCP have their own practices, but also rotate as providers in the urgent care walk-in clinic that is located in the same location as the PCPs' regular practice offices.

Providers' offices are set up in pods with teams, referred to as huddles, of three PCP, one huddle RN, and three licensed practical nurses (LPNs) and/or RNs. A panel manager specialist oversees specific quality measures currently in place for all 11 PCP.

Intervention Process and Evaluation

The U. S. Preventative Services Task Force (USPSTF) (2014) consists of a panel of 16 experts within preventative medicine, evidence-based medicine, and primary care that develops recommendations of preventative care services for Americans. The USPSTF assigns a letter grade to each preventative care service recommendation indicating the strength of evidence and risk-benefit ratio; a letter grade of an A indicates the strongest and D the weakest of the preventative service. Currently, there are 54 recommended grade A and B preventative services for adults, women including pregnancy, and children populations by the USPSTF (2014). Eighteen of these preventative services for adults are covered within the PPACA (HealthCare.gov, n.d.).

Thirteen, prioritized, grade A or B, criteria from the USPSTF (2014), were selected by a group of PCP at the clinical project sight were used in the initial development of the preventive service panel managed protocol. The selected USPSTF preventative services were initially filtered to include only grade A or B

recommendations by the USPSTF. Then the group of PCP identified the most commonly addressed preventative services within the project's age range of 18-64 with the exception of obstetric recommendations. The project coordinator eliminated one of the criteria as the recommended ages for the preventative service fell outside this project's age range of 18-64. The two PCP piloting the panel managed preventative health services protocol were notified of the change. The finalized list, of 12 identified preventative services (see table 1), was then taken to the Information Technology (IT) department for construction of the necessary report from the electronic health record (EHR), Epic.

Screening	Gender	Age	Service/diagnostic	Frequency	Ordering dx
Aspirin for CAD	Female Male	55-64 45-64	Documentation of use or contraindication	Annually	
Breast Cancer	Female	40-64	Mammography	Every 2 years	Screening Breast Cancer
Cervical Cancer	Female	21-64 35-64	Pap smear Pap smear with co-testing	Every 3 years Every 5 years	Screening Cervical Cancer
Chlamydia	Female	18-24	Chlamydia urine screen	Annually, if sexually active	Screening STI
Colorectal Cancer	Female & Male	50-64 (with no FH of colon cancer)	FOB Colonoscopy	Annually Every 10 years	Screening colon cancer
Diabetes Mellitus	Female & Male	18-64 with BP of >135/80	Fasting glucose or Hgb A1C	Every 3 years	Screening diabetes
Hepatitis C Virus	Female & Male	Born between 1945-1965	Anti-HCV antibody	Once in lifetime	Screening hepatitis C
High Blood Pressure	Female & Male	18-64 with BP: <120/80 120-139 or/80-90	 Blood pressure Blood pressure	 Every 2 years Annually	
Lipid Disorder	Female Male	45-64 35-64	Lipid profile Lipid profile	Every 5 years Every 5 years	Screening hyperlipidemia
Lung Cancer	Female & Male	55-64 who have a pack-year history of 30 OR have quit smoking within the past 15 years	CT of chest	Annually	1. Screening lung cancer 2. Nicotine dependence
Obesity	Female & Male	18-64	BMI	Every 2 years	
Tobacco	Female & Male	18-64	Ask about tobacco use	Annually	

Table 1. Preventative Health Services Recommendations of Project Protocol

A nonclinician panel manager (PM) position had recently been implemented and the PM had been hired at the clinical project site prior to this project. Upon hire, a portion of the PM's duties includes running monthly reports, for all of the PCP practicing at the clinic, identifying a very limited number of individual recommended preventative health services, such as mammograms or colonoscopies, and sending patients' reminder letters. The PM responsibilities also include running reports identifying patients in need of health care services for chronic disease management and attempting to notify those patients. For this project, the PM runs a monthly patient reports of 12 identified recommended preventative health services per the protocol. She was to attempt the initial contact with patients, explaining the recommended preventative health services and that arrangements for these services can be made without need for a PHE. The PM was to make three attempts to initially contact patients by telephone, then a letter sent containing the information (see Appendix). Patients were given the direct phone line to the registered nurse (RN) health coach to educate the patients regarding the recommended preventive health services and order into Epic (via protocol) the recommended preventative health service(s) that the patients wish to proceed. There are occasions that require patients to schedule an appointment with their PCP for preventative health services, such a Papanicolaou smears, but does not require a PHE. The PCP receive all results, such as labs, imaging, or blood pressure readings, through Epic so any further recommendations or treatment can be provided to patients (see figure 1).

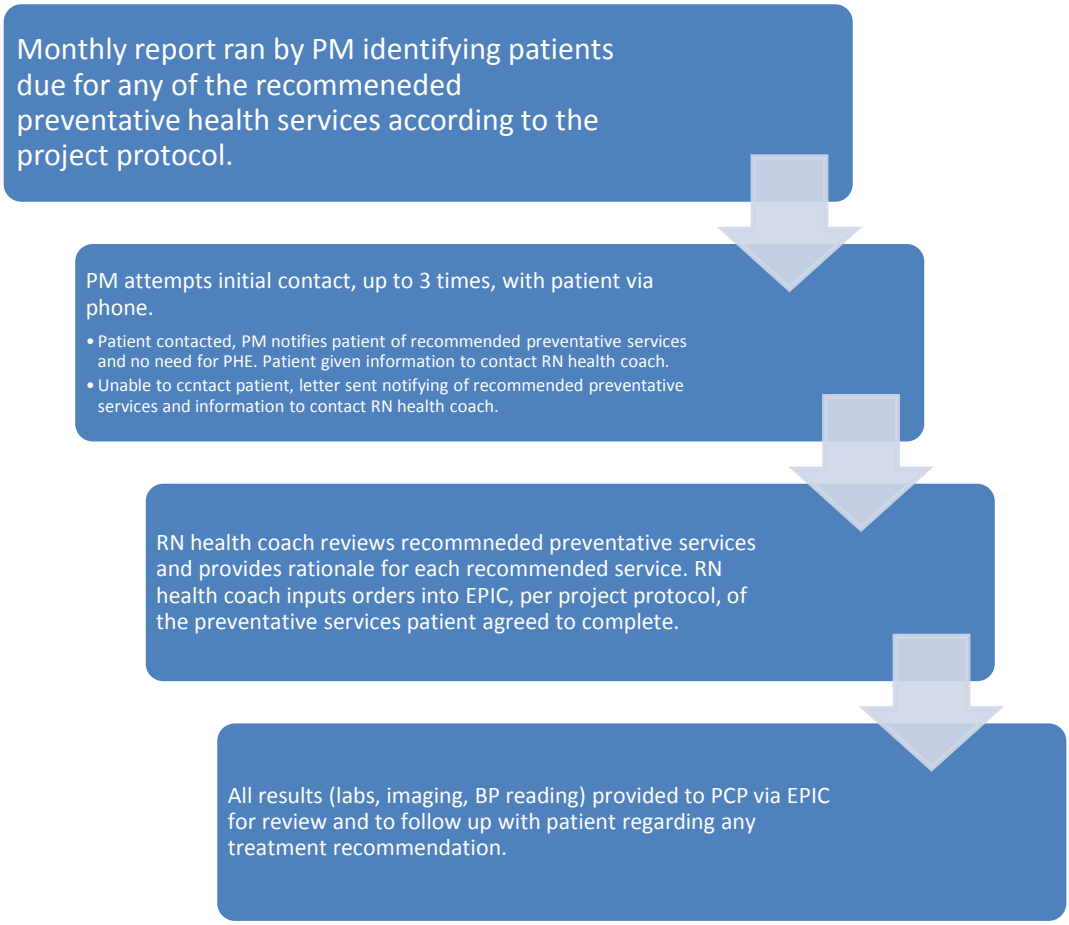

Figure 1. The initial process of the panel managed preventative health service protocol is depicted above.

Shortly after the implementation of the preventative service protocol, the PM declined to participate as she was feeling overwhelmed with the preventative health service protocol and concerns about the additional workload it would provide. The PM had difficulty understanding the concept of the project and the PM role; the project coordinator met with the PM to help clarify and demonstrate the project concept and the PM role. Unfortunately, despite these efforts the PM would no longer have a role in this project. Additionally, changes were made at the clinical project site, reconfiguring the structure between the nurses and PCP. The RN health coach position was dissolved and a

'huddle' team was formed of two physicians, one nurse practitioner, a huddle RN, and three additional nurses. The initial protocol process was revised and approved by the two participating PCP to keep the preventative health service protocol progressing. The project coordinator took on the responsibility of running the monthly reports, attempting initially with a telephone call, then a letter was immediately generated by the project coordinator with the recommended preventative services and with steps how to proceed (see figure 2).

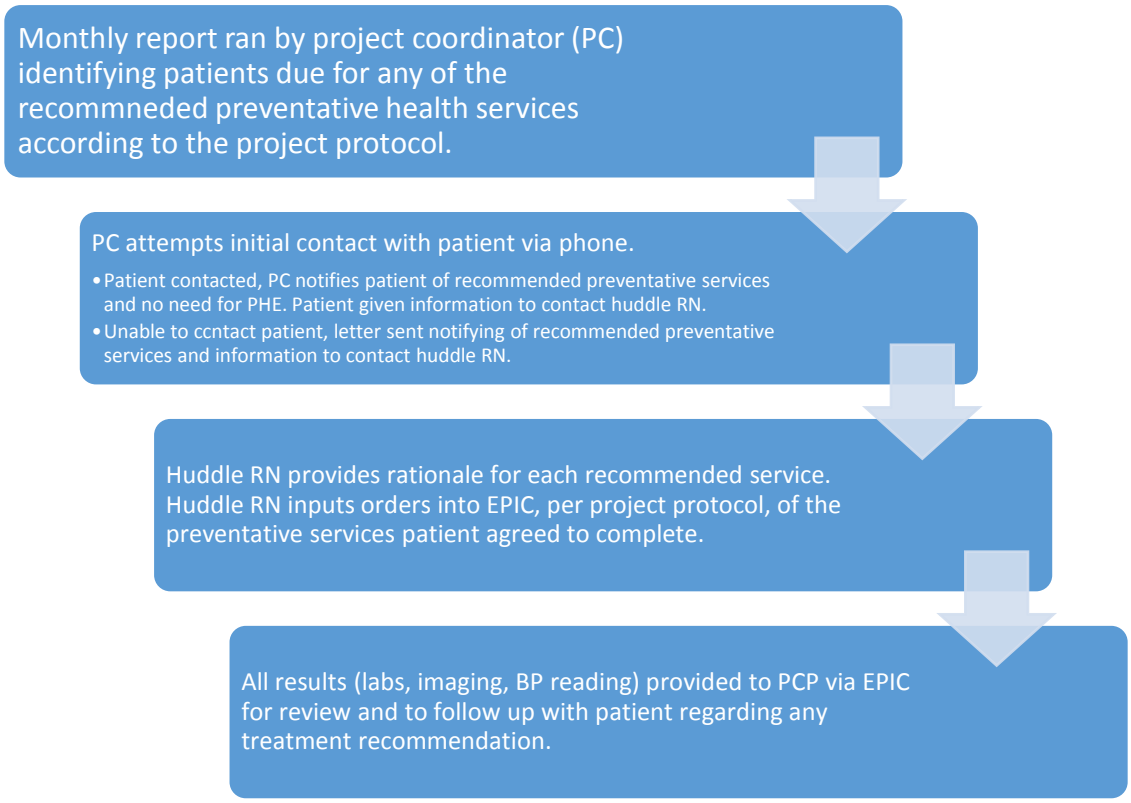

Figure 2. The modified process following the loss of the PM for the panel managed preventative health service protocol is illustrated above.

Two PCP practicing at the rural family practice clinic agreed to pilot the panel managed preventative health service protocol over the course of three months. Data determined to be collected was:

1. The mean number of days for patients to schedule an appointment with their PCP for 30 days pre-implementation, month one, and month three post intervention.
2. The mean daily patient census in the urgent care walk-in clinic for 30 days pre-implementation and month three of implementation.

Analysis

Data for the record analysis was obtained and completed by the project coordinator via the electronic health record (EHR), Epic. Data extraction was repeated to assure data quality and accuracy. The mean number of days for patients to schedule an appointment with their PCP was obtained for 30 days pre-implementation, one month post implementation, and three month post implementation. Through the scheduling portion of Epic, the scheduling details of all office visit appointments, of the two participating PCP, were reviewed by the project coordinator to determine the date in which an appointment had been scheduled. The number of days from when an appointment was made to the actual appointment date was used to determine the number of days of patients to schedule an appointment with their PCP. Days in which the two participating PCP piloting this project were working in the urgent care walk-in clinic were not included in the mean number of days for patients to schedule an appointment as all of these appointments are scheduled the same day.

The mean daily patient census of the urgent care walk-in clinic was obtained for 30 days pre-implementation and month three post implementation. Descriptive, quantitative statistics for each of the preselected items was calculated for the pre- and post-implementation in mean number of days for patients to schedule an appointment with their PCP and mean daily patient census of the urgent care walk-in clinic.

OUTCOMES

The goal of this project was to develop and implement a panel managed preventative health service protocol to improve patient access by decreasing the number of days to schedule an appointment with a PCP in a rural family practice clinic over a 3-month period of time. A secondary aim was to decrease the daily patient census of the urgent care walk-in clinic related to inappropriate use with chronic disease management, OB care, and other non-urgent needs.

The pilot implementation of the preventative service protocol for the two participating PCP, was found to have no improved effect regarding the mean number of days to schedule an appointment with a PCP. Thirty days prior to implementation of panel managed preventative health service protocol, the average number of days for patients to schedule an appointment with their PCP was 42.57 days. Month one and month three of the project implementation had increasing average number of days of 50.87 and 52.19, respectively, for patients to schedule an appointment with their PCP (see figure 3).

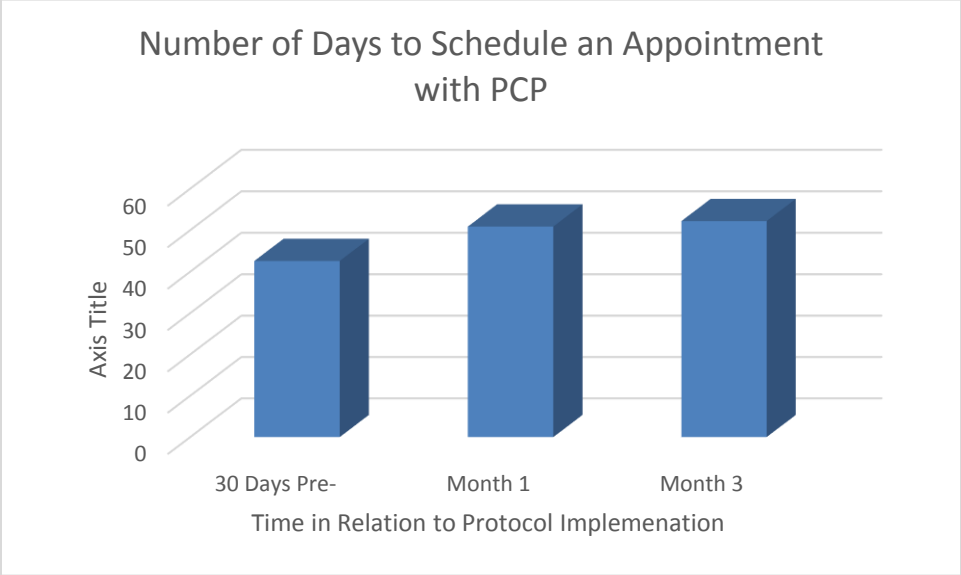

Figure 3. Mean number of days for patients to schedule an appointment their PCP is represented at 30 days pre-implementation, month one post implementation, and three months post implementation. The mean number of days increased following the implementation of the panel managed preventative health service protocol.

Thirty days prior to the implementation of the project the mean daily patient census count in the urgent care walk-in clinic was 73.57 days with a median of 91, mode of 94, and standard deviation of 39.45. At month three of the project implementation the mean daily patient census count for the urgent care walk-in clinic was 57.07 days with a median of 65, mode of zero, and standard deviation of 34.91 (see figure 4). A decrease in the mean daily patient census of the urgent care walk-in clinic was reflected and an expected outcome.

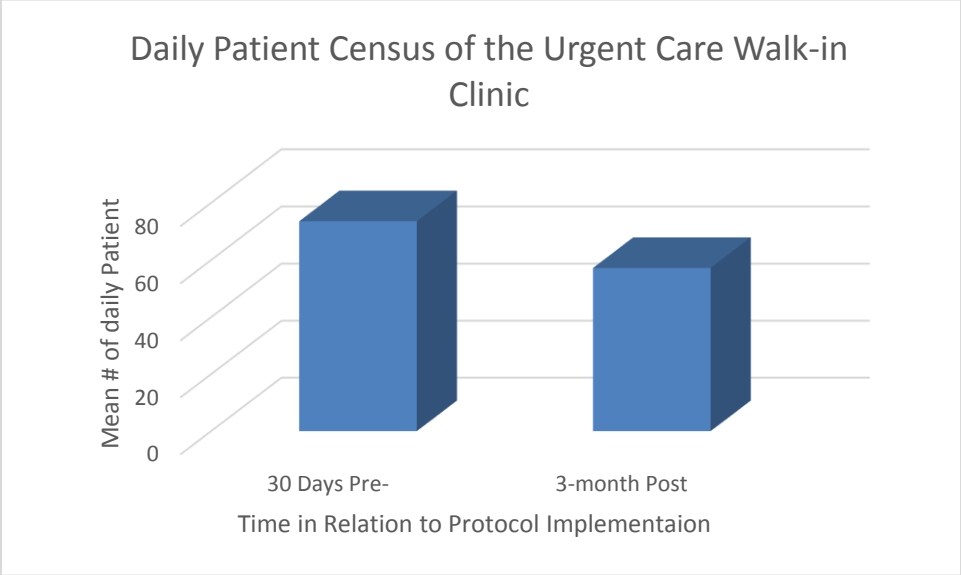

Figure 4. The mean daily patient census count in the urgent care walk-in clinic for 30 days prior to implementation and three months post implementation is shown above. There was a decrease in the use of the urgent care walk-in clinic three months post implementation.

Month one of the project implementation was during a timeframe that the urgent care walk-in has historically experienced high patient census. This made for inferences and interpretation of pre-implementation and three months post implementation of the mean daily patient census less reliable, as the mean daily patient census would have likely decreased despite the implementation of the panel managed preventative health service protocol.

DISCUSSION

Discussion and Relation to Other Evidence

A lack of PCP, especially in rural areas, is necessitating attempts to redesign the current structure of primary care. The nation is experiencing a shortage of PCP, which is expected to worsen due to fewer medical students entering primary care specialties and an increased in Americans with healthcare coverage since the implementation of the PPACA (DesRoches, Buerhaus, Dittus, & Donelan, 2015). The deficit of PCP is causing problems with patient access to health care, especially in rural areas. Patient panel sizes are becoming unreasonable for PCP to manage the necessary and recommended care (Altschuler, Margoliu, Bodenheimer, & Grumbach, 2012).

Delegating tasks that are not necessary to be completed by a PCP can be redirected to a nonclinican staff (Auerbach, Chen, Friedberg, Reid, Lau, Buerhaus, & Mehrotra, 2013; Bodenheimer & Smith, 2013). Nurse-managed protocols have shown to have positive effects with the management of several chronic diseases and improve the use of preventative services (Coddington & Sands, 2008; Coddington, Sands, Edwards, Kirkpatrick, & Chen, 2011; Francavilla, 2008; Ghorob & Bodenheimier, 2012; Shaw et al., 2014). However, there is little existing evidence addressing improved patient access and the use of nurse managed protocols.

The primary aim of this project was to develop and implement a panel managed preventative health services protocol in a rural family practice to help improve patient access. The development of a preventative health services protocol was successful, which

was congruent with recommended efforts to compensate for the PCP shortage. Preventative health services with health screenings by detecting disease processes in early stages has shown to decrease morbidity and mortality rates (Krogsboll, Jorgensen, Larsen, & Gotzsche, 2012; U.S. Department of Health and Human Services, Center of Disease Control, 2016). Periodic health examinations lack strong evidence that they decrease morbidity and mortality among patients and is suggested that they are not necessary to address recommended preventative health services (Krogsboll, Jorgensen, Larsen, & Gotzsche, 2012; Obole & Laforce, 1989). The 12 preventative services comprising this protocol were all grade A and B recommendations by the USPSTF, which has been highly encouraged for use across primary care settings as part of best evidence-based practice guidelines (Trinite, Loveland-Cherry, & Marion, 2009; U.S. Department of Health and Human Services, 2016).

Unfortunately, the expected outcome to decrease the mean number of days for patients to schedule an appointment with their PCP to improve patient access did not occur. The panel managed preventative service protocol was designed to eliminate the need for PHE, in turn, freeing up time on PCPs' regular schedules. The implementation portion of this project faced multiple challenges that likely contributed to the actual increase in mean number of days for patients to schedule an appointment with their PCP.

Several obstacles occurred throughout the implementation portion of the project. The loss of the PM caused for modifications in the process very early in the implementation phase, which may have led to fewer patients following through to arrange and schedule recommended services, as two fewer attempts by telephone were

eliminated for practical reasons to keep the implementation phase progressing. Despite the lack of strong evidence that PHE improve patient outcomes, they continue to be recommended at the larger enterprise level of the clinical project site (Krogsboll, Jorgensen, Larsen, & Gotzsche, 2012). At the larger healthcare enterprise level, reminder letters are generated and sent to patients reminding them that they are due for their PHE or annual wellness exams, which contradicts a major concept of this project of trying to eliminate the need for them. Confusion of patients could have easily occurred when they receive two letters, one stating they are due for their PHE and another stating specific preventative health care services are due but a PHE is not necessary. Elimination or modifying the current reminder letters for a PHE or annual wellness exam would help eliminate potential confusion by patients as the information is somewhat contradictory.

During the implementation of the project, two PCP left the clinical practice site and one new family practice physician joined the practice. This could have contributed to the increase in the mean number of days for patients to schedule an appointment with their PCP as two full patient panel loads had to be absorbed into the remaining nine PCP schedules.

Real financial costs were minimal for this project, not requiring many additional resources. A PM had already been hired at the clinical project site and only a small portion of the PM's duties were allocated to this project so budgetary costs were minimal. The project coordinator did not have access to the PM salary for a cost estimate.

Cost issues could have been considerable had the project coordinator been a paid for time allocated to a variety of roles including the development of the protocol, running

the panel reports, and initiating the contact with patients. Hiring an additional panel manager specialist and RN would be ideal to accommodate the increase workload of a panel managed preventative health service protocol as used in this project. If a panel managed preventative health services protocol was used among all of the PCP at the clinical project site, considerable amount of time would need to be allocated to a PM position. The huddle RNs current job requirements would not allow for the necessary time to educate patients regarding the recommended preventative health services.

The two participating PCP were very supportive with development and implementation of the panel managed preventative health service protocol within their practices. They also were very helpful and supportive when the initial process had to be modified. It is likely a similar panel managed preventative health service protocol will be implemented into their practices at the larger healthcare enterprise level.

Limitations

This project had numerous variables that lead to several limitations. The implementation of the panel managed preventative health services protocol was limited to only two of the 11 PCP practicing at the project clinical site. Having two of the 11 PCP leave their practices at the clinical project site during the implementation phase likely attributed to the increase in days it took patients to schedule an appointment with their PCP. The length of the project implementation was limited to three months; an extended implementation phase could strengthen the project by improving the validity, reliability,

and generalizability. Due to the project limitations and inconclusive outcomes, it is difficult to make any valid generalizations.

The total number of patients that were contacted, either by telephone or letter, using the panel managed preventative health protocol was not documented. Also, data collection was not obtained as part of this project regarding the actual number of recommended services that patients received.

Conclusions

Despite mixed outcomes with no improvement in the mean number of days for a patients to schedule an appointment with their PCP, but the average number of patients seen in the urgent care walk-in clinic decreased. Several limitations experienced in the implementation portion of this project that likely contributed to the mixed outcomes. However, a panel managed preventative health services protocol has the potential to benefit the healthcare system by displacing some of the workload from PCP to nonclinican staff and improve compliance of recommended preventative health services.

Continued, refined, attempts of recommended restructuring of primary care continues to be necessary as the PCP shortage is predicted to only worsen. The use of NMC and panel managed protocols have been found to be effective and help decrease some of the workload for PCP, especially with preventative services and chronic disease management protocols (Coddington, Sands, Edwards, & Kirkpatrick, 2011; Shaw et al., 2014). The implementation of a panel managed preventative health service protocol over a longer period of time, with appropriate allocated staff, and data collection of the

recommended preventative services patients obtained may strengthen future, similar projects.

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APPENDIX A

PREVENTATIVE SERVICES PROTOCOL LETTER TO PATIENT

PREVENTATIVE SERVICES PROTOCOL LETTER TO PATIENT

Your good health is important to us at Sanford. We can help you stay healthy. In efforts for you to receive quality care in a timely manner, many of your preventative health care needs can be obtained without an actual appointment with your health care provider. According to our records, you are due or are overdue for the following screenings:

- Mammogram. Mammography is used to screen for breast cancer. It is recommended for females to have a mammogram at least once every two years.
- Pap Smear. The Pap Smear is used to screen for cervical changes, such as cervical cancer. Cells from your cervix are obtained during a pelvic exam. Pap smears are typically completed every 3 years, but can vary with age and previous pap smear results.
- Chlamydia. A simple urine sample is all that is needed to screen for Chlamydia, which is the most common sexually transmitted infection in the United States. It can be treated with an antibiotic.
- Colonoscopy. A colonoscopy lets a doctor see the inside of the colon and rectum and used as screening for colon cancer. It allows for visualization of abnormal growths, including polyps, which can be removed during the colonoscopy.
- Fecal Occult Blood. A stool sample is obtained to look for any blood that is present in the stool not otherwise able to be seen. If there is a presence of blood, further evaluation is typically completed, such as a colonoscopy. One of the purposes of completing this test is to screen for colon cancer.
- Blood sugar. A fasting blood sugar (glucose) is used as an initial screening for diabetes.
- Hepatitis C. Hepatitis C is a disease that affects the liver. People born between 1945-1965 are recommended to have a one-time screening for this. This is completed by a lab draw.
- Blood pressure. Having your blood pressure reading completed is important as there are many potential harmful consequences, such as a stroke, that can occur with untreated high blood pressure (hypertension). High blood pressure can be treated with lifestyle changes, such as diet and exercise, along with medication.
- Cholesterol screening. Cholesterol screening looks at the amount of fat substances in your blood. Your cholesterol is screened by a laboratory blood draw. It is important to have this completed as having high cholesterol is a major

risk factor for heart disease and stroke. High cholesterol (hyperlipidemia) can be treated with diet, exercise, and medications.

- Lung cancer screening. It is important for individuals over the age of 55 who smoke cigarettes to be screened from lung cancer. A computerized tomography (CT) scan, is an X-ray that is used to complete this screening.

Insurance Coverage

- It is up to you to know about your insurance coverage. All insurance plans cover procedures differently.
- We cannot change the findings of your doctor so your insurance plan will cover greater costs. Please call your insurance company to talk about how they cover specific screenings.

My Sanford Chart

For easy access to your health information, sign up for My Sanford Chart at www.mysanfordchart.org

Sincerely,

Sanford Health