Quality Improvement Program: Implementation of Chronic Care Management Services in an Affordable Care Organization

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DNP II

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DEDICATION

Philippians 4:13 “I can do all things through Christ which strengthens me.”

I dedicate this project to my awesome family. I could not have made this journey without all of you. To my husband, Leslie, thank you for your love and encouragement over the years. I am grateful to my parents, Waymon and Shirley Samples. Your support has been greatly appreciated. Most of all, I would like to thank my beautiful daughter, Kaylee, for being so encouraging and supportive of me. I hope from watching my struggles during these last few years while I completed this degree that you have learned to always strive to be best that you can be in all things you do. Please remember to follow your dreams, always!

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QUALITY IMPROVEMENT PROGRAM: IMPLEMENTATION OF CHRONIC CARE MANAGEMENT SERVICES IN AN AFFORDABLE CARE ORGANIZATION

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Abstract

Chronic diseases are the leading cause of death and disability in the United States each year. Per the Group Health Research Institute (2015), almost one-half of all Americans have one or more chronic health diseases. Two of the most common of these are type 2 diabetes mellitus and hypertension. Inadequate management of chronic diseases lead to poor patient outcomes and higher health care costs. In an effort to transform the current health care system, the Centers for Medicare and Medicaid (CMS) introduced a non-visit based payment reimbursement program for chronic care management services. Providers caring for Medicare beneficiaries with two or more chronic diseases that are expected to last at least 12 months can receive a monthly fee of $42 per beneficiary who participate in a chronic care management program, utilizing CPT code number 99490 (U.S. Department of Health and Human Services, 2015). The purpose of this practice change project was to create a pilot quality improvement program for the implementation of chronic care management services within an affordable care organization. Using a retrospective chart review, 100 charts from a rural primary care clinic were examined for improvement of blood pressure readings and HgB A1C levels of patients enrolled in this program. Medicare reimbursement for the patients enrolled in the chronic care management program was also examined for improvement.

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Dimensions of the Problem

Introduction

Chronic diseases are the leading causes of death and disability in the United States each year. According to the Group Health Research Institute (2015), more than 145 million people, or almost one-half of all Americans, have one or more chronic health diseases. Two of the most common, costly, and preventable of these are type 2 diabetes mellitus (DM) and hypertension.

Chronic diseases place patients at a significant risk for exacerbations, functional decline, and even death. Inadequate patient compliance and lack of follow-up visits with primary care providers leads to poor patient outcomes. Poor outcomes lead to increasing disability for the patient as well as a decrease in life expectancy. Poor outcomes can also lead to higher health care costs, usually due to more frequent physician office or emergency room visits, hospitalizations, the use of more expensive medications in attempt to control the disease, and inpatient rehabilitation.

According to the Centers for Disease Control and Prevention (2016), 86% of all health care spending is for people with at least one chronic medical disease. The estimated cost of nationwide medical services for treating chronic diseases exceeds $1 trillion yearly (Chatterjee, Kubendran, King, & DeVol, 2014). The financial burden of chronic diseases is only expected to increase. By 2050, the estimated treatment costs will exceed $6 trillion nationwide (Chatterjee et al., 2014).

Chronic care management is a critical component of primary care. Inadequate management of chronic diseases will lead to poor patient outcomes and increasing health care costs. Improving the health of patients with chronic diseases requires transforming a health care delivery system that is essentially reactive, responding when a person is sick, to a system that is

proactive, focusing on keeping a person as healthy as possible. In an effort to reform the current health care system, the Centers for Medicare and Medicaid (CMS) have introduced the most important applicable change made to the primary care payment system to date (Edwards & Landon, 2014). Traditionally, providers have been paid for face to face patient visits. Beginning in January 2015, CMS began a non-visit based payment reimbursement program for chronic care management services. Providers caring for Medicare beneficiaries with two or more chronic diseases that are expected to last at least 12 months can receive a monthly fee of $42 per beneficiary who participates in a chronic care management program, utilizing CPT code number 99490 (U.S. Department of Health and Human Services, 2015)

The Effectiveness of Chronic Care Management Services

According to recent research by Pennic (2015), problem areas in current health care systems include rushed providers who are not following established practice guidelines, a lack of care coordination, a lack of follow-up to ensure best health outcomes, and not properly educating patients to manage their chronic diseases. Attempts to improve chronic disease management include paying incentives to physicians who meet quality goals, and reshaping individual private practices by applying the chronic care model in disease management programs. One of the main practice implications of the disease management program is improved care and long term outcomes for patients with chronic diseases. An additional significant benefit is increased revenue for our primary care practice.

Basu, Phillips, Bitton, Song, and Landon (2015) conducted a base-case analysis which determined that primary care practices that utilize nurse care managers to provide chronic disease management services are more likely to experience an excess of revenue over costs. To bill under the new chronic care management program, the patient will have at least twenty

minutes of clinical staff time under general supervision, rather than direct supervision, of the primary care provider per calendar month. A comprehensive care plan for the patient is established based on a physical, mental, cognitive, psychosocial, functional, and environmental assessments. It has been established that patients who participate in a chronic care management program demonstrates significant advancements in their health status when compared to those who did not.

The Practice Problem

The implications of chronic care management services are far reaching. A lack of knowledge exists regarding the new Medicare non-visit based payment reimbursement program for chronic care management services. The need for providers to improve chronic disease care is of significant importance. Research suggests there is a large population with one or more chronic diseases and a need to improve care delivery to these patients (CDC, 2016).

Therefore, the purpose of this project is to implement a nurse practitioner-lead quality improvement program for chronic care management services in an accountable care organization (ACO) of six primary care clinics. The population targeted was Medicare patients who have been diagnosed with the chronic diseases of type 2 DM and hypertension who qualified for chronic care management services. Interventions focused on improving the HgB A1C levels and blood pressure readings of Medicare patients who have been diagnosed with type 2 DM and hypertension, as well as improving reimbursement for the clinic practice. The PICOT question that guided this project was as follows: “Does implementing chronic care management services improve health outcomes of Medicare patients who have been diagnosed with type 2 DM and hypertension, as well as improving reimbursement when compared with same set of patients prior to being enrolled in the chronic care management program?”.

Significance of the Project

Chronic diseases become more common with an increase in age. Some of the most vulnerable people that are affected by chronic diseases are Medicare beneficiaries. In 2015, there were close to 54 million people enrolled in the Medicare program (Henry J. Kaiser Family Foundation, 2016). Approximately 2 out of 3 Medicare beneficiaries have more than one chronic disease (U.S. Department of Health and Human Services, 2015).

Two of the most increasingly common chronic diseases are Type 2 DM and hypertension. According to the Center's for Medicare and Medicaid Services (2012), 36% of Medicare beneficiaries had been diagnosed with diabetes, usually Type 2. Hypertension is the most frequently diagnosed chronic disease affecting approximately 61% of all Medicare beneficiaries (CMS, 2012). Both diseases can cause long term damage such as renal failure, blindness, heart failure, and lower limb amputations.

Due to the high prevalence of chronic diseases, it is essential for healthcare providers to increase their understanding of the extent of the problem in order to direct appropriate patient care interventions. From the advanced practice nurse perspective, it is beneficial to regularly interact with the patient who is at risk for developing worsening symptoms to identify abnormalities and properly intervene before they progress to dangerous levels. Chronic care management programs can be shared in the local, state, and national forum. The significance of implementing chronic care management service is that in addition to improved access to patient care and improved health outcomes for patients with chronic diseases, spiraling healthcare spending can be reduced saving trillions of dollars nationwide.

Definition of Terms

For the purpose of this project, the following terms were defined:

Accountable Care Organization

Theoretical: Groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high quality care to Medicare patients (CMS, 2015).

Operational: Six primary care clinics who have partnered together to ensure that patients receive evidenced based care.

Chronic care management

Theoretical: A critical component of primary care for that contributes to improved health and care for Medicare beneficiaries, as well as reduced spending (CMS, 2015).

Operational: Non-face-to-face services provided to Medicare beneficiaries with two or more chronic diseases.

Diabetes Mellitus

Theoretical: A complex, chronic disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood and urine (Oxford Dictionaries, 2016).

Operational: A group of chronic metabolic diseases characterized by elevated fasting glucose levels of 126 mg/dL or greater on more than one occasion.

Hypertension

Theoretical: A chronic disease in which the force of blood against the artery walls is persistently elevated to a level of greater than 150/90 if 60 years and older, and greater than 140/90 if less than 60 years old or at any age with diabetes or chronic kidney disease (Committee of Cardiovascular and Metabolic Diseases, 2016).

Operational: A common disease in which blood pressure is abnormally elevated.

Medicare

Theoretical: The federal health insurance program for people 65 years of age or older, certain younger people with disabilities, and people with End-Stage Renal Disease, permanent kidney failure with dialysis or a transplant (CMS, 2015).

Operational: A social health insurance program designed to pay for the medical care of the elderly and people with certain disabilities.

Patient

Theoretical: One who is sick with, or being treated for, an illness or injury: an individual receiving medical care.

Operational: Person who has sought medical care at a primary care clinic.

Review of Literature

Description of Theoretical Framework

Dr. Edward H. Wagner's Chronic Care Model (CCM) was the guiding theoretical framework for this project. Wagner's CCM is a modern theory that considers the basic elements for improving care in various health settings. The elements are community, health system, self-management support, delivery system design, decision support, and clinical information systems. By addressing each of the elements, community resources can be mobilized to meet the patient's needs. The current health system will promote a culture to encourage safe, high quality care. Another element of the CCM is to prepare and support patients to manage their own health care. By applying the CCM to the delivery system designs, the health care system is transformed to ensure the delivery of effective clinical care and self-management support. The decision support aspect promotes consistent use of evidence-based clinical decisions to help the patients understand the principles behind their care. The final element to consider is the role of clinical

information systems, which helps organize patient and population data to enable effective patient care.

The CCM can be utilized among different types of chronic illnesses or conditions, health care settings, or specific populations. Evidence-based concepts under each element encourages proactive interactions between providers and patients. In this theory, patients are encouraged to have a more active part in their care decisions, which leads to improved outcomes (Group Health Research Institute, 2015).

There is currently a lack of knowledge regarding the new Medicare non-visit based payment reimbursement program for chronic care management services. The aim of this project is to improve the outcomes of patients with chronic illnesses, such as Type 2 DM and hypertension, while increasing reimbursement for the primary care clinic. Utilizing the CCM to implement practice changes for the improvement of the delivery of care of chronic illnesses may serve to change providers' behaviors to have a proactive response to chronic illness management. According to the CCM, an organizational approach is needed to identify the essential elements of the health care system that will be redesigned to encourage quality care when dealing with chronic diseases. This model creates realistic, helpful, evidence-based interactions between an informed patient and a proactive practice team. By addressing the elements of the CCM, the practice change process can be guided to improve both patient and system outcomes. Figure 1 illustrates the Chronic Care Model.

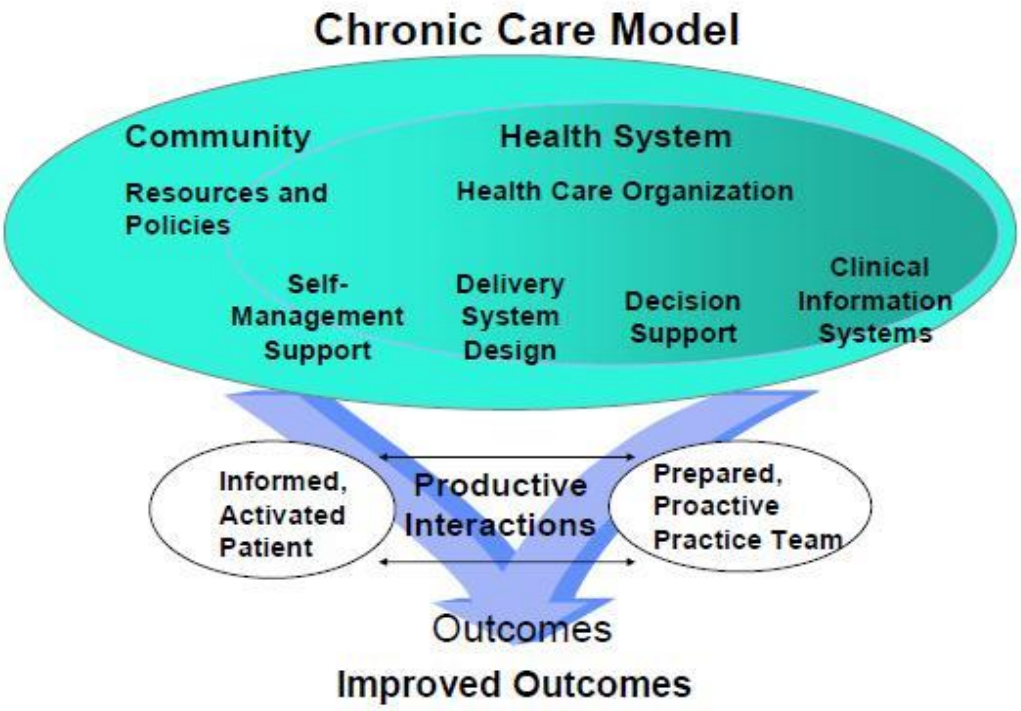

Figure 1. Chronic Care Model (Group Health Research Institute (2015).

This project was also guided by Dorothea Orem's Self-Care Deficit nursing theory. The central idea of this theory is that all patients want to care for themselves, and their health status will improve more quickly by providing as much of their own self care as possible (Petiprin, A., 2015).

The self-care fundamentals fall into one of three categories. The first is the universal self-care category, which include all basic needs such as air, water, food, activity and rest, and safety. The second is the developmental self-care category, which is divided into a maturational sub-category leading to the patient gaining a higher level of maturation, or a situational sub-category that prevents harmful effects in development. The third is the health deviation category, which are needs that arise due to a patient's condition. When a patient with type 2 DM or hypertension is unable to meet the self-care basics and the disease worsens, a "self-care deficit" appears.

When this occurs, the patient's provider can alter their plan of care to facilitate improved care outcomes.

Survey of Literature

For the purposes of this DNP project, seven articles that were most pertinent to chronic disease management were reviewed (Appendix A). The following key words were used when performing the literature search: chronic disease, disease management, health promotion, chronic care management, primary care, and chronic care management program. The researcher utilized the Fant Library at Mississippi University for Women and Google Scholar. The search engines Academic Search Complete, CINAHL Complete, and Medline Complete were used to access studies published from 2011 until present.

A more narrowed focus was required as the keyword "chronic disease" resulted in greater than 660,000 citations. The focal point of this project is on the implementation of a chronic care management program in a primary care setting. When the keywords "disease management" were added, the results were reduced to 137,000. Continued search limitations with the addition of terms of "health promotion", "chronic care management", and "primary care" resulted in much fewer pertinent articles. From this point, the researcher concentrated on studies that considered "chronic care management program". The number of retained articles were then reduced to 7.

A comprehensive literature analysis pertinent to this practice problem was conducted. Research articles related to chronic care management were reviewed and summarized. The findings from these studies provided data on chronic diseases and management that can be used to implement a chronic care management program and improve practice in a primary care setting.

Basu et al. (2015) conducted a base-case analysis to estimate the financial implications on primary care providers utilizing the new non-visit based Medicare reimbursement program for chronic care management services that began January 2015. Providers have traditionally been reimbursed for face-to-face visits. No theoretical framework was identified.

The researchers utilized a microsimulation model design at a practice level perspective to incorporate national data on primary care use, staffing, expenditures, and reimbursements. The outcome measures were identified as the net revenue per full time equivalent provider and time spent delivering the chronic care services. The results determined that practices that use nurse care managers to provide chronic disease management are more likely to experience an excess of revenue over costs.

According to Basu et al. (2015), practices could expect approximately $332 per enrolled patient per year if services were delivered by registered nurses, approximately $372 if services were delivered by licensed practical nurses, and approximately $385 if services were delivered by medical assistants. For an average primary care practice, this equals to more than $75,000 of net annual revenue per provider with twelve hours of nursing service time per week if 50% of eligible patients are enrolled. Therefore, a minimum of 131 Medicare patients must enroll for practices to recover the salary and overhead costs of hiring a full-time RN to provide the chronic care management services. Basu et al. suggest that primary care practices that rely on non-physician team members to deliver chronic care management services can have substantial revenue improvement, however a sufficient number of eligible patients must be enrolled.

Walters, Adams, Nieboer, and Bal (2012) performed a qualitative study to explore how disease management programs are implemented in primary care settings. The goal was to understand the impact of disease management programs on clinical systems, clinician behavior,

patient perception of care, health outcomes, and on the financing of treatment. The design framework for this study was based on the Chronic Care Model. The researchers noted that understanding the beginning stages of development and implementation of a chronic disease management program can be helpful in strengthening health systems with broader implications within their own practice program and as part of a larger disease management community. Improved care for patients with a chronic condition is a main focus of the disease management programs.

The researchers conducted eleven semi-structured interviews at five selected sites with sixteen project directors and managers. The interviews focused on each project's chronic illness focus area, barriers to development and implementation, the project leaders' action and reactions, their roles and responsibilities, and disease management strategies. Based on the content of the interviews, analysis of the findings was inductive and interpretive. The results of the analysis revealed four consistent themes that can be related to disease management and the Chronic Care Model. These are the need of changing the current overall health care system, focusing on patient-centered care, improving technological systems and removing barriers, and integrating chronic care management projects into the larger healthcare system (Walters et al., 2012). Project leaders discussed the both direct and indirect courses that can transform today’s health care system to one that addresses chronic illnesses and conditions. These findings support the need for project leaders and managers of the chronic care management programs to educate and guide healthcare systems, providers, and patients to improve long term patient care.

Stanford University School of Medicine (2015) conducted a randomized, controlled test of over 1,000 people with chronic diseases such as heart disease, lung disease, stroke, or arthritis. The patients participated in a chronic care management program and were followed for up to

three years. Many areas were reviewed such as health status, disability, social role limitations, pain and physical discomfort, energy or fatigue level, shortness of breath, psychological well-being or distress, depression, and self-rated general health. Other factors such as health care utilization, visits to the physician's office, visits to the emergency department, hospital stays, and the ability to perform self-management care were also reviewed. There was no theoretical framework identified in this study.

The study concluded that patients who participated in a chronic care management program demonstrated significant advancements in their health status when compared to those who did not. The researchers found the participants had an improvement in exercise, cognition, communication with providers, social activities, and a decrease in health distress, fatigue, and overall disability. The data also revealed a decrease in cost of care with a savings ratio of approximately 1:4 (Stanford University, 2015). These finding support chronic care management programs improve long term patient care.

Mattke, Higgins, and Brook (2015) performed a national survey of a representative sample of health plans' chronic care programs. The data underwent descriptive and bivariate analyses. The goal of the study was to conduct a systematic review of chronic case management programs and to understand the factors that can impede the design and implementation of an effective chronic care program. The chronic care delivery framework was utilized. Based on research, it has been estimated that the number of people in the U. S. with one or more chronic conditions is expected to grow to 171 million by the year 2030, which means that almost one in two Americans will suffer from a chronic disease. In addition to affecting quality of life, the costs associated with treating chronic diseases increase as an individuals' number of conditions

increase. Loss of productivity due to chronic diseases are projected to triple from the current $1.1 trillion to an astounding $3.4 trillion per year.

The researchers used a mixed method with random sampling to review 70 health plans with an enrollment of 50,000 people or more and 6 in-depth case studies on health plans' programs to improve chronic care in the commercial market. Of the 70 plans in the sample, 2 were not eligible to participate due to one did not offer full medical coverage and one served only Medicaid beneficiaries. Of the remaining 68, the participation rate was 36%. It was determined that all plans offer chronic care management programs, which identify eligible members from claims data and match them to proper interventions based on overall risk and specific care gaps. The healthcare plans report information on specific care gaps to providers and offer self-management assistance to members. It was also found that while these interventions improve care and reduce cost, it is often difficult to engage members and providers. To help overcome those obstacles, plans integrate their programs into provider work flow, collaborating with providers on care redesign and influencing patient support technologies (Mattke et al., 2015). These findings show that chronic care management programs have become a standard element used by health plans to manage and improve the health of their members.

A prospective cohort study performed by Cheung and Li (2012) reported a significant connection in type 2 DM and hypertension. Hypertension is a major comorbidity of type 2 DM. It is a modifiable risk factor that can accelerate the progression of complications. In the U. S., hypertension occurs in 50 to 80% of patients with type 2 diabetes. It was discovered that patients with the chronic disease of hypertension were almost 2.5 times as likely to develop type 2 DM as those patients with normal blood pressure. Most patients with type 2 diabetes are insulin

resistant, and approximately one-half of all patients with hypertension are also insulin resistant. Therefore, insulin resistance is a principal link between type 2 DM and hypertension. There was no theoretical framework identified in this study.

The study concluded that the application of healthy changes remains the foundation in the prevention and treatment of type 2 DM and hypertension. Unhealthy lifestyle factors such as a high intake of sodium and unsaturated fat, smoking, obesity, lack of physical activity, and mental stress are considered to be key risk factors of developing these chronic diseases. Understanding the common causes and disease mechanisms of type 2 DM and hypertension allows the primary care provider to develop a more proactive approach in the treatment of both of these chronic diseases.

Shah et al. (2011) used longitudinal patient-level observational data to compare the effectiveness of international guidelines for the management of hypertension in patients who have been diagnosed with type 2 DM. Hypertension and diabetes treatment guidelines have a large impact on society as a whole because the treatment effects a large portion of the population. Anti-hypertensive medications can significantly lower the probability of a cardiovascular event in patients with diabetes. Even though there are many differences in medication cost recommended by the various international guidelines, the reduction in adverse cardiovascular events is similar across guidelines. There was no theoretical framework identified in this study.

The Mayo Clinic Diabetes Electronic Management System (DEMS) Data Set was utilized to estimate the probabilities of metabolic statuses of the patients. The cohort included 663 patients with the major diagnosis of type 2 DM. A major advantage identified in this study was that it is based on 10-year observation period for each participant, therefore it simulates

change in risk factors over time (Shah et al., 2011). The study concluded that a more focused approach for the management of hypertension in diabetic patients is recommended to have the greatest potential for improved benefits while reducing care costs.

Literature Synthesis

The consequences of inadequate care of the chronic diseases, such as type 2 DM and hypertension, can lead to poor patient outcomes and increased healthcare cost. The literature has revealed that patients who participate in a chronic care management program has shown substantial improvement in their health status when compared to their peers who have not. It has also been found that primary care practices that utilize nurse case managers to provide chronic disease management are more likely to have an increase in reimbursement. In addition, the literature has shown the importance of tight control of blood pressure status along with adequate glucose control.

Design and Methodology

The focus of this project was placed on implementing a quality improvement program for implementing chronic care management services in an ACO. The expected outcomes were improving HgB A1C levels and blood pressure readings of participating adult Medicare patients with the chronic diseases of type 2 DM and hypertension, as well as increased revenue. Comparisons of outcomes were made with the same patients prior to participating in the chronic care management program and at three and six months increments after enrollment. The outcomes help healthcare providers effectively manage patients with these chronic diseases and possibly help prevent the development of devastating complications. It was also used to evaluate if participating in chronic care management services will help improve Medicare reimbursement. The timeframe of this project will be three to six months. The results from this project could

help healthcare providers effectively implement a chronic care management program to manage the chronic diseases of type 2 DM and hypertension, while at the same time, improving Medicare reimbursement for the clinic.

Implementation of the chronic care management services began with the provider referral to the assigned care management nurse. The case management nurse assessed the patient for eligibility according to the established Medicare guidelines, which requires the patient to have two or more chronic diseases expected to last at least 12 months or more. For this project, the emphasis was on type 2 DM and hypertension. Written consent (Appendix B) from the patient was obtained. Patient consent requirements included informing the patient of the availability of chronic care management services and how to access the services. The patient was informed about the possible sharing of electronic medical information with other treating providers. The case management nurse documented the patient's acceptance or declination of the services, as well as the explanation to the patient how to revoke the services at any time. This information was documented in the patient's medical record.

Once the Medicare patient consented to participating in chronic care management services, a patient-centered care plan was developed by the provider. The care plan included a problem list, expected outcomes and prognosis, measurable treatment goals, appropriate management of symptoms, planned interventions and identification of the individuals who was responsible for the interventions, medication management, any community or social services ordered, a description of how services of specialists outside the practice will be directed, and a schedule for periodic review and revisions when needed. A copy of this written care plan was entered into the electronic health record, and provided to the patient. The patient communicated with the case management nurse with at least a 20-minute phone call per calendar month. To

ensure 24-hour-a-day 7 days per week access, the patient was also provided with a phone number to use if they need to contact the case management nurse to address any care needs. Each patient communication was entered into the electronic health record.

The HgB A1C levels and blood pressure readings for the chronic care management participants with the diagnosis of type 2 DM and hypertension was reviewed initially at three months. Data were retrospectively obtained from a population sample of 100 charts or less of adult Medicare patients who are participating in the chronic care management program. Data were compared to the population setting of the same Medicare patients prior to participating in the chronic care management program. Improvement for Medicare reimbursement for the clinic practice was also evaluated to help assess success of the chronic care management program. The clinic revenue was compared prior to implementation of chronic care management services with the revenue generated by the chronic care management program.

The timeline for data collection was 3 and 6 months. Data were collected from the patient's electronic health record. A standardized data collection worksheet (Appendix C) was implemented to obtain all information. To maintain the facility's records and ensure that each patient's right to privacy and confidentiality is preserved, all data collections were conducted in an enclosed designated area of the facility.

Utilizing the electronic health record, a query was performed for a list of patients with the diagnosis of type 2 DM and hypertension. The data was obtained from charts of patients with documented chronic care management services. After the list was collected, the information was manually reviewed. The data collection worksheets were stored on a password protected media device used explicitly for this purpose. After the data was compiled and the completed data collection worksheets were no longer needed, the media device and worksheets were destroyed.

The estimated financial plan was compiled of hourly wages for the assigned case management nurse of $12 per hour for 20 hours per week, a cell phone to guarantee patient availability of services, and office supplies. The general supervision of the care management services provided by the advanced practice nurse was absorbed in normal employment salary. The project budget was approximately $1,000 per month. Staff training was provided by the advanced practice nurse conducting this DNP project.

Expected outcomes of this project were two-fold. The primary goal was to improve HgB A1C levels and blood pressure readings in patients who participate in chronic care management services. In addition, the other goal was to increase clinic revenue by utilizing chronic care management services that was reimbursable under the new Medicare guidelines. Chronic care management services were designed to help reduce the need for frequent and costly face-to-face office visits by proactively managing patient health, rather than only treating the chronic diseases, such as type 2 DM and hypertension.

Population

The population for this study was adult patients with Medicare as the primary payer who have the chronic diseases of type 2 DM and hypertension. These diagnoses are identified by the ICD-10 diagnosis code E11 and I15. Only adults, 18 years of age and older, with the diagnosis of type 2 DM and hypertension were selected for evaluation of improvement of HgB A1C level and blood pressure status of 140/90 and below.

Type 2 DM and hypertension are two common chronic diseases. People who have been diagnosed with diabetes are at greater risk for developing hypertension. Patients with both type 2 DM and hypertension are at increased risk of morbidity and mortality from cardiovascular

events (Parati, Bilo, & Ochoa, 2011). With an aging population, increased obesity, and physical inactivity, diabetes and hypertension are serious chronic health concerns.

Setting

The project setting was a rural primary care clinic in north Mississippi. The providers of this clinic consist of three physicians, and three advanced practice nurses. A registered nurse (RN) is employed as the office manager. Other staff members consist of three additional RNs, six licensed professional nurses (LPN), four certified medical assistants (MA), and five non-medical personnel.

The providers established and implemented a comprehensive plan for chronic care management. This plan of care was monitored and revised at least monthly and more frequently when needed based on the patient's status. An LPN was assigned the role of case management nurse to assist in chronic care management services. The purpose of this role was to ensure a patient's access to care, continuity of care, and availability of communication.

Stakeholders

There were many stakeholders related to this project at various levels. The role of the stakeholders were to improve patient care access with an emphasis on patient-centered care in the most cost effective manner. The first stakeholder was the patient, who was directly affected by improving chronic health issues. The next stakeholder was the health care provider who affected positive patient outcomes. The members of the ACO were stakeholders because the shared information could help improve patient care and increase reimbursement. Medicare, the federal health insurance program, was a financial stakeholder since it is the pay source for the chronic care management program. Policy makers can be viewed as stakeholders since they help support system change initiatives and health care regulations.

Project Outcomes

Objective data obtained from the initial three-month chart review evaluation suggested this project was effective in improving the management of the chronic diseases type 2 DM and hypertension while improving monthly reimbursement. The number of patients enrolled in the chronic care management program totaled 111. Of the enrollees, eleven patients were enrolled for management of chronic diseases other than DM or hypertension. Of the remaining 100 patients (n=100) enrolled, 42% (n=42) were diagnosed with both DM and hypertension, while 58% (n=58) were diagnosed with hypertension without DM. An incidental finding was that all the enrollees with the diagnosis of type 2 DM also had a diagnosis of hypertension.

In assessing the effectiveness of the chronic care management program, it was determined that in the group of enrollees who were diagnosed with both DM and hypertension, 38% (n=38) had an improvement in their blood pressure readings, and 33% (n=33) had an improvement in their HgB A1C level. Enrollees in this group also revealed that 2 patients 2% (n=2) had an increase in their blood pressure readings and 2% (n=2) had an increase in their HgB A1C level. In the group of enrollees with hypertension without DM, 51% (n=51) of the patients had an improvement in their blood pressure readings, while 5% (n=5) had an increase in their blood pressure readings. It was also noted that 2% (n=2) of the patients with hypertension without DM expired prior to the three-month evaluation.

The two-fold goals of this project were supported at the initial three-month evaluation by an improvement of blood pressure readings in 88% (n=100) of the total enrollees diagnosed with hypertension and an improvement of HgB A1C percentages in 79% (n=42) of total enrollees diagnosed with type 2 DM.

In addition, there was an increase of Medicare reimbursement for the patients treated for DM and hypertension enrolled in the chronic care management program with the utilization of CPT code number 99490 totaled over $4100 per month. The surplus total profit for the medical office after budget costs was approximately $3100 per month.

The outcomes of this project substantiate that chronic care management is an integral feature of primary care. Ineffective chronic disease management leads to poor patient outcomes and increased health care costs. Overall, patients who participated in this chronic care management program exhibited advancements in their health status.

Improving the health of patients with chronic diseases requires transforming today's health care system. This project served as a pilot program for an ACO consisting of six primary care offices. The essential objective of this project was to implement chronic care management services and evaluate the effectiveness by assessing improved patient outcomes who were diagnosed with type 2 DM and hypertension, while increasing clinic revenue.

Based on information gathered in this project, an estimated 200 patients should be enrolled in the chronic care management program to justify employing a full-time case management nurse. This could add a supplementary income of approximately $75,000 per year to the practice.

Subjective outcomes of this project were based on staff and patient response. Initially the staff and providers were slow to participate. In their eyes, it was viewed as additional work. However, with continued education and reinforcement of the purpose of the chronic care management program, they could see the benefits. Since one nurse was assigned contact with the chronically ill patients, the other nursing staff spent less time fielding phone calls that frequently occurred from these patients. The providers also saw a decrease in repetitive visits

from the patients that were enrolled in the chronic care management program. This allowed their appointment time to be allotted for patients with more acute illnesses.

The patients who were enrolled in the chronic care management program frequently verbalized appreciation for the nurse contact which made them feel supported and special. The patients would often say that the added education and reminders helped them make improved decisions regarding the care of their disease.

Influences and Barriers

There were several influences identified that affect the outcomes of the results of the chronic care management program. Heredity, which is an internal barrier, affect the health status of an individual and cannot be altered. External barriers also affect the outcomes. Chronic diseases, such as type 2 diabetes mellitus and hypertension, can be influenced by the patient's lifestyle choices and socioeconomic status. Often these are the result of factors such as unhealthy diet, tobacco use, and a sedentary lifestyle. A patient's environment can have a direct influence on their physical, mental, and social well-being. Attitude, both the patient and health care provider, also have an influence on a patient's health status.

Other external barriers were insufficient employee education on use and implementation of chronic care model, and provider or employee hesitancy to promote chronic care management services. Patient reluctance due to factors such as no phone service, hearing difficulties, and the inability to afford the required co-pay if it is not covered by any supplemental insurance also influenced the outcomes.

Benefits of the Project

This project was significant to the advanced practice nurse role because inadequate management of chronic diseases have led to poor patient outcomes and increasing health

care costs. The implications of the chronic care management program are far reaching. Understanding a chronic disease management program is helpful in strengthening health systems with broader inferences within our own practice and as part of a larger disease management community. Reproducible implementation programs of chronic care management services can be shared in a local, state, and national forum. This can produce improved access to patient care and improved health outcomes for patients with chronic diseases such as type 2 DM and hypertension, as well as reducing healthcare spending nationwide.

Implications

This project is significant to the advanced practice nurse role because it has been shown there is an inadequate management of chronic diseases nationwide. In the past, health care has been reactive to chronic complaints as opposed to effectively managing long term conditions to prevent a patient's decline. There is also a lack of knowledge in the new Medicare chronic care management program. To improve care in patients who have chronic diseases, nurse practitioners in leadership positions must use a preemptive approach. The DNP-prepared advanced practice nurse can be the positive agent of change to bring about more positive outcomes for our community and our nation's sickest patients.

Both Wagner's Chronic Care Model and Orem's Self-Care Deficit nursing theory helped guide this practice change project. By preparing and supporting patients and families in the management of chronic diseases, health care can be transformed over time. Educating health care providers to provide a comprehensive, holistic approach in chronic care management is the main foundation of this transformation. Without a change in the way health care is delivered, there will be no positive change in patient outcomes.

Through this project, advanced practice nurses were made aware of the importance of implementing chronic care management services in their medical practice. The patients who participated in this pilot program showed a significant improvement in both their blood pressure readings and HgB A1C levels in the initial three months. With support, education, and early intervention, chronic care patients can live a longer, healthier live with fewer complications. At the same time, health care costs can be lowered, easing the burden of trillions of dollars from our nation's budget.

Recommendations

Outcomes of this project indicate there is a need for increased implementation of chronic care management services. Mississippi ranks second in the nation for overall diabetes prevalence (Mississippi State Department of Health, 2012). According to the Trust for America's Health and Robert Wood Johnson Foundation (2015), Mississippi is also second in the nation among states with the highest hypertension rate. This project could be replicated in other clinical sites to more adequately educate, support, and manage patients with chronic conditions. Additionally, future similar projects should include a larger number of patients to gather more accurate data. Staff engagement and patient satisfaction should be formally measured and reported.

This document was generated prior to the secondary six-month evaluation. This information will be included at a future date. An additional recommendation is that data evaluation be expanded to a time frame which includes three month intervals over a twelve-month period to determine the consistency of the findings.

Modern health care has been burdened with providing appropriate management of chronic diseases to an ever-growing population while attempting to combat rising health care

costs. The introduction of the Chronic Care Management program, which is reimbursable with the CPT code 9940, offers a way to improve the outcomes of our most severely ill patients by providing support, early intervention of arising problems, and encouraging personal engagement of their care decisions.

Chronic care management is an integral feature of primary care. The implementation of a chronic care management program can help improve the quality of life for patients, while reducing the economic burden of health care. By becoming proactive in our thinking and our care approach, we as DNP-prepared advanced practice nurses, can be a positive agent of change in chronic care management.

By disseminating this practice change project through nursing conference poster presentations as well as article publication, health care providers can be educated to provide a comprehensive, holistic approach in chronic care management. With support, education, and early intervention, chronic care patients can live a longer, healthier life with fewer complications. At the same time, health care costs can be lowered, easing the burden of our nation's budget.

References

Basu, S., Phillips, R., Bitton, A., Song, Z., & Landon, B. (October 20, 2015). Medicare chronic case management payments and financial returns to primary care practices-a modeling study. *Annals of Internal Medicine*, 163 (8), 580-588. doi:10.7326/M14-2677

Centers for Medicare and Medicaid Services. (2012). Chronic conditions among medicare beneficiaries. Retrieved from http:// https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ChronicConditions /Downloads /2012Chartbook.pdf

Centers for Medicare and Medicaid Services. (2015). Glossary. Retrieved on March 25, 2016, from http://www.cms.gov/glossary

Centers for Disease Control and Prevention. (2016). Chronic disease overview. Retrieved on March 1, 2016, from http://www.cdc.gov/chronicdisease/overiew/index.htm

Chatterjee, A., Kubendran, S., King, J., & DeVol, R. (2014). Checkup time: chronic disease and wellness in America. Milken Institute. Retrieved on March 1, 2016, from http://milkeninstitute.org/publications/view/618

Cheung, B. & Li, C., (2012). Diabetes and hypertension: Is there a common metabolic pathway. *Current Atherosclerosis Reports.* 14, 160-166. doi:10.1007/s11883-012-0227-2

Committee of Cardiovascular and Metabolic Diseases. (2016). JNC 8 hypertension guidelines. Retrieved on March 25, 2016 from http://www.ccmdweb.org

Edwards, S. & Landon, B. (November 27, 2014). Medicare's chronic care management payment-payment reform for primary care. *The New England Journal of Medicine*, 371:2049-2051. DOI: 10.1056/NEJMp1410790

Group Health Research Institute (2015). Improving chronic illness care: The chronic care

model. Retrieved from http://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2

Henry J. Kaiser Family Foundation. (2016). Medicare. Retrieved on March 21, 2016, from http://www.kff.org/medicare

Mattke, S., Higgins, A., & Brook, R. (2015). Results from a national survey on chronic care management by health plans. *The American Journal of Managed Care*, 21, 370-376. Retrieved from https://ajmc.s3.amazonaws.com/_media/_pdf/ AJMC_05_15_Mattke_has_eApx_370to76%20(final).pdf

Mississippi State Department of Health. (2012). Diabetes in Mississippi. Retrieved from http://www.msdh.ms.gov/msdhsite/_static/43,0,296.html

Oxford Dictionaries. (2016). Diabetes mellitus. Retrieved on March 25, 2016, from http://www.oxforddictionaries

Parati, G., Bilo, G., & Ochoa, J. (2011). Benefits of tight blood pressure control in diabetic patients with hypertension: Importance of early and sustained implementation of effective treatment strategies. *American Diabetes Association Diabetes Care*, 34, 5297-5303. Doi: 10.2337/dc11-5243

Pennic, J. (2015). Physicians reveal lack of time as greatest challenge in caring for chronic care patients. HIT Consultants. Retrieved from http://hitconsultant.net/2015/09/28/challenge-caring-chronic-care-patients/

Petiprin, A. (2015). Dorothea Orem-nursing theorist. Nursing Theory. Retrieved from http://nursing-theory.org/nursing-theorists/Dorothea-E-Orem.php

Shah, N., Mason, J., Kurt, M., Denton, B., Schaefer, A., Montori, V., & Smith, S. (2011). Comparative effectiveness of guidelines for the management of hyperlipidemia and

hypertension for type 2 diabetes patients. PLOS One. doi.org/10.1371/journal.pone.0016170

Stanford University School of Medicine. (2015). Chronic disease self-management program. Retrieved from http://patienteducation.stanford.edu/programs/cdsmp.html

Trust for America's Health & Robert Wood Johnson Foundation. (2015). The state of obesity, better policies for a healthier America. Retrieved from http://stateofobesity.org/lists/highest-rates-hypertension/

United States Department of Health and Human Services. (2015). Chronic care management services. Retrieved on March 21, 2016, from https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/ Downloads/ChronicCareManagement.pdf

Walters, B., Adams, S., Nieboer, A., & Bal, R. (2012, May 11). Disease management projects and the chronic care model in action: Baseline qualitative research. *BMC Health Services Research*, 12 (114), doi: 10.1186/1472-6963-12-114

Appendix A

Strategy Maps

ACADEMIC SEARCH COMPLETE

Keywords: Chronic Disease Return: 106,500
Keywords: Disease Management Return: 32,156
Keywords: Chronic Disease Management and Health Promotion Return: 2,703
Keywords: Chronic Care Management Return: 864
Keywords: Chronic Care Management in Primary Care Return: 216
Keywords: Chronic Care Management Program Return: 67

Retained 29. 5 articles were Level 1, 8 articles were Level 2, 16 articles were Level 3. Discarded 33 articles due to non-applicable related to information needed. 5 articles were greater than 10 years old.

CINAHL COMPLETE

Keywords: Chronic Disease Return: 185,163
Keywords: Disease Management Return: 52,631
Keywords: Chronic Disease Management and Health Promotion Return: 1,570
Keywords: Chronic Care Management Return: 404
Keywords: Chronic Care Management in Primary Care Return: 279
Keywords: Chronic Care Management Program Return: 107

Retained 21. 2 articles were Level 1, 7 articles were Level 2, 12 articles were Level 3. Discarded 77 articles due to duplicity and non-applicable related to information needed. 9 of these articles were greater than 10 years old.

MEDLINE COMPLETE

Keywords: Chronic Disease Return: 375,812
Keywords: Disease Management Return: 53,673
Keywords: Chronic Disease Management and Health Promotion Return: 1,289
Keywords: Chronic Care Management Return: 221
Keywords: Chronic Care Management in Primary Care Return: 197
Keywords: Chronic Care Management Program Return: 39

Retained 13. 2 articles were Level 1, 3 articles were Level 2, 8 articles were Level 3. Discarded 21 articles and non-applicable to information needed. 5 of these articles were greater than 10 years old.

Appendix B

AGREEMENT TO RECEIVE CHRONIC CARE MANAGEMENT SERVICES

As of January 1, 2015, Medicare covers chronic care management services provided by physician practices per calendar month. I understand that my primary care provider, named below, is willing to provide such services to me, including the following:

- Access to my care team 24-hours-per-day, 7-days-per-week, including telephone access and other non-face-to-face means of communication. After hours' cell phone number is 662-587-3541.

- The ability to have successive, routine appointment with my designated primary care provider or member of my care team.

- Care management of my chronic diseases, including timely scheduling of all recommended preventative care services, medication reconciliation, and oversight of my medication management.

- Creation of a comprehensive plan of care for all of my health issues that is specific to me and congruent with my choices and values.

- Management of my care as I move between and among health care providers and settings, including the following:

  Referrals to other health care providers

  Follow-up after I visit an emergency department

  Follow-up after I am discharged from the hospital or other facility (e.g. skilled nursing facility)

- Coordination with home and community based providers of clinical services

I understand that as part of these services I will receive a copy of my comprehensive plan of care.

I also understand that I can revoke this agreement at any time (effective at the end of a calendar month) and can choose, instead, to receive these services from another health care professional after the calendar month in which I revoke this agreement. Medicare will only pay one health care provider to furnish my chronic care management services within a given calendar month.

I understand these chronic care management services are subject to the usual Medicare deductible and coinsurance applied to provider services.

I hereby indicate by signature on this agreement that _____ is designated as my primary care provider for purposes of providing Medicare chronic care management services to me and billing for them.

My signature also authorizes my primary care provider to electronically communicate my medical information with other treating providers as part of the care coordination involved in chronic care management services.

The designation is effective as of the date _____and remains in effect until revoked by me.

Patient Name (please print)_____

Patient or Guardian Signature_____

APPENDIX C

Data Collection Worksheet

Date of Chart Review

1. Effective participation visit_____
2. 3-month interval_____
3. 6-month interval_____

Participant of Chronic Care Management Services: Yes_____ No_____

Chronic Diagnosis of Type 2 DM_____ Hypertension_____

HgB A1C Levels

1. Initial Level_____
2. 3-month Interval_____
3. 6-month Interval_____

Blood Pressure Readings

1. Initial Reading_____
2. 3-month Interval_____
3. 6-month Interval_____

Increase in Revenue from Chronic Care Management Program: Yes_____ No_____

Profit $_____

Appendix D

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September 9, 2016

Johnnie Sue Wijewardane, Ph.D.
Mississippi University for Women
College of Nursing and Speech-Language Pathology
MUW-910
Columbus, Mississippi 39701-5800

Dear Dr. Wijewardane:

I am pleased to inform you that the members of the Institutional Review Board (IRB) have reviewed the following proposed research and have approved it as submitted:

Name of Study:	Quality Improvement Program: Implementation of Chronic Care Management Services in an Accountable Care Organization
Investigator(s)	Lori Duke
Research Faculty/Advisor:	Johnnie Sue Wijewardane

I wish you much success in your research.

Sincerely,

[redacted]

Thomas C. Richardson, Ph.D.
Provost and Vice President for Academic Affairs

TCR/jh

pc: Tammie McCoy, Institutional Review Board Chairman