2018

Chronic Care Management Services at a Clinical Medical Group

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This is to certify that the doctoral study by

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The Office of the Provost

Walden University
2019

Abstract

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MS, California State University, 2012

BS, Indiana University, 1978

Project Submitted in Partial Fulfillment

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Doctor of Nursing Practice

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Abstract

The purpose of this project was to design a chronic care plan using the chronic care management (CCM) framework to improve health services at lower healthcare costs. The practice-focused question explored whether the operationalization of the CCM model would impact progress toward the management of chronic illness for the target population of Medicare beneficiaries with 2 or more chronic illnesses in an urban acute care agency located in the western United States. The middle-range theory, logic rational plan model, Lewin's change theory, and the CCM's coordination care and collaborative care concepts were used to guide the project. Data were collected from nursing databases and government agencies. Nurses were significant to the CCM reform by supporting the elements for proactive care. Nurse practitioners can bill using the CCM codes, and clinical nurses can performed patient sensitive care. The social changes were patients with chronic illnesses realized a better quality of life at lower health costs.

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Dedication

This project was dedicated to my beautiful granddaughter and handsome grandson. May they find reward and happiness with providing help and assistance to all people as their great grandmother, grandmother, and mother did.

Acknowledgments

A heartfelt thank you to the medical doctor, project manager, and the staff at the community clinic for all their support during this project.

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Section 1: Nature of the Chronic Care Management Project

Introduction

Topic, Nature of Topic, and Social Change

The Institute of Medicine (IOM, 2001) documented in the *Crossing the Quality Chasm* that the fragmented healthcare system must be resolved (Berwick, 2002; Kohn, Corrigan, & Donaldson, 2000). The IOM (2001) itemized six elements required for coordinated and collaborative healthcare that mandated the healthcare system be redesigned (Kohn, Corrigan, & Donaldson, 2000). The six elements were "safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity" (Berwick, 2002, para. Abstract). In parallel with the IOM's (2001) vision, Chassin, Galvin, and the National Roundtable on Health Care Quality (1998), reported that patients were harmed by the misuse of patient healthcare (Institute of Medicine [IOM], 2001). One area of major concerns was the aging Americans (Welawski, 2006) with multiple chronic diseases. The annual health costs for a patient with zero chronic disease was $1,177 compared to a patient with five or more chronic disease of $15,954 (Gerteis, Izrael, Deitz, LeRoy, Ricciardi, Miller, & Basu, 2014). The clinicians cannot effectively manage the demand of the multiple chronic diseases using the current traditional reactive healthcare system due to the increase in prevalence, poorly managed healthcare systems, and more complex health sciences and technologies (Wagner, Austin, Davis, Hindmarsh, Schaefer, & Bonomi, 2001). Using the IOM's (2001) six elements, Dr. Edward Wagner and The Robert Wood Johnson Foundation (RWJF) developed an evidence-based framework

(MacColl Center for Health Care Innovation, n.d.). By design, the framework provided all healthcare agencies the capability to design a model to meet the agency's specific needs (MacColl Center for Health Care Innovation, n.d.). The framework identified as the chronic care management (CCM) model established proactive care by utilizing coordinated care, that was specific to the patient's needs; and collaborative care, that was an active interdisciplinary team (Department of Health and Human Services [HHS], 2016a).

The summative outcomes were potential positive social change. The improvements were better quality of life with a decrease in healthcare costs (Bodenheimer, Wagner, & Grumbach, 2002a, 2002b; Coleman, Austin, Brach, & Wagner, 2009). In published outcomes, Bodenheimer, Wagner, & Grumbach (2002b) concluded from 18 out of 27 studies that "chronic care management interventions demonstrated reduced health care costs or lower use of health care services" (p.1909).

Problem Statement

The Local Nursing Practice Problem

The local practice problem occurred in a Southern California clinic with traditional primary care services for over 3,000 patients. The operations provided acute healthcare treatments to Medicare or Medicare and Medical beneficiaries with multiple chronic diseases for over 40 years. The project manager described the clinic operations as the traditional reactive acute healthcare treatments for illnesses. The medical director was the primary care physician who specialized in internal medicine, hypertension, lipid

disorders, and type II diabetes mellitus. One medical physician, one physician's assistant, one registered nurse (RN), four medical assistants, and several administrative staff managed the daily operations. The clinic hours were Monday through Friday 0800 hour to 1730 hour. An emergency service via telephone provided healthcare services for off hours. Services offered were annual well visits (AWV), Initial Preventive Physical Examination (IPPE), follow-up visits, laboratory tests and results, IV therapy, and referrals. Various staff documented all patient interactions in the electronic health records (EHR). A few patients read their EHR at home via computer. The licensed staff occasionally missed healthcare treatments, unintentionally provided unnecessary treatments, and extended patient visit time. Some of the services rendered were non-billable. Wagner, Austin, Davis, Hindmarsh, Schaefer, & Bonomi (2001) supported patient education, specialists' interaction, and patient follow-ups for positive patient outcomes.

Relevance of the Need to Address the Problem

The significance of the problem of ineffective and inefficient health care raised health care costs that spanned across two to three decades. The American healthcare that is in a state of disarray has been identified by the IOM in 1999 and again in 2001 (Berwick, 2002; IOM, 1999, 2001; Stelfox, Palmisani, Scurlock, Orav, & Bates, 2006). To move healthcare to a favorable position of safe and affordable patient care, the Patient Protection and Affordable Care Act of 2010 (PPACA) established provisions for the Centers for Medicare and Medicaid Services (CMS) to manage healthcare reform via

initiatives (HHS, 2014). Stakeholders identified one initiative as patient centered care for Medicare beneficiaries who have chronic illnesses (Wielawski, 2006). The RWJF accredited numerous factors to the rising healthcare costs for chronically ill patients. Some of the factors are below:

- the baby boom generation increased the number of chronically ill patients (Wielawski, 2006);
- 133 million Americans have at least one chronic condition (Wielawski, 2006);
- traditional healthcare was reactive to the diagnosed illness (MacColl Center for Health Care Innovation, n.d.; Wielawski, 2006);
- one-half of the Americans diagnosed with one chronic condition have multiple conditions (MacColl Center for Health Care Innovation, n.d.);
- practice guidelines not followed (Elissen, …. & Vrijhoef, 2013; MacColl Center for Health Care Innovation, n.d.);
- lack of interdisciplinary care coordination (Elissen et al., 2013; MacColl Center for Health Care Innovation, n.d.);
- not patient focused, the patient was not trained to manage the illness, and poor patient follow-up (Blakeman, Macdonald, Bower, Gately, & Chew-Graham, 2006; Elissen et al., 2013; MacColl Center for Health Care Innovation, n.d.; Wielawski, 2006); and
- unable to sustain healthcare with the health science and technology increasingly more sophisticated (U.S. National Library of Medicine, 2008).

With fragmented care increasing healthcare costs, the centric focus was better healthcare management for the chronically ill (Egginton et al., 2012; Elissen et al. 2013). Therefore, the movement resulted in the CCM model with elements for quality care and cost management (Egginton et al., 2012). The model's guidelines were (a) healthcare services were patient specific; (b) healthcare providers that communicate via information technology, especially via the EHR; (c) patient education resulted in the patient actively managing their healthcare; (d) utilized community resources; (e) and the health system was proactive care (Egginton et al., 2012; MacColl Center for Health Care Innovation, n.d.).

The CMS defined the target population as the "Medicare beneficiaries that are equal to or greater than 65 years old with two or more chronic conditions expected to last 12 months or until the death of the patient, and that place the patient at significant risk of death, acute exacerbation, or functional decline" (Centers for Medicare and Medicaid Services (CMS), November 30, 2016, Eligible Patient and Providers section). The medical director selected diabetes to initiate CCM services since (a) the estimated cost of diabetes in 2012 was $245 billion and was rising, (b) "diabetes mellitus is diagnosed for 29.1 million people" and (c) diabetes mellitus was "the 7th leading cause of death in the United States" (American Diabetes Association, 2017, para. Overall Numbers, Diabetes, and Prediabetes).

Significance for the Field of Nursing

For the field of nursing, a positive significant outcome evolved from the CCM program plan. The CCM accommodated and expanded the roles of nursing based on the pinnacle of CCM, which was the self-management support (SMS) (Zwar, Harris, Griffiths, Roland, Dennis, Powell Davies, Hasan, 2006). SMS, that was education, moved the patient to an understanding and being able to manage their chronic illnesses. Ploeg, Skelly, Rowan, Edwards, Davies, Grinspun, and ... Downey (2010) concluded that champions, nurse leaders, or change agents were well suited in managing evidence-based practice in the healthcare systems with positive outcomes.

Purpose

Meaningful Gap-In Practice

The meaningful gap in the practice was the increase demand of complex services for Medicare beneficiaries with two or more chronic illnesses that may result in poor quality of life and high healthcare costs (MacColl Center for Health Care Innovation, n.d.; Wagner et al., 2001)**.** The gap was due to the traditional healthcare system that was established as reactive to acute illnesses, the increase in Medicare beneficiaries, and the complexity of medical care from the rapid increase in chronic disease prevalence (Elissen et al., 2013; MacColl Center for Health Care Innovation, n.d.; Wagner et al., 2001; Wielawski, 2006).

Practice-Focus Question

The practice-focus question follows: "For the target population of Medicare beneficiaries with two or more chronic illnesses within an urban acute care agency located in the Western United States, how does the operationalization of the CCM model impact progress toward the management of chronic illness?" (Guccione-Gantz, 2017, Practice-Focus Question section).

How Does the Project Propose to Address the Gap

The program plan addressed the gap using the CCM framework to meet the specific needs of the community clinic. The infrastructure was comprised of proactive healthcare, which was a redesign to a patient specific care delivery. The practice redesign is comprised of standard operations; state of the art information technology; coordinated care that was building patient self-management through education with continuous follow-up; and collaborative interdisciplinary healthcare teams using evidence-based practice (EBP) (Coleman et al., 2009; Elissen et al., 2013; Wagner et al., 2001).

To incentivize the healthcare agency to participate in the CCM paradigm shift, the CMS established fee services based on quality. The CPT codes were unique to CCM. The CCM CPT codes allowed reimbursement of the billing physician for services provided by the clinical staff that was non face-to-face services and complex, billing, physician services (HHS, 2016a; Rosswurm, & Larrabee, 1999).

Nature of the Doctoral Project

Source of Evidence

In brief, the sources of evidence that were collected were peer-review articles, government support documents, and others that maybe be discovered during the search. The peer-reviewed articles obtained by database searches used keywords with Boolean operators. In addition, through the Walden University library services articles in the didactic classes were analyzed.

The Approach to Organize and Analyze the Evidence

I organized the evidence into categories, such as privately held business' articles versus peer reviewed research articles. Then, I organized the articles into chronological order within categories. The approach to the analysis of the evidence was to determine which sources address the practice-focus question and other focus areas.

Purpose Statement Connected the Gap to Anticipated Findings

The purpose statement that connected the gap to the anticipated findings follows: Providing coordinated care and collaborative care with information technology in a proactive healthcare system provided quality of care in an effective and efficient manner resulting in better quality of life at lower healthcare costs across the country (Bodenheimer, Wagner, & Grumbach, 2002a, 2002b; Coleman et al., 2009).

Significance

Stakeholders Potentially Impacted by the Local Problem

Stakeholders were individuals, groups, organizations, and politicians who were interested in the program plan and outcomes (National Center for Chronic Disease Prevention and Health Promotion, 2011). A second group of stakeholders were activate in implementing the program plan (National Center for Chronic Disease Prevention and Health Promotion, 2011). The clinicians, program staff, and coalition members of the agency comprised the second stakeholder group (National Center for Chronic Disease Prevention and Health Promotion, 2011). The last group of stakeholders was patients, caregivers, family members, and the public (National Center for Chronic Disease Prevention and Health Promotion, 2011). The stakeholders' mission was to resolve high health costs caused by improper health care treatment for the Medicare beneficiaries with chronic illness (National Center for Chronic Disease Prevention and Health Promotion, 2011). The stakeholders for the project's community clinic were:

- Clinicians that were the clinics healthcare providers such as medical assistants, licensed vocational nurses, registered nurses, medical doctors, physician's assistance, and nurse practitioners. The clinicians' gain was an increase in available time by use of information technology and expanding the nurse's roles;
- The clinic's administrative staff and healthcare manager achieved self-gratification by providing healthcare that was efficient and effective;

- Measure stewards or research analysts in the later phase of the program plan implementation achieved self-gratification by using national guidelines to provide the patient with needs specific to the chronic illnesses;
- The political stakeholders provided local and national inter and intra communication of health information electronically;
- Professional organizations such as the National League of Nursing (NLN) provided nursing education for the CCM basic skills;
- Policy makers and government organizations such as the CMS and HHS incentivized the providers with billable CPT codes. The movement was to incentivize the billing physicians to be an active CCM provider;
- Patients and family members received better care that improves the quality of life. Patients and the family members are satisfied with the care; and
- Informal and formal caregivers provide better patient care with tools and information for proactive care.

Potential Contributions in Nursing Practice

The RN who attained a doctorate of nursing practice (DNP) acquired knowledge using evidence-based practice in identifying a healthcare gap, designing a program plan with evaluation that addressed the gap, implementing the plan and evaluation, and disseminating the results. The DNP RN understood the use of nursing science, information technology, collaborative skills, team leadership, and intra or inter professional team engagement. The mentioned skills and others were the Essentials that

the American Association of Colleges of Nursing (AACN, 2006) established to promote the DNP RN's skill base. For the CCM program plan at the community clinic, I lead the program plan design using the CCM framework and CMS' guidelines. As the change agent, I also lead the project team in the evaluation plan and recommended dissemination of the outcomes. The project manager and I shared decision making throughout the project.

Another aspect that CCM brought to the nursing field was the expansion of the nursing roles. The role expansion is the CCM non face-to-face services extended to the patient. The non face-to-face services are patient education and team base support provided by clinicians, such as medical assistants, licensed vocational nurses, or registered nurses (Coleman et al., 2009). Nurses took care of complex patients in the structured environment supporting complex illness. According to Zwar et al., (2006), the non face-to-face elements that resulted in patient positive outcomes were patient educational sessions, motivational counseling, meetings with the healthcare team, and printed educational materials.

Potential Transferability of the Program Plan

The CCM framework was designed to be tailored to the agency's needs (Bodenheimer, Wagner, & Grumbach, 2002a; Coleman et al., 2009). The CCM's underpinning to educate the patient for self-management with continuous follow-up is transferable. The CCM model will work other healthcare providers, such as physical therapy, occupational therapy, dentistry, and chiropractic healthcare services.

Describe Potential Implications for Positive Social Change

The outcomes of this program plan were a positive result for society, in that quality of life was better (Coleman,et al., 2009). The projected efficient and effective patient care with lower healthcare costs (Bodenheimer, Wagner, & Grumbach, 2002b) decreasd the risk that CMS will discontinue support of the political and financial factors for CCM. However, the community may have to provide financial support for the agency to complete an operations design change to support CCM's six elements of proactive care (Bodenheimer, Wagner, & Grumbach, 2002b). Such costs were supportive of information technology, registries, and increasing the nursing staff.

An additional positive social change was the CCM model supported the clinical quality initiatives on national and global levels (Coleman et al., 2009). Zwar et al., (2006) reported that of the 145 selected studies across 11 countries the most stated interventions were of self-management support (SMS). Patient education was the most cited SMS. In addition, other studies indicated that the CCM framework was the positive factor for effective and efficient care with 1,500 physician practices (Coleman et al., 2009).

Summary

The Section 1 – Introduction examined the CCM framework. One of the relevant features was the patient support via coordinated care and collaborative care for interdisciplinary support. The purpose of CCM was guidelines to better the management of chronic illness for Medicare beneficiaries at lower costs. The research is mainly through CINAHL with keyword searches of chronic care management, guidelines,

evidence-based practice, change agents, and nurse leader. The CMS website was, also used. The findings related to poor chronic management indicated that patient self-management of the chronic illnesses provided a better quality of life. The stakeholders were people who were interested in chronic care management, the project staff, and the patient. Since the CCM model was a modifiable framework, the project team designed the model to meet the specific needs of the agency; and therefore, the model was transferable to different healthcare disciplines and practices at a national and international level. The underpinning of CCM, which is patient centered care, has been the main task for nurses. Therefore, CCM and nursing is a smooth connection.

With an understanding of the CCM model and the benefits, the next step was a discussion of the CCM's background and context. Areas I discussed were the CCM's: (a) concepts, models, and theories; (b) the impact of operationalizing CCM to nursing; (c) the community nature for the local practice problem; and (d) the role of the doctor of nursing practice to include the agency's team.

Section 2: Background and Context

Introduction

The Practice Problem

The practice problem was traditional acute care being used to treat patients with chronic illness, and the fragmented care led to increased health expenses and poor quality of life (Coleman et al., 2009; Zwar et al., 2006). Chronic illness required complex care that was more time consuming and therefore, at a higher cost (Coleman et al., 2009; Zwar et al., 2006). Chronic illness requires proactive care for early primary care management, such as providing healthy behaviors to reduce healthcare costs (CMS, 2016b). In order, to provide proactive care, the IOM stated that the healthcare delivery system needed a redesign (Berwick, D. M., 2002). Studies support IOM's theory that proactive treatment must be a model redesign for cost effective patient care in treating chronic illness (Coleman et al., 2009; Zwar et al., 2006). The paradigm shift to proactive care that was coordinated care and collaborative care was designed into the CCM framework (Coleman et al., 2009).

The Practice-Focus Question

The practice-focus question is as follows: "For the target population of Medicare beneficiaries with two or more chronic illnesses within an urban acute care agency located in the Western United States, how does the operationalization of the CCM model impact progress toward the management of chronic illness?" (Guccione-Gantz, 2017, Practice-Focus Question section).

Purpose for this Doctoral Project

The purpose of this doctoral practice was two-fold. First, the doctoral practicum educated the DNP candidate on Essentials (AACN, 2006). As a change agent, I used Kettner, Moroney, and Martins (2017) textbook as a guide for the CCM program plan design. Designing the plan as project leader related to "The Essential I: Scientific underpinnings for practice" (AACN, 2006, p. 8). An understanding of research methods incorporated "Essential III: Clinical scholarship and analytical methods for evidence-based practice (EBP)" (ACCN, 2006, p. 11) that supported me during the research methods, such as PICOT, in building my literature review for the CCM project. "The Essential VI: Inter-professional collaborating for improving patient and population health outcomes" (AACN, 2006, p. 11) related to the CCM framework, since it was used nationally and internationally. The Essentials were the foundation for the DNP RN's scope of practice.

Second, the stakeholders who were the IOM, federal legislators, and the CMS addressed healthcare reform as a redesign from reactive healthcare to proactive healthcare enhancing patient safety at reasonable costs. The weak areas are patient education, patient psychosocial support, and ineffective clinical management that lead to rising healthcare costs (Wagner et al., 2001). The purpose of providing proper patient education, patient psychosocial support, and effective clinical management was to educate the patient in self-management of the chronic illnesses that results in decreased health expenditures and better quality of life (Coleman et al., 2009). According to the

TMF (2017b), the coordinated care resulted in a decrease in hospital stay, emergency department use, polypharmacy, and medication error.

Preview Major Topics in the Section

Section 2 restated the practice problem of ineffective and inefficient treatment for persons with two or more chronic illnesses. Then the concepts, models, and theories with respective authors discussed in support of CCM. The local background and context for the agency site details the relevance of the gap. The DNP RN's role with the project team explained the logistics of establishing the CCM framework specific to the agency. Overall, Section 2 addresses the logistics of the problem gap.

Concepts, Models, and Theories

Concepts, Models, and Theories that Inform the Project

Concepts, models, and theories were major building blocks of the CCM model that enabled the project team to modify the framework to meet the agency's needs. The major elements were (a) CCM's cooperative care and collaborative care concepts, (b) the rational planning model, (c) Lewin's change theory model, and (d) the middle-range theory (Im, 2014; Kettner, Moroney, & Martin, 2017; Riegel, Jaarsma, & Strömberg, 2012; Zaccagnini, & White, 2011).

The CCM's underpinnings were significant to the specificity of the model design relative to the agency. The CCM model promoted cooperative care and collaborative care. The former addressed the support of the patient's self-management of the chronic illnesses. The collaborative care addressed the interdisciplinary healthcare team for

effective chronic care management. According to research studies, redesigning from a reactive state to a proactive state using the CCM model leads to improved patient care and improved patient health (Bodenheimer, Wagner, & Grumbach, 2002b; Coleman et al., 2009; MacColl Center for Health Care Innovation, n.d.; Stellefson, Dipnarine, & Stopka, 2013; Woltmann, Grogan-Kaylor, Perron, Georges, Kilbourne, & Bauer, 2012).

The rational plan model maximized resources in the organization and achieved the defined goals (Kettner, Moroney, & Martin, 2017). In management planning, the community clinic's project leader managed the resources and the program plan to accomplish the objectives. The agency's designed program plan established the problem statement, target population, social theory, needs assessment, mission statement, goals, objectives, activities, evaluation, and timeline design specific to the community clinic's needs (See Appendix A). In addition, Appendix B listed the agency staff and their respective standards of operations.

Operationalizing the agency's CCM model changed the daily operations from reactive care to proactive. Lewin's 3-stage model supported change. Step 1 was establish a change needed or was unfrozen for the status quo that is hindering the issue (Zaccagnini, & White, 2011). Step 2 made the change with supportive communication (Zaccagnini, & White, 2011). Step 3 solidified the change in the agency's culture (Zaccagnini, & White, 2011). Lewin's change theory model supported the transition to the agency's CCM model.

The middle management theory evolved to describe, explain, and predict interactions in different situations (Im, 2014). The nursing field needed theories that clearly mapped nursing research to nursing practice transitions or interventions (Im, 2014). The direction for interventions was the nursing research outcomes (Im, 2014). The middle-range theory mapped self-care to chronic illness (Riegel, Jaarsma, & Strömberg, 2012). Self-care, an essential, was comprised of "self-care maintenance, self-care monitoring, and self-care management" (Riegel, Jaarsma, & Strömberg, 2012, p.2). The maintenance was activities that maintained physical and emotional stability (Im, 2014). Monitoring was the patient knowing and watching for signs and symptoms of the chronic illnesses (Im, 2014). Response to signs and symptoms was the management aspect (Im, 2014). Self-care was a necessity for better management of the chronic illnesses (Im, 2014); and supported the CCM's cooperative care element (CMS, 2016b).

Primary Writings Synthesized

The primary writings for concepts, models, and theories with synthesis are below:

- The concepts are coordination care and collaborative care. The authors are Coleman, K., Austin, B.T., Brach, C., & Wagner, E. H.; Stellefson M, Dipnarine K, Stopka, C.; and MacColl Center for Health Care Innovation. The synthesis was educating the patient in self- management via agency healthcare providers.
- The model was chronic care management. The authors were MacColl Center for Health Care Innovation, and the CMS. The synthesis was the framework that provides operational guidelines to provide quality care at efficient healthcare costs

- The theory was a middle range theory. The authors were Im, E., O., and Riegel, B., Jaarsma, T., and Strömberg, A. The synthesis was mapping the research to practice.

Key Terms

The Table 1 Definition of Key Terms clarifies the term as related to the CCM model designed for the community care clinic in Southern California.

Table 1. Definition of Key Terms

Term	Definition
24/7 access to care	This was management services. Also known as on-call service (CMS, 2015, p. 5).
Agency	A primary care clinic in Southern California provided healthcare to Medicare Part B beneficiaries and private insurance
Certified EHR or CCM certified EHR	Specified versions of electronic health record (EHR). Note modifications were made anytime during the calendar year (133 8510 CMS, 2015, p. 4).
Collaborative care	In researching the CCM project, I discovered the following: The three terms below and their respective definitions are inconsistent across timeframe, authors, and type of documents. Therefore, for this document, the definition used for each term is listed below: • Collaborative care meant care provided among the healthcare providers or the interdisciplinary team. An example was the primary care physician referring the patient to a specialist. • Cooperative care provided care between the clinicians and the patient. An example of a community service was the clinician providing the patient with information about complimentary nutrition classes. • Coordinated care provides care between the clinicians and the patient. An example of a community service is the clinician providing the patient with information about complimentary nutrition classes.
Comprehensive care plan	A care plan inclusive of the chronic illnesses and all other healthcare issues. Areas included “physical, mental, cognitive, psychosocial, functional, and environmental assessment or reassessment” (CMS, 2015, p. 5).
Cooperative care	Reference collaborative care.
Coordinated care	Reference collaborative care.

General supervisor	Known as incident to. Also, non face-to-face CCM services provided by clinical staff. The billing physician was not present but the billing physician's presence during the services was not required (Garwood, Korkis, Mohammand, Lepczyk, & Riski, 2016).
Incident to	Reference general supervisor (Garwood et al., 2016). An episode or service that occurred.
Management of care transitions	Sixth scope of service element. This was managing transitions between healthcare providers and agencies.
Middle Range Theory	Nursing theories applicable to specific situations in specific circumstances, such as chronic illnesses (Im, 2014).
Multiple conditions or Multiple chronic conditions	"Two or more chronic conditions expected to last at least 12 months or until the death of patient that place the patient at significant risk of death, acute exacerbation, or decompensation or functional decline" (CMS, 2015, p. 4).
Non face-to-face	Healthcare services rendered by any caregiver via telephone, e-mail, computer services, or mail (HHS, 2016a).
Proactive care	A method provided healthcare treatment prophylactic or prior to the onset of the disease (Zwar et al., 2006).
Reactive care	A method of treatment after the patient's health has deteriorated or illness occurred (Zwar et al.,2006).
Service period	A calendar month (CMS, 2015).
Target population	The eligible patients that meet the criteria for CCM services. The criteria was: • "Medicare beneficiaries who are at least 65 years old" (HHS, 2016a, p. 13). • "Patients with at least two chronic conditions expected to last 12 months or until the death of the patient, and that place the patient at significant risk of death, acute exacerbation/decompensation, or functional decline" (HHS, 2016a, p. 13).
Transitional care management	Management of transitioning a patient to another agency. Renamed continuity of care document(s).

Relevance to Nursing Practice

History of the Broader Problem

One of the many culprits that were continuing to increase costs for the healthcare community on a national and an international level was management of multiple chronic illnesses in aging persons. The Texas Medical Foundation (TMF, 2017b) listed statistical facts that supported the need for the CCM model to lower healthcare costs, such as "67% of Medicare patients have 2+ chronic conditions" and "93% of Medicare spending is on beneficiaries with 2+ chronic conditions" (TMF, 2017b, Why Chronic Care Management section).

The Agency for Healthcare Research and Quality (AHRQ) reported that a comparison of chronic conditions for 2006 and 2010 is trending upward. The percentage of Americans diagnosed with chronic illness climbed from 49.7% to 51.7%; and the percentage of Americans with multiple conditions increased from 27.5% to 31.5% (Gerteis et al., 2014). The increases lead to 35 % of U.S. healthcare spending to cover people with more than five chronic conditions (Gerteis et al., 2014). Zwar et al., (2006) reported the issue to be a global problem, also. Other countries working with chronic disease management are Australia, Canada, UK, Netherlands, New Zealand, and Scandinavia (Zwar et al., 2006).

In 1991 and 1999, the IOM stipulated that the healthcare industry needed improvements (Berwick, 2002; Chassin, Galvin, & National Roundtable on Health Care Quality, 1998). The improvements itemized were "safety, effectiveness, patient-

centeredness, timeliness, efficiency, and equity" (Berwick, 2002, p. 81). Dr. Edward Wagner built the improving chronic illness care program (ICIC) for many chronic illnesses (Wielawski, 2006). The RWJF released the Chronic Care Model: Improving Chronic Illness Care (Wielawski, 2006). In 2006, The RWJF's ICIC released the document that identifies chronic care management, education, and toolkits for implementation (Wielawski, 2006). In 2010, the PPACA legislated that CMS enact the IOM's recommendations. In 2015, CMS incentivized the volunteer CCM program for healthcare providers by establishing CPT code 99490 for patient, self-care management education (HHS, 2016a). In 2017, CMS added additional CPT codes for physician billing of complex care for the patients needing extensive assistance (HHS, 2016a).

Current State of Nursing Practice and Advancing Nursing Practice

The current state prior to 2015 was the billing physicians and the nurse practitioners, clinical nurse specialists, certified nurse mid-wife, and physician assistants could not bill for non face-to-face medical services provided (HHS, 2016a). Non face-to-face services were healthcare services rendered by any caregiver via telephone, internet, computer services, or mail (HHS, 2016a). In 2015 under the CCM model, the billing physicians and nurse practitioners, clinical nurse specialist, and certified mid-wife were allowed to bill for complex services and non face-to-face services provided (HHS, 2016a). The TMF, an affiliation of CMS, conducted a webinar that stated nurses should expand their role under the CCM model. CCM initiated registered and licensed nurses to

provide non face-to-face and complex services for patients with multiple chronic illnesses (HHS, 2016b).

Current Strategies or Standard Practices Used Previously

In the last 1990s, Dr. Edward Wagner, who collaborated with the RWJF created chronic care management (Wielawski, 2006). Prior to Dr. Edward Wagner's involvement in chronic care illness, there was 10 to 20 years of programs to service people requiring additional services (Wielawski, 2006). The population included people with chronic illnesses (Wielawski, 2006). The RWJF discovered that clinicians did not have the time or standard operations for patient education, self-care management, and community services (Wielawski, 2006). These inadequacies led to the research and development of programs such as CCM to help provide efficient and effective proactive care to patients on a broad scale (Wielawski, 2006). According to Wielawski (2006), the RWJF funded the programs listed below:

- 1979 – 1984. The Chronic Disease Care Program's goal was patient education to manage severe illness;
- 1980 – 1985. Health-Impaired Elderly's goal was increase case managers with community services for patient self-care;
- 1983 – 1990. The Health Care for the Homeless Program's goal was aid the homeless with a focus of primary medical care.
- 1985 – 1992. The Chronic Mental Illness Program's goal was to manage government programs.

- 1987 – 1995. The Supportive Services Program in Senior Housing's goal was provide activities of daily living services for a fee.
- 1987 – 1992. The Program on Dementia Care and Respite Services' goal was adult day care for demented persons.

These programs were good attempts but did not provide a synergistic approach to complex needs. The results were a parallel of program silos. The coordinated care among patients, family, and clinicians was not achieved (Wielawski, 2006).

The chronic illness model did not exist prior to that timeframe; therefore, the health care industry did not proactively address chronic illness (Wagner et al., 2001). The treatment for chronic illness was reactive care as used with acute care (Wagner et al., 2001) and it was not cost effective (O'Malley et al., 2017.) With CCM operationalized, healthcare costs decreased (Bodenheimer, Wagner, & Grumbach, 2002a, 2002b; Coleman et al., 2009).

The CCM Program fills Gap-In-Practice

The CCM model filled the gap-in-practice by the built-in design elements. The elements provided proactive care for chronic illness by improving patient's self-management through patient education of community resources; interdisciplinary teams provided quality care using evidence-based national guidelines; clinical information systems, such as an EHR provided complete and timely aggregate patient specific information; and frequent continuous care provided via non face-to-face encounters, such

as telehealth (Wagner et al. 2001). Research indicated that changing the design of care does improve chronic care management (Wagner et al. 2001).

CCM Advances Nursing Practice

I led the project team with the materials, theories, and models from my four practice experience courses. I also used the Essentials and learning objectives as my underpinnings for my foundation as I led. The decision-making was a team effort and that worked well. I have accomplished "Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes" (AACN, 2006, p. 14) with the learned objective that demonstrates competency of collaborative skills, team leadership, intra/inter professional team engagement in healthcare initiatives.

Local Background and Context

Summary of the Local Evidence

I interviewed the agency staff to obtain local evidence for the relevance of the problem. I spoke to the medical director, project manager, licensed vocational nurses, and medical assistants. The action items listed below represent a sample of issues that are hindering the agency's ability to provide coordinated care.

- Frequently, the patient wait time was greater than 15 minutes;
- Occasionally follow-up labs and immunizations were missed;
- Community resources were available but were not utilized efficiently;
- Occasionally it was difficult to communicate with patients due to lack of technology or the patient declined further contact;

- Receipt of referral documentation was not timely;
- Transitional care documentation is not timely.

In summary, the agency staff is experiencing some of the same issues that were plaguing the healthcare system nationwide. However, informational technology, such as EHR is used; and medication reconciliation works well.

Institutional Context

The community clinical was located in Inglewood, California, United States. The agency staff conducted a CCM eligibility inquiry of its patient database of 3,000 and found 300 potential patients with two or more chronic conditions. The goal was to improve each patients overall health and implement a care plan for each with the proper support and education to aid the patient in self-management of their chronic conditions. The listed demographics of this urban area was provided on the United States (2016) census website for the city of Inglewood, Los Angeles County, California.

- Population estimates, July, 2016 (V2016) 9,818,700
- Population percent increase – 4/1/2010 to 7/1/2016 (V2016) 3.3%
- Persons 65 years and over, percent, 7/1/2016 (V2016) 12.9%
- Persons 65 years and over, percent, 4/1/2016 (V2016) 10.9%
- Persons with health disability, <65 years - 2011-2015 6.1%
- Persons without health insurance, <65 years 7/1/2016 (V2016) 12.5%

V: Vintage year

The above statistics indicated the city's population increased by 3.3% in three months with 2% of the population being 65 or older. The younger population with health disabilities is 6.1%, and within the younger population, 12.5% are without health insurance. This indicated that when the younger population matures to 65 years, the number encumbered with health disparities may be much higher causing a greater burden on the healthcare system.

Local Terms or Operational Processes

Local terms for the traditional or reactive patient care used at the agency were standard as in other agencies. Terms used in the CCM program plan were in Section 2 Subsection Concepts, Models, and Theories listed in the Project Table 1 Definition of Key Terms. The agency staff was managing the patients' services and EHRs via the Greenway Health™ software package. To operationalize CCM, an additional software package named Intergy tracked CCM elements. For example, Intergy tracked the referral documentation when received from the referring agency. The referral loop is the Quality Identifier 374 measure that CMS will add to the final score for reimbursement. In addition, the clinic retained MD Revolution (MDR) to identify eligible CCM patients and provided self-management education.

Describe State and/or Federal Context

Previously, CMS did not reimburse billing physicians for non face-to-face services under the reactive care services. In 2015, CMS introduced a CPT code with a $43 reimbursement for non face-to-face services within the Quality Payment Program for

CCM patients (HHS, 2016a). The HHS, CMS, and TMF provided support services such as hard copy or e-copy of regulating documents, telephone support, live webinars, websites, and tool kits for implementation to potential and active CCM agencies. CMS solicited feedback and then modified the national program if warranted. For example, in 2015, CMS required the patient sign a consent form for CCM services (HHS, 2016a). In 2017, CMS stated that a verbal acceptance for CCM engagement was appropriate with the proper notation in the plan of care (HHS, 2016b).

Role of the DNP Student

Professional Context and Relationship

My professional context was a diversified educational background. I hold several certifications and degrees in business, nursing, and information technology. I earned associate degrees, a bachelor degree, and master degrees. Prior to nursing, I was a system and application software engineer; and with that position, I analyzed the needs, designed the software packages, wrote the code, and installed the package with training. I have also managed technical teams. In the field of nursing, I worked in a hospital, home health, and a skilled nursing facility. I held positions as a medication nurse, admitting nurse, and nurse supervisor. I will continue my education after the DNP program in geriatrics and health law.

My Role in the CCM Program Plan

My role in the CCM project was leader of the project team for the program plan and evaluation. My project manager and I occasionally shared leadership responsibilities;

and our business acumen complemented each other. We were comfortable with the program plan and believed that the program would be successful. In addition, for the medical director, I compiled several scenarios of the CCM model's projected net income.

My Motivation for the CCM Program Plan

My perspective was an attitude derived from my healthcare when I was younger, that is prior to being a nurse. I had difficulty understanding what transpired, and I was uncomfortable. Therefore, I did not ask for explanations; however, I eventually developed a view for sharing knowledge. For years, I worked on being able to bring my conversation to the level of the recipient. The geriatric patients thank me for my time and discussions frequently. My work experiences as a project leader directly affected my leadership of the program plan. My education with my job experience expands across several disciplines, which meet the Essentials for the doctor of nurse program. I am comfortable with the DNP credential.

Potential Biases and Manage of the Biases

There was an unwillingness to share the current or traditional billing procedures. The CCM model offers several CPT codes for the billing physician's services that was not billable previously. I briefly discussed the issue with the project manager. We decided to include her on all communications during the planning stage and asked for her feedback. She has provided input. I believe we have accomplished a better working relationship. In addition, the MIPS measurement indicated that the MIPS requirement was not completed. The outcome was a missed deadline resulting in a mandatory delivery of CCM

functionality and operations via MDR. The issue cost me months of problem solving time. I hold no bias.

Role of the Project Team

The Project Team

The project team members were the project manager, the office manager, the medical director, the Greenway Health™ software vendor representative, and the MDR account manager. The project manager and I designed the program plan to meet the specific patient needs. We then presented the program plan and the CMS regulations to the remaining team members. For the MDR CCM package, MDR trained the team via webinars; and I wrote the daily operational implementation steps.

Communication with the Team Members

The project team for the agency scheduled meetings on a bi-monthly basis. The team members, the project manager, and I meet three days per week at the agency to work on the project. Team members communicated via phone, email, text message, and in person. I lead the team meetings with the established agenda that I managed. This collaborative effort has resulted in construction of seven CCM program binders. These binders contain the documents of the objectives and activities for the clinical, financial, and software vendor.

Evidence from the Project Team

I presented CMS' quality identifiers, improvement activities, and advancing care information measures to the project team. CMS designed the measures to establish billing

criteria for CMS reimbursement (TMF, 2017a). The project team decided to use the criteria also as a measurement tool for the staff's CCM standard of operations since the measures are the CCM's cooperative and collaborative patient activities and interventions (TMF, 2017a). Research studies report that patient education and structured support improve effective and efficient patient care that drive healthcare costs down (Coleman et al., 2009; Woltmann et al., 2012; Stellefson, Dipnarine, Stopka, n.d.; MacColl Center for Health Care Innovation, n.d.).

The team shared the evidence documents during the implementation stages to the agency staff. The evidence explicitly identifies CMS' measure outcomes. The evidence documents were in the clinical binder. There are four measurement categories, which are quality identifiers, improvement activities, advancing care information, and costs. Note that the costs category is not applicable for the first year. Each category has established measurement criteria. For example, the "Quality ID 374: Closing the referral loop: Receipt of Specialist Report" (TMF, 2017a, p.1) can be completed 1 to 6 times to receive 60% of the final score toward the billing algorithm. Due to the timeline not met, the medical director mandated the use of the MDR CCM. The package contained the billing summary, error report, vital signs report, evidence of care report and care plan reports.

Timeline for Reviews

The feedback for acceptance was during the current meeting or a designated date. The project manager and myself met three to five times a week to review the staff's results and MDR CCM results. The CMS' measure results report was not available due to

the missed deadline. The review established the direction for the standard operations, billing receipts, and data for the central tendency analysis. We contacted the other team members on an as needs basis. The team members input was due upon receipt of the issue or the next meeting date.

Summary

In summary, Section 2 defined concepts, models, and a middle range theory that provided a base for a successful installation and operations of the CCM plan. Other factors are the inclusion of the advanced nurse practitioners relevance; and enhanced skills and job tasks that the nurses provided. My role as the DNP student was team lead during the program planning; however, there were times the project manager and I shared the leads responsibilities. In Section 3, the concepts, models, and theory support the practice-focused question as evidence by peer review journals, credible foundation programs, government agencies, and interviews.

Section 3: Collection and Analysis of Evidence

Introduction

Problem and Purpose with Summarized Background and Context

The local and national problem was an increase in Medicare beneficiaries over 65 years with multiple chronic illnesses that healthcare providers treat in the same manner as acute illnesses (Berwick, 2002; Kohn, Corrigan, & Donaldson, 2000). The outcome was low quality care that was expensive (Gerteis et al., 2014). The low quality and expensive care were due to chronic illnesses identified as needing more complex and proactive services (Wagner et al., 2001). To mitigate the current problem, the CCM framework underpinned the paradigm shift from the standard operations for reactive care to a proactive operation that provided collaborative and coordinated care (HHS, 2016a; MacColl Center for Health Care Innovation, 2017).

The clinical staff provided services as traditional care to the Medicare beneficiaries with chronic illnesses by reactive acute care services. The care usually did not incorporate collaborative services. For example, the agency did not receive transitional documentation in a timely manner from the referral agency. The agency staff occasionally overlooked coordinated care, such as frequent patient follow up. The local community in 2016 had a growth of citizens that are 65 years or older (United States Census Bureau, 2016). In addition, in 2016, the younger generation reported health disparities and lack of health insurance (United States Census Bureau, 2016). The statistics as reported by the United States Census Bureau indicated a high risk for an

increase of Inglewood citizens with multiple chronic illnesses in the future, if the paradigm shift to proactive care was not provided.

Section 3 Preview

Section 3 was a proposal for collecting and analyzing the evidence for the CCM program plan. Using the practice-focus question as the problem, the project team validated the focus question through search strategies for researched evidence. The section continued with evidence generated for the CCM program plan and detailed the analysis and synthesis of the collected evidence.

Practice-Focused Question

Local Problem, the Gap-in-Practice, and the Practice-Focused Question

The traditional reactive care or the fragmented care across provider and setting was the gap-in-practice. The services rendered at the community clinic to the Medicare beneficiaries who were over 65 years old with multiple chronic illnesses were not sufficient for chronic care. The local problem was an unintentional weak collaborative and coordinated care provided. The practice-focused question is below:

> "In the target population of Medicare beneficiaries with two or more chronic illnesses within an urban acute care agency located in the western United States, how does the operationalization of the CCM model impact progress toward the management of chronic illness?" (Guccione-Gantz, 2017, Practice-Focus Question section).

Clarify the Purpose and how this Approach Aligns to the Practice-Focused Question

The purpose of the CCM framework allows physicians to align the patient's specific needs to manage their chronic illness through patient education, frequent communication with the patient, 24/7 patient support, and strong collaborative team support (Mathews, & Pronovost, 2011; Wagner et al., 2001). The purpose explicitly aligned the elements of the framework with the practice-focused question of how CCM's operations manage chronic illness (Wielawski, 2006).

Clarify Operational Definitions of Key Aspects of the Doctoral Project

The program plan evaluations defined the daily standards of operations at the community clinic. Some of the CCM's cooperative and collaborative services, which were incorporated into the MDR's CCM project was the CMS' or TMF's measurement outcomes that the project team used as the program plan's evaluations. The CCM's evaluation measures or the CMS' performance categories were the quality identifiers, improvement activities, and advancing care (TMF, 2017a). The categories support performance of cooperative and collaboration care, which were the underpinnings of chronic care management. Reference Appendix A Table 2. Program Plan with Evaluation and Timeline for the CMS performance categories as incorporated into the community clinic's program plan. In Appendix B, Table 3 Agency Staff and Standards of Operation lists in detail the community clinics staff and activities as referenced in Appendix A Table 2.

Sources of Evidence

Sources of Evidence in the Program Plan

The sources of evidence were the program's plan evaluations. The evaluations or CMS' measurement outcomes support the MDR CCM's framework of services. The framework's evaluations outcome measures were CMS' performance categories: quality identifiers, improvement activities, and advancing care information (TMF, 2017a). The quality identifiers were factors that promoted quality patient care, such as pain management, medication reconciliation, and referrals (TMF, 2017a). The improvement activities were factors that improved access to services, engage family and caregivers, and provided self-management training programs (TMF, 2017a). The advancing care information was composed of factors that actively engaged the patient with their healthcare plan (TMF, 2017a). Each completed factor increased the agency's final score towards incentive payment in the quality payment program (QPP) (CMS, 2017). CMS used the community clinic's evaluation outcomes for national and global statistics, and merit based reimbursement fees;

However, The CMS timeframe for submission and composite scores were 2019 and 2020. Therefore, the project team incorporated MDR's CCM RevUp program package to programmatically record, track, organize, and analyze the evidence. The evidence is fast blood sugar and blood pressure outcomes.

Clarify the Relationship of this Evidence to the Purpose stated in Section 1: Introduction

The MDR's RevUp CCM program addressed the gap by establishing proactive care as:

- efficient care, that was cost savings;
- effective care, that was patient safety
- coordinated care, that is monitored and managed by healthcare providers that was specific to the patient's needs; and
- collaborative care, that was an active interdisciplinary team approach (HHS, 2016a).

Research studies indicate that proactive care has a positive effect on social change (Bodenheimer, Wagner, & Grumbach, 2002a; Coleman et al., 2009). The improvement is better quality of life with a decrease in healthcare expenditures (Bodenheimer, Wagner, & Grumbach, 2002a, 2002b; Coleman et al., 2009).

How will the Collection and Analysis of this Evidence Provide the Appropriate Way to Address the Practice-Focused Question

The evidence collected by the program plan design based on the rational planning model as discussed by Kettner, Moroney, and Martin (2017). The model was an appropriate way to address the practice-focus question. By design, the rational planning model focused on end-results or the evaluation outcomes. The PICOT question asks if the CCM model will improve chronic illness management. The TMF's outcome measures

used CCM's program evaluations defining chronic illness management (TMF, 2017a). Research studies indicated that the CCM underpinnings or cooperative care and collaborative care promoted improved quality of life at a reasonable cost (Bodenheimer, Wagner, & Grumbach, 2002a; Coleman et al., 2009). The foundation for the model's focus was the related resources and services provided (Kettner, Moroney, & Martin, 2017). The model flow was easy to follow with the established elements. The CCM program plan defined for the community clinic with the benefits follows:

Discuss your research method here. Section 3 includes the following subsections:

- The problem statement was the Medicare beneficiaries 65 years or older who were diagnosed with two or more chronic conditions lasting 12 months or longer or until death were not receiving their needed healthcare with the traditional acute care services used (CMS, 2017). The evidence gathered provided a base with descriptive statistics for frequency analysis
- The target population was Medicare beneficiaries diagnosed as listed:
    - with two or more chronic conditions;
    - with the conditions placing the patient at significant risk of death, acute exacerbation/decomposition, or functional decline; and
    - with expectation to last at least twelve months or until death (CMS, 2017).

The target population clearly defined the affected group in the community and stated in the program plan's target population.

- The social theory selected was the social learning model. The theory explained that the patient's resistance to change was modified by repeating educational concepts related to incorporating the clinic's CCM model with the current procedures (Hodges, & Videto, 2011). Lewin's Force Fields theory implemented the educational concepts as *driving forces or restraining forces* (White, Dudley-Brown, & Terhaar, 2016). The theory offered a method to bring evidence-based research to practice.
- The needs assessment identified the eligible patient's thoughts, feelings, and attitudes about the indoctrination. Patient's attitude was a lack of knowledge or understanding relative to the patient's indoctrination. The feelings are scared, unsafe, and anxious. The patient's needs were an understanding and benefits of the CCM services. The implicit or explicit need was to provide the resolving service.
- The mission statement was to assist the Medicare beneficiaries with existing co-morbidities in an environment of open communication, mutual understanding, respect, and confidence. The education enabled the beneficiaries a realization to quality of life coordinated with the interdisciplinary team resulting in a reduction of medical costs to the CMS. The mission statement defines the desired outcomes. .
- The goals, objectives, and activities build CMS CCM services direct to cooperative care and collaboration care (CMS, 2017; TMF, 2017a). To identify

the patient, the goal was to provide knowledge about CCM guidelines and policy to agency staff and patients. The objective 1.1 was to identify 30 Medicare beneficiaries with chronic illnesses of type II diabetes mellitus and hypertension. "Conditions must be expected to last at least 12 months or until death, and place the patient at risk of death, acute exacerbation or functional decline" (HHS, 2016a, CCM section). The activities factors were the agency staff, the performance measure, and CMS completed performance measures. The activities provided distinct services that meet the needs as identified in the needs assessment (See Appendices A and B).

Published Outcomes and Research

Introduction

I completed a systematic literature review regarding the CCM framework and the impact on managing chronic illnesses. I utilized the review to identify, analyze, and assess scientific literature (Howard, Piacentino, MacMahon, & Schulte, 2017; AHRQ, 2017). The systematic review provided the method in locating the best evidence (Howard et al., 2017; AHRQ, 2017). The systematic review strategy was a two-prong approach. First, was define the CCM model structure. Second, I located and analyzed the CCM model's outcomes related to chronic illness.

Databases and Search Engines; Key Search Terms; Years Searched; Literature Type

A comprehensive review was completed over the past 2 to 14 months researching peer-reviewed research studies, journals, websites, national guidelines, U.S. National Library of Medicine, Walden University's textbooks, antidotal stories, and commentaries. The years I searched were 1991, which is the initial timeframe stakeholders approached chronic care (Berwick, 2002) to 2017. The Walden University Library provided approximately 133 databases links searched when I used Google Scholar that was linked to Walden University. The CINAHL, the MEDLINE, and the Web of Science were the individual databases to used to refine the search. In searching the Web of Science, I located articles with the focus on chronic disease pathophysiology. I excluded the articles since the practice-focus question focused on CCM implementation and the outcomes. The search engines were Goggle Scholar, Google Chrome, and the Internet. Key words used are in Appendix C. A metadata search was author: Dr. Edward H. Wagner and author: Dr. Thomas D. Bodenheimer. In addition, I used webinars and tool kits by government agencies, such as CMS, HHS, TMF, and AHQR.

The Approach to Organize and Analyze the Evidence

The evidence was organized into the following categories: Privately held business articles versus research articles, government documents, history of CCM, Dr. Edward H. Wagner, Dr. Thomas D. Bodenheimer, outcomes of implementation using type II diabetes mellitus and hypertension, and other document focus. Next, I organized the

documents in chronological order within categories. The approach to the analysis of the evidence is to determine which sources address the practice-focus question. Last, I reviewed the levels of evidence per document. I selected documents with different levels of evidence. Note that the government documents used were not research articles and therefore, did not have a level of evidence.

The sources of evidence searched and the categorization with analysis was the appropriate way to address the focus question. It was appropriate since the search pursued various sources of information from the public, private, and government sectors; and categorized the identified sources by source type and then by date.

Archival and Operational Data

Nature of Data and Contributor

The organizational data were the CMS identified performance categories or outcome measures (TMF, 2017a). The categories were only with CCM; therefore, the data have not been used yet. The three categories were quality, improvement activities, and advancing care information. The agency completed the activities in the performance category for the Medicare beneficiary in one calendar month (TMF, 2017a). Of the 271 quality indicators, six quality and one outcome measure results in a 60% of the final score towards the quality payment to the billing physician (TMF, 2017a). Two receive 15% of the final score two improvement activities must be active for 90 days (TMF, 2017a). Finally, the advancing care information will produce 25% of the final score when at least nine measures are at use for 90 days (TMF, 2017a). The agency staff entered into the

Greenway Health™ Intergy EHR quantifiable data (Greenway Health™). The billing staff gathered the performance categories' outcomes and they build the outcome report. The report displayed quantity, patient identification, and one sentence description for all CCM patients for the episode, that was one calendar month. The agency submits the report to CMS. Greenway Health™; and Intergy were the electronic packages used to compile the report and submit the report to CMS (Greenway Health™). Note that due to the two year CMS timeframe, the agency selected MDR who generated the billing summary report from the identified CCM eligible patients. The diabetic mellitus fasting blood sugar results and the blood pressures were the measureable outcomes. The results within normal limits indicated that the CCM measureable outcomes supported improved chronic care management through patient contact and education.

Justify Relevance of Data to the Practice Problem

The performance measures were the patient interventions completed by the agency's staff. An example is the Quality Indicator #131 pain management. The staff completed a fast blood sugar (FBS) using the glucometer tool and documents the results in the plan of care. If the FBS was outside of the normal range, then the staff complete a follow up health management service. This activity of coordination care was an underpinning of the CCM model that increased effective and efficient patient care. The treatment was efficient in that the healthcare provider used only the necessary tests, and effective since the FBS level guided the follow-up treatment.

Data Originally Collected, and Validity

The MDR nursing staff completed a non face-to-face encounter, such as a telephone call to the patient. The staff agent updated the plan of care within the EHR. Before the end of the calendar month, the billing agent submits the quality identifier number, brief description of the activity, and patient's name to CMS for billing. The source of evidence was valid in that the quality identifier is evidence based through CMS. The staff entered the evidence data into the patient's EHR. When CMS received the agency's monthly report, the CMS validated the completeness of the activity. This process was completed with the other performance measures that are improvement activities and advancing care information. The critical timing factor motivated the project team to use MDR's CCM program for data gathering and a billing summary report.

Procedure to Gain Access to the Evidence and Operational Data

To gain access to patient data via Greenway Health™, the employee must be Health Insurance Portability and Accountability Act (HIPPA) certified. Then based on the staff member's job responsibilities, the agency administrator will grant access via use identification and password for access to Greenway Health™ CCM software which houses the MDR's data (Greenway Health™).

Historical or Legal Documents

There are not any historical or legal documents used in this practice-focus program.

Evidence Generated for the Doctoral Project

Introduction

The evidence generated for this project was provided by the organization. It is part of the agency's daily operations for data management. Therefore, the evidence generated was not primarily for the purpose of the doctoral project.

Analysis and Synthesis

Systems used for Tracking, Recording, Organizing, and Analyzing the Evidence

For three years, the community clinic tracked and recorded patient data using Greenway Health™ software packages. Greenway Health™ was a privately held corporation that provided health technology and services. The agency was pleased with Greenway Health™ support, too. To implement CCM the agency leased MDR's RevUp software package, which was compatible with all of Greenway Health™ services (Greenway Health™, 2017). The MDR package offered CCM patient selection, nurses educating the patient specific to their healthcare needs, recording function specific outcomes, tracking reports, and technical support.

For organizing and analyzing the evidence, the Statistical Package for the Social Sciences (SPSS) version 25 was used. The evidence was entered into SPSS in data view. The variables and their functionality was maintained in variable view. The descriptive statistics frequency analysis selected from the menu with mean, media, and mode options of central tendency. In addition, SPSS offers standard deviation, range, and inter-percentile measures for variable analysis (Hazard Munro, 2005).

Assurance of Integrity and Managing Outliers and Missing Information

Greenway Health™ certified each application package to ensure integrity (Greenway Health™, n.d.). The Intergy EHR provided the patient's health history and current health status. The Primary Analytic Suite provided a reporting feature for the patients' data. The MDR package provided CCM services bringing quality services to Medicare beneficiaries with chronic illnesses. The EHR was 2015 ONC Health IT certified. ONC is the Office of the National Coordinator for Health Information Technology (ONCHIT) (Greenway Health™, n.d.). An authorized certification body (ACB) certified the Primary Analytic Suite and the Intergy module (Greenway Health™, n.d.). The ACB used the certification criteria established by the ONCHIT and CMS (Greenway Health™, n.d.). For CCM, the CMS mandated that the EHR comply with either the 2014 edition or 2015 edition of the certification criteria (CMS, n.d.; Greenway Health™, n.d.).

Another facet of assurance integrity was the propositions of data handling (Hazard Munro, 2005).

. The focus was debugging, data management, data collection, and data input. The following itemizes several of the principles used:

- "Social Consequences Principle" (Hazard Munro, 2005, p. 8). The staff ethical principles used to analyze the evidence for final observations.
- "Data Control Principle" (Hazard Munro, 2005, p. 8). The data was controlled. The staff documented the method for data entry and data management.

- "Change Awareness Principle" (Hazard Munro, 2005, p. 9). The staff documented changes to the data entry, algorithm, and debugging.
- "Data Manipulation Principle" (Hazard Munro, 2005, p. 9). The staff used the computer to do the data manipulation.
- "Original Data Principle" (Hazard Munro, 2005, p. 9). The staff always saved all original files.

The identified outliers were analyzed for type of influence. The influence was acceptable because the outlier indicated reality. However, one outlier distorted the statistics, such as the central tendency mean. The MDR's audit report provided the missing data. The staff made the corrections and MDR allowed a resubmission for credit to the agency.

Analysis Procedures for the Practice-Focused Question

The practice-focused question asked does the CCM model provide support toward the management of chronic illnesses. The Intergy EHR package provided effective care by notifications of needed services and plan of care items (Greenway Health™, 2017). The agency staff designed specificity of patient's needs into the software to meet their chronic care needs. Communication to healthcare team members were available and secured allowing expanded healthcare services. Patients and family members were prompted to engage in the health care.

To answer the practice-focused question, the following occurred:

For diabetic mellitus type 2 patient, the agency staff located the patient's FBS level during the MDR education timeframe. For the hypertensive patient, agency staff located the patient's blood pressure. I received the redacted report of levels, and keyed the data into SPSS or Microsoft Excel. I wrote an algorithm to identify if the patient's levels were within the normal range. If it was, then the education produced positive results. If it was not, then the education produced negative results. The positive results indicated CCM interventions supported the targeted population; whereas the negative results indicated CCM did not aid the targeted population with chronic illness.

Summary

The thrust of Section 3 was the management of the program plan's evidence. Descriptive statistics was use for an observation analysis of the MDR's gathered evidence. The central tendency mean, median, mode, and deviations standard deviation were used to aid in analysis of the practice-focused question. MDR CMS' outcome measures were based on the CCM's defined services proven to improve management of Medicare patients with two or more chronic illnesses. The outcome measures established how to collect the evidence and the criteria for analysis of the evidence.

Section 4: Findings and Recommendations

Introduction

Local Problem, Gap-in-Practice, Practice-Focused Question, and Purpose of the Doctoral Project

To support the focus of findings and recommendations for the CCM project, a review of the local problem, the gap-in-practice, the practice-focused questions and the purpose of the doctoral project follows:

"The traditional reactive care or the fragmented care across provider and setting is the gap-in-practice. The services rendered at the community clinic to the Medicare beneficiaries who are over 65 years old with multiple chronic illnesses are not sufficient for chronic care." The local problem is an unintentional weak collaborative and coordinated care provided. The practice-focused question is "In the target population of Medicare beneficiaries with two or more chronic illnesses within an urban acute care agency located in the western United States, how does the operationalization of the CCM model impact progress toward the management of chronic illness?" (Guccione-Gantz, 2017, Practice-Focus Question section).

"The purpose of the CCM framework allows physicians to align the patient's specific needs to manage their chronic illness through patient education, frequent communication with the patient, 24/7 patient support, and strong collaborative team support (Mathews, & Pronovost, 2011; Wagner et al., 2001). The purpose explicitly aligns the elements of the framework with the practice-focused question of how CCM's

operations manage chronic illness (Wielawski, 2006).” (Guccione-Gantz, 2017, Practice-Focus Question section).

Evidence – Sources, Procurement, and Analytical Strategies

The acceptable types of information for the CCM project were a) data previously generated, b) data produced by the clinical staff using Greenway Health™’s Intergy computerized software, that is the EHR, and c) the data generated by MD Revolution’s CCM computerized software. The clinical staff overtime generated client data that were stored in the patient’s EHR. The EHR data were the secondary data for the project. The patient’s age, health insurance, chronic illnesses, and others were examples. The Intergy software program’s functionality was used to generate the information mandated by the CMS’ requirements for the EHR. The program was in the market for several years with on-going enhancements, such as CCM by MD Revolution. CCM derived and supported the patient data produced by the staff.

The staff produced data categorized by the patient’s CCM eligibility criteria, the patient’s care-program status, the patient’s engagement with health coaches, and the outcome of the patient’s engagement, such as blood pressure and fasting blood sugar. The staff obtained the evidence during daily operations. Workflow steps follow:

The staff generated the patient’s daily appointment schedule.

- From the appointment schedule, the staff searched the EHR for patients matching the eligible criteria of at least 65 years of age, Medicare Part B beneficiary, at least two chronic illnesses, such diabetes mellitus and hypertension.

- The staff met with the eligible patient to educate the patient of the CCM services and benefits with the video, brochure, and flyer to establish engagement.
- The staff updated the care-program with enrolled, declined, postpone, opt-out.

The above steps were continuous and the MDR computer program gathered the enrolled patients for the health coaches to contact.

- The health coaches, who are licensed nurses, educated the patient via telephone specific to the patient's chronic illnesses.
- The health coaches updated the evidence of care with the information gathered during the telephonic encounter with the patient.
    - If there was a need to escalate health issues, the health coaches contacted the clinic as an urgent status. The clinic followed their standard procedures for an escalated issue.
- The clinical provider was alerted that there was an encounter with a health coach within imaging and the evidence of care (EOC), care plan (POC), and vital signs (VS) were programmatically loaded into the patient's EHR.
- Monthly reports were generated indicating acceptable patients with data. The reports were used in analysis of interconnectivity of CCM services and the patients outcomes, especially control of blood sugar and blood pressure

The analytic strategies incorporated were using and following the CMS' CCM mandatory rules that were encoded into the software package. In addition, the staff followed the guidelines incorporated into the patient workflow.

The MDR computerized package generated reports that indicated missed or incorrect outcomes that established a data integrity anomaly. For example, the report listed an incorrect outcome for the patient's age criteria. If the patient was not 65 years or older then the transaction was marked as an error. Optionally, the staff corrected the data integrity errors and resubmitted for program care engagement.

Using the data alignment criteria, the staff established acceptable data. The previous gathered data, the staff produced data, and MDR's health coach reports supported the research question - Does the CCM model impact progress toward the management of chronic illness? The previous gathered data identified the demographics for eligible patients for CCM enrollment. The staff produced data and MDR's health coach reports provided the fasting blood sugar (FBS) and blood pressure (BP) used for the analysis in analyzing outcome of patients making informed decisions about their health care.

After the staff collected the data and validated the data integrity, the analytic strategy used was descriptive statistics to sum up for clarity. Descriptive statistics provides organization of data for related descriptions; allowed comparisons of categorical data; and provided relational characterization. The staff organized the data using the SPSS. SPSS' functionality provided displays in table and graph formats. In addition, the staff built a Microsoft Office data file that generated variable counts.

Findings and Implications

Report the Findings that Resulted from Micro Soft Office

The staff used Micro Soft Office 2013 to build a file with an anonymous patient identification, patient demographics, and program care variables. The file name was CCM Tickler Table 25.docx. The variables were to identify the total number of patients encountered, enrolled, declined, postpone, and missed.

The statistical procedures used were five steps. First, the staff built a table and entered the raw data. Second, the staff executed a count function in the first column. Third, the staff sorted the patient's name column in ascending text order. Four, to create the anonymous patient identification, I requested the staff to use the following schema: patient's first letter of the last name then followed by four digits incremented by one per patient. Five, the staff sorted the program care field in ascending text order.

I analyzed the outcome of the above steps. The results follow: a total of 183 eligible patients; enrolled patients were 88 or 48%; postponed patients were 15 or 8%, declined patients were 19 or 10%; and missed patients were 61 or 33%. The age range of the eligible patients was from 68 years to 93 years. The staff approached 183 patients who met the CMS criteria for CCM services. The subjects had an appointment with the clinical health care providers. During the patient face-to-face encounter, a staff member discussed the CCM services and enrolled 88 patients for MDR's telephonic chronic care illness education. As few as 15 patients postponed commitment to CCM services and 19 patients declined the CCM services. A significant finding was 61 of the 183 sample size

were tagged as missed. Missed indicated that a) the patient was a no show no call, b) the patient rescheduled, c) severe weather prohibited arrival for the appointment, and d) would check with family members. The staff did not follow up with missed category patients.

Report the Findings that Resulted from SPSS

I used the SPSS as a mechanical tool to organize data, calculate data, and present the data collected by the clinical staff from Greenway Health™ EHR, MDR CCM services, and face-to-face encounters.

The SPSS file identification used was VALID DATA 08.sav. The dataset contained an anonymous patient identification, demographics, and other patient variables for the enrolled patients. The variables used were age; gender; chronic illnesses of diabetes mellitus and hypertension; benchmark for systolic and diastolic; current systolic and diastolic; benchmark fasting blood sugar; current fasting blood sugar, target systolic, target diastolic, and target fasting blood sugar. The patient id, gender, chronic illness, and race are string variables. The remaining are numeric variables.

I used descriptive statistics analysis with measure of central tendency and measure of spread for pattern identification in the group's characteristics. Mode, median, and mean central tendencies indicated the central position of frequencies or meaning the distribution of patterns. The measure of spread for data central points was how significant from the central point were all the patients enrolled. The spread used was standard deviation.

Table 5. Statistical Procedures via SPSS for enrolled patients listed the SPSS variable names and related measures located in columns one and two respectively. The describe statistics procedure and variable category used were described in column three. The table follows:

Table 5. Statistical Procedures via SPSS

Variable Name	Measure	Statistical Procedure
AGE	Scale	The variable was categorized as: 1 – 86 – 73 years old 2 – 74 – 79 years old 3 – 80 – 85 years old 4 – 86 – 93 years old The analysis data was generated via: Analyze > Descriptive Statistics > Frequency > AGE > Statistics > Mean Median Mode Standard Deviation > Count
SEX	Nominal	The variable was categorized as: F = Female M= Male The analysis data was generated via: Analyze > Descriptive Statistics > Frequency > SEX > Statistics > Mean Median Mode Standard Deviation > Count
HTNDMBTH	Nominal	The variable was categorized as: Both – Diabetes Mellitus and Hypertension D - Diabetes Mellitus H – Hypertension The analysis data was generated via: Analyze > Descriptive Statistics > Frequency > SEX > Statistics > Mean Median Mode Standard Deviation > Count
BENCHSYS	Scale	Variable used in calculation below – TARSYS
CURSYS	Scale	Variable used in calculation below – TARSYS
BENCHDIA	Scale	Variable used in calculation below – TARDIA
CURDIA	Scale	Variable used in calculation below – TARDIA
BENCHFBS	Scale	Variable used in calculation below – TARFBS
CURFBS	Scale	Variable used in calculation below – TARFBS
EDUCAQTY	Nominal	Variable used in calculation below – TARSYS and TARDIA and TARFBS
RACESTRI	Nominal	The variable was categorized as: B - Black BNH – Black non-Hispanic C – Caucasian The analysis data was generated via:

		Analyze > Descriptive Statistics > Frequency > RACESTRI > Statistics > Count
TARSYS	Nominal	The analysis data was generated via: Translate > Compute > TARDIA = BENCHDIA -> CURDIA and EDUCAQTY >= 3
TARDIA	Nominal	The analysis data was generated via: Translate > Compute > TARSYS = BENCHSYS -> CURSYS and EDUCAQTY >= 3
TARFBS	Nominal	The analysis data was generated via: Translate > Compute > TARFBS = BENCHFBS -> CURFBS and EDUCAQTY >= 3

I worked with four standing variables that were age, sex, race, and chronic illness as described in the table. Age ranged from 45 years to 93 years with a mean age of 74 years, a median of 75 years, and a mode of 74. The sex variable yielded 57 females and 31 males. The race variable frequency counts were B of 14, BNH of 69, and C of 5 which indicates the majority of enrolled patients classified themselves as black non-Hispanic. The counts for the variable chronic illness were both diabetes mellitus and hypertension 46 patients, diabetes mellitus 2 patients, and hypertension 40 patients. The race, sex, and chronic illness variables did not have any missing data. However, the age had 3 missing ages. The range for age was from 45 years to 93 years was 48 (93 – 45). The standard deviation for age calculated at 9.18. The standard deviation is the average spread for all ages from the mean age of 74.34.

TARSYS or the target systolic variable resulted with 60 patients with a 0 outcome, 26 with a 1 outcome, and 2 missing systolic data. The algorithm outcome of 0 indicates that education of 3 sessions did not influence the systolic reading. On the other hand, 26 patients had a decrease in systolic pressure with 3 education sessions.

TARDIA or the target diastolic variable resulted with 34 patients with a 0 outcome, 4 with a 1 outcome, and 50 missing diastolic data. The 0 outcome indicates that education of 3 sessions did not influence the diastolic data for 34 patients and 4 patients had a decrease in diastolic data; nonetheless 50 patients had missing data. This large amount of missing data adversely affected the other outcomes.

TARFBS or the target fasting blood sugar variable resulted with 31 patients with a 0 outcome, 1 patient with a 1 outcome and 59 patients had missing data. For the 31 patients, the education of 3 series did not decrease the fasting blood sugar and for 1 patient the education did improve the fasting blood sugar; however, 59 patients had missing data. As with the TARDIA, the missing data adversely affected the other outcomes.

Unanticipated Limitations or Outcomes and Potential Impact on the Findings

An early issue was a missed deadline of base for the MIPS algorithm. The next accepted phase was 2020 for MIPS. Therefore, the agency staff hired MD Revolution to manage the CCM services, which were acceptable in the MIPS algorithm.

The project team used only two of the chronic illnesses, diabetes mellitus type 2, and hypertension, approved by CMS as eligible criteria for the sample selection. The project manager reported 3,000 patients with 300 Medicare Part B for CCM services. In addition, the medical director selected only face-to-face encounters via the patient's regular clinical appointments. This directive limited the sample selection. With the medical director's directive, the staff was not able to reach out to all 300 patients. This

resulted in a small sample pool. Descriptive statistics provided data for summations of categorized data only; therefore, the limitation was the inability to generalize the sample outcomes to a population.

A second limitation was only one of the CCM factors, the self-management support or education, was included in the study. In this study, the project team did not address the other CCM factors, such as interdisciplinary coordination and collaboration, and primary acute care.

Other unanticipated outcomes were a missed deadline for an introductory postcard mailing. The supplier missed a picture of African American people to be on the front of the postcard, and then the staff made an advanced payment with an expired credit card. Therefore, there the kick-off date was three weeks later. This resulted in an interconnectivity technical programming error between Greenway's EHR, and MDR's CCM. The technical error resulted in a six-week delay.

A final limitation was the unexpected missed face-to-face encounters between the staff and the eligible patients. The number of missed encounters was 61 out of 183 patients. The enrolled was 88 patients or approximately 70%. If the staff followed up with the missed patients for enrollment, then a potential of an increase in enrolled patients.

Describe the Implications Resulting from the Findings in Terms of Individuals, Communities, Institutions, and Systems

The term institutions were a set of rules that govern behavior. The institutions that CCM championed were formal, such as government agencies, and informal, such as culture. Examples were medicine, individuals, families, economic systems, legal systems, languages, educational institutions, industries, and others. This CCM project had pertinent support for the individual or patient and medical institution or the community clinic.

The medical institutions changed their services to provide value-based care. Primary care, patient self-management care, and interdisciplinary care were the framework for CCM and the framework for value-based care (AHRQ, 2015). The agencies changed their practice to provide primary care with computer-generated notices. The education for patient self-management was a reimbursable service via CPT 99490. The interdisciplinary team is widely accepted and promoted. These changes lead to decreased health care costs, such as prevention of surgery (Coleman et al., 2009; Woltmann et al., 2012; Stellefson, Dipnarine, Stopka, n.d.; MacColl Center for Health Care Innovation, n.d.).

The individual behavior was modified or reinforced patient education, usually via the licensed nurses. As stated early, this support will be a strong pillar in CCM for the future as evidenced by a projected 60% increase in 2030 compared to the count in 2000 of diabetic patients (van Dijk, C. E. et al., 2011). For example, 15.3% of diabetic patients

were diagnosed with congenital anomaly cardiovascular disease (van Dijk, C. E. et al., 2011). As concluded in the "*What Part of the Total Care Consumed by Type 2 Diabetes Patients is Directly Related to Diabetes?"* (van Dijk, C. E. et al., 2011) research article, care must cover comorbidities. The statistics indicated an increasing need in patient self-management.

The sample outcomes of engaged clients indicated the clients have good faith trust in the community, institutions, and systems. The clinic's patients were willing to try new health care services provided by the medical director. The patients accepted the institution of acute care services, also. The staff reported to the project team that the clients were pleased to see the government systems working on improving the health care system.

Provide Potential Implications to Positive Social Change

Potential positive social changes were many. The healthcare providers offered primary care for chronic illnesses coupled with patient self-management care. The outcomes were better quality of life with a decrease in healthcare costs (Bodenheimer, Wagner, & Grumbach, 2002a, 2002b; Coleman, Austin, Brach, & Wagner, 2009). In published outcomes, Bodenheimer, Wagner, & Grumbach (2002b) concluded from 18 out of 27 studies that "chronic care management interventions demonstrated reduced health care costs or lowered use of health care services" (p.1909).

An additional potential positive social change was the CCM model supported the clinical quality initiatives on national and global levels (Coleman et al., 2009). Zwar et

al., (2006) reported that of the 145 selected studies across 11 countries the most stated interventions were of self-management support (SMS). Patient education was the most cited SMS. In addition, other studies indicated that the CCM framework was the positive factor for effective and efficient care with 1,500 physician practices (Coleman et al., 2009).

Another matter was the TMF, an affiliation of CMS, conducted a webinar that stated nurses should expand their role under the CCM model. CCM allowed registered and licensed nurses to provide non face-to-face and complex services for patients with multiple chronic illnesses (HHS, 2016b). The underpinning of CCM, which is patient centered care, has been the main task for nurses. Therefore, CCM and nursing is a smooth connection.

Recommendations

Describe the Proposed or Recommended Solutions that will Potentially Address the Gap-In-Practice

The recommended solution to address the gap-in-practice was incorporating the MD Revolution CCM software package. The CCM model filled the gap-in-practice by the built-in design elements. The elements provided proactive care for chronic illnesses by improving the patient's self-management through patient education. The package's functionality enables the staff to identify eligible patients; engage the patient for CCM services; gather and monitor the data to track for reporting the outcomes from patient education. To move the MDR CCM gathered data, MDR programmatically transferred

the gathered data to the Greenway Health™ EHR. Therefore, the staff with access to the EHR had access to the MDR CCM gathered data.

Describe any Secondary Products that Guide the use of the Primary Products in Practice

The two products used were Greenway Health™ as the primary product and MD Revolution as the secondary product. I referenced both products throughout this document regarding functionality, usage, and security. The Greenway Health™ provided EHR management. The MDR provided the CCM guidelines for implementation. The staff engages an eligible patient and updates the program care to CCM-engaged in the EHR. At month end, the MDR program reads the EHR and selects the engaged patient. The engaged patients were moved to the MDR database. The MDR system generated a patient list for the health coach's telephonic education encountered. The health coach encounter was completed, and they updated the patient's record. By the fifth of the month, the MDR package updated patient's record to the respective patient's EHR. The system encoded the CCM data into the EHR imaging tab and vital signs navigation page. For MDR CCM support, I used Tyler Dabovich, Account Manager 818-441-6695.

Describe the Recommended Implementation and Evaluation Procedure

The staff generated an eligible patient list for a face-to-face encounter. Workflow steps to engage patients with CCM services follow:

- From the appointment schedule, the staff searched the EHR for patients matching the eligible criteria of at least 65 years of age, Medicare Part B beneficiary, at least two chronic illnesses that were diabetes mellitus and hypertension.
- The staff met with the eligible patient to educate the patient of the CCM services and benefits with the video, brochure, and flyer to establish engagement.
- The staff updated the care-program with enrolled, declined, postpone, opt-out.

The above steps were continuous, and the MDR computer program gathered the enrolled patients for the health coaches to contact.

- The health coaches, who were licensed nurses, educated the patient via telephone specific to the patient's chronic illnesses.
- The health coaches updated the evidence of care with the information gathered during the telephonic encounter with the patient.
    - If there was a need to escalate health issues, the health coaches contacted the clinic as an urgent status. The clinic followed their standard procedures for an escalated issue.
- The clinical provider was alerted that there was an encounter with a health coach within imaging and the evidence of care (EOC), care plan (POC), and vital signs (VS) were programmatically loaded into the patient's EHR.
- Monthly reports generated, indicated acceptable patients with data. The project manager used the reports in analyzing interconnectivity of CCM services and the patient's outcomes, especially control of blood sugar and blood pressure levels.

The MDR computerized package generated reports that indicated missed or incorrect outcomes that established a data integrity anomaly. For example, the report listed an incorrect outcome for the patient's age criteria. If the patient was not 65 years or older then the transaction was marked as an error. Optionally, the staff corrected the data integrity errors and resubmitted for program care engagement.

Workflow steps to gather engaged patient data follow:

The staff used Micro Soft Office 2013 to build a file with an anonymous patient identification, patient demographics, and program care variables. The file name was CCM Tickler Table 25.docx. The variables were to identify the total number of patients encountered, enrolled, declined, postpone, and missed.

The statistical procedures used were five steps. First, the staff built a table and entered the raw data. Second, the staff executed a count function in the first column. Third, the staff sorted the patient's name column in ascending text order. Four, to create the anonymous patient identification, I requested the staff to use the following schema: patient's first letter of the last name then followed by four digits incremented by one per patient. Five, the staff sorted the program care field in ascending text order.

After the above five steps were completed, the staff used that file and built a SPSS file with the same data except for the patient name. The staff keyed the BP and FBS levels from the EHR, and they named the file VALID DATA 08.sav

I used the SPSS as a mechanical tool to organize data, calculate data, and present the data collected by the clinical staff from Greenway Health™ EHR, MDR CCM

services, and face-to-face encounters. I used the VALID DATA 08.sav file. The dataset contained anonymous patient identification, demographics, and other patient variables for the enrolled patients. The variables used were age; gender; chronic illnesses of diabetes mellitus and hypertension; the benchmark for systolic and diastolic; current systolic and diastolic; benchmark fasting blood sugar; current fasting blood sugar, target systolic, target diastolic, and target fasting blood sugar. The patient id, gender, chronic illness, and race were string variables. The remaining were numeric variables.

I used descriptive statistics analysis with a measure of central tendency and a measure of spread for pattern identification with the group's characteristics. Mode, median, and mean central tendencies indicated the central position of frequencies or meaning the distribution of patterns. The measure of spread for central data points was how significant from the central point were all the patients enrolled. The spread used was a standard deviation.

Table 5 Statistical Procedures via SPSS for enrolled patients listed the SPSS variable names and related measures located in columns one and two, respectively. I described the descriptive statistics procedure and variable category used in column three. The details for operational procedures were in Section 4, Findings and Implications, Report the Findings that Resulted from SPSS.

Contribution of the Doctoral Project Team

Summarize the Process of Working with the Doctoral Project Team

The project team worked well together. The medical director, project manager, and I honored the team members' credentials and job responsibilities. The doctoral project team was comprised of five members. I presented the topics to the project manager. The project manager and I made the decisions using the CCM framework to meet the clinic's needs. We informed the remaining team members, the office manager, medical director, and Greenway Health™ support vendor, and MDR account manager. MDR trained the staff and project team members. I wrote the daily operations to incorporate MDR's procedures. I completed the statistical analysis after the staff created anonymous patient identifications.

Describe the Roles the Project Team Played in Developing the Final Recommendations and Products

The medical director and project team selected MDR for the CCM framework to support the client via the Greenway Health™ software package. The remaining project team members were not instrumental in the decision to use MDR's software package. I presented the final recommendations based on my findings to the project manager.

Discuss any Plans to Extend the Project beyond the DNP Doctoral Project

The project manager will present the outcomes to the other team members. The medical director will make the final decision that MDR's CCM package will continue to incorporate CCM services for eligible patients following project completion. I will

complete a transition meeting with the project manager and another staff member not yet identified.

Strengths and Limitations of the Project

Strengths and Limitations of the Doctoral Project with Recommendations for Future Projects

A strength for the project was the sample size of 183 CCM eligible patients. However, a limitation was 61 of the 183 patients received a missed element in the program care field. The missed variable data indicated that the staff did not meet with the patient. Reasons the staff missed an appointment were due to a) no show no call for the patient's appointment, b) appointment rescheduled, and c) weather prohibited arriving for the appointment. If a staff member would analyze the reasons for the missed element, then a follow up may decrease the missed elements count.

A limitation was the medical doctor mandated that the patients approached for a face-to-face encounter to explain CCM service have diagnoses of diabetes mellitus and hypertension. There were patients in the 300 eligible CCM patients list who did not have diabetes mellitus or hypertension but had several other chronic illnesses that were acceptable for the CCM services. The staff did not offer CCM services due to the medical doctor's directive. A recommendation was that the project team offer services to patients with all CMS chronic illnesses.

Additionally, a limitation that slowed the project's timeline was the staff did not take the training sessions seriously. The medical doctor had to intercede and mandate the

staff attend all training sessions. The staff finally honored the mandate. The project team did not present the Power Point presentation introducing the CCM project to the staff. If the project manager presented the Power Point presentation with the medical doctor in attendance, then the staff would have been supportive. In addition, the office manager was not supportive of the project initially. The project manager and I continually engaged the office manager, and eventually, she accepted the project.

Another limitation was the staff did not scrub the EHR at startup or at the end of the project. This oversight led to a large number of missing data that skewed statistical outcomes.

Using only the self support management or education for the evaluation data in the statistical analyzes, was limiting. Along with the education factor, interdisciplinary coordination, interdisciplinary collaboration, and primary acute care elements would provide a comprehensive evaluation of CCM services.

The medical doctor mandated that a staff member would meet with the eligible patient during a scheduled appointment. The staff and eligible patient engaged in a face-to-face encounter with a video and brochures and discussed CCM services. Out of the 122 patients informed of CCM services, 19 patients or 15% declined, 15 patients or 12% postpone, and 88 patients or 72% enrolled. Over half of the eligible patients enrolled, which indicated the face-to-face strategy used to enrolled patients was a strong element.

Recommendations for Future Projects

For future projects, the project team should introduce the project to the staff at startup; ensure the project's required tasks are completed as defined; follow up with the patients that did not receive a face-to-face project discussion; periodically scrub the EHR; and present a timeline of phase gates to the staff.

Section 5: Dissemination Plan

Introduction

Introduction

There were many reasons to disseminate the CCM project outcome. Shared initiatives and innovations from CCM to others who advocate for population health brought the stakeholders closer to providing effective and efficient care via patient education and primary healthcare. Other supported areas promulgated were keeping healthcare providers current, working within the nursing sciences, and spreading research findings. The project team communicated the outcome to the clinical staff and other stakeholders as discussed below.

Plan to Disseminate to the Community Clinic

I disseminated the outcome to the clinical staff, and stakeholders, such as referring specialists and other healthcare team members by e-mail, social media, EHR, and face-to-face meetings. The CCM project team built seven binders housing significant research and government documents related to CCM for reference. In addition, for an introduction to CCM, I wrote a power point presentation, which focused on key input and output factors. I presented the power point to the project team and medical director (Oermann & Hays, 2015).

Clarify the Audiences and Venues for Dissemination

To broaden the nursing profession, the audiences and venues for dissemination of my experiences were diversified and numerous. I built this list based on personal experience with many of the audiences. A list follows:

Nursing students,

Science students,

Junior colleges, middle colleges, and universities such as USC

Government representatives at local, state, and federal levels,

Government agencies such as TMF, CMS, and AHRQ,

Hospitals, and medical centers,

Skilled nursing centers,

Assisted living centers,

Board and care centers,

Home health agencies,

Nursing publication,

The Institute of Medicine, and

The Robert Wood Johnson Foundation.

Analysis of Self

Practitioner, Scholar, and Project Manager

The CCM project provided insight to my current state and the progress made as a practitioner, scholar, and project manager. As a practitioner, I used my project

management skills acquired from job experiences and didactic classes to implement the CCM services for the patients. As an example, I defined an on-boarding workflow for the agency staff to bring eligible CCM patients on-board. I have designed workflows in previous projects and I visualize designing more in future projects. Furthermore, I broadened my perspective of population health through nurse science knowledge defined from nursing research. As a scholar, I enjoyed education and learning, and I have earned multiple degrees including two masters. It is exciting to use learned skills and knowledge and apply them to real life situations through challenges, critical thinking, and shared knowledge. I will continue my education in the legal discipline of the health law. As a project manager, I led the CCM project team through the learning phase and workflow phase. As evidenced by the degrees I earned, I am a lifelong learner, and I will continue to use my knowledge as a leader or a team member for healthcare issues.

The DNP program mentioned the characteristics and personality traits discussed above as Essentials for the DNP candidate to master. Stakeholders such as the American Association of Colleges of Nursing established and underpinned the Essentials.

Completion of the Project

The project completion tasks were the analysis of the limited data set (LDS) excluding patient identification data. I analyzed the following data set elements:

> age, Medicare Part B, diagnostic codes & descriptor, vital signs, exercise, labs, CCM enrolled flag/care program, provider, activates, enrollments, escalation report, plan of

care report, evidence of care report, vital signs report, unengaged patient report, care and engagement summary report, statement of necessity, number of vital signs logged per month, deactivates, total enrollments, total active patients.

The completion of the CCM project was rewarding. Challenges, solutions, and insights gained follow:

- The timeframe to complete the project was over one year. The challenge was staying focused, which I accomplished with a scholarly attitude.
- I accomplished a project that involved the entire staff for change in the daily operations.
- I provided a knowledge base for improving geriatric patients' activities of daily living.
- A philanthropic journey was supporting population health. The challenges were the government agencies. The insight gained was the procedure Medicare used in promoting CCM services to clinicians. During the project, I implemented didactic class concepts and ideas referring to the DNP textbooks.
- My most significant gain was a reinforcement of my previous acuity and acumen. I strengthened my stamina and critical thinking through challenging items. I presented many resolutions to the project team. The method worked in that we used my suggestions or used the suggestions for a path to another resolution. In

addition, I increased my self-esteem as evidence by my utilization of nursing science knowledge. My self-worth improvement evolved from the CCM educational research I completed.

- I strengthened my stamina through the perseverance of challenging problems. I critically thought through an issue to a resolution. Educational research I completed; the educational degrees I earned across three disciplines; and the skills acquired early in my career reinforced my knowledge base.

Completion of the Project

I encountered time-consuming challenges. Below were several.

1. A staff member did not enter patient data I needed for analysis. I lost two and a half months of time towards project completion. I discovered the error, verified it, and presented the error to the project team. The team brought in another group to manage the data.

2. The CCM vendor originally provided patient data that did not meet the patient profile. I lost 2.5 months of project completion time. I escalated the problem to senior management who provided the correct data elements.

3. A financial problem during go-live held the project up two weeks.

4. At start up, the staff defined patients enrolled for CCM services but a programing glitch did not complete updating the call file. We lost six weeks while MDR corrected the programming error.

Summary

Essential Message to the Readers

The CCM capstone has more than one main message since the project touches many core keynotes. The project supports, guides, and improves population health by managing chronic illnesses specific to the patient's health care needs at a reasonable cost. In addition, to assisting the paradigm shift from tertiary care to primary care for chronically ill patients, the stakeholders underpinned higher education for nurses. I am grateful for the opportunity to work on this project and apply evidence-based practice to individuals and populations. Perseverance was the focus of my success.

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Appendix A: Program Plan with Evaluation and Timeline

The program plan defines the supporting elements for the agency's CCM model. The evaluation items and the measurement criteria is listed. The agency staff is listed next to the activity and the designated CPT. The timeline is explained, too.

Problem Statement:
The Medicare beneficiaries diagnosed with two or more chronic conditions are not receiving their needed healthcare with the traditional acute care services used.

Target Population:
The Medicare beneficiaries diagnosed with two or more chronic conditions; with the conditions placing the patient at significant risk of death, acute exacerbation/decomposition, or functional decline; and with expectation to last at least twelve months or until death.

Social Theory:
Social Learning Model is the resistance to change of the staff and patients. The modification can be changed by repeating educational concepts related to incorporating the critical care management (CCM) model with the current procedures (Hodges, & Videto, 2011).

Needs Assessment:
Identify the eligible patients' thoughts, feelings, and attitudes about the indoctrination. The patients' attitude may be a lack of knowledge, understanding, and financial stress relative to the patients' indoctrination. The feelings are scared, unsafe, and anxious. The patient's needs are an understanding of the CCM services.

Mission Statement:
Assist the Medicare beneficiaries with existing co-morbidities in an environment of open communication, mutual understanding, respect, and confidence. The education enables the beneficiaries a realization to quality of life coordinated with the interdisciplinary team resulting in a reduction of medical costs to the Centers for Medicare and Medical (CMS).

Goal:
Provide knowledge about CCM patient eligibility, indoctrination, and services.

(1) "Identify Patients" (TMF, 2016, para. Identify).

Objective 1.1
Identify 30 Medicare beneficiaries with chronic illnesses of type II diabetes mellitus and hypertension. "Conditions must be expected to last at least 12 months or until death, and place the patient at risk of death, acute exacerbation or functional decline" (TMF, 2016, para. Identify).

Agency Staff Job Title (Input)	Job Task (Process, Output)
BP	Activity 1.1.1 –

Identify the patients diagnosed with diabetes and hypertension. “Use your Electronic Health Records (EHR) to find patients with two or more chronic conditions” (TMF, 2016, para. Identify).

CPT Code NA

BP Activity 1.1.2 –
Ensure conditions: “must be expected to last at least 12 months or until death, place the patient at risk of death, and acute exacerbation or functional decline” (TMF, 2016, para. Identify).

CPT Code NA

CS Activity 1.1.3 –
BP “Use the Electronic Health Records (EHR) to find patients with two or more chronic condition” (TMF, 2016, para. Identify).

CPT Code NA

CS Activity 1.1.4 –
BP Qualifying factor:
“Patients not seen within 1 year prior to commencement of CCM” (HHS, 2016a, 2016b).

CPT Code NA

CS Activity 1.1.5 –
“Create a list of potential CCM patients” (TMF, 2016, para. Identify).

CPT Code NA

BP Activity 1.1.6 –
Approve potential CCM patient list

CPT Code NA

(2) “Designate a Primary CCM Case Manager” (TMF, 2016, para. Designate).

Objective 2.1
“Assist with enrollment, consents, scheduling, and other CCM activities for scheduled patients on the potential CCM patent list” (TMF, 2016, para. Designate).

Agency Staff Job Title (Input)	Job Task (Process, Output)
CM BP	Activity 2.1.1 – “When patient agrees to participate in CCM, assign a CCM primary case manager” (TMF, 2016, para. Designate).
	CPT Code NA
CM BP CS	Activity 2.1.2 – “A CCM primary case manager can be the primary clinician, nurse, and other staff helping with enrollment, consents, scheduling. (Other licensed staff can provide services "incident to" the primary clinician)” (TMF, 2016, para. Designate).
	CPT Code 99490
CM	Activity 2.1.3 –

BP "Improvement Activities (IA).
CS Additional improvements in access as a result of QIN-QIO technical assistance: As a result of QIN-QIO technical assistance, performance of additional activities that improve access to services (e.g., investment of on-site diabetes educator). Medium weight = 10 points" (TMF, 2017a, para. Improvement).

CPT Code 99490

BP Activity 2.1.4 –
"Improvement Activities (IA).
Engagement of patients, family, and caregivers in developing a plan of care: Engage patients, family, and caregivers in developing a plan of care and prioritizing their goals for action, documented in the certified EHR technology. Medium weight = 10 points (For an example, refer to Quality Measure ID #047)" (TMF, 2017a, para. Improvement)".

CPT Code G0506

BP Activity 2.1.5 –
CM "Improvement Activities (IA).
Engagement with QIN-QIO to implement self-management training programs: Engagement with a QIN-QIO, which may include participation in self-management training programs such as that for diabetes. Medium weight = 10 points (For an example, refer to Quality Measure ID #236)" (TMF, 2017a, para. Improvement).

CPT Code 99490

CM Activity 2.1.6 –
BP "Improvement Activities (IA).
Implementation of additional activity as a result of technical assistance for improving care: Implementation of at least one additional recommended activity from the QIN-QIO after technical assistance has been provided, as related to improving care coordination. Medium weight = 10 points (For an example, refer to Quality Measure ID #131)" (TMF, 2017a, para. Improvement).

CPT Code 99490

SG Activity 2.1.7 –
CS "Improvement Activities (IA).
BP Use of toolkits or other resources to close health care disparities across communities: Take steps
CS to improve health care disparities, such as using the Population Health Toolkit or other resources identified by CMS, the Learning and Action Network, Quality Innovation Network or National Coordinating Center. Refer to the local QIO for additional steps for improving the health status of communities; there are many steps to select from to satisfy this activity. QIOs work under the direction of CMS to assist ECs and groups with quality improvement and review quality concerns for the protection of beneficiaries and the Medicare Trust Fund. Medium weight = 10 points." (TMF, 2017a, para. Improvement).

CPT Code 99490

CM Activity 2.1.8 –
"Improvement Activities (IA).

Integration of patient coaching practices between visits: Provide coaching between visits with follow-up on the care plan and goals. Medium weight = 10 points." (TMF, 2017a, para. Improvement).

CPT Code 99490

CM Activity 2.1.9 –
"Quality ID 111
Pneumococcal Vaccination Status for Older Adults (Reporting methods: Claims, CMS Web interface, EHR, registry" (TMF, 2017c, para. Quality).

CPT Code 99490

CM Activity 2.1.10 –
"Quality ID 110
Preventive Care and Screening: Influenza Immunization (Reporting methods: Claims, Centers for Medicare & Medicaid Services (CMS) Web interface, electronic health record (EHR), registry)" (TMF, 2017c, para. Quality).

CPT Code 99490

CM Activity 2.1.11
TB screening

CPT Code 99490

BP Activity 2.1.12 –
CCMB "Advancing care Information
CM The Merit-based Incentive Payment System-EC is in active engagement with a public health agency to submit immunization data and receive immunization forecasts and histories from the public health immunization registry/immunization information system" (TMF, 2017c, para. Advancing).

CPT Code 99490

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(3) "Design the CCM Process and Schedule" (TMF, 2016, para. Design).

Objective 3.1
Design the CCM process and schedule to include the CMS CCM's quality identifiers, improvement activities, and advancing care information activities and all other activities to meet the CMS' guidelines.

CC Activity 3.1.1 –
"Establish appointment codes for new visits and nurse assessment calls" (TMF, 2016, para. Design).

CPT Code 99490 nurse calls
CPT Code: AWV G0438
AWV after 1 year G0439
IPPE 1st year G0402
IPPE after 1 year G0439

CM Activity 3.1.2 –
BP "Establish time frames for clinician visits and nurse calls" (TMF, 2016, para. Design).

CPT Code 99490 nurse calls
CPT Code: AWV G0438
AWV after 1 year G0439

IPPE 1st year G0402
IPPE after 1 year G0439

CM CS	Activity 3.1.3 – "Establish a dedicated phone line that is answered by CCM staff and forwarded to the on-call clinician after hours" (TMF, 2016, para. Design).
	CPT Code NA
SG **CS** BP CS	Activity 3.1.4 – "Develop a written consent form for patients" (TMF, 2016, para. Design).
	CPT Code NA
SG **CS**	Activity 3.1.5 – "Develop a CCM tracking system in your EHR and for billing" (TMF, 2016, para. Design).
	CPT Code NA
SG **CS** BP CS	Activity 3.1.6 – "Develop a system for delivering CCM services to patients" (TMF, 2016, para. Identify).
	CPT Code NA
CC CS BP	Activity 3.1.7 – "Quality ID 374: Closing the Referral Loop: Receipt of Specialist Report: Percentage of patients with referrals, regardless of age, for whom the referring provider receives a report from the provider to whom the patient was referred' (TMF, 2017a, para. Quality).
	CPT Code 99490

(4) "Invite Patients to Participate" (TMF, 2016, para. Invite).

Objective 4.1
"The CCM agency team to use the CMS' patient eligibility criteria: a) multiple (two or more) chronic conditions expected to last at least 12 months, or until the death of the patient; b) chronic conditions place the patient at significant risk of death, acute exacerbation/decompensation, or functional decline; and comprehensive care plan established, implemented, revised, or monitored for patient identification" (HHS, 2016a, 2016b).

Agency Staff Job Title (Input)	Job Task (Process, Output)
SS	Activity 4.1.1 – Contact eligible patients to schedule a collaboration regarding CCM services
	CPT Code 99490
BP	Activity 4.1.2 – Explain required information for patient and/or caregiver: *What the CCM service is *Enrollment – Review enrollment form *How to access the CCM service *Monthly CCM assessments *That only one clinician can provide this service monthly *How patient's information will be shared *How cost-sharing applies to CCM services

*How to stop services or disenroll CCM service

)
"CPT Code G0438 AWV
CPT Code G0402 IPPE
CPT Code G0439 FU AWU
CPT Code 99495 14 days and 99496 within 7 days of DC
CPT Code 99215 E/M
CPT Code G0506 CFA
CPT Code 99490"
(HHS, 2016a, 2016b).

BP CM CS	Activity 4.1.3 – "Document each patient's decision to participate or decline CCM services in their EHR progress note" (TMF, 2016, para. Invite). CPT Code 99490

(4a) Billing Practitioner Standard Care	
Objective 4a.1 and 4a.2 Provide guidelines for chronic diseases with quality indicators and other CMS billing qualifiers	
Agency Staff Job Title (Input)	Job Task (Process, Output)
BP CS CM PHARM	Activity 4a.1.1 – Guidelines for Type 2 Diabetes Mellitus Activity 4a.1.2 – "Quality ID 131: Pain Assessment and Follow-up: Percentage of visits for patients aged 18 years and older with documentation of a pain assessment using a standardized tool(s) on each visit AND documentation of a follow-up plan when pain is present" (TMF, 2017a, para. Quality). CPT Code 99487, 99489 Activity 4a.1.3 – "Quality ID 236: Controlling High Blood Pressure: Percentage of patients 18 – 85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled" (TMF, 2017a, para. Quality). CPT Code 99487, 99489 Activity 4a.1.4 – "Quality ID 374: Closing the Referral Loop: Receipt of Specialist Report: Percentage of patients with referrals, regardless of age, for whom the referring provider receives a report from the provider to whom the patient was referred" (TMF, 2017a, para. Quality). CPT Code 99487, 99489 Activity 4a.1.5 – "Quality ID 238: Use of High-risk Medications in the Elderly: Percentage of patients 66 years of age and older who were ordered high-risk medications. Two rates are reported: 1. Percentage of patients who were ordered at least one high-risk medication; 2. Percentage of patients who were ordered at least two different high-risk medications" (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

Activity 4a.1.6 –
"Quality ID 130: Documentation of Current Medications in the Medical Record: Percentage of visits for patients aged 18 years and older for which the eligible professional attests to documenting a list of current medications using all immediate resources available on the date of the encounter. This list must include ALL known prescriptions, over-the-counter medications, herbals, and vitamin/mineral/dietary (nutritional) supplements AND must contain the medications' name, dosage, frequency, and route of administration" (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

BP Activity 4a.1.7 –
"Referral to a specialist" (HHS, 2016a, 2016b).

CPT Code 99487, 99489

BP Activity 4a.2.1 –
CM Guidelines for Hypertension:
CS
PHARM Activity 4a.2.2 –
"Quality ID 131: Pain Assessment and Follow-up: Percentage of visits for patients aged 18 years and older with documentation of a pain assessment using a standardized tool(s) on each visit AND documentation of a follow-up plan when pain is present" (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

Activity 4a.2.3 –
"Quality ID 236: Controlling High Blood Pressure: Percentage of patients 18 – 85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

Activity 4a.2.4 –
"Quality ID 374: Closing the Referral Loop: Receipt of Specialist Report: Percentage of patients with referrals, regardless of age, for whom the referring provider receives a report from the provider to whom the patient was referred" (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

Activity 4a.2.5 –
"Quality ID 238: Use of High-risk Medications in the Elderly: Percentage of patients 66 years of age and older who were ordered high-risk medications. Two rates are reported: 1. Percentage of patients who were ordered at least one high-risk medication; 2. Percentage of patients who were ordered at least two different high-risk medications" (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

Activity 4a.2.6 –
"Quality ID 130: Documentation of Current Medications in the Medical Record: Percentage of visits for patients aged 18 years and older for which the eligible professional attests to documenting a list of current medications using all immediate resources available on the date of the encounter. This list must include ALL known prescriptions, over-the-counter medications,

herbals, and vitamin/mineral/dietary (nutritional) supplements AND must contain the medications' name, dosage, frequency, and route of administration" (TMF, 2017a, para. Quality).

CPT Code 99487, 99489

BP Activity 4a.2.7 –
"Referral to a specialist" (HHS, 2016a, 2016b).

CPT Code 99487, 99489

CS Activity 4a.3.1 –
BP "Improvement Activities (IA)
Additional improvements in access as a result of QIN-QIO technical assistance: As a result of QIN-QIO technical assistance, performance of additional activities that improve access to services (e.g., investment of on-site diabetes educator). Medium weight = 10 points" (TMF, 2017, para. Improvement).

CPT Code 99490

CS Activity 4a.3.2 –
BP "Improvement Activities (IA).
Engagement with QIN-QIO to implement self-management training programs: Engagement with a QIN-QIO, which may include participation in self-management training programs such as that for diabetes. Medium weight = 10 points (For an example, refer to Quality Measure ID #236)" (TMF, 2017a, para. Improvement).

CPT Code 99490

CS Activity 4a.3.3 –
BP "Improvement Activities (IA).
Implementation of additional activity as a result of technical assistance for improving care: Implementation of at least one additional recommended activity from the QIN-QIO after technical assistance has been provided, as related to improving care coordination. Medium weight = 10 points (For an example, refer to Quality Measure ID #131)" (TMF, 2017a, para. Improvement).

CPT Code 99490

CM Activity 4a.3.4 –
CS "Improvement Activities (IA).
BP Use of toolkits or other resources to close health care disparities across communities: Take steps to improve health care disparities, such as using the Population Health Toolkit or other resources identified by CMS, the Learning and Action Network, Quality Innovation Network or National Coordinating Center. Refer to the local QIO for additional steps for improving the health status of communities; there are many steps to select from to satisfy this activity. QIOs work under the direction of CMS to assist ECs and groups with quality improvement and review quality concerns for the protection of beneficiaries and the Medicare Trust Fund. Medium weight = 10 points" (TMF, 2017a, para. Improvement).

CPT Code 99490

BP Activity 4a.3.5 –
"Complex – Initiating Visit – Face to Face
Annual Wellness Visit (AWV)
Initial Preventative Physical Exam (IPPM). 1 year later FU AWV.

	Transitional Care Managemet (TCM) Evaluation Management (E/M) Cognition & Functional Assessment (CFA) CPT Code G0438 AWV CPT Code G0402 IPPE CPT Code G0439 FU AWU CPT Code 99495 14 days and 99496 within 7 days of DC CPT Code 99215 E/M CPT Code G0505 CFA" (HHS, 2016a, 2016b).
BP	Activity 4a.3.6 – "Complex – Cognition and Functional Assessment – Face to Face" (HHS, 2016a, 2016b). CPT Code G0505
BP	Activity 4a.3.7 – "Complex – Add On – Face to Face Extensive assessment and POC" (HHS, 2016a, 2016b). CPT Code G0506
CS BP	Activity 4a.3.8 – "Quality ID 111 Pneumococcal Vaccination Status for Older Adults (Reporting methods: Claims, CMS Web interface, EHR, registry)" (TMF, 2017a, para. Quality). CPT Code 99490
CS BP	Activity 4a.3.9 – "Quality ID 110 Preventive Care and Screening: Influenza Immunization (Reporting methods: Claims, Centers for Medicare & Medicaid Services (CMS) Web interface, electronic health record (EHR), registry)" (TMF, 2017a, para. Quality). CPT Code 99490

(5) Create a Comprehensive Care Plan (TMF, 2016, para. Create)	
Objective 5.1 Provide guidelines for patient's plan of care as defined by CMS.	
Agency Staff Job Title (Input)	Job Task (Process, Output)
SG **CS**	Activity 5.1.1 – "Develop a format for the comprehensive care plan" (TMF, 2016, para. Create). CPT Code NA
	Comprehensive Care Plan Elements. *Problem list *Expected outcomes, prognosis *Measureable treatment goals *Symptom management

*Planned interventions and individuals responsible for those interventions
*Medication management
*Community/social services ordered
*A description of how service outside the practice will be coordinated
*A schedule for periodic review of the care plan

CPT Code NR

BP
SS
CS
CM
CC

Activity 5.1.2 –
"Include assessment of patient's medical, functional and psychosocial needs, medication reconciliation, oversight of medication self-management" (TMF, 2016, para. Create).

CPT Code 99490

BP
CS

Activity 5.1.3 –
"Quality ID 131: Pain Assessment and Follow-up: Percentage of visits for patients aged 18 years and older with documentation of a pain assessment using a standardized tool(s) on each visit AND documentation of a follow-up plan when pain is present" (TMF, 2017, para. Quality).

"Complex – Initiating Visit – Face to Face
Annual Wellness Visit (AWV)
Initial Preventative Physical Exam (IPPM). 1 year later FU AWV.
Transitional Care Managemet (TCM)
Evaluation Management (E/M)
Cognition & Functional Assessment (CFA)

CPT Code G0438 AWV
CPT Code G0402 IPPE
CPT Code G0439 FU AWU
CPT Code 99495 14 days and 99496 within 7 days of DC
CPT Code 99215 E/M
CPT Code G0505 CFA"
(HHS, 2016a, 2016b).

BP
CS

Activity 5.1.4 –
"Quality ID 236: Controlling High Blood Pressure: Percentage of patients 18 – 85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled" (TMF, 2017a, para. Quality).

"Complex – Initiating Visit – Face to Face
Annual Wellness Visit (AWV)
Initial Preventative Physical Exam (IPPM). 1 year later FU AWV.
Transitional Care Managemet (TCM)
Evaluation Management (E/M)
Cognition & Functional Assessment (CFA)

CPT Code G0438 AWV
CPT Code G0402 IPPE
CPT Code G0439 FU AWU
CPT Code 99495 14 days and 99496 within 7 days of DC
CPT Code 99215 E/M
CPT Code G0505 CFA"

(HHS, 2016a, 2016b).

BP
CM
CS

Activity 5.1.5 –
"Quality ID 238: Use of High-risk Medications in the Elderly: Percentage of patients 66 years of age and older who were ordered high-risk medications. Two rates are reported: 1. Percentage of patients who were ordered at least one high-risk medication; 2. Percentage of patients who were ordered at least two different high-risk medications" (TMF, 2017a, para. Quality).

CPT Code 99487 and 99489

CM
CS
CC
BP

Activity 5.1.6 –
"Quality ID 374: Closing the Referral Loop: Receipt of Specialist Report: Percentage of patients with referrals, regardless of age, for whom the referring provider receives a report from the provider to whom the patient was referred"(TMF, 2017a, para. Quality).

CPT Code 99490

BP
CM
SS
CS
CC

Activity 5.1.7 –
"Create a patient-centered care plan for each patient enrolled in CCM" (TMF, 2016, para. Create).

CPT Code 99490, 49487, 99489

BP
CM
SS
CS
CC

Activity 5.1.8 –
"Share plans with other clinicians as appropriate" (TMF, 2016, para. Create).

CPT Code 99090 99091

CS
BP
SG

Activity 5.1.9 –
"Quality ID 047: Care Plan: Percentage of patients aged 65 years and older who have an advance care plan or surrogate decision maker documented in the medical record or documentation in the medical record that an advance care plan was discussed. But the patient did not wish or was not able to name a surrogate decision maker or provide an advance care plan" (TMF, 2017a, para. Quality).

CPT Code 99497

CC
CS
CM

Activity 5.1.10 –
Current medications reconciled.

CPT Code 99490

CS
BP

Activity 5.1.11 –
"Improvement Activities (IA).
Implementation of practices/processes for developing regular individual care plans: Implementation of practices/processes to develop regularly updated individual care plans for at-risk patients that are shared with the beneficiary or caregiver(s). Medium weight = 10 points (For an example, refer to Quality Measure ID #047)" (TMF, 2017a, para. Improvement).

CPT Code G0506

(6) Provide CCM Plan to Patient	
Objective 6.1 Provide CCM Plan to Patient per CMS guidelines	
Agency Staff Job Title (Input)	Job Task (Process, Output)
CM CS	Activity 6.1.1 – "Copy can be written or electronic" (TMF, 2016, para. Create) CPT Code 99490
CS	Activity 6.1.2 – "Consider using the patient portal to deliver the plan" (TMF, 2016, para. Create) CPT Code 99490
CM CS	Activity 6.1.3 – "Advancing Care Information. Provide Patient Access: For at least one unique patient seen by the Merit-based Incentive Payment System (MIPS) eligible clinician: 1. The patient (or the patient-authorized representative) is provided timely access to view online, download and transmit his or her health information; and 2. The MIPS-eligible clinician ensures the patient's health information is available for the patient (or patient-authorized representative) to access using any application of his or her choice that is configured to meet the technical specifications of the Application Programing Interface in the MIPS-eligible clinician's certified EHR technology" (TMF, 2017a, para. Improvement). CPT Code 99490
CM CS	Activity 6.1.4 – "Advancing Care Information. Send a Summary of Care: For at least one transition of care or referral, the MIPS-eligible clinician that transitions or refers his or her patient to another setting of care or health care provider: 1. Creates a summary of care record using certified EHR technology; and 2. Electronically exchanges the summary of care record" (TMF, 2017a, para. Advancing). CPT Code 99490
CM CS BP	Activity 6.1.5 – "Advancing Care Information. Patient-generated Health Data: Patient-generated health data or data from a non-clinical setting is incorporated into the certified EHR technology for at least one unique patient seen by the MIPS-eligible clinician during the performance period" (TMF, 2017a, para. Advancing). CPT Code 99490
BP	Activity 6.1.6 – "Advancing Care Information. Clinical Information Reconciliation: For at least one transition of care or referral received or patient encounter in which the MIPS-eligible clinician has never before encountered the patient, the MIPS-eligible clinician performs clinical information reconciliation. The MIPS-eligible clinician must implement clinical information reconciliation for the following three clinical information sets: 1. Medication—Review of the patient's medication, including the name, dosage, frequency and route of each medication; 2. Medication allergy—Review of the patient's known medication allergies;

and 3. Current Problem list— Review of the patient's current and active diagnoses"(TMF, 2017a, para. Advancing).

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Transitional Care Managemet (TCM)
Evaluation Management (E/M)
Cognition & Functional Assessment (CFA)

CPT Code G0438 AWV
CPT Code G0402 IPPE
CPT Code G0439 FU AWU
CPT Code 99495 14 days and 99496 within 7 days of DC
CPT Code 99215 E/M
CPT Code G0505 CFA"
(HHS, 2016a, 2016b).

(7) "Provide CCM Plan to Patient (TMF, 2016, para. Document).	
Objective 7.1 Using agency's forms document time spent on CCM	
Agency Staff Job Title (Input)	Job Task (Process, Output)
SG **CS**	Activity 7.1.1 – "Establish a system to track time spent on CCM services including phone calls, emails, coordination with others, prescription management and medication reconciliation" (TMF, 2016, para. Document). CPT Code NA
CS **BP** **CM** **SS** **CC**	Activity 7.1.2 – "Document time spent on CCM for each patient monthly" (TMF, 2016, para. Document). CPT Code As applicable to services

(8) Patient Termination from CCM (TMF, 2016, para. Patient).	
Objective 8.1 Document the patient's reasons for termination from CCM	
Agency Staff Job Title (Input)	Job Task (Process, Output)
CM CC	Activity 8.1.1 – Document patient's death, transfer, or termination from CCM program" (TMF, 2016, para. Patient) and cause of termination in patient's EHR. CPT Code 99490

(9) "Submit CCM Billing to CMS" (TMF, 2016, para. Submit)	
Objective 9.1 Submit CCM Billing to CMS per CMS guidelines	
Agency Staff Job Title (Input)	Job Task (Process, Output)
CCMB	Activity 9.1.1 – "Must have a minimum of 20 minutes of non-face-to-face clinical staff time CPT Code 99490 documented for each patient" (TMF, 2016, para. Submit). CPT Code 99490
CCBM	Activity 9.1.2 – "Submit claims to the Centers for Medicare & Medicaid Services monthly" (TMF, 2016, para. Submit). CPT Code 99490
CCMB CC	Activity 9.1.3 – "Send invoice for copay to patients receiving CCM services monthly" (TMF, 2016, para. Submit). CPT Code NA

(10) Identify Billing Practitioner Activities	
Objective 10.1 Detail billing practitioner's activities per the CMS guidelines	
BP	"Complex – Initiating Visit – Face to Face Annual Wellness Visit (AWV) Initial Preventative Physical Exam (IPPM). 1 year later FU AWV. Transitional Care Managemet (TCM) Evaluation Management (E/M) Cognition & Functional Assessment (CFA) CPT Code G0438 AWV CPT Code G0402 IPPE CPT Code G0439 FU AWU CPT Code 99495 14 days and 99496 within 7 days of DC CPT Code 99215 E/M CPT Code G0505 CFA" (HHS, 2016a, 2016b).

Appendix B: Agency Staff and Standards of Operations

The table identifies the agency staff with related acronym. The CCM daily operations are categorized by the agency staff who is responsible for completing the activity. The table is linked to the Program Plan with Evaluation and Timeline.

Agency Staff	Acronym	Standards of Operations
Billing Practitioner or Primary Clinician – MD NP CNS PA Certified Midwife	BP	*Patient visits *Referrals *POC/EHR initiate *Manages patient medications
Correspondence Clinician	CC	*Reconcile patient medications *Coordinating POC with interdisciplinary team and with patient *POC/EHR update
Chronic care management biller	CCMB	*A/R biller *Reconcile with CMS compliance *Submit claims to CMS *POC/EHR update
Case Manager	CM	*Reconciles patient medications **POC/EHR update
Clinical Staff – MA LVN RN	CS	*Discuss CCM services with eligible patient initially and for follow-up *POC/EHR update
Medical Assistant	MA	*Manage partial correspondence *Maintain and update POC *POC/EHR update
Office Manager	OM	*Supervise CCM billing to ensure it is in compliance with CMS CCM regulations *POC/EHR update
Pharmacist	PHARM	*CCM team member *Support medication reconciliations *POC/EHR update
Registered Nurse	RN	*Coordinate plan of care with interdisciplinary team *Conduct eligibility for approval of CCM services *POC/EHR update

Appendix C: Key WordsTable 4. Key Words

The table displays search strategy using the category with the related key words. The key words will provide various types of evidence for the CCM model specific to the community clinic.

Concept/Category*	**Key Words****
Care redesign	Proactive Care; Reactive Care; Redesign Care Delivery, Implementation
Chronic Care Management Model	CCM; Chronic Care Model; Chronic Care Management; Chronic Care Management Framework; Coordination Care, Collaboration Care; Cooperative Care; Patient Self-Management; Patient Engagement; 6 Components; Change Management
Chronic Illness	Chronic illness; Chronic disease; Comorbidity
Costs	Healthcare Costs; Expenditures, payment policy
Fee Schedule	Merit Incentive Performance System (MIPS); Fee schedule; Quality Performance;
Foundations	The Robert Wood Johnson Foundation
Information Technology	Registries; Greenway Health; Electronic Health Record; Intergy Registry
National Guidelines	National Guidelines Type II Diabetes Mellitus
Population	Medicare Beneficiaries
Practice	Evidence-Based Practice
Quality care	Quality Improvement; Quality Health Care, Health Care, Health Care Delivery System
Timeframe	1998 through 2017

* Boolean operator “and” used with the concept category.
* Boolean operator “or” used within each category’s key words.