

Evaluation of a Chronic Care Management Program in a Rural Primary Care Clinic

By

Cathy Jo Pimple

University of Kansas School of Nursing

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Jerrihlyn L. McGee, DNP, RN, CNE

Faculty Project Committee Chair

Carol Buller, DNP, APRN, FNP-BC, GNP-BC

Faculty Project Committee Member

Danielle M. Olds, MPH, PhD, RN, CIC

Faculty Project Committee Member

April 15, 2019_____

Date Project Proposal Accepted

The DNP Project committee for Cathy Jo Pimple certifies that this is the approved version of the following DNP Project:

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Jerrihlyn L. McGee, DNP, RN, CNE

Faculty Project Committee Chair

Carol Buller, DNP, APRN, FNP-BC, GNP-BC

Faculty Project Committee Member

Danielle M. Olds, MPH, PhD, RN, CIC

Faculty Project Committee Member

October 4, 2019

Date Project Approved

Abstract

Evidence supports that Chronic Care Management (CCM) is a critical component of primary care that contributes to better outcomes and higher satisfaction for patients and providers.

Unfortunately, the spread of CCM services for Medicare beneficiaries to improve outcomes, lower costs, and compensate providers for care coordination has been found to be low among primary care practices. The purpose of this project was to evaluate the implementation and outcome of a chronic care management program in a rural primary care clinic for sustainability and effectiveness. The project consisted of three aims: (1) evaluate the structure and process of a CCM program in a rural primary care clinic for patients with chronic conditions; (2) evaluate the CCM program sustainability; and (3) evaluate the program effectiveness through quality patient outcomes, resource utilization, and patient and provider satisfaction. The project design was a program evaluation using a single group interrupted time series that provided a process of collecting, analyzing and using data to measure both formative and summative outcomes of a CCM program. The key findings included program sustainability and positive benefits towards patient outcomes and both patient and provider satisfaction. Rural primary care practice settings benefit from the implementation of a CCM program through improved health outcomes and satisfaction. Strategic operational design influences the ease of implementation and sustainability of the program.

Keywords: primary care, CCM, rural, program evaluation

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Evaluation of a Chronic Care Management Program in a Rural Primary Care Clinic

Emergency room visits and hospital admissions are common for patients with advanced illness due to the complexity and symptomology that accompanies chronic conditions. Hospital care may leave patients feeling loss of physical and emotional control along with financial burden resulting in poor quality of life. In addition, they may be troubled with navigating the healthcare system throughout their final trajectory of life (O'Malley et al., 2017). This high-risk population made up of patients with advanced chronic illness has been identified as requiring a greater level of intensity of chronic care management services (Benzo et al., 2013; Reyneirs, et al., 2016). These patients deserve a high level of support toward managing their chronic conditions to improve quality of life and lower health care costs. Today, primary care practices have the opportunity to employ Chronic Care Management (CCM) programs to meet the needs of this population.

Background and Significance

Chronic disease remains a major challenge for health care systems and the Institute of Medicine (IOM) reports that the health needs of patients with chronic illness are large, urgent, and growing (Harris & Wallace, 2012). Health care systems address acute episodic care, rather than provide organized care for people with ongoing chronic conditions (Reynolds et al., 2018). Therefore, people with chronic conditions experience fragmented care between primary and specialty care providers and acute and community based settings (Reynolds et al., 2018).

The U.S. Department of Health & Human Services (2011) recognized care coordination as one of the top National Quality Strategies to improve healthcare quality, outcomes and reduce health care costs for patients with chronic conditions. Since then, numerous interventions have focused on care coordination to address the efficacy of transitional care; however, many have

been found to have mixed outcomes (Agency for Healthcare Research and Quality, 2016; Englander, Michaels, Chan & Kansagara, 2014; Leppin et al., 2014; Lovelace et al., 2016; Naylor, Aiken, Kurtzman, Olds & Hirschman, 2011). Varied program elements, duration, intensity, and target populations may explain the differences in outcomes (Hanson et al., 2018; Le Berre, Maimon, Sourial, Gueriton, & Vedel, 2013). The high-risk population made up of patients with multiple chronic illnesses and disease has been identified as requiring a greater level of intensity of care management services. Benzo et al. (2013) concluded that improving care management services will require matching program service intensity to the individuals' illness trajectory. Reyniers et al. (2016) found to reduce healthcare utilization, structural support for out-of-hospital chronic care was needed.

Recently, many efforts to reform U.S. health care delivery have been made to shift focus on creating a primary care system that improves value through care coordination (Edwards & Landon, 2014). Models of care coordination for patients with multiple chronic conditions have been developed in primary care in an attempt to improve the health of patients with chronic conditions. In January 2015, the Centers for Medicare and Medicaid Services (CMS) made a strong commitment to supporting primary care and recognized CCM as an important component of primary care. CMS introduced a separately billable non-face-to-face CCM service to improve Medicare beneficiaries' access to CCM in primary care (Agarwal, Barnett, Souza, & Landon, 2018; Schurrer, O'Malley, Wilson, McCall, & Jain, 2017). CCM aims to improve health for beneficiaries and create long-term savings to the Medicare program. It includes services to enhance continuity of care, coordination across providers, and development of comprehensive care plan. Historically, providers have not been compensated for these types of activities when performed outside a face-to-face office visit. Primary care clinicians have argued that visit-based

payment undervalues the work they and their teams do for patients between visits (Schurrer, et al., 2017).

Caring for patients with chronic conditions is complex and multifaceted. The disparity in care that is provided and what is necessary is of concern to nurses, as they provide direct care and coordination for this vulnerable population. Nursing efforts in primary care often fall short in promoting the health needs of patients with chronic conditions, while guiding them through a complex system of care. The Institute of Medicine (IOM) reports that nurses must serve as “full partners with physicians and other health professionals in the redesign and reform efforts across the health care system” (IOM, 2011, p. 221). This project demonstrated the significance of practice-focused doctoral education in addressing this existing practice problem. Primary care practices need nursing leadership with enhanced knowledge of health care delivery and outcomes to transition into a care delivery model that supports CCM. A Doctor of Nursing (DNP) prepared nurse leader has the ability to develop and evaluate care delivery approaches that meet current and future needs of patients with chronic conditions. They can also design and implement processes to improve outcomes of practice and systems of care. DNP nurse leaders use technology to analyze data and lead inter-professional teams in the evaluation of complex practice and organizational issues to create and sustain change (Zaccagnini & White, 2017). Improvements in care for these patients are less likely without DNP nurse leaders.

Statement of Problem

In the United States, chronic illnesses such as heart diseases, cancer, diabetes, stroke, and chronic lung disease account for 75% of health care costs (Congressional Research Service, 2010; Institute of Medicine, IOM, 2012). Approximately three out of four Americans aged 65 years or older, have two or more chronic conditions (HHS, 2010). The primary care providers

caring for this population experience burnout (Shanafelt et al., 2012), and lack support to help patients manage multiple chronic conditions in a coordinated and comprehensive manner (Schurrer et al., 2017; Thom et al., 2013). Evidence supports that CCM services are a critical component of primary care that contributes to better outcomes and higher satisfaction for patients and providers (Grady & Gough, 2014; Reynolds et al., 2018; Schulman-Green et al., 2012; Smith et al., 2017; Van Eeghe, Littenberg, & Kessler, 2018). Unfortunately, the diffusion of CCM services made available by CMS to improve outcomes, lower costs, and compensate providers for care coordination, has been found to be low among primary care practices (Schurrer et al., 2017).

The purpose of this project was to evaluate the implementation and outcomes of a CCM program in a rural primary care clinic for sustainability and effectiveness through patient outcomes, resource utilization, and patient and provider satisfaction. The concepts and processes that are a part of CCM include: definition of chronic care population, care management services to meet the needs of the populations, and integrated care team to deliver the needed service. This project applied systems thinking in addressing a practice concern for individuals with advanced chronic illness. Themes embedded throughout the project included rural and population health, integrated healthcare delivery in a primary care setting, and processes and outcomes evaluation of a CCM program.

Project Aims

The project consisted of three aims: (1) evaluate the structure and process of a CCM program in a rural primary care clinic for patients with chronic conditions; (2) evaluate the CCM program sustainability; and (3) evaluate the program effectiveness through quality patient outcomes, resource utilization, and patient and provider satisfaction.

Project Questions

1. Does the CCM program model align with clinic resources in a rural primary care clinic?
2. Is the CCM sustainable (e.g., funding, organizational capacity, adaptation) over time?
3. What effect does a CCM program have on quality patient outcomes?
4. What effect does a CCM program have on patient and provider satisfaction?
5. What effect does a CCM program have on resource utilization?

Definitions of Concepts

The Agency for Healthcare Research and Quality (2015) found three general elements necessary to enhance care management for target populations to include (1) identify populations with modifiable risks; (2) align care management services to the needs of the populations; and (3) identify, prepare, and integrate appropriate personnel to deliver the needed service. As noted, the three concepts and processes of interest for this project are: definition of chronic care population, care management services to meet the needs of the populations, and integrated care team to deliver the needed service.

Chronic Care Population

The population to receive CCM is defined by CMS as Medicare beneficiaries who have multiple, significant chronic conditions. Two or more chronic continuous or episodic health conditions must exist and be expected to last at least 12 months, or until the death of the patient. Chronic conditions must place the patient at significant risk of death, acute exacerbation, decompensation, or functional decline (Department of Health & Human Services, 2016). Existing chronic conditions affect a person's physical, mental, emotional and social well-being and often have a negative influence on the quality of life requiring support of the health care system (Corbin & Strauss, 1985; Grady & Gough, 2014). In enrollment selection for a CCM

program, identification of chronic care populations with modifiable risks factors to participate will have improved health and quality of life (Agency for Healthcare Research & Quality, 2015).

Chronic Care Management Services

CCM is a system of coordinated interventions and communications for populations with conditions in which patient self-care efforts are essential (Faxon et al., 2004). Services improve communication and management of transitions, referrals and follow-up care. Between visits, primary care practices offer regular touch points that help patients think about their health and engage in their treatment plan. A comprehensive care plan to support disease control and health management goals, including physical, mental, cognitive, psychosocial and community services is developed and followed. Alignment of care management to promote supportive, trusting relationships between patients and the health care team is an essential component (Agency for Healthcare Research & Quality, 2015). CCM services aim to provide comprehensive care for patients with chronic conditions to improve quality of care and reduce healthcare costs (Boehmer, Dabrh, Gionfriddo, Erwin, & Montori, 2018).

The Chronic Care Model was developed to overcome the deficiencies that existed in the management of chronic illnesses (Wagner, 1998). The Chronic Care Model consists of six interrelated concepts: the health system, delivery system design, decision support, clinical information systems, self-management support and the community. The model is consistent with patient preferences that encourage self-management (Wagner, 1998). Self-management support is particularly important for patients dealing with chronic conditions (Agency for Healthcare Research & Quality, 2015). Primary care practice redesign based on the Chronic Care Model improves the quality of care and the patients' health outcome, particularly when practice changes

occur across multiple elements of the Chronic Care Model (Agency for Healthcare Research & Quality, 2015).

The Chronic Care Model serves as a framework for the development and implementation of CCM as required by CMS. For primary care providers to separately bill for non-face-to-face CCM services, the health system and community must partner to provide chronic care support. Linkages between the health delivery system and community resources play an important role in the management of chronic illness. Evidence of self-management, decision support, and clinical information interoperability are requisite within the delivery system design. Effective self-management support can help patients cope with living with and treating chronic conditions. Decision support, such as evidence-based protocols, helps to make providers more aware of effective treatment. Lastly, useful information about individuals and populations of patients with chronic conditions is necessary for effective programs.

Integrated Care Team

CCM is a team-based, patient centered approach designed to assist patients and their support systems in managing medical conditions more effectively. Productive interactions are exchanged between informed, activated patients and members of the care team. (Improving Chronic Illness Care, n.d.). Inter-professional collaboration in the context of CCM is a complex and evolving concept. Attributes include, evolving interpersonal processes, shared goals, decision making and care planning; interdependence; and effective communication (Bookey-Bassett, Markle-Reid, Mckey, & Akhtar-Danesh, 2016). A collegial environment which supports reflective practice and a clear message about the importance of chronic disease care is established within a care team (Berwick, James, & Coye, 2003; Davy et al., 2015). CCM is

valued by leadership enabling the implementation and sustainability of services provided by the care team (Agarwal et al., 2018; Berwick et al., 2003; Davy et al., 2015).

Conceptual Framework

Conceptual frameworks are used to connect the important aspects of a project (Moran, Burson, & Conrad, 2017). A Framework for the evaluation of the organizational aspects of the CCM delivery is necessary to understand the impact of the program. Therefore, in order to provide a reliable program evaluation, two theoretical frameworks were used to guide this project. The first framework is the theory of quality assessment developed by Avedis Donabedian (2000). Donabedian's framework provides an evaluation of care delivery outcomes that consists of three concepts: structure, process, and outcome (Appendix A). According to Donabedian, the structure of an organization must be considered when evaluating an outcome. This is necessary to understand the constraints and opportunities in the system. Structural measures include finances, staff, and resources and in some instances, they may be the major determinant of quality provided by the system. The process also needs to be examined to understand the influence on the outcome. Processes are directly related to outcomes and include such factors as utilization and timeliness of care. Outcomes are the changes that occur in patients or populations that are the result of health care. Outcomes include changes in health status, patient behaviors, and satisfaction. Structural, process and outcome measures were used to assess and evaluate the CCM program.

The second framework was The Model of Improvement for the continuous quality assessment and performance improvement. The Model of Improvement uses data to evaluate the effectiveness of the processes and systems when assessing outcomes (Appendix B). The methodology selected supports and facilitates improvement activities based on the Plan-Do-

Study-Act (PDSA) model, developed by Dr. W. Edwards Deming (Brecker Associates, Inc., 2001). PDSA cycles provide a structure for iterative testing of changes to improve quality of systems (Taylor et al., 2014). With this model, changes are made and evaluated in short time frames and changed. Dr. W. Edwards Deming theory supports four elements of quality improvement in healthcare: systems thinking, process variation, theory of knowledge, and psychology (Lighter, 2011). These elements support an organizational culture by removing blame reinforcing the concepts of care management and integrated team, necessary for the delivery of CCM.

In summary, CCM in primary care settings has made advances in care coordination leading to improved patient outcomes; however, the uptake and implementation of the services have remained low. Evaluating structural, process, and outcome measures of a CCM program will assist the primary care clinic in identifying opportunities for the provision of services. Implementing performance improvement through rapid change will assist the primary care clinic in achieving desired outcomes.

Literature Review

CCM represents an entrenched problem in healthcare. A significant problem is the low rate of diffusion into primary care settings, even with the new reimbursement structure made available by CMS (Schurrer et al., 2017). A review of the literature revealed multifactorial challenges to be associated with the implementation of CCM into primary care. These findings focused on organizational culture, staff education, work flow redesign, information system infrastructure, patient engagement, and program development costs. Primary care settings that successfully implemented CCM, improved patient care quality and provider and patient satisfaction (O'Malley, et al., 2017). More research is needed to understand which interventions

and health care delivery designs provide the greatest benefit to patients and providers. The following literature review examines the integration of CCM into primary care settings.

Health System Barriers to Chronic Care Management

The Chronic Care Model was developed in the 1990s as a way of improving outcomes for patients with chronic diseases such as heart disease, hypertension, diabetes, and pulmonary disease by identifying critical components and strategies (Dunn & Conrad, 2018). Six elements make up the Model and include decision support, clinical information systems, self-management support, case management, and delivery system design. The elements of the Chronic Care Model have been studied and findings have been mixed (Baptista et al., 2016; Davy et al., 2015; Holtrop et al., 2016; Solberg et al., 2006). Solberg et al. (2006) suggested that the model is too broad and conceptual to serve as a guide for implementation. Since the development of the Chronic Care Model, physicians have shared that they lack support to help patients manage multiple chronic conditions in a coordinated and comprehensive manner (Shanafelt et al. 2012).

Using elements found in the Chronic Care Model, CMS provided reimbursement in an attempt to support the implementation of CCM services. The adoption of CCM services remains low today at both the beneficiary and practice levels, and even within practices that attempted to provide these services (Agarwal et al., 2018; Schurrer et al., 2017). During the first two years of the CMS program just over 684,000 beneficiaries or less than 3 percent received CCM services. Of these beneficiaries, roughly 19 percent received one month of CCM services; however, the majority of beneficiaries received between four and ten months of CCM services on average (Edwards & Landon, 2014; Schurrer et al., 2017). Physicians billed for \$ 105.8 million in CCM fees during this two-year period of time and on average, managed about 47 patients per month. However, the median number of patients was 10, indicating that the average was skewed by a

small number of physicians delivering CCM services to many beneficiaries (Schurrer et al, 2017). This translated to about \$300 in CCM fees per month for providers furnishing CCM services to 10 beneficiaries (Edwards & Landon, 2014; Schurrer et al., 2017).

Organizational culture. Organizational culture was identified as a barrier to the implementation of CCM services. Leadership and the health care team must support the implementation and sustainability of interventions and care model elements in contributing to the improvement and health outcomes for patients living with chronic disease (Davy et al., 2015; Price-Haywood, Amering, Luo, & Lefante, 2017; Solberg, et al., 2006). Davy (2015) found evidence that leaders played a key role in guiding the development and implementation process. Practices owned by hospital systems and large medical groups were hampered by their bureaucratic system in implementing CCM when in comparison to smaller individual practices (Price-Haywood et al., 2017).

Staff education and workflow redesign. Staff education and workflow design posed difficulties for some primary care practices. To support the delivery of CCM services, practices need to invest substantial resources in hiring and training (Dunn & Conrad, 2018). Workflow redesign is also necessary to implement CCM, and often creates resistance from members of the healthcare team (Dunn & Conrad, 2018; O'Malley et al., 2017). Staff education and workflow redesign are essential to meet program and billing compliance.

Information system infrastructure. To be both compliant and effective in CCM, the primary care setting must have available or develop a robust information system infrastructure. CCM requires an exchange of information between providers, including the care plan (Price-Haywood et al., 2017). Independent providers are faced with challenges in exchanging information to specialty providers using different electronic health records (O'Malley et al.,

2017). Another requirement is the development of a patient-centered comprehensive care plan based on physical, mental, cognitive, psychosocial, functional, and environmental assessments and most ambulatory electronic health records have limited capability for developing and maintaining care plans (Edwards & Landon, 2014; Price-Haywood et al., 2017). Additional documentation is needed to remain compliant with CCM billing, which often was seen as duplicative and burdensome. Lastly, if an electronic health record does not have registry availability, many practices had to use different software to manage enrollment into services (Price-Haywood et al., 2017).

Patient engagement. Obstacles to patient engagement into the program involved distrust of a new program and cost of services. Patients are hesitant to participate in CCM services due to skepticism and belief that services are not needed (O'Malley et al., 2017). In addition, patients are reluctant to pay the 20% Medicare part B coinsurance imparted to them for services (Garwood, Korkis, Mohammad, Lepczyk, & Risko, 2016). Medicare beneficiaries who lack supplemental insurance to cover costs associated with the CCM often decline services. Providers perceived asking patients to pay for services they presumed the practice would provide regardless of compensation to negatively impact their relationships with patients (Garwood et al., 2016).

Program development costs. Leadership support is needed to address the substantial challenges in developing CCM services in primary care settings. While the elements of the CCM make sense in a primary care setting, they are very difficult and expensive to implement. Many primary care practices are not willing or able to make such up front investments. A study of CCM estimated that more than 100 Medicare patients would need to be consistently enrolled to recoup the salary of 1 full time registered nurse (Agarwal et al., 2018). The allowable

reimbursement association may be too low relative to the high cost of effecting and sustaining these services (Agarwal et al., 2018; Dunn & Conrad, 2018).

Health Care Team Model for Chronic Care Management

Health care team management models. Care management in primary care can be effective in helping patient with chronic conditions, although often are challenged on how to implement the care structure (Holtrop et al., 2016). It is vital to develop a model that allows the appropriate staff the time and training necessary to complete care for patients with chronic conditions. Although time and training serve as barriers to the care management model, Joo and Liu (2018) found it facilitates access to healthcare resources, health education, and emotional support for patients. Collaboration and coordination between staff is the mainstay for providing effective CCM (Ahmed et al., 2015). Contributions from each discipline provide a collective work product that improves outcomes. Each member understands the importance of the provision of continuity and quality of care to patients with chronic conditions (Solberg et al., 2006).

O'Malley et. al (2017) describe care management models for CCM services delivery and related staff responsibilities that fall into four categories: care manager-lead model, shared responsibility model, physician centric model and use of a third-party organization. The first staffing model is the care manager-lead model. The care manager, typically a nurse, handles most CCM activities, like enrollment and care plan development and communication with patients between visits. Practices were found to yield a greater patient engagement and cost savings when using a care manager embedded within the practice (Agency for Healthcare Research & Quality, 2015). The second staffing model is the shared responsibility model where both providers and care managers play large roles in CCMs. The provider leads the CCM team

and delegates tasks to care managers or other clinical staff. Care managers conduct many CCM activities but meet frequently with the provider to discuss patients. The third staff model is the physician led model. The provider handles most of the CCM responsibilities. This model was common among solo practitioners, due to the inability to afford a care manager or find a qualified care manager. The final staffing model described by O'Malley (2017) is the third party model. This model provides CCM services under contract and the care team is often located outside of the community or region. Providers who lacked the time to understand the CCM requirements or maintain the documentation required for billing used this model. Often providers ceased to use the vendors because they felt the vendors contributed to fragmented care, created unnecessary paperwork, communicated poorly with the practice and did not improve the quality of care.

Health care team composition. Several factors are considered when determining the composition of the health care team. The level of training and competency and associated cost are two major factors. Registered nurses and pharmacists are capable of managing patients with chronic conditions; however, both disciplines are costly for many primary care practices. Most practices hire additional nursing staff to support CCM services. Nurses as care managers are essential to consistent communication and can often intervene before conditions worsen (Baker & Macaulay, 2013; Summers et al., 2016; Voetsch, Sequeira & Holmes, 2016). Social workers have also been integrated into primary care to assist with CCM. Social workers assist the team with the assessment of patient and family preferences and connecting patients to community resources (Kramer, 2012; Rizzo, et al., 2015). Practices have trained medical assistants and community members to provide CCM services. Medical assistants and community members focus on health coaching (Philis-Tsimikas et al., 2004; Thom et al., 2013; Wagner, Willard-

Grace, Chen, Bodenheimer, & Thom, 2016). Medical assistants are ideally suited to provide linguistically and culturally appropriate coaching (Bennett, Coleman, Parry, Bodenheimer, & Chen, 2010), although lack the knowledge and ability to coordinate care and update the comprehensive plan of care.

Health coach. Many primary care practices often have limited time to provide patient education and self-management skills needed to manage chronic conditions. To add complexity to the matter, often patients have a low health literacy leading to more than half of patients leaving primary care visits not understanding their treatment regimen (Couture, Chouinard, Fortin & Hudon, 2017; Vale et al., 2003). Evidence supports health coaching to be an effective and financially viable intervention for CCM (Bennett et al., 2010; Oksman, Linna, Horhammer, Lammintakanen, & Talja, 2017; Neuner-Jehle, Schmid, & Gruninger, 2013; Philis-Tsimikas et al., 2004; Wagner et al., 2016). Health coaches represent a resource for self-management support in primary care. They assist patients to gain the knowledge and skills necessary to manage their chronic conditions. Coaches are trained in collaborative communication to improve understanding of, and adherence to, mutually agreed upon care plans. They provide health related information and support needed to navigate through the health care system (Bennett et al., 2010; Philis-Tsimikas et al., 2004; Wagner et al., 2016).

Health coaching improves chronically ill patient outcomes. Improved clinical outcomes were found in randomized controlled trials testing the efficacy of health coaching versus usual care to help patients better manage their conditions (Philis-Tsimikas et al., 2004; Thom et al., 2013; Wagner et al., 2016). To date, few insurers provide reimbursement for health coaching, but changes by CMS to allow reimbursement for CCM have opened the door for coverage. The necessary redistribution of work to non-providers is necessary to improve outcomes, although

there is concern that this will not occur because of the increase in expense and without or with limited revenue (Bodenheimer & Smith, 2013).

Chronic Care Management and Health Care Outcomes

CCM implementations were aligned with condition specific outcomes or healthcare utilization (Boehmer et.al., 2018). Consistent reports found that implementation of CCM resulted in improved health outcomes for patients and lowered healthcare costs (Grady, & Gough, 2014; Reynolds et al., 2018; Schulman-Green et al., 2012; Smith et al., 2017; Van Eeghe, Littenberg, & Kessler, 2018). The majority of studies focused on patients with diabetes, cardiovascular disease pulmonary disease (Baky et al., 2017; Baptista et al., 2015; Siminerio et al., 2004). Other studies focused on care provided to patient with chronic conditions more generally (Boehmer et al., 2018; Davy et al., 2015; O'Malley et al., 2017; Oksman et al., 2017; Reynolds et al., 2018; Solberg et al., 2006). Elements and intervention varied significantly within these studies. Few studies shared how the elements or interventions were provided.

Aligned care management services for patients with chronic conditions resulted improved healthcare quality. Attributable process improvements included 1) improved patient self-management, 2) increased coordination and communication, and 3) decreased healthcare utilization. The evaluation of CCM services also suggested a cost savings to the Medicare program when effective care management was employed. The cost savings occurred as a result of decreased utilization of hospital services (Edwards & Landon, 2014; Garwood et al., 2016; Lovelace et al., 2016).

Improved patient self-management. Patients receiving CCM services demonstrated improved self-management leading to better health outcomes (Fried et al., 2008; Fried et al., 2011; Grady & Gough, 2014; Reynolds et al., 2018; Schulman-Green et al., 2012; Van Eeghe et

al., 2018). Under the chronic care model, patient goals and preferences were incorporated into the comprehensive plan of care. By incorporating patient preferences into decision making, adherence to treatment regimens improved (Etkind, Bone, Lovell, Higginson, & Murtagh, 2018; Ferris et al., 2018). Providers found that the refocus from managing individual specific diseases to determining and acting on patients' health goals and care preferences improved outcomes (Fried et al., 2008; Fried et al., 2011).

Increased coordination and communication. CCM provides additional communication and coordination between primary and specialty physicians resulting in improved outcomes for patients (Smith et al., 2017). In addition, care management provided through CCM ensures routine screening and preventative treatments are ordered and completed. Providers' stated that health maintenance with the implementation of CCM was done better, resulting in fewer hospitalizations (Garwood et al., 2016).

Decreases healthcare utilization. The integrated team approach in the delivery of CCM services improved resource utilization by reducing preventable admissions to the emergency department and hospital (Edwards & Landon, 2014; Garwood et al., 2016; Lovelace et al., 2016). Siminerio et al., (2004) found a collaborative multidisciplinary approach to CCM services reduced the number of hospitalizations and emergency room visits, improving the financial impact on health care. CCM assists in the coordination of care transitions and has been found to reduce hospital readmissions (Baky et al., 2017). In addition, Schurrer et al. (2017) reported a calculated gross savings to the Medicare program associated with CCM over the first year of services was \$88 million. CMS paid roughly \$52 million in CCM fees, generating net savings to the program of \$36 million.

Chronic Care Management and Patient and Provider Satisfaction

Patients perceived several positive outcomes from CCM including: improved general satisfaction with services, better understanding of recommended therapies, and increased clinical coordination (Setodji et al., 2017). Patients receiving CCM services gave providers a higher rating on satisfaction surveys. Satisfaction scores demonstrated higher scores in the overall rating of providers, provider communication, follow up on test results, and willingness to recommend the provider (Schurrer et al., 2017; Setodji et al., 2017). Patients appreciate having a dedicated point of contact and someone to assist with questions or concerns about their conditions or medications. Comments from recipients included feeling “special” and well cared for while receiving CCM services (Schurrer et al., 2017).

Providers noted many encouraging outcomes as a result of CCM including: additional staff, improved coordination between visits, and increased patient focused time during face-to-face visit. CCM provided additional reimbursement which enabled the clinics to hire staff to provide pre and post visit coordination through phone calls. The additional phone contact improved coordination of care by enabling increased communication with both specialists and patients (Edwards & Landon, 2014; Garwood et al., 2016.) Providers also reported that through CCM, they were able to provide support and assistance in establishing home and community-based services for patients (Smith et al., 2017). The care offered in between office visits allowed providers to focus on the patient during the visit rather than time planning and coordinating care (Schurrer et al., 2017; Smith et al., 2017). Lastly, with the implementation of CCM, physicians became more involved in evaluating quality data and the improvement process, impacting patient outcomes (Garwood et al., 2016; Siminerio, Zgibor, & Solano, 2004).

Considering the importance and benefits of providing CCM, it is time we looked at why the transition to adopt CCM in primary care is low. We need to understand how to develop and evaluate a care delivery approach that meets the needs of patients with chronic conditions. CMS outlines program conditions for payment, although they are insufficient for developing a care delivery that is patient-centered. In several reports, these conditions limit some primary care settings in redesigning care (Davy et al., 2015; Ferris et al., 2018; Garwood et al., 2016). In addition, it is important that future evaluations look at outcomes that not only measure disease-specific metrics and utilization, but also patient-centered outcomes such as functional status and quality of life.

Project Methods

Design

This quality improvement (QI) project evaluated a CCM program in a rural primary care clinic. The project design was a program evaluation using a single group interrupted time series that provided a process of collecting, analyzing and using data to measure both formative and summative outcomes of a CCM program. Patton (2008) notes that program evaluation is the systematic collection of information about the activities and results of programs to make judgement. This program evaluation involved assessment of program performance and effectiveness. The motivation involved in conducting this program evaluation was to demonstrate the benefits and determine the program's quality and sustainability. Evaluation findings were used to make decisions about program implementation and to improve overall program effectiveness.

Multiple baselines observations were captured using quantitative and qualitative data throughout the implementation phases of the program. Formative evaluation was conducted

throughout the early stages of program implementation and results of each evaluation were used to revise or modify the program. Formative measures included: 1) focus groups of clinicians to generate knowledge of structure and process of CCM services and 2) document review of patient care records and care team meeting minutes to evaluate quality patient outcomes, resource utilization, and patient and provider satisfaction. Summative evaluation was completed at the end of the project to determine the impact and whether the program met its desired outcomes. Summative evaluation included: 1) program feasibility with established health care team model, 2) effect of the CCM program on quality patient outcomes, 3) CCM program effect on patient and provider satisfaction, and 4) effect on resource utilization.

Setting

The setting for this project was Newman Regional Health Medical Partners (NRHMP), a rural health clinic that provides health care services to the residents of Lyon, Coffey, Chase, Morris, and Greenwood Counties in Kansas. In 2018, the practice provided 12,180 visits for Medicare beneficiaries. Transitional Care Management (TCM) services as defined by the U.S. Department of Health and Human Services (2016) are well established within the rural health clinic. However, the TCM services provided by NRHMP do not meet the intensity of services needed for this population.

NRHMP is comprised of four primary care physicians and two nurse practitioners serving the population of interest. The initial implementation of CCM services was delivered to patients from one family practice provider in the clinic. A four-member health care team was comprised initially of the physician, primary care nurse, social worker, and registered nurse care manager. The practice used MEDITECH, an electronic health record to manage and document care. It developed a chronic care registry to identify the population of interest, manage CCM enrollment,

and track encounter history and diagnostic results. The team implemented CCM services using the care manager model. The care manager was a BSN prepared registered nurse and addressed most of the CCM activities, like enrollment, care plan development, and communication with providers and patients. The physician was consulted for predetermined occurrences, for example to sign off after the care plan had been created, or to address exacerbations of a patient's condition between visits. The team committed themselves to the integration of CCM services and met monthly to address patient care with a focus on the illness trajectory and a comprehensive plan of care.

The sustainability of the implementation of CCM program was addressed using the Program Sustainability Assessment Tool (PSAT). Implementation of CCM services gained organizational and community support. Administration and the Board of Trustees demonstrated understanding and support of the program in meeting patient care needs within the community. Primary care providers were engaged and interested in implementing CCM services to better provide for their patients. The Newman Regional Health (NRH) Hospital and NRHMP Clinic have an integrated electronic medical record enhancing the continuity of care and communication. Program effectiveness was evaluated and changes made based on process and outcome data. Beyond development of the CCM program, little financial resources were needed to maintain the program. Program evaluation metrics were presented to key stakeholders including the health care team, Administration, and the NRH Board of Trustees.

Sample (Population of Interest)

All patients ages sixty-five and older with two or more chronic medical conditions and who met the inclusion criteria as defined by CMS were considered for enrollment into the CCM program. Patients with two or more chronic conditions consisting of diabetes, hypertension,

coronary artery disease, congestive heart failure, and chronic obstructive pulmonary disease were given additional consideration. Exclusion criteria included patients enrolled in hospice, home health services or who resided in a nursing facility. Criteria used for patients following hospital care included the LACE index, a tool for measurement of readmission risk stratification (Low et al., 2015). The nurse case manager screened patients for enrollment who were scheduled the following month for a face-to-face visit with the provider beginning, May 1, 2019. Program evaluation included patients who were enrolled through August 30, 2019. A description of the program was provided, and participation was based on voluntary election.

Data Collection

Both qualitative and quantitative data were collected to ensure all aspects of the program were evaluated. Time frames for collection of information began with the enrollment of patients into the CCM program and over the next 4 months. The practice's electronic health record provided structural, process and outcome data. The chronic care registry identified the population of interest into the CCM program based on risk stratified criteria in the electronic health record. The registry provided structural data related to population demographics, status of program enrollment, chronic conditions and visit history for patients enrolled in the program. In addition, the registry provided selected patient health outcome data such as glycosylated hemoglobin levels and blood pressure values.

Patient outcome data was available through the documentation templates. The Edmonton Symptom Assess Scale (ESAS) was built within the documentation templates and used to assess symptoms as a measure of quality of life. The ESAS is a 10-item patient-rated symptom visual analogue scale developed for use in symptom assessment of palliative care patients (Chang, Hwang, & Feuerman, 2000). Chang et. al. (2000) found the ESAS individual item and summary

scores to have internal consistency and correlation with corresponding measures from the Functional Assessment of Cancer Therapy (FACT) and the Memorial Symptom Assessment Scale (MSAS) instruments. Additional outcome measures included in the documentation templates included functional assessment data and personal health goal attainment.

The healthcare team participated in pre/post implementation focus groups. Semi-structured interviews to assess the practice's internal environment (climate and infrastructure) and changes in workflow processes (identifying and treating patients) were completed. A Pre/post project assessment using the Assessment of Chronic Illness Care (ACIC) questionnaire was collected to evaluate basic elements for chronic care at the practice level (Improving Chronic Illness Care, n.d.). The questionnaire is designed to help systems and provider practices move toward a best practice in managing chronic conditions. Additional data were added to observation field notes collected during team meetings. Patient satisfaction data were obtained by the organization through phone interviews.

Data collection included healthcare utilization patterns, healthcare costs per beneficiary, and CCM program reimbursement. This data was compiled through *Business and Clinical Analytics*, a web-based data solution that overlaid the system, allowing financial, and operational data to be used for decision making. The evaluation of healthcare utilization, and costs spanned for 12 months prior to CCM enrollment and through the end of the project. CCM expense and revenue data were collected each month.

Data Analysis

Descriptive statistics were used for data analysis to describe the pre and post intervention comparisons across time periods. Qualitative analysis was also used, subjecting the data to a constant comparative analysis, data were collected through field notes, comments made during

team meetings, and interviews of providers and patients. Upon implementation of the project, the team met on a monthly basis to ensure the project was going as planned, and to review structural and process measures. Formative evaluation of the CCM program included the following measures: 1) number of enrollees and billable CCM services, 2) changes to internal environment, 3) changes in policies and procedures to direct clinical and financial operations, 4) changes in internal support and resources, and 5) adaptability. Ongoing evaluation of the project was documented using quality improvement model, Plan-Do-Study-Act (PDSA). Summative evaluation of the CCM program included the following measures: 1) service line analysis, 2) changes in Edmonton Symptom Assessment Scale (ESAS), 3) changes in selected biophysical metrics (e.g., HbA1c; Blood pressure), 4) changes in functional status, 5) attainment of personal health goals, 6) patient and provider satisfaction, 7) healthcare utilization of hospital services, and 8) Medicare spending per beneficiary.

Organizational Approval

Newman Regional Health provided authorization for completion of the project (Appendix C). Hospital and Clinic Administration demonstrated confidence the project would contribute to the implementation of CCM and offer an increased understanding of program outcomes and future sustainability. The decision to implement a CCM program aligned with strategic goals of the practice transformation. In 2016, NRHMP partnered with the Compass Practice Transformation Network (PTN) led by the Kansas Healthcare Collaborative. The partnership engaged to improve care, increase satisfaction, and prepare for new payment models. A SWOT analysis was conducted and goals were established. NRHMP and PTN staff developed a work plan to meet practice aims. Implementation of a CCM program was determined based on the

following primary and secondary drivers: 1) patient engagement, 2) population management, 3) team-based relationships, and 4) coordinated care delivery.

Human Subjects Protection

The CCM program was implemented by Newman Regional Health Medical Partners and this project served as a program evaluation to provide feedback to stakeholders. Given the nature of this project, confidentiality and protections of patient rights do not apply. To fully evaluate risks, an application was submitted to the University Kansas Medical Center Human Subjects Committee and approved with Quality Improvement designation.

Timeline

The following table illustrated the timeline for the project.

Table 1

Timeline for Evaluation of Chronic Care Management

	May	June	July	Aug
Enrollment of Patients into Program				
Team Meetings				
Health Care Team Interviews				
Patient Interviews				
Document Review				
Formative Evaluation				
Summative Evaluation				

Results

The structure and process of the CCM program were evaluated during the initial enrollment of patients into services and throughout the following four months. During this period of time a total of twenty-two patients were referred for services and twenty patients were enrolled into the program. Two patients declined enrollment into the CCM program. Chronic conditions of patients enrolled into the program varied, although cardiovascular disease was present in 100% and diabetes was present in 60% of enrollees. Ages of enrollees ranged from 67 – 86 years of age. A total of forty-one billable services occurred with a median time spent of forty-eight minutes with each billable unit. The Chronic Care Registry in MEDITECH was used to report patient demographics, eligible chronic conditions, enrollment, and billable services.

Structure and Process Evaluation

To evaluate the CCM program model alignment with clinic resources in a rural primary care clinic, observations were completed during monthly team meetings. Structural (e.g., internal environment) and process measures (e.g., workflow) were evaluated through dialogue exchange between the healthcare members. Team meetings were composed of the primary care physician, primary clinic nurse, CCM nurse care manager, CCM social worker, and administration. The standing agenda for the care team meetings consisted of the following: communication and collaboration between team, patient care concerns and care planning, select formative measures, and existing barriers and opportunities. Physical structure location and resources, clinical and financial operations, and technology capabilities were evaluated ongoing throughout the project.

The physical location of the CCM care team was not co-located in the family practice clinic per design and no recommendation for change was made. The CCM care manager

provided initial communication with the patient in the clinic setting and coordinated care in an office within the administrative space. The care team determined the most effective physical location for completion of the comprehensive assessment and care plan to be the patient's home. The patient's home environment aligns care that "promotes a supportive, trusting relationship." This change in structure and workflow increased time and resources needed for the program. To accommodate the change, administration increased the nurse care manager position from part time to full time.

The CCM program was implemented using a care manager centric model. The care manager, a nurse, handled most CCM activities, like enrollment and care plan development and communication with patients between visits. Early during implementation, the care manager and team determined the need for a social worker to participate in the initial comprehensive assessment and care planning. Patients were found to have a high need for community resource engagement and financial assistance in order to effectively self-manage their health and well-being. Over 60% of patients were connected with community resources such as homecare-based services, volunteer services, durable medical equipment and food sources (e.g., food pantry or Meals on Wheels). To assist with therapeutic medication regimens, 20% of patients were established in the 340b, a federal drug discount program and 30% of patients were connected to pharmacist services locally to assist with medication management.

Decisions to adapt clinical and financial processes were made during team meetings to meet the operational needs of the program. The method of communication between the team members was redesigned to increase efficiency. CCM team members were added to the messaging and task system within the electronic health record. Messaging became the preferred method of communication between the care team. In addition to patient care communication, a

clinical workflow design was created to manage efficiently both community-based service referrals and durable medical equipment. Lastly, a clinical process for calls coming into the dedicate CCM phone line and not the primary nurse's phone line was identified as needing further understanding and monitoring. The physician and nurse were concerned about not all patient phone calls coming directly to the primary nurse's phone line. The workflow process was not altered, although this was an opportunity for team building and the development of trust. As the CCM nurse became an active member of the primary care team, acceptance of realignment of responsibility was achieved. Financial processes were redesigned throughout the project. An ad hoc committee was formed with the nurse care manager, ambulatory system analyst, ambulatory coder and patient account supervisor. The type of account changed from a clinical account to a reoccurring account within the Ambulatory MEDITECH application. In addition, the CPT code workflow changed from a manual entry into the Revenue Cycle MEDITECH application to an automated process with the charge being applied to the documentation template.

The capability of technology was found to provide the infrastructure necessary to comply with regulatory conditions and support both the clinical and financial operations of the program. MEDITECH provided an exchange of information between providers and the patient, including the comprehensive care plan. Within the Ambulatory MEDITECH application, documentation templates supported the development of a patient-centered comprehensive care plan based on physical, mental, cognitive, psychosocial, functional, and environmental assessments. Lastly, the CCM registry was determined to adequately manage enrollment.

Program Sustainability

To evaluate if the CCM program was sustainable over time, funding and organizational capacity was assessed. Program development costs were offset by a Quality in Action Grant for \$16,000 funded by the Iowa Compass. Initial enrollment into the program was intentionally conservative to allow for adaptation of both clinical and financial workflows. Upon the completion of the 4-month project, 20 patients were enrolled in the program with 8 more identified and scheduled for clinic visits prior to end of month for a total of 28 potential patients. Upon the completion of the project, the CCM program was introduced to another physician and primary nurse within the primary care clinic. The primary care clinic plans to include all providers and their patients into the program within the next 6 months. The projections for the 2020 budget represent 120 Medicare enrollees resulting in a net revenue of \$92,160. Operating expenses are projected to be \$68,900. An outside funding source from the community has committed to providing resources to support the operations of the program. At the conclusion of the project, limited internal and no external marketing had been implemented.

Administration and the health care team demonstrated engagement in the program and adaptability around workflows. The healthcare team participated in a pre/post assessment using the Assessment of Chronic Illness Care (ACIC) questionnaire to evaluate the basic elements for the delivery of chronic care at the practice level (Improving Chronic Illness Care, n.d.). The ACIC is organized such that the highest “score” (an “11”) on any individual item, subscale, or the overall score (an average of the six ACIC subscale scores) indicated optimal support for chronic illness. Prior to the implementation of CCM, the team completed the questionnaire with a rating of “2” (limited support for chronic illness care). After 4 months of implementing CCM, the health care team rated their performance at a “6” (reasonably good support for chronic illness

care). Through the collaborative efforts in providing CCM, the healthcare team became more aware of the resources and care provisions needed to care for this population.

Program Effectiveness

To evaluate program effectiveness, defined quality outcomes were measured throughout the project. Evaluation included health outcomes, resource utilization, and patient and provider satisfaction. Collectively, a variety of health measures were reported: symptom assessment; biometric results; and personal health goal attainment. Among these measures, the end point for assessment of the interventions' effect ranged from one month to 4 months (mean 2.1 months). Among the patients evaluated for symptom management, all but one reported positive findings in at least one or more category. Due to the limited time for evaluation, no outcomes for biometric measures were determined. Although no outcomes measures can be accounted for, the care manager established goals for consistent monitoring and 100% of patients documented blood glucose results per individual plan of care. Because 30% of diabetic patients enrolled into the program had a glycosylated hemoglobin level above 7, reliable monitoring was necessary in improving health goals. Similar results for monitoring occurred in the cardiovascular patients, with 92% documenting blood pressure readings per individual plan of care.

Personal health goals were established with all patients enrolled into the program. Personal goals varied per individual, although there was similarity in goal types such as: increase activity; improve nutritional intake; improve bowel function; and improve sleep. Over 30% of patients met personal health goals within 1-2 months. In addition to self-management coaching, referrals to therapies, and durable medical equipment facilitated goal attainment. For example, in developing a patient-centered comprehensive plan of care, the care manager facilitated the replacement of a patient's CPAP machine that had never been returned upon hospitalization and

discharge from a tertiary center several months prior. The patient had complained of fatigue and not “sleeping well”. Another patient stated she was having frequent diarrhea and “feared” leaving her apartment. The care manager consulted the primary care physician and the hospital dietician to make over the counter recommendations and nutritional changes. Both of these patients met personal health goals established.

To evaluate the effect of the program on patient and provider satisfaction, semi-structured interviews were conducted. Patient and provider interviews were conducted in August and revealed an increase in satisfaction within the following areas: care coordination and support of health care needs. A scripted introduction of the program followed by general questions about the care manager centric model and social worker contribution, workflow design upon introduction to the program, team communication, and overall satisfaction. The patients and providers were asked to tell their story and clarification was sought as necessary. The interviews were transcribed, and accuracy checked.

Patients commented, “she helped me get in to see my cardiologist and straighten out my medications” and “I appreciate having someone to talk to.” Two of the patients addressed the impact of setting health goals, “I liked sharing my goals with the nurse” and “they listened to what I need.” Patients perceived better outcomes such as better understanding and feeling supported. The time limitation of being enrolled into the CCM program was a barrier to understanding the patient experience. Many of the patients had been enrolled into the programs for 2 months or less.

The physician and primary care nurse acknowledged improved outcomes such as additional staff to assist with complex care, support in addressing psychosocial needs, and coordination of community-based services. “It is difficult to find time to address multiple needs

in the clinic.” The physician shared appreciation of established patient goals and preferences incorporated into the comprehensive plan of care. All members of the care team shared perceived value of the monthly team meetings to collaborate on complex care issues.

To evaluate the effect of the program on resource utilization, utilization patterns and health care costs per beneficiary were compared. The program aimed to reduce preventable admissions to the emergency department and hospital. Preliminary evaluation of the program demonstrated a reduction in hospital utilization. Data was abstracted from *Business and Clinical Analytics*, a software program that overlaid the electronic health record. Account types and cost were abstracted from 12 months prior to enrollment in CCM for all patients and compared to account types and cost post enrollment. Outpatient services, inclusive of emergency room and observation care, cost per beneficiary demonstrated a 24% reduction post-enrollment into the CCM program. Inpatient services demonstrated a 50% reduction in cost post-enrollment into the CCM program. This reduction was influenced largely by one patient in the year prior to receiving CCM services who had multiple inpatient admissions. Overall, the multidisciplinary approach to CCM services demonstrated a preliminary improvement on the financial impact on health care.

Discussion

Evidence supports that CCM is a critical component of primary care that contributes to better outcomes and higher satisfaction for patients and providers. Unfortunately, the diffusion of CCM services for Medicare beneficiaries to improve outcomes has been found to be low among primary care practices (Schurrer et al., 2017). The purpose of this project was to evaluate the implementation and outcomes of a CCM program in a rural primary care clinic for

sustainability and effectiveness through patient outcomes, resource utilization, and patient and provider satisfaction.

The structure of the organization was considered in outcome evaluation. This helped to understand the constraints and opportunities in the system such as physical environment, resources, and finances. Team meetings and semi-structured interviews of providers and patients generated knowledge of structure and process of CCM services. Patient care documentation, team meetings, and semi-structured interviews of providers and patients provided an evaluation of patient outcomes, resource utilization and patient and provider satisfaction. Formative evaluation findings were used to make decisions about program implementation and improve overall program effectiveness.

In summary, the provider and practice staff perceived CCM as having benefits for patients and providers. The program supported greater adherence to treatment and coordination of care. The dedicated care manager was able to develop a comprehensive plan of care that included self-directed patient goals. Achievement or progress toward personal health goals was found in the majority of patients. Consent and enrollment into the program demonstrated overall success with the involvement of the primary physician and the CCM care manager. Timeliness of care following initial consultation drove positive outcomes for providers and patients.

Several factors led to the ease and success of the program. Barriers to successful implementation found in the literature were reviewed and addressed prior to the implementation of the CCM program. Workflow design included a care manager solely dedicated to CCM and inclusion of both the physician and care manager in consent obtainment. An information system infrastructure was built and tested in the electronic health system that supported enrollment management, clinical workflow, and billing compliance. Patient engagement strategies were

determined such as an initial in-home visit and social work involvement in the program. Time was spent prior to CCM implementation ensuring the physician and primary nurse understood the objectives and services within the program. Clinical workflow design was developed with the assistance of the primary nurse and physician. In addition, the CCM care manager had formal training as a health coach prior to hiring and was able to lead staff training on motivational interviewing and CCM best practices. Initial program design, communication, and testing were critical to successful implementation of CCM.

Process was also examined to understand the influence on the outcomes. The Model of Improvement provided a framework to use data to evaluate the effectiveness of the process and systems. The Plan-Do-Study-Act (PDSA) model provided structure for iterative testing of changes to improve quality. Barriers were identified during the implementation and improvement was obtained and sustained through iterative PDSA cycles.

Encouraging key findings included the high level of physician engagement in team meeting participation and determining eligible beneficiaries. During the August team meeting the physician arrived having already reviewed and identified patients scheduled the next month. He demonstrated an understanding of targeting patients with modifiable risks and alignment of care management services. Both the physician and primary nurse shared satisfaction in having additional support to care for complex patients. Over 90% of patients voluntarily consented to receiving CCM services. Collaboration and coordination by the health care team contributed to the high acceptance rate. In addition, “physician explanation” supported patient enrollment into the program.

One of the most surprising findings of this project was the interest of CCM shared by other providers in the primary practice clinic. Prior to the conclusion of this project, 3 providers

inquired about the program and requested to participate earlier than the projected timeline. A hospital pharmacist also asked to participate in the CCM program. A plausible explanation for this finding includes the increase in published literature on CCM services and provider engagement following shared experiences following implementation. Primary care providers experience burnout (Shanafelt et al., 2012), and lack support to help patients manage multiple chronic conditions in a coordinated and comprehensive manner (Schurrer et al., 2017; Thom et al., 2013). The provider interest supports earlier findings that CCM services are a critical component of primary care that contributes to higher satisfaction for providers.

The evaluation of resource utilization preliminarily demonstrated decreased utilization of hospital services, although the length of time patients were enrolled in CCM was limited; therefore, no conclusion can be drawn. CCM aims to improve health for beneficiaries and provide term savings to the Medicare program through improved continuity of care and comprehensive care plans. The program evaluation demonstrated improved continuity of care and development of comprehensive care planning, although not enough time elapsed to understand the financial impact.

Implications

This program evaluation supports findings from other existing primary care practices providing CCM services. Findings of improved quality and patient and provider satisfaction were similar between this program and results of program evaluation from O'Malley et. al., (2017). Although the diffusion of CCM services is low and documented barriers are well established in the literature, results from this evaluation suggest a well-designed program produces overall positive outcomes. Evaluative findings from this project conclude that rural primary practice settings ought to design and implement CCM to improve health outcomes and

provider satisfaction. Implications for practice include the need for continued collaboration with health information systems in the further development and functionality to provide and support CCM services. In addition, workflow protocols and education are needed to support practices in implementing CCM. Policymakers need to engage payers in the coverage of care management for patients with chronic conditions. Quality metrics need to be standardized and benchmarked for the provision of services. Lastly, further research on the impact of CCM should also be conducted to better understand the impact on quality outcomes and cost over time.

Limitations

Limitations of the program evaluation include the length of time CCM services were evaluated. In addition, only one physician practice was engaged during the evaluation period; as additional providers enroll patients into CCM services, clinical operations will be influenced by both volume and needs of varying providers in the practice. Evaluation of healthcare utilization was limited based on the length of project implementation. Patient satisfaction results were also limited based on the number of months they had received services.

Conclusion

The disparity in care for patients with chronic multifaceted needs is of concern to physicians and nurses, who provide direct care and coordination for this vulnerable population. This project evaluated the health care delivery and outcomes through the implementation of a delivery model that supported CCM. The design of the CCM program enhanced communication and coordinated care among health care professionals through collaborative efforts among the healthcare team. A collegial environment supported reflective practice and a clear message about the importance of chronic disease management (Berwick, James, & Coye, 2003; Davy et al., 2015). The program demonstrated effectiveness and sustainability, improving quality

outcomes. Patients deserve a high level of support toward managing their chronic conditions to improve quality of life and lower health care costs. Today, primary care practices have the opportunity to employ CCM programs to meet the needs of this population.

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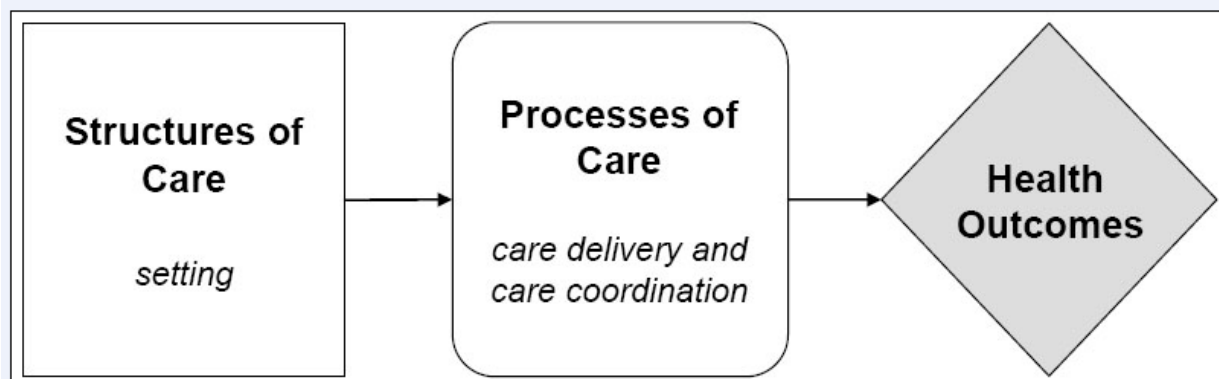
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Appendix A

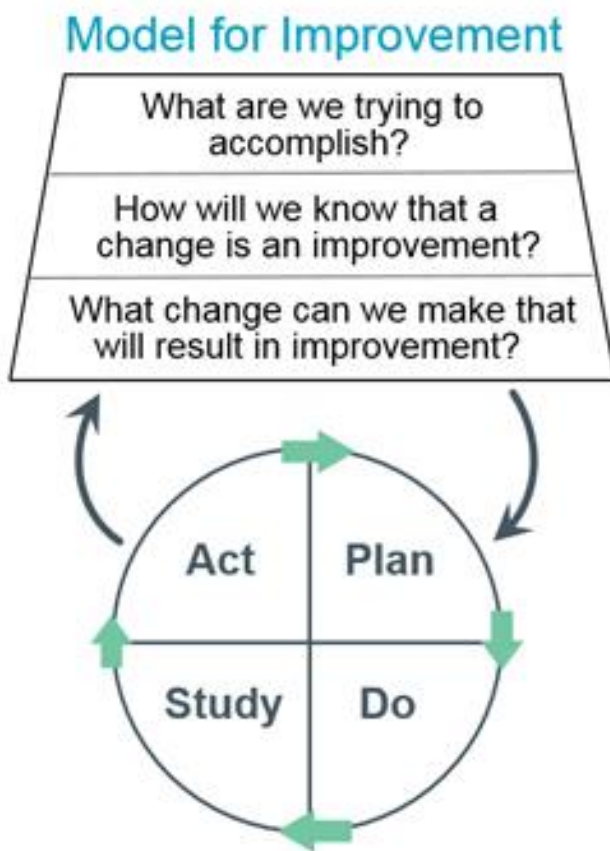
Conceptual Model

Donabedian Conceptual Model



Appendix B

Conceptual Framework



Appendix C

Organizational Approval



NEWMAN
REGIONAL HEALTH

February 21, 2019

University of Kansas School of Nursing
Mail Stop 2029
3901 Rainbow Blvd.
Kansas City, KS 66160

Graduate Faculty of the University of Kansas,

This letter will serve as authorization for Cathy Pimple to complete the project entitled "Evaluation of a Chronic Care Management Program in a Rural Primary Care Clinic" within our provider-based rural health clinic. We believe Chronic Care Management (CCM) will improve patient education and satisfaction for our Medicare beneficiaries. In addition, this program will allow for additional revenue by documenting care our providers already provide. Our providers are engaged and support the potential of lessening the burden of caring for patients with chronic conditions by allowing care management staff to handle non-face-to-face coordination.

With any new service line, program evaluation is essential for both operational improvement and sustainability. After reviewing the project purpose and aims, I believe this project will contribute to the implementation of CCM and provide a summative evaluation for key stakeholders including the health care team, administration, and the board of trustees. Ms. Pimple has been granted permission to begin working upon approval from the University of Kansas and throughout the completion of the project.

We are glad to offer the opportunity to conduct the project in our organization and look forward to working on this exciting endeavor.

Sincerely,

Robert N. Wright, CEO