

A QUALITY-IMPROVEMENT PROJECT ON THE  
IMPLEMENTATION OF HEALTH COACHING FOR  
HYPERTENSION CONTROL IN PRIMARY CARE

by

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## ABSTRACT

Hypertension is a major contributing factor to cardiovascular disease and stroke (Center for Disease Control and Prevention [CDC], 2021). The prevalence of hypertension in the United States is high and increasing in Montana. Although hypertension is a condition that can be diagnosed and treated easily in primary care settings, a large proportion of individuals live with undiagnosed and uncontrolled hypertension in the United States and in Montana. Given the health disparities among underserved rural populations, there was a need to develop accessible and low-cost improvement efforts (Sharma et al., 2016) in primary healthcare settings in rural Montana. The aim of this quality-improvement project was to implement health coaching, a promising evidence-based improvement strategy to prevent uncontrolled hypertension in a rural primary care clinic in North Central Montana. Health coaching has demonstrated significant improvement in outcomes in patients with chronic disease conditions such as hypertension (Finn & Watson, 2017; Sharma et al., 2016; Singh, 2021). The project helped to create a patient centered, efficient, adoptable, and sustainable improvement effort that supported self-management of hypertension. Health coaching was implemented in this project through members of the healthcare team, such as registered nurses and medical assistants, by four 30-minute visits including face-to-face and telephone calls for a period of 5 weeks. The Donabedian's structure, process, and outcome framework guided the design of the project and measurement of project outcomes. The outcome of the project demonstrated improvement in blood pressure to less than 140/90 mm Hg following 5 weeks of health coaching. This project was implemented in the clinic as a pilot program with the support of healthcare professionals and administrators from multiple levels. Future recommendations for practice were developed from this project to help inform and support sustainability of future health-coaching interventions on a larger-scale basis in rural settings.



## CHAPTER ONE

## INTRODUCTION

Hypertension is a major contributing factor to cardiovascular disease and stroke (Centers for Disease Control and Prevention [CDC], 2021). Cardiovascular disease is the leading cause of death in the United States and in Montana (CDC, 2021). Hypertension is a modifiable risk factor to cardiovascular disease with significant impact on mortality and morbidity in the United States and worldwide (CDC, 2021). According to World Health Organization (WHO, 2021), there was a significant increase in the number of adults aged 30–79 years with hypertension from 650 million to 1.28 billion in the world over the past 30 years. About 580 million people in the world, which includes 41% of women and 51% of men, remain undiagnosed of their high blood pressure (WHO, 2021). In the United States, only one in four adults with hypertension have their blood pressure under control and about 37 million (45%) adults with uncontrolled hypertension have a blood pressure of 140/90 mm Hg or higher (CDC, 2021). About two out of three adults (19 million people) recommended to take hypertensive medications have blood pressure 140/90 mm Hg or higher (CDC, 2021). The cost associated with hypertension in the United States averaged \$131 billion each year from 2003 to 2014 (CDC, 2021). According to CDC (2021), the economic burden of hypertension to the nation is \$48.6 billion each year. The direct healthcare costs associated with hypertension is projected to have a huge increase by 2035, which could reach up to \$220.9 billion (United Health Foundation, 2020).

The prevalence of hypertension in the United States varies by several factors such as sex, race, and geography (CDC, 2021). Men and ethnic minorities of non-Hispanic African

Americans have higher rates of high blood pressure although geographic variations exist across the United States. The prevalence of hypertension among adults in Montana who are 18 years and older ranges from 18% to 36% with insufficient data from some regions between 2013 to 2017, when the national prevalence rate was at 32.3% (CDC, 2020). The CDC (2020) reported that five of the seven American Indian reservations in Montana have the highest hypertension prevalence rates in Montana. According to the America's Health Rankings 2020 Annual Report, the percentage of adults with hypertension in Montana in 2019 was reported to be 29.5% compared to the national average of 32.5%.

The prevalence rate of hypertension in North Central Montana ranged from 32.4% to 36% from 2013 to 2017, according to CDC (2020). The Behavioral Risk Factor Surveillance System reported that, out of the 85% of adults aged 45 years and older taking medications for high blood pressure, about half of them did not have their blood pressure well managed (Montana Department of Health and Human Services [MTDHHS], 2015). Although hypertension is a condition that can be diagnosed and treated easily in primary care settings, a large proportion of individuals live with undiagnosed and uncontrolled hypertension in the United States. The Healthy People 2030 aims to increase the proportion of adults whose blood pressure is under control (United States Department of Health and Human Services [USDHHS], 2020). Given the rising prevalence of uncontrolled (and undiagnosed) hypertension in the United States and Montana, there is an urgent need to achieve this goal.

Underserved rural populations, including low-income and racial minorities, are disproportionately affected by the burden of uncontrolled hypertension. Although various clinical trials have demonstrated the efficacy of antihypertensive treatment, minorities and low-income

populations are poorly represented in the clinical trials and, therefore, are not benefitted from the research (Mills et al., 2020). Given the health disparities among underserved populations, accessible and low-cost improvement efforts (Sharma et al., 2016) to manage uncontrolled hypertension need to be developed especially in primary healthcare settings in rural Montana.

Several barriers to hypertension control exist at the levels of patient, provider, and system (Mills et al., 2020). Patient-level barriers included poor medication adherence, lack of knowledge of hypertension, poor health literacy, lack of motivation, medication costs, and medication side effects (Mills et al., 2020). Provider-level barriers include nonadherence to treatment guidelines, inconsistencies in home and clinic blood pressure measurements, and lack of time for health coaching (Mills et al., 2020). Systems-level barriers include poor access to primary healthcare, lack of continuity of care, lack of reimbursement for health counseling, medication costs, and lack of a clinical decision support system (Mills et al., 2020).

### Setting

The aim of this quality-improvement project was to implement health coaching, an evidence-based strategy to prevent uncontrolled hypertension in a rural primary care clinic in the North Central Montana region. The clinic is part of the hospital in the region that serves a population of over 16,000 people (United States Census Bureau, 2020). There is a high number of patients with uncontrolled, undiagnosed hypertension (S. Manager, personal communication, September 21, 2021). Over 5000 patients 18 and older had a blood pressure over 140/90 mm Hg at two clinic visits, yet did not have a diagnosis of hypertension (S. Manager, personal communication, September 21, 2021). The clinic implemented two programs within the last 3

years to manage uncontrolled hypertension: Self-Measured Blood Pressure (SMBP) Monitoring Program and electronic clinical quality measures (eCQMs). In the SMBP program, patients were contacted to measure home blood pressure readings for 7 days, and the average blood pressure readings were used to determine undiagnosed hypertension (S. Manager, personal communication, September 21, 2021). The eCQMs from the Centers for Medicare and Medicaid Services (CMS) were used to extract data from the electronic health records (EHR) and to measure the quality of care provided at the clinic. After the implementation of these programs, the improvement in hypertension control at the clinic over the last 5 years increased from 49% to 62%, but did not achieve the 80% goal (S. Manager, personal communication, September 21, 2021). Previous programs implemented at the clinic focused only on monitoring uncontrolled and undiagnosed hypertension and lacked measures to improve uncontrolled hypertension. Due to lack of effective blood pressure improvement strategies, the clinic was unable to achieve the goal of 80% improvement in blood pressure control.

Given the rising prevalence of hypertension in the North Central Region of Montana, there is an urgent need to develop improvement efforts to reduce uncontrolled hypertension. The county in North Central Montana has close borders to Canada. The county is composed of unique ethnic and population groups including Caucasians, Native American reservations, Hutterite colonies, etc. (Northern Montana Hospital, 2020). Native Americans constitute 24.3% of the population in the North Central Region of Montana, of which the majority live in the reservation areas. About 59% of residents of the North Central Region of Montana live in one of the two towns of this region with a population of 9,791 (Northern Montana Hospital, 2020). The North Central Region is classified as a healthcare provider shortage area in Montana (Health

Resources and Services Administration, 2021). One of the goals of the current community needs assessment of the North Central Montana region is employee retention and recruitment (Northern Montana Hospital, 2020). Maintaining adequate and consistent workforce has always been a priority in this organization. Chronic health conditions, including cardiovascular diseases, ranked among the top list of health issues in North Central Montana. The community needs assessment of North Central Montana indicates to increase the focus on health indicators such as blood pressure, glucose, and cholesterol levels in addition to other health issues such as obesity, substance abuse, and mental health issues (Northern Montana Hospital, 2020). A high number of patients with uncontrolled hypertension has been reported in this clinic (S. Manager, personal communication, September 21, 2021). In the context of the rising prevalence of uncontrolled hypertension in the facility, and the inadequacies of previously implemented hypertension control programs, there is an urgent need to develop and implement an improvement strategy that helps to meet the target blood pressure goals in the facility.

There is a need to develop improvement strategies that are creative, patient-centered, flexible, and that support self-management of blood pressure to meet the needs of the rural population of North Central Montana (S. Manager, personal communication, September 21, 2021). The clinic manager attended educational programs, including hypertension workshops, to develop ideas to implement improvement strategies. These efforts led to the idea of implementing a health-coaching strategy to control hypertension for the patients attending the clinic. Despite the efforts, an effective strategy to implement the health-coaching process in the clinic system was not developed due to the recent coronavirus pandemic and the lack of an effective improvement plan. This quality-improvement project implemented health coaching that

was highly effective, adoptable, and sustainable to demonstrate an improvement in hypertension control to meet the target goals of the primary care clinic in North Central Montana.

### Health Coaching for Hypertension Control

As the complexity of the healthcare environment has increased, there is a need to reexamine the role of healthcare professionals in providing optimal care (Higgins & Scott, 2019). There is a shortage of primary care providers in rural, underserved areas of Montana (Health Resources and Services Administration, 2021). Despite this shortage, healthcare facilities are required to provide high quality care and demonstrate improved outcomes, and failure to do so could result in loss of reimbursement (Higgins & Scott, 2019). Due to the lack of time during appointments, primary care providers are not able to provide adequate health coaching to patients with multiple chronic illnesses, which can put patients at risk for complications (Higgins & Scott, 2019; Finn & Watson, 2017). Lifestyle behaviors often contribute to chronic disease conditions and patients often fail to make healthy lifestyle choices and sustain positive behavioral changes. Health coaching is a promising improvement strategy identified from the literature (see Appendix B) that can be implemented through members of the healthcare team including registered nurses in primary care settings. Health coaching has demonstrated significant improvement in outcomes in patients with chronic disease conditions such as hypertension (Finn & Watson, 2017; Sharma et al., 2016; Singh, 2021). The National Consortium for Credentialing Health and Wellness Coaches, an entity that certifies health coaches, defines health coaches thus:

Health and Wellness Coaches partner with clients seeking self-directed, lasting changes, aligned with their values, which promote health and wellness and, thereby,

enhance well-being. In the course of their work health and wellness coaches display unconditional positive regard for their clients and a belief in their capacity for change and honoring that each client is an expert on his or her life, while ensuring that all interactions are respectful and non-judgmental (2021).

Health coaching utilizes the principles of motivational interviewing and goal-setting for behavioral changes in chronic disease management (Sharma et al., 2016). As compared to traditional strategies such as medication management, which are effective only during the times when the medications are taken, health coaching has been shown to have long-term outcomes in terms of sustaining the healthy behavioral changes (Sharma et al., 2016). Health coaching provided through a team of trained healthcare professionals, such as nurses or pharmacists, has demonstrated significant improvement in behavioral changes, including increased physical activity, weight control, improved physical and mental health status, as well as improvement in hypertension (Finn & Watson, 2017).

## CHAPTER TWO

## SYNTHESIS OF LITERATURE

Health coaching has been found to be a promising improvement strategy to control hypertension in rural populations and ethnic minorities (Dye et al., 2015; Sharma et al., 2016). The evidence explored from peer-reviewed literature includes systematic reviews, meta-analyses, randomized controlled trials, quality-improvement projects, prospective cohort study, and other reviews including expert reports and literature reviews. Several studies compared the effectiveness of health coaching as a part of multicomponent intervention in improving uncontrolled hypertension. There is strong evidence that health coaching can improve adherence to hypertensive medications and lifestyle modification plans (Mills et al., 2018).

Impact of Health Coaching on Blood Pressure

Several systematic reviews and randomized controlled trials showed significant improvement in systolic and diastolic blood pressures after implementation of health coaching (Mills et al., 2020; Mills et al., 2018; Jiang He et al., 2017; Sharma et al., 2016). Data from current literature showed health coaching significantly reduces mean systolic blood pressure ranging from 4.3 mm Hg to 19.3 mm Hg and diastolic blood pressure ranging from 1.9 mm Hg to 12.2 mm Hg (Dye et al., 2015; Jiang He et al., 2017; Mills et al., 2018). A prospective pre- and post-cohort study showed a decrease in systolic and diastolic blood pressure values by 8 mm Hg from baseline in patients 6 months after health coaching; the decrease remained consistently lower than baseline by 10–12 mm Hg at 12, 18, and 24 months after health coaching (Wu et al.,



2018). As compared to usual care, health coaching resulted in a 20% increase in the proportion of patients with controlled hypertension (Jiang He et al., 2017).

### Impact of Health Coaching on Medication Adherence and Blood Pressure Target Awareness

There is evidence from literature that shows health coaching not only improves blood pressure control, but also results in improvement in other measures that has direct effect on hypertension management, such as medication adherence and awareness of target blood pressure goal. Similar outcomes were observed in some quality-improvement projects implemented in rural, primary healthcare settings utilizing health coaches for improving medication adherence and blood pressure improvement (Wu et al., 2018). Patients who demonstrated improved medication adherence experienced greater reduction in systolic and diastolic BP in the long-term, especially in rural areas with limited access to healthcare. However, only patients with low baseline medication adherence showed improvement as a result of health coaching (Wu et al., 2018). Patients with high baseline medication adherence scores may need new or different strategies to sustain their medication adherence (Wu et al., 2018). There was a reported increase in the percentage of participants who had awareness of target blood pressure goal from 57.1% to 90.5% and improved adherence to lifestyle modifications from 66.7% to 81% after health coaching (Crittenden et al., 2017).

### Impact of Health Coaching on Lifestyle Modifications

The three most common lifestyle behaviors targeted by health coaching included diet, exercise, and medication management (Singh, 2021). Increased physical activity and making

healthy dietary choices are important lifestyle modifications that have an impact on mortality and quality of life in relation to chronic health conditions such as hypertension (Fin & Watson, 2017). Results from a recent literature review showed the impact of health coaching in weight management and increased physical activity with improved outcomes in patients with body mass index over 30 (Fin & Watson, 2017). Health coaching has also shown an impact on psychosocial indicators, such as confidence, perceived competence, effectiveness, and importance for hypertension self-management (Dye et al., 2015, 2016). Health coaching involves strategies that are patient-centered with a behavioral component of self-management. Patients engage in active-learning processes where they work together with the health coach to improve medication adherence and lifestyle changes (Crittenden et al., 2017; Mills et al., 2018).

#### Health Coaching as Multilevel Implementation Strategy

Health coaching as part of a multilevel implementation strategy can result in significant improvement in blood pressure (Jiang He et al., 2017; Mills et al., 2018). There is strong evidence from systematic reviews, meta-analyses, and randomized controlled trials utilizing health coaching as a multilevel implementation strategy that addressed patient-, provider-, and system-level barriers resulting in significant reduction in both systolic and diastolic blood pressures (Jiang He et al., 2017; Mills et al., 2018). Multilevel implementation strategies that combine health coaching with home blood pressure monitoring, provider training, and team-based care were effective strategies that significantly improved blood pressure control when compared to usual care (Jiang He et al., 2017; Mills et al., 2018).

Another area of strength with health coaching is the cost effectiveness of implementation through trained community-health workers or medical assistants (Dye et al., 2015; Sharma et al., 2016). Community-health workers as health coaches, also called “natural helpers,” play an important role in creating behavioral change in patients, facilitating education and self-management of health, and improving access to healthcare, especially in rural and underserved populations (Dye et al., 2015). Volunteers from community-health for a health-coaching program had been a widespread and cost-effective strategy utilized in improving hypertension control (Dye et al., 2015; 2016). One of the limitations of using volunteers is the impact on the continuity of the health-coaching program due to the likelihood of volunteers dropping from the program, taking vacation breaks, or taking leave for personal reasons. Therefore, it may be necessary to find an alternative option by training more volunteers in the year to maintain an adequate number of health coaches (Dye et al., 2015). Studies also showed a continued interest of volunteers for an extended health-coaching program that adds to long-term sustainability (Dye et al., 2015).

Studies showed greater adherence to scheduled provider appointments, improved adherence to medication regimens, and reduced unhealthy lifestyle behaviors by integrating health coaches into the multidisciplinary healthcare team (Dye et al., 2015). Medical assistants as health coaches are another cost-effective way to support patients for hypertension self-management with prolonged clinical effects (Sharma et al., 2016).

Existing literature supports health coaching as an improvement strategy that sustains a long-term change in patients’ behaviors. Health coaching not only improved medication adherence and blood pressure control during the implementation period, but also showed

continued improvement in medication adherence for over 1 to 2 years (Sharma et al., 2016; Wu et al., 2018). However, there was some mixed evidence regarding long-term efficacy of health coaching. Evidence also showed that patients need continued or extended support through health coaching to keep them motivated to maintain behavioral changes and prevent them from returning to unhealthy lifestyles (Singh et al., 2021). It is important to maintain positive behavioral changes to prevent poor long-term outcomes with chronic disease conditions.

While there is growing evidence that health coaching is a promising improvement effort to improve control of hypertension in addition to other chronic and lifestyle disease conditions, there are some limitations to this strategy. A consistent model for delivering health coaching or a definition of health coaching across studies is lacking (Fin & Watson, 2017). Some studies incorporated health coaching into multicomponent implementation strategies, whereas other studies implemented health coaching as individual intervention. However, the results and conclusions from all the studies indicated a consistent improvement in clinical outcomes including improved blood pressure control, medication adherence, weight management, and physical and mental health status. A barrier identified with home BP monitoring in health-coaching programs was the lack of access to home monitors to some patients leading to feeling of discouragement in continuing the lifestyle management plans (Crittenden et al., 2017). Health-coaching programs generally focused on participants or patients, but not families. Family support played an important role in some patients' adherence to health-coaching programs by assisting in household activities, exercise, shopping, and managing stress (Crittenden et al., 2017).

Withdrawal of participants from lifestyle management plans after implementation of health

coaching was another limitation observed, which could be either due to lack of family support or nonadherence.

The review of literature showed health coaching as a promising improvement strategy that could be implemented in primary care centers in rural and underserved areas with ethnic minorities. The project facility served rural and ethnic minorities who faced various challenges related to transportation, cost, employment, education, geography, and climate that hindered access to healthcare services. Therefore, it was essential to develop improvement efforts that were more flexible and that addressed the barriers to serve the rural, underserved population (S. Manager, personal communication, October 25, 2021). Health coaching is a very flexible and cost-effective strategy that can be utilized in the North Central Region of Montana. There is strong evidence that health coaching is a feasible improvement strategy with long-term sustainability. After careful analysis of the literature, a model for health coaching that fit well with the organizational goals was developed in this project.

Health coaching is an improvement strategy feasible in primary care settings. A critical review of literature demonstrated effectiveness of health coaching in reducing hospitalizations and healthcare costs, thereby resulting in positive outcomes for cardiovascular diseases, cancer, diabetes, and obesity (Fin & Watson, 2017). The CMS is now a critical partner with the American Medical Association (AMA) that supports health and wellness coaches in practice settings. Healthcare providers can use taxonomy codes for health coaching to be utilized as a billable service for insurance (Crittenden et al., 2017; Functional Medicine Coaching Academy, 2021). Earlier studies on health-coaching programs to improve hypertension control were directly aligned with the Healthy People 2020 Heart Disease and Stroke Objective: HDS-12 to

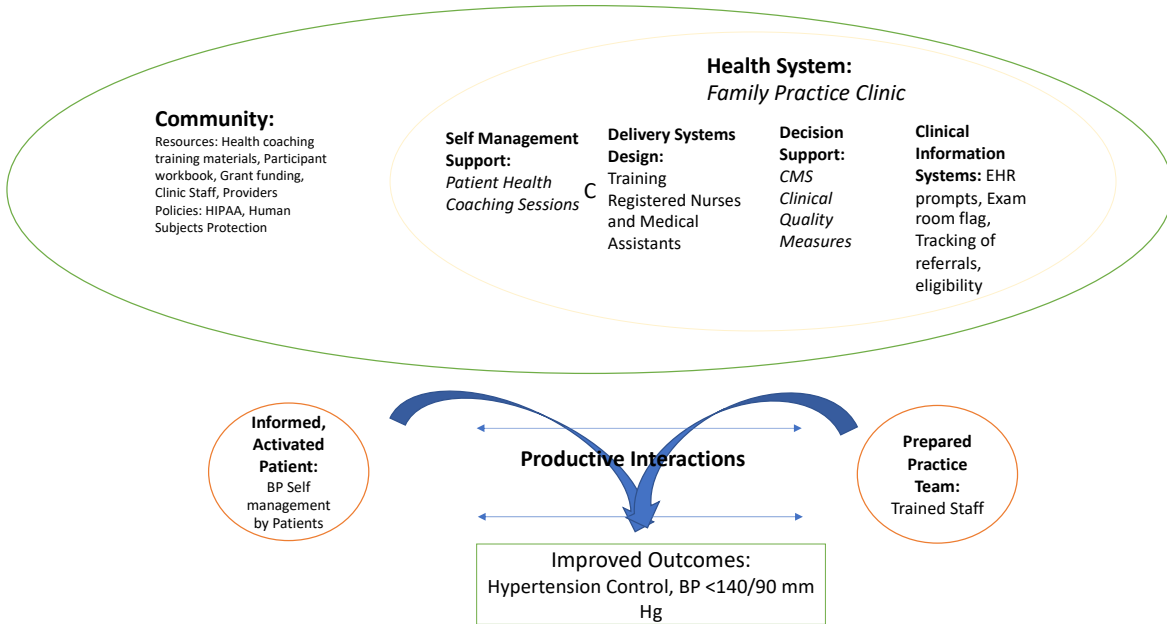
increase the proportion of adults who have blood pressure under control from 43.7% to 61.2% (Dye et al., 2015). The current project will aim to align the health-coaching program with the Healthy People 2030 goal of HDS-05 (USDHHS, 2020). Common themes of health coaching that emerged from most studies from the literature were patient-centered processes, self-discovery, patient engagement, goal setting, motivation, and self-management (Fin & Watson, 2017; Sharma et al., 2016; Singh et al., 2021).

## CHAPTER THREE

## CONCEPTUAL FRAMEWORK

This project utilized the conceptual framework of the Chronic Care Model (see Figure 1) developed by Wagner (Dye et al., 2015; Institute of Health Care Improvement [IHI], 2021). The Chronic Care Model has six fundamental components that form a system to encourage management of chronic diseases: self-management support, delivery system design, decision support, clinical information systems, organization of healthcare, and community (Wagner, 1998). This project provided blood pressure self-management support and informed patients of community resources through health coaching. To maximize health-system inputs, the project utilized CMS quality measures to support clinical decision-making and the EHR to monitor the health-coaching referral and occurrence (Health IT, 2021). The quality-improvement project was developed based on the needs of the organization, and the process that was implemented in this project aligned with the organization's mission of high-quality care and service to the community in North Central Montana (Northern Montana Hospital, 2021).

Figure 1. Chronic Care Model Application to the Project



*Note.* Chronic Care Model application to health coaching for hypertension control. From “Chronic Disease Management: What Will It Take To Improve Care for Chronic Illness?,” by E. H. Wagner, 1998, *Effective Clinical Practice*, 1(1), p. 2-4

Agency Description

The Setting

The project site was a family practice clinic that was part of a hospital in North Central Montana. The project was implemented at the Family Medical Center, an outpatient division of the hospital that provided services in family medicine and obstetrics and gynecology. The Family Medical Center had nine healthcare providers, a clinic manager, 13 staff including registered nurses and medical assistants, and a care coordinator. The Family Medical Center served a population of over 16,000 from the county in North Central Montana (United States Census



Bureau, 2020). Patients from other parts of the state also accessed the clinic for primary care services.

### The Participants

The participants involved in the project were patients, nurses, medical assistants, primary care providers, clinic manager, and administrators who supported the quality-improvement project. The project implemented a health-coaching program at the family practice clinic through trained registered nurses and medical assistants. The manager of the family practice clinic was a master's prepared registered nurse and a certified health coach who trained the clinic staff in health coaching. The healthcare providers in the clinic supported the implementation of a health-coaching program to patients who met the criteria for referral and made recommendations to patients.

The participants involved in the project were also the stakeholders of the project. The stakeholder engagement process took place in the project in the following ways: (1) informed the importance of health coaching for hypertension control through evidence; (2) consulted with the clinic manager regarding the health-coaching implementation plan and conducted monthly and biweekly meetings in various phases; (3) directly involved the clinic manager, nurses, medical assistants, and providers during the implementation phase to discuss processes, obtain feedback, and address issues; (4) collaborated with the project team as equal partners in decision-making and provided guidance to run the project using a smooth workflow; and (5) empowered the stakeholders by involving them in final decision-making (Asari, 2019).

The rural community in the area also benefitted from the project. Previous efforts at the facility to improve uncontrolled hypertension did not meet the target improvement goals. The

facility stakeholders faced the need to implement a better program to prevent or improve uncontrolled hypertension. The goal of the facility was to develop an improvement plan, which was patient-centered, that could motivate the patient in self-management of hypertension. This project was the first quality-improvement program that occurred with the support of stakeholders from different levels, especially with the support of healthcare providers. One of the long-term goals of the project was to expand the health-coaching sessions on a wide scale; not only to prevent uncontrolled hypertension, but also undiagnosed hypertension.

### Project Design and Methods

The purpose of this quality-improvement project was to implement a health-coaching program in a family practice clinic to improve uncontrolled hypertension for patients with blood pressure levels above 140/90 mm Hg. Previous programs, such as Self-Measured Blood Pressure Monitoring Program (SMBP) and electronic clinical quality measures (eCQMs), implemented at the clinic resulted in improvement in hypertension control from 49% to 62%, but did not meet the target goal of 80% (S. Manager, personal communication, September 21, 2021). Given the increasing prevalence of uncontrolled and undiagnosed hypertension in the North Central Region of Montana, the clinic faced an urgent need to develop a new strategy to prevent uncontrolled hypertension. This project helped to create a patient-centered, efficient, adoptable, and sustainable improvement effort that supported self-management of hypertension. The registered nurses and medical assistants who were trained to provide health-coaching sessions implemented the health-coaching strategy through telephone and in-person visits over a period of 5 weeks.

The Donabedian's structure, process, and outcome framework guided the design of the project and measurement of project outcomes (Donabedian, 1966).

### Structure

The structural changes that were initiated in the project included adoption of an educational tool for health-coaching training from Clemson Institute of Engaged Aging. A participant workbook and patient-education materials adapted from the Clemson Institute educational tool were utilized for the health-coaching program. Another structural resource in this project was the availability of funding resources to the clinic in the form of grants.

#### Clemson Institute of Engaged Aging Health-Coaching Training

The clinic manager of the Family Medical Center attended a workshop on health coaching for hypertension control conducted by Dye, Williams, and Evatt from the Clemson Institute for Engaged Aging. Through this workshop, the clinic manager received the educational tools and materials to train the staff as health coaches. The manager provided the training to staff in small group sessions. The clinical manager trained most of the staff who were hired before April, 2021 (S. Manager, personal communication, October 25, 2021). The manager had trained the remaining staff during the project implementation. The educational tool for health-coaching training consisted of eight modules including supplemental modules in nutrition and physical activity (Dye et al., 2015). The clinic staff received the educational tool, which consisted of a scripted health coach manual including a notebook with interactive learning activities, blood pressure monitoring kits, cookbooks, and CDs (Dye et al., 2015). During the training, the staff also received a participant workbook that included information on health-coaching topics such as

hypertension basics, lifestyle changes, stress management, and personalized action plans. The project team developed an adapted version of the participant workbook received from Clemson Institute for Engaged Aging Program to suit the goals and needs of the clinic.

### EHR Alert and Exam Room Flag

The structural changes initiated through the project included an EHR alert system in the blood pressure charting area and an exam room flag outside patients' exam room doors. The project director and the clinic manager collaborated with information technology staff to create an EHR alert system to notify the staff and providers when blood pressure readings were above the target goal of 140/90 mm Hg. The exam room flag placed outside patients' exam room doors provided a visual cue to providers and staff that patients had high blood pressure levels (140/90 mm Hg and above) and as a reminder for blood pressure recheck.

### Project Team

The quality-improvement project team included the project director, the family practice clinic manager, three participating healthcare providers, and clinic staff including registered nurses and medical assistants.

### Process

The clinic manager trained all registered nurses and medical assistants in the facility in health coaching using the educational tool developed by Dye et al. (2015) from the Clemson Institute of Engaged Aging. For the 2021 performance period, the family practice clinic in this project followed the target blood pressure goal set at less than 140/90 mm Hg based on the

clinical quality measure CMS165v9 of the CMS (Health IT, 2021). The criteria for referral of patients in the health-coaching program in this project included patients aged 18 years and older, treated by participating providers, who had uncontrolled hypertension with blood pressure levels 140/90 mm Hg and above for the past two readings measured within the past 12 months at the clinic.

During patient intakes, the medical assistants checked blood pressures of patients and put an exam room flag outside the door that cued the providers and staff that patients had high blood pressure levels and served as a reminder for blood pressure recheck if the levels were 140/90 mm Hg and above. The medical assistants entered the first blood pressure reading in the EHR, which flagged as yellow in the EHR system to alert the providers and staff. If the rechecked levels and the past blood pressure reading within 12 months were 140/90 mm Hg and above, the medical assistants sent referrals for those patients for health coaching according to the new workflow (see Appendix A) during the health-coaching implementation.

The trained health coaches contacted referred patients using their primary contact information in the EHR to assess patients' interest in participating in a health-coaching program. The health coaches scheduled and planned in-person and phone-visit health-coaching sessions for those patients who were willing to participate in the program. The health coaches provided supplemental patient-education materials to patients during the first in-person, introductory health-coaching visit. The patient-education materials were on nutrition and physical activity, such as skills in reading food labels, healthy shopping and food preparation, personalized physical activity plan, safety and reduction of injury, ways to prevent relapse of unhealthy behaviors, and self-monitoring of blood pressure (Dye et al., 2015).

The health-coaching sessions included four 30-minute visits: the first introductory visit took place as an in-person visit, the second and third sessions as phone visits, and the fourth, final wrap-up visit as an in-person or telephone visit. The initial in-person introductory visit lasted for 15 to 30 minutes where the health coaches and patients got acquainted, and the health coaches provided supplemental patient-education materials and information on basics of hypertension control, developed personalized action plans, monitored patient behaviors using a personal health diary, and provided patient supplies such as self-monitoring blood pressure cuffs (Dye et al., 2015). During the second and third visits, health coaches implemented core modules in the educational tool that included topics on nutrition, physical activity, and stress management. During the final visit, health coaches helped patients develop a long-term action plan to continue hypertension self-management strategies and patients returned any hospital patient supplies. The long-term action plan was guided by the results of an initial or baseline personalized health risk appraisal (Dye et al., 2015). The health coaching ran for a period of 5 weeks, with a 1-week interval between first and second visits and 2-week intervals between subsequent visits. After completing each session, the health coaches documented the health-coaching sessions completed in a shared Excel sheet and in the patient chart as a visit note within the EHR. During the final in-person visit, which was 5 to 6 weeks after starting health coaching, health coaches checked patients' post health-coaching blood pressure. The project team encouraged an alternative home blood pressure measurement for those patients who were unable to visit the clinic due to transportation or weather issues.

### Process Measures

The following were the process measures of the project:

1. Percentage of registered nurses and medical assistants trained. The target goal of the percentage of registered nurses and medical assistants to receive training for health coaching was set at 100%.

Data Collection. The project team collected data on the number of staff who were trained to receive the health-coaching training using a training log maintained by the clinic manager.

Data Analysis. To calculate the percentage of staff trained, the number of registered nurses and medical assistants trained in health coaching was divided by the total number of registered nurses and medical assistants in the clinic.

2. Percentage of patients with uncontrolled hypertension who were referred to health coaching. The goal of the project was to refer 90% of patients with uncontrolled hypertension at blood pressure levels 140/90 mm Hg and above to the health-coaching program (Health IT, 2021).

Data Collection. The initial plan of the project director was to collaborate with the informaticist to collect the aggregate data on the number of patients with blood pressure value 140/90 mm Hg and above from vital signs recorded in EHR. During the implementation period, the second process measure was modified and the plan to collect data on the number of patients referred to health coaching was revised.

Data Analysis. To calculate the percentage of patients with uncontrolled hypertension who were referred to health coaching, the number of patients referred to the health-coaching program was divided by the total number of patients who met the criteria for the health-coaching program. The goal for referrals for patients who meet criteria for health-

coaching referral was set at 90%. If the weekly goals were less than 90%, the project director or clinic manager performed a chart audit to find missed referrals and plan next steps.

3. Percentage of patients referred to health coaching who received health coaching. The goal of the project was that 90% of patients with uncontrolled hypertension referred to a health-coaching program would receive health coaching.

Data Collection and Analysis. The health coaches contacted the patients who were referred through the EHR and kept a log for each patient referred in a shared Excel sheet. The shared Excel sheet contained deidentified patient information on health-coaching referrals, number of patients contacted, health-coaching visits completed, and pre- and post health-coaching blood pressure values. A health-coaching identification number was used to identify each patient who received health coaching in the shared Excel sheet. A second, separate Excel sheet was used to create a master list of patients with their medical record numbers and the corresponding health-coaching identification numbers, and this Excel sheet was protected and securely stored within the clinic. The project director did weekly check-ins with the clinic manager and the clinic staff to track the progress of referrals, and to track the provision of health-coaching sessions. During occurrences of missed referrals, enrollment, or provision of health coaching to patients who met the referral criteria, the project director reinforced the workflow processes with clinic staff and addressed any barriers or issues that affected the workflow. The project director collaborated with the project team on a weekly basis to receive feedback on the processes and provided suggestions to make improvement.



Data Analysis. To calculate the percentage of patients who received health coaching, the number of patients who received the health coaching was divided by the total number of patients referred to the health coaching.

### Outcome

As an outcome measure, the project team calculated the percentage of patients who met the target blood pressure goal of less than 140/90 mm Hg following 5 to 6 weeks of health coaching. The CMS has set the goal blood pressure of less than 140/90 mm Hg for patients 18 to 85 years old for the 2021 performance period (Health IT, 2021). The family practice clinic in this project followed the CMS clinical quality measures as an outcome measure for improvement in uncontrolled hypertension. The goal of this project was that 80% of patients with uncontrolled hypertension would improve blood pressure levels to less than 140/90 mm Hg 5 to 6 weeks after enrollment in a health-coaching program.

### Data Collection

During the final and fourth health-coaching session at 5 to 6 weeks after initial enrollment, the health coaches checked patients' post health-coaching blood pressure. Patients were not charged for any of the health-coaching visits. For patients who were unable to visit the clinic due to transportation or weather issues, an alternative, valid blood pressure measurement method was considered, such as home blood pressure monitoring. The project director reviewed the shared Excel sheet to determine the post health-coaching blood pressure values for patients who completed health-coaching sessions. The project director marked improvements in blood pressure levels in the Excel sheet used to track health-coaching sessions.

### Data Analysis

To calculate the percentage of patients who met the blood pressure goal, the number of patients with post health-coaching blood pressure of less than 140/90 mm Hg was divided by the total number of patients who received health coaching. The percentage of improvement in blood pressure to less than 140/90 mm Hg in patients was plotted in a run chart.

### Human Subjects Protection

This quality-improvement proposal went through an ethical review by Montana State University's institutional review board (IRB) and received approval before implementation of the project. The project director and team members adhered to the policies of patients' rights of privacy and confidentiality and protected confidential data in the EMR throughout the project period. The individual patient data collected from the EMR through chart review included patient criteria for referral to health coaching and patient referral for health coaching. The project team conducted chart reviews in a private area within the clinic where access was restricted to authorized personnel only. Patient receipt of health coaching was documented in an Excel sheet that was stored in a password-protected computer. The patients referred to health coaching were deidentified when patient information was transferred to the shared Excel sheet, and each patient who received health coaching was assigned a health-coaching identification number. The second Excel sheet containing the master list of patients with their medical record numbers and corresponding health-coaching identification numbers was stored in a secure storage system within the clinic and was not taken outside the clinic. The project team did not remove any patient identifying data from the secured system or location to unsecured or outside locations.

The patients were identified using health-coaching identification numbers in all documents related to the project and the shared first Excel sheet with the deidentified patient information was stored in a password-protected computer when taken to sites outside of clinic.

### Timeline of Phases

The planning phase of the quality-improvement proposal was from August, 2021, to November, 2021. The quality-improvement proposal went through an IRB process at Montana State University for approval of the project. After the approval process, the project team started to implement the project in January, 2022. The implementation phase lasted for a period of 5 weeks, which ended in March, 2022. The clinical manager had already trained some of the clinic staff who were hired before April, 2021. The remaining staff were trained during the project implementation period. The project evaluation was an ongoing process that occurred weekly in the form of check-in with clinic staff, providers, and information technology staff. Final data collection occurred 6 weeks after the implementation of health-coaching sessions. The project director performed the data analysis and developed the final report of the project from March to April of 2022.

### Resources

The facility received multiple resources to assist with the project. The clinic manager had attended hypertension control workshops developed by the Clemson Institute for Engaged Aging prior to the development of the project. The educational tool to train clinic staff and the patient-education materials were received from the workshop. The clinic manager was a certified health

coach who was skilled to provide health education on a regular basis. The manager trained the majority of the clinic staff on health coaching prior to the project period and the remaining staff during project implementation. The project director worked with the team to develop an adapted version of the participant workbook from the original tool received from the Clemson Institute for providing health-coaching sessions.

Funding for the project came from a grant that was allotted to the clinic for conducting education and projects to improve the quality of care provided and health of patients. The grant money provided around \$16,000 which covered costs of the training and workshop from the Clemson Institute, training materials including participant workbook, printing, paper, postal charges, and other charges (will be determined) (S. Manager, personal communication, October 25, 2021). The health-coaching sessions were implemented through registered nurses and medical assistants who were currently employed at the clinic. Health coaching was part of the job responsibilities of the clinic staff and, therefore, the funding for salary was not part of the grant. However, if additional working hours were needed, the funding for extra salary came from grant money. During the time of the project period, the clinic was not eligible to receive CMS reimbursement for health-coaching sessions due to the fact that CMS quality metric benchmarks had not been met (S. Manager, personal communication, October 25, 2021). The clinic manager anticipated that the clinic would become eligible for reimbursement in the future if the goals of the CMS eCQMs were met (S. Manager, personal communication, October 25, 2021). Therefore, receiving CMS reimbursement for health-coaching sessions was a long-term goal of this project.

The clinic had an EHR system called Meditech, and any structural changes needed for the project were made through the existing EHR with the support of information technology staff.

Any cost related to EHR with regards to EHR changes associated with the project was discussed with the information technology staff and the clinic manager. The project director and the clinic manager helped guide, support, and oversee all the project activities at the family practice clinic.

### Feasibility and Plan for Sustainability

To determine the feasibility of this project in the family practice clinic, the barriers and facilitators that could impact the project need to be discussed. During the project period there were a few providers who supported improvement activities at the clinic. Recommendations to patients from providers for health coaching had significant impact on the likelihood of patients complying with health-coaching programs (S. Manager, personal communication, October 25, 2021). The facility had buy-in from providers and clinic staff to initiate this project. Most of the clinic staff had completed the health-coaching training, which was a huge facilitator to this project. The health-coaching tools developed by Dye et al. (2015) from the Clemson Institute became a great educational resource for the clinic, as well as for the health coaches, to provide coaching sessions to patients. The clinic manager was enthusiastic about each step of project implementation and continuously worked to provide encouragement and reminders to clinic staff. The administration of the facility was also supportive of implementing a quality-improvement project at the facility (O. Administrator, personal communication, September 2, 2021). Some of the barriers that affected the implementation of the project were time management for clinic staff to incorporate health coaching in their schedule; resistance to new change and lack of motivation due to staff turnover and existing workload; and lack of better communication between health coaches and intake nurses (S. Manager, personal communication,

October 25, 2021). The project director closely worked with clinic staff to support and help develop a feasible way to incorporate health coaching to fit their schedule. The clinic manager also assisted the staff in planning their work schedule without affecting their regular duties and responsibilities.

The potential for this quality-improvement project to sustain over time depends on several factors, such as buy-in from providers, staff, and patients; availability of enough staff members to perform health coaching; improvement in provider and staff workflow; reimbursement for health-coaching services; and availability of funding sources. The project was a small pilot version that involved only a few clinic staff members and healthcare providers. The long-term expectation was to train all clinic staff, such as registered nurses and medical assistants, for health coaching and incorporate health coaching as a routine part of office visits. In the long-term, the expectation was to add health coaching as one of the primary responsibilities of clinic staff (S. Manager, personal communication, October 25, 2021), which would help with better sustainability.

## CHAPTER FOUR

## RESULTS AND DISCUSSION

Results

The participants involved in the quality-improvement project were registered nurses, medical assistants, patients, participating primary care providers, and a clinic manager at a rural family practice clinic in North Central Montana. The health-coaching program was implemented by five registered nurses and 13 medical assistants. There was a total of seven registered nurses in the clinic initially, five of which received health-coaching training from the clinic manager before the implementation period. The clinic manager trained the remaining two nurses by January 28, 2022, and met the target goal of 100% for clinic staff trained for health coaching in this project. However, the total number of health coaches who were involved in health coaching reduced to five during the project implementation period due to staff turnover. Each health coach targeted five patients for engagement in health-coaching sessions.

Thirteen medical assistants placed health-coaching referrals for patients meeting the referral criteria—18 years and older, treated by participating providers, and blood pressure readings 140/90 mm Hg and above twice within the last 12 months. The project director and clinic manager trained the 13 medical assistants (100%) on the referral process and new workflow. Training, which occurred during staff meetings, was completed by January 26, 2022, meeting the target goal of 100% of medical assistants trained. The medical assistants started placing patient referrals on January 31, 2022.

Table 1. Demographics of Participants Involved in Health Coaching

Professionals	Number
Medical assistants	13
Registered nurses/ health coaches	5
Participating providers	3

Several structural measures were put in place to facilitate the new workflow. In collaboration with information technology staff, a visit-note template for health coaching was created by January 28, 2022. An EHR alert for blood pressure values of 140/90 mm Hg and above was already in place for most patients. Finally, the medical assistants also used an exam room flag to cue a recheck for blood pressures of 140/90 mm Hg and above. The health-coaching sessions ran over a period of 5 weeks for each patient during the project-implementation period from February to March, 2022. One of the goals of the project was to measure 90% of patients with uncontrolled hypertension. This goal was modified considering feasibility of the project. The modified goal was to refer five patients per health coach, which was a targeted number set by the project team. The medical assistants were to continue the referral process until each health coach received five patients, expecting a total of 25 patients for five health coaches. But only three out of five health coaches received referrals due to a limited number of medical assistants who participated in referrals. During the project period, a total of 10 (40%) patients who had blood pressure value 140/90 mm Hg and above were referred to health coaching. The majority (80%) of the referrals came from one medical assistant and the remaining from two other medical assistants. The health coaches conducted health-coaching visits with 10 (40%) patients.



Five out of 10 (50%) patients completed 5 weeks of health coaching by face-to-face and telephone visits.

As an outcome measure, the health coaches measured the blood pressure of each patient following the 5 weeks of health coaching. Four (80%) out of five patients who received 5 weeks of health coaching had an improvement in blood pressure with a value of less than 140/90 mm Hg.

### Discussion

The aim of the quality-improvement project was to implement health coaching in a rural family practice setting in North Central Montana. Accordingly, we strove to develop a creative, patient-centered, flexible improvement strategy for hypertension control and support patient self-management of blood pressure. There is promising evidence from the literature indicating health coaching as a strategy that results in significant improvement in hypertension control. Health coaching was implemented in this project through trained registered nurses and medical assistants by providing four 30-minute visits including face-to-face and telephone calls for a period of 5 weeks. Current literature supports a minimum period of 16 weeks to a maximum of 18 months for conducting health-coaching sessions (Dye et al., 2015; Dye et al., 2016; Jiang He, 2017; Mills, 2018; Sharma et al., 2016; Wu, 2018). The health-coaching period was limited to 5 weeks for the purpose of piloting this project.

There was a delay in completing staff training and initiating referrals due to illness and quarantine among staff due to the COVID-19 pandemic. The referral process and scheduling of health-coaching visits during the initial weeks were slower than anticipated due to lack of staff motivation to initiate a new change and uncertainty of the process within the context of a heavy

workload and significant staff turnover. The project director and clinic manager provided staff motivation throughout the implementation by providing positive encouragement, assisting with workflow processes, and providing an environment of support and guidance. These strategies were effective in continuing the referral process and progress through the workflow.

There were challenges in creating a single, standard, target blood pressure goal for all patients in the clinic due to lack of provider approval and lack of consideration of patient-specific factors that could affect the target blood pressure goal. Therefore, the EHR alerts did not flag yellow in those patients whose target blood pressure goal did not align with the target goal of the project. An exam room flag was placed outside a patient's door if blood pressure levels were above the target goal to cue the staff to recheck blood pressures. The medical assistants, during patient intakes, utilized the exam room flag in all instances of high blood pressures.

The clinic manager trained seven registered nurses in health coaching with an attrition of two nurses. Five registered nurses were ultimately involved in health coaching. Most studies in the literature utilized nurses, medical assistants, pharmacists, nurse practitioners, and community-health workers as health coaches (Sharma et al., 2016; Crittenden, 2017; Mills, 2018, Wu, 2018). This project utilized the existing staff to provide health coaching during their already existing working hours. There were no additional shifts or working hours assigned to registered nurses and medical assistants to be involved in this project. The project utilized grant money to cover the cost of training and education materials. The patients were not charged for any health-coaching visits during the piloting period. The pilot project maintained its cost-effectiveness by avoiding any financial burden to patients and the organization.

This project utilized health-coaching tools from Clemson Institute of Engaged Aging. The health-coaching program utilized several core educational modules focusing on nutrition, lifestyle modifications, physical activity, stress management, and developing a personalized action plan (Dye et al., 2016). The adapted version of the health-coaching program developed from Clemson Institute of Engaged Aging utilized in this study focused on building self-efficacy skills in patients. Current literature finds that focusing on patients' self-efficacy skills through a health-coaching program would help in initiating behavioral changes and sustaining the changes over a long-term period (Dye et al., 2015, Dye et al., 2016). In this project, the health coaches facilitated behavioral changes and enhanced self-efficacy skills in patients by assisting with developing personal goals, self-management of hypertension, and initiating lifestyle changes after each visit. The personalized action plan developed during the final health-coaching visit will help patients to make a long-term and sustainable behavioral change.

The medical assistants followed a new workflow (see Appendix A) to initiate patient referrals of those patients who met the referral criteria. The creation of a workflow was helpful for the intake nurses to stay organized and informed of the next steps to follow during the process change. Although the goal of this project was to initiate health-coaching referral for 90% of patients who met the referral criteria, there were barriers to meeting this goal, such as inadequate staffing to conduct health coaching within a short time frame. The project team decided to set a target number of patients for each health coach, which was a more feasible option for piloting this project. The referral process during the initial weeks of implementation was slow due to patient-level barriers such as lack of willingness to participate in a health-coaching program, and inconveniences in scheduling visits aligned with the time intervals

designated in the project. Staff shortages interfered with the placement of referrals and the implementation of health coaching. Therefore, only three out of the five health coaches received referrals for health coaching.

The goal of the project was that 100% of the patients referred to health coaching received health coaching, but only 40% of the patients completed the four health-coaching visits. There were patient-level barriers such as lack of participation in visits, inconveniences in scheduling visits, and lack of response during phone visit calls. This project anticipated an 80% improvement in blood pressure after completing 5 weeks of health-coaching sessions. The project exceeded the target with an improvement in blood pressure to less than 140/90 in all the patients who completed 5 weeks of health coaching.

### Lessons Learned

This project was the first quality-improvement project implemented in the family practice clinic with the support of multiple stakeholders from different levels, including the healthcare professionals and the administrators. The implementation of the project came with various challenges.

A process barrier identified in this project was the absence of a communication process between medical assistants and health coaches, which led to missed referrals, delayed referrals, and the need for a third party to bridge the communication. Although the project director was able to track the referrals through the EHR system at the end of the project period, the staff were unaware of the overall referral status in a particular time. A workgroup created within the EHR including medical assistants and health coaches will help with referral status updates and

seamless communication between the professionals. An EHR alert in the workgroup to cue the professionals will help to avoid delays in workflow. Another recommendation is to create a health-coaching referral option within a patient's visit document that would make it easier for medical assistants to place referrals.

Another process barrier identified was a delay in initiating patient referrals among some of the medical assistants due to lack of motivation and increased workload from staff turnover. The clinic manager and the project director offered positive encouragement to staff by providing constant guidance and support in the process. The project director conducted one-on-one check-ins with health coaches and medical assistants reinforcing the new workflow, answering questions about the referral process, scheduling health-coaching visits, etc., which later improved initiation of referrals.

A structural barrier identified was the inability to set the cut-off blood pressure value of less than 140/90 mm Hg for all patients in the clinic due to patient-specific factors such as coexisting medical conditions and advanced age, and lack of provider approvals. When the EHR alert system did not flag blood pressures that remained above the target range, the medical assistants manually tracked blood pressure readings within the last 12 months to place referrals. In such instances, missed referrals may have occurred due to human errors from manual tracking. One recommendation to avoid manual tracking and prevent missed referrals is to have a standardized target blood pressure value (less than 140/90mm Hg) for all patients and implement a standardized EHR alert. Another recommendation is to modify the referral criteria and place referrals based on individual patient blood pressure goals.

Knowledge of individual health coach schedules would have helped to facilitate implementation. There were some health coaches who worked part-time leading to delays in patient referrals, staff orientation, and health-coaching visits. Knowledge of staff work schedules would help to determine staff availability and plan for recruiting more health coaches and substitute staff. Future recommendations include recruiting voluntary community-health workers to ensure enough staffing for health coaching. Trained community-health workers have shown to be effective in improvement in patient adherence in hypertension management and health outcomes (Dye et al., 2016).

### Limitations

One limitation of this project was the short time interval between health-coaching visits. The four 30-minute visits lasted for a period of 5 weeks with 2-week intervals between core educational modules. A significant improvement in blood pressure control may not be seen within a short time-period. However, even brief coaching can enhance self-management, support initiation of lifestyle changes, and assist with developing a personalized action plan. Another limitation was that lack of formal communication processes hindered communication between the medical assistants and health coaches, impeding referral-status tracking. The initial plan of the project team was to refer at least 90% of patients with uncontrolled hypertension to health coaching. But due to limited number of staff to perform health coaching, the team decided on an arbitrary number of five patients per health coach. Lack of standardization in target blood pressure goals of all patients in the clinic resulted in manual tracking of patients, missed referrals from human errors, and delays in workflow. Staff turnover among medical assistants and

registered nurses was another limitation, which led to increased workload to existing staff. The project was implemented during the period of the COVID-19 pandemic leading to illnesses and absences among the clinic staff, which delayed complete staff orientation and the initiation of health-coaching referrals. Due to an attrition in the number of trained health coaches, there was a reduction in the number of patients who received health coaching leading to a smaller patient size for outcome measurement.

### Recommendations for Future Practice

Future recommendations for this project include increasing the time intervals between each health-coaching visit to provide reasonable time for patients to implement lifestyle modifications and demonstrate improvement in hypertension control. Workflow of health coaches could be improved by using a unified and systematic process such as early scheduling of all four patient visits and adding health-coaching visits to nursing schedules in EHR. Building a “health coaching EHR workgroup” will improve communication links between registered nurses and medical assistants and facilitate better referral processes. Another recommendation for a seamless referral process for medical assistants will be creating a direct referral link for health coaching in the patient visit document. The clinic could also utilize team-based care by different professionals outside of clinical settings such as recruiting voluntary community-health workers, local health coaches, or retired nurses to supplement the work of clinic staff in health coaching. There is strong evidence of significant improvement in blood pressure control with health coaching led by community-health workers in a meta-analysis and RCT studies (Mills, 2018; & Jiang Re, 2017). Therefore, utilizing multiple professionals will help to expand the project on a

larger scale by providing health coaching to a wide patient-population base over an extended period and will result in significant improvement in hypertension control in rural community settings. To cover any costs associated with health coaching, rural practices could also apply for health grants to support funding.

### Conclusion

This quality-improvement project has helped to implement health coaching, a promising evidence-based strategy, to demonstrate significant improvement in blood pressure in a rural family practice setting in North Central Montana. The health-coaching strategy implemented in the rural clinic was a highly creative, patient-centered, and flexible approach that supported self-management of blood pressure by patients in rural primary care settings. This project was implemented in the clinic as a pilot program with the support of healthcare professionals and administrators from multiple levels. Future recommendations for practice were developed from this project to help inform and support sustainability of future health-coaching interventions on a larger-scale basis in this rural setting.



## CHAPTER FIVE

## REFLECTIONS

DNP EssentialsEssential I: Scientific Underpinnings for Practice

Throughout my journey in the DNP program, I gained exceptional knowledge from nursing and other related sciences such as social, ethical, biophysical, psychosocial, organizational, and systems engineering sciences. The evidence-based practice (EBP) courses, NRSNG 604 and 605 helped me to hone my skills in critically appraising scientific evidence from the literature and determine the best evidence suited to meet clinical needs in practice. By developing an AGREE II evidence-based practice project in NRSNG 605, I learned to critically analyze different clinical practice guidelines and make evidence-based recommendations for solving clinical problems related to substance-use disorders. In NRSNG 615 Translational Research for Advanced Practice, I developed a translational research project by critically analyzing the change process in a clinical setting. I utilized Diffusion Innovation Theory and the Johns Hopkins Nursing Evidence-based Practice (JHNEBP) Model as a framework for translation of community-based interventions to prevent adolescent substance abuse in a proposed clinical setting. The foundational knowledge and skills I gained from these courses formed the basis of my DNP scholarly project. In my project, I critically analyzed the best-practice approaches to implement health coaching for hypertension control in a rural population. The critical appraisal skills and clinical innovation processes learned from the core DNP courses were invaluable in designing, implementing, and evaluating the quality-improvement project. I

will continue to utilize these skills for clinical system improvement in my future career as an advanced practice nurse.

### Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

I met DNP Essential II by identifying health disparities among a rural population in North Central Montana and developing a quality-improvement process within a primary care setting. As part of this process, I implemented health coaching, an evidence-based strategy that is flexible, sustainable, and feasible for hypertension control in rural patients. In the DNP project, I was able to evaluate the cost effectiveness of a health-coaching intervention in a primary care setting. As a pilot project, the cost of health coaching was covered through funding from a rural health grant. Health coaching was incorporated into the work of existing medical assistants and nurses, making the project cost-neutral. This project aimed to improve uncontrolled hypertension, thereby meeting CMS quality metrics and becoming eligible for CMS reimbursements for health coaching.

### Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

I critically analyzed the evidence from literature using rapid critical appraisals assessing the strength of evidence related to health coaching and the degree to which health coaching impacts blood pressure self-management and lifestyle changes. I utilized an evidence-based framework and model to develop the quality-improvement process and evaluate the outcomes. I used the Chronic Care Model to support self-management of blood pressure, inform patients of community resources, and support clinical decision-making. I also used Donabedian's structure,

process, and outcome framework to design and measure the project outcomes. I gained competence in integration of new evidence, analysis, and evaluation of outcomes in clinical settings through the DNP project. I was able to gain the support, trust, and collaboration from multiple stakeholders from the healthcare organization for the quality-improvement project.

#### Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

I was able to gain knowledge from information systems and patient care technology and apply the knowledge in various fields of healthcare practice and academic settings. In the course, NRS 610 Health Care Informatics, I developed an information technology proposal project on implementing a computerized physician order entry system (CPOE) to improve healthcare workflow and patient outcomes in a neonatal intensive care unit in India. The CPOE is an automated system that provides clinical decision support tools to healthcare providers. CPOE has substantial impact on quality and safety of patient care by reducing human errors, improving medication management, facilitating effective clinical decision-making and resource utilization (Cordero, Kuehn, Kumar, & Mekhjian, 2004). In this project, I developed a workflow design, performed a task analysis, and developed an implementation and evaluation plan of the CPOE information technology system. India is currently in the infancy stage in the adoption of an EHR system in healthcare. It was important to analyze the legal considerations that could impact the adoption of an information technology system in India. I learned about the current information technology laws and standards pertaining to healthcare in India, such as the Information Technology Act of 2000 and the International Standards Organizations/Technical Standards

(ISO/TS) through this project (MEIT, 2015). I explored the current progress of the Government of India in the creation of a health authority to perform standards-related work.

Knowledge from the DNP program's informatic course enabled me to select patient care technology for an academic setting that will enhance nursing education and patient safety. I played a major role in the development of a nursing simulation center in a university in North Central Montana over the last 4 years. I worked as an active participant in selecting simulation technology for undergraduate nursing education including manikin-based and web-based/virtual simulation, including products such as Sentinel, vClinicals, iHuman, SIM EMR and Meds Manager KBPort Medication Cart system, Draeger ventilator system, etc. I also assisted in writing a Perkin's grant for a nursing college in Montana supporting the purchase of simulation equipment. I assisted in preparation of the Accreditation Commission for Education in Nursing (ACEN) self-study report in 2021 as part of an ACEN accreditation visit, assessing nursing program outcomes and analyzing the efficacy of simulation-based teaching to improve quality and safety of patient care.

#### Essential V: Health Care Policy for Advocacy in Health Care

In NRS 612, Ethics, Law, and Policy, I analyzed critical issues of pregnant women with substance-use disorders and prepared an advocacy letter proposing to remove punitive policies that were barriers to pregnant women seeking prenatal care. I proposed revisions in health policy with the aim of increasing capacity for treatment of substance-use disorders, increasing social support and engagement of women in seeking prenatal care. The legal and ethical critical-thinking case studies I analyzed in NRS 612 increased my confidence in advocating for patients in relation to health policy issues, social justice, and ethical issues.

The system improvements I created through the DNP scholarly project will also inform future policy revisions in primary care clinics. Policy revisions can be made in standardization of blood pressure targets and utilization of evidence-based healthcare management strategies for chronic disease conditions. The structural and process changes developed within the healthcare system were aimed toward meeting CMS clinical quality measures.

I participated in Montana Nursing Association District VI meetings, Nursing College Advisory Board meetings, and local clinical agency meetings advocating for the nursing profession and improving healthcare delivery. I will continue to participate in professional organizations and nursing boards after completing my DNP education and aim to build new professional connections across the state and in the world.

#### Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

I was able to meet essential VI during my entire journey in the DNP program. I conducted several group projects and book reviews as part of various courses in the DNP curriculum. Some of the projects were Improving Colorectal Cancer Screening Practices in a Clinical Microsystem, Alcoholism in Rural Montana, a group book review on Five Days at Memorial, etc. I functioned as an effective team player in these projects, working collaboratively with team members with different nursing experiences. In my group work, I followed a transformational leadership approach by developing trust among my team members, becoming a role model, and motivating my members to perform tasks.

Through the DNP scholarly project, I worked collaboratively with the clinic manager in the primary care facility to design and implement an evidence-based strategy for hypertension

control. The facility needed a flexible, adoptable, and patient-centered strategy to control hypertension in the rural population. As a collaborative partner, I was able to implement health coaching, an evidence-based strategy that best supported the needs of the patients and aligned with the mission and vision of the organization. I worked with multiple stakeholders in the facility including nursing staff, medical assistants, providers, information technology staff, and hospital administrators during the project design, implementation, and evaluation processes. I conducted orientation and training to participants of the project and utilized feedback from the team to improve the workflow and process. As a project director, I provided guidance and support to my project team members in decision-making and problem-solving. I empowered the stakeholders by involving them as equal partners in the final decision-making process. As a clinician, I aspire to be a transformational leader by inspiring and motivating my patients to take part in their care.

In NRS 608 Design of Healthcare Delivery Systems, I collaborated with engineers during course-learning activities. The collaboration with engineers helped me learn clinical problems in healthcare systems from an engineering perspective. I applied system-engineering tools in this course, such as value-stream mapping, A3 report, lean manufacturing, process maps, etc., to analyze system improvement areas in primary care clinics. I also utilized system-engineering tools in my DNP scholarly project such as developing a new workflow process map during health-coaching implementation. The collaboration with engineers and the creative-learning activities evaluating microsystems in NRS 608 helped me in analyzing complex healthcare delivery systems and developing evidence-based solutions.

Essential VII: Clinical Prevention and Population  
Health for Improving the Nation's Health

As part of the DNP project, I analyzed the population statistics of uncontrolled hypertension in North Central Montana and identified that health disparities existed in this rural population. There were several barriers to hypertension control at the patient, provider, and system levels. I analyzed previous improvement efforts conducted at the primary care clinic and identified gaps in processes. The DNP project helped to create a flexible, creative, patient-centered, and sustainable strategy that supported self-management of hypertension in a rural population. The health-coaching strategy was aimed at the psychosocial components of healthcare by utilizing principles of motivational interviewing and goal-setting for behavioral changes in patients. During health-coaching sessions, trained health coaches worked closely with patients in building self-efficacy skills, setting goals, and developing long-term personalized action plans for hypertension control. The personalized goal-setting and action plans will help in sustaining long-term healthy patient behaviors leading to better population health in the future. Some of the lessons learned from the project included developing a better staff communication process, having standardized blood-pressure targets, adequate staffing, and staff motivation. The lessons learned will inform future recommendations for improvement and support sustainability of health-coaching strategies on a large-scale basis in a variety of settings and patient populations.

The project aims to meet the national goal of Healthy People 2030 by increasing the proportion of adults with controlled hypertension (USDHHS, 2020). I am confident that the knowledge and skills I learned from various DNP courses prepared me to evaluate care-delivery models and make evidence-based recommendations for the future.

### Essential VIII: Advanced Nursing Practice

The didactic and clinical nurse practitioner courses in the DNP program equipped me with the knowledge and skills to function independently as an advanced practice registered nurse. My confidence level, critical-thinking, and clinical-judgement skills improved over the semesters caring for patients across the life span in the family practice specialty. I am confident in my ability to perform a comprehensive and systematic assessment of patients with different clinical parameters. My confidence level to manage complex cases and perform complex skills and procedures improved over time. The foundational courses in pharmacology, pathophysiology, and health assessment strengthened my knowledge base as an advanced practice nurse. The virtual patient cases in NRSG 608 Diagnostic Reasoning provided me with critical-thinking and diagnostic-reasoning skills needed to manage a variety of acute- and chronic-disease patients. The NRSG 608 course also made me become proficient in using a systematic approach while making clinical decisions and judgment. The virtual case scenarios and lectures provided me with the systematic skills to formulate differential diagnoses for a variety of conditions. I became proficient in clinical documentation as I progressed through the clinical semesters. As a doctoral-level advanced practice registered nurse, I learned to incorporate evidence-based clinical decisions in managing patients through their wellness and illness. I will continue to be a lifelong learner as an advanced practice nurse by involving in continuing education and scholarly activities. I am confident that the completion of the DNP degree would also strengthen my ability as a clinician, a nurse educator, and a leader in guiding, mentoring, and supporting future nurses and nursing students.



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APPENDICES

APPENDIX A

FAMILY PRACTICE CLINIC WORKFLOW DURING THE  
IMPLEMENTATION OF A HEALTH COACHING PROGRAM

