

INCREASING PATIENT UNDERSTANDING AND SELF-MANAGEMENT OF  
HYPERTENSION DURING NURSE-LED VISITS

by

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## DEDICATION

To my husband, Matthew, my family, and friends who have been my greatest support and motivation over the past four years, and to my son, Matthew Alan. I would also like to dedicate this to all of the amazing nurses who have inspired me in my practice and consistently provide excellent care to their patients.

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## ABSTRACT

**Purpose.** This quality improvement (QI) project aims to effectively increase medical assistants (MAs), registered nurses (RNs), and patients' confidence in managing hypertension by implementing nurse-led visits for hypertension management.

**Background.** Hypertension is one of the leading causes of morbidity and mortality in the United States (US). Over 116 million Americans have been diagnosed with hypertension and since hypertension usually presents with no symptoms, many go undiagnosed. Hypertension can be successfully managed with lifestyle modifications and pharmacotherapy. Implementing nurse-led visits to assist in the management of hypertension is an effective way to ensure follow-up and provide education for patients with high blood pressure.

**Methods.** A quality improvement project utilizing rapid Plan-Do-Study-Act cycles. Tests of change in the areas of team engagement, patient confidence, and systems change were analyzed through bi-weekly chart audits and run charts over four PDSA cycles.

**Results.** 100% of MAs and RNs participated in the pre-survey, education, and post-survey. The post-survey revealed a 100% increase in confidence in blood pressure measurement and management. 11 patients participated in the pre-survey, nurse-led visit, and post-survey. The surveys conveyed that patients face multiple barriers to their hypertension management and that 100% of patients reported that nurse-led visits improved their confidence in managing their blood pressure. A 2,000% increase in nurse-led visits was achieved since there was no standardized nurse-led hypertension visit prior to this quality improvement project.

**Conclusions.** Incorporating nurse-led visits for hypertension at the primary care level may increase patient confidence in managing blood pressure and improve understanding through

education. Medical assistant (MA) and registered nurse (RN) base knowledge of blood pressure measurement and management should be the core education aspect prior to implementing a nurse-led visit. Maintaining a patient-centered approach and tailoring nurse-led visits to each patient's individualized needs allows patients to be active participants in their healthcare. Further investigation is needed to see if improved patient confidence correlates with improved patient outcomes.

## INTRODUCTION

The prevalence of hypertension is consistently rising in the United States (US), making hypertension one of the leading causes of premature death and a primary associated factor in coronary artery disease and strokes (American Heart Association [AHA], 2017; Arima et al., 2011; Centers for Disease Control and Prevention [CDC], 2021; World Health Organization [WHO], 2021). Nearly half of the adult population in the US, aged 30-80 years old, has been diagnosed with hypertension and is currently taking antihypertensive medications; but only about 21% of these patients meet the criteria of controlled hypertension (CDC, 2021; WHO, 2021). It is estimated that 46% of adults are unaware that they have hypertension since hypertension often does not present with any symptoms. The CDC (2021) estimates that hypertension was a primary or contributing cause to over half a million deaths in the US in 2019 and is accountable for over 131 billion dollars in healthcare costs each year. Primary care clinics play a crucial role in preventing, addressing, and treating hypertension by educating patients on assessing personal risk factors and implementing modifiable lifestyle changes to improve outcomes. This quality improvement (QI) project utilized a structured nurse-led visit to improve hypertension management at a primary care practice (PCP).

### **Background Knowledge and Significance**

Hypertension, or elevated blood pressure, injures the body's vasculature system by increasing the force that blood pumps against the arterial walls (WHO, 2021). A significant complication of hypertension is decreased flow of blood and oxygen to the heart, which can cause chest pain, heart attacks, heart failure, or cause the heart to beat irregularly (AHA 2017; WHO, 2021). Hypertension can also cause bleeding in the brain or block the arteries to the brain,

causing a stroke. If hypertension is left uncontrolled, significant kidney injury can occur, leading to kidney failure (WHO, 2021). These complications can cause many more health problems and diseases, leading to increased healthcare costs and hospitalizations.

In the US, over 116 million people have been diagnosed with hypertension, but most of these people do not have their blood pressure in a “normal” range (CDC, 2021). This startling statistic can be explained by a multitude of reasons such as inefficient antihypertensive medications, unable to afford medications, side-effects from medications, non-sustainable lifestyle modifications, patient’s non-acceptance of the diagnosis, or lack of time to educate patients during office visits (Yatim et al., 2019; Shoulders & Powell, 2019). According to the 8th Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC8), blood pressure is broken down into five stages (Figure 1). Each of these stages has recommended guidelines for providers on treatment options.

### Figure 1

#### *Blood Pressure Categories*

#### **JNC8 Guidelines for Hypertension**

<b>Category</b>	<b>Systolic (mmHg)</b>	<b>Diastolic (mmHg)</b>
Normal	90-119	60-79
Prehypertension	120-139	80-89
Stage 1 Hypertension	140-159	90-99
Stage 2 Hypertension	>160	>100
Isolated Systolic Hypertension	>140	<90

Hypertension has both modifiable and non-modifiable risk factors. Some examples of non-modifiable risk factors include genetics or a family history of hypertension, age over 65, co-morbid conditions of diabetes or kidney disease, and race. Sex is not a significant risk factor for hypertension (CDC, 2021; WHO, 2021). Many modifiable risk factors can be used independently or as an adjunct to pharmaceutical interventions in managing blood pressure. Some modifiable risk factors include decreasing sodium and fried food intake, increasing physical activity, maintaining a healthy body weight, decreasing alcohol consumption, and not using tobacco (CDC, 2021). Patients who follow recommendations given by their primary care provider (PCP) have greater chances of maintaining their blood pressure in the recommended range of below 120/80 mm Hg. Often lifestyle modifications are underutilized due to short time in appointments to educate patients on modifications, a lack of patient knowledge on the disease process of hypertension, patients not feeling that they are part of their care plan, or a variety of other personal and healthcare-based issues (Bangurah et al., 2017; Brown, 2017; Crittenden et al., 2017; Khairy et al., 2021).

Hypertension is usually detected and managed through primary care clinics, where the PCPs will diagnose the patient and initiate education and pharmacologic therapy. Primary care providers often manage multiple co-morbid conditions, resulting in insufficient time to address all patients' concerns. This, along with major healthcare organizations and insurance companies capitalizing on having PCPs see more patients throughout the day, has led to shorter appointment times (Linzer et al., 2015). Over 50% of PCPs report they do not have enough time to cover everything they would like during appointments with patients, often not addressing social determinants of health or education (Linzer et al., 2015). Nurses are an excellent resource for

educating and counseling patients on managing chronic conditions such as hypertension (Chatziefstratiou et al., 2021; Kolcu & Ergun, 2020; O'Donnell et al., 2016). A team approach is an efficient way to deliver patient-centered care and reduce the costs of treating hypertension (Chatziefstratiou et al., 2021; Kolcu & Ergun, 2020; O'Donnell et al., 2016). A nurse-led visit is a treatment model proven to increase patients' confidence in managing hypertension, reducing blood pressure, and improving the sustainability of reduced blood pressure. During health care visits, about 40-80% of the education and information provided to patients is often forgotten or misunderstood (Wisconsin Department of Health Services, 2018). Nurse-led visits improve the patient's learning experience by assessing their readiness to learn, baseline knowledge, and confidence in managing their hypertension and applying these results to personalized education. Nurse-led visits, in a personalized or group setting, build a support system and provide a judgment-free zone for patients to have dedicated time to learn about hypertension, modifiable risk factors, and associated recommended lifestyle changes (Brown, 2017; Chatziefstratiou et al., 2021; Chowdhury et al., 2020; Kolcu & Ergun, 2020; O'Donnell et al., 2016). Nurses can then follow up with patients and build a rapport for future healthcare needs.

### **Local Problem**

One in three adults in Wisconsin (1.3 million people) live with hypertension (Wisconsin Department of Health Services, 2018). Half of these people (50%) do not have their blood pressure in a controlled range, and about 20% are unaware they have hypertension (Wisconsin Department of Health Services, 2018). Wisconsinites face common challenges and risk factors that contribute to hypertension. Most of Wisconsinites are overweight or obese (67%), about 20% of the population reports not doing regular physical activity, and the racial disparity is a

frequent issue when it comes to accessing healthcare (CDC, 2019; Wisconsin Department of Health Services, 2017, 2018). According to the Wisconsin Nurses Association (2017) and the Wisconsin Department of Health Services (2017, 2018), a patient-centered, team-based approach to hypertension treatment is encouraged.

Three Oaks Health is a family practice primary care clinic in Johnson Creek, Wisconsin. There are three providers, two medical assistants (MAs), and two registered nurses (RNs). A needs assessment determined that hypertension management is an aspect of care that Three Oaks Health aims to improve by transitioning the care to a nurse-led visit to manage hypertension more efficiently. A chart audit from February-March 2022 of 70 patients with the diagnosis of hypertension revealed that only 38% of patient's blood pressure was below 140/90 at their in-office visit, of the patients with uncontrolled hypertension, only 42% of them scheduled a follow-up visit within the next month, 48% of these patients did not receive an intervention by the provider at the visit (medication adjustment, education, or follow-up visit), and 0% of the patients had a second blood pressure charted at that visit which is a current standard of care; therefore, demonstrating a need for a QI project that initiates a nurse-led visit for follow-up and education for MAs and RNs on current best practices for blood pressure measurements.

### **Intended Improvement**

#### **Project Purpose**

This QI project aimed to effectively increase medical assistants (MAs), registered nurses (RNs), and patient's confidence in managing hypertension at Three Oaks Health and implementing a nurse-led visit for hypertension management. The goal was to educate clinic staff on proper blood pressure measurement and management and to encourage the use of

surveys to assess the MAs, RNs, and patients' understanding of hypertension, risk factors, modifiable and sustainable life changes to improve blood pressure, medication adherence, and their confidence in managing their blood pressure. The clinic's patient population follows similar struggles with medication and lifestyle modification adherence as studies have found in different people (Blackstone et al., 2017; Brown, 2017; Crittenden et al., 2017; Gorina et al., 2018; Lumu et al., 2021). Overall, emphasizing education, lifestyle modifications, and patients being active participants in their hypertension treatment plan has reduced blood pressure and increased patient confidence and empowerment (Gorina et al., 2018; Jian-Hong et al., 2020; Kilic et al., 2018).

### **Project Question**

For patients with hypertension, will a structured nurse-led visit influence the patient understanding and confidence in blood pressure management?

### **Project Objectives**

This QI project aimed to create a patient-centered, team-based approach to hypertension education at Three Oaks Health. The specific aims include:

- Aim 1: Improve the confidence of medical assistants and clinic nurses to improve hypertension management knowledge by 50% over the course of the project.
- Aim 2: Improve patient engagement and understanding of hypertension management through nurse-led visits by 50% over the course of the project.
- Aim 3: Increase hypertension nurse-led follow-up visits by 100% over the course of the project.

## **Theoretical Framework**

### **Modeling and Role Modeling Theory**

The modeling and role modeling (MRM) theory, created by Helen Erickson, Evelyn M. Tomlin, and Mary Ann P. Swain in 1983, is the core framework for the proposed hypertension nurse-led visit. This theory encourages nurses to care for patients, focusing on each patient's distinctive characteristics and respecting each patient's uniqueness (Erickson, 2017; Nursing Theory, 2020). Understanding the patient's needs enables the nurse to facilitate growth and development at a pace that aligns with the patients' goals and keeps holistic health in mind (Erickson, 2017; Nursing Theory, 2020).

The MRM theory was created in response to observed relationships between self-care knowledge, resources, activities, perceived control, and autonomy with better health outcomes (Erickson, 2017). It is based on the thought that all humans want to live healthy lives, find purpose, and become the best that they can be (Erickson, 2017). Erickson believed that nurses should stand for listening to the patient and provide care based on the patient's perceived purpose (Society for the Advancement of Modeling & Role-Modeling, 2022). The five main concepts that this theory focuses on are modeling, role modeling, commonalities among people, differences among people, and roles of the nurse, all of which encourage empowering the patient to promote and maintain health.

### ***Modeling***

Modeling is the process that nurses must use to seek knowledge and understanding of what drives the patient's purpose (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). The goal of modeling is for the nurse to understand the

patient's perspective and acknowledge the uniqueness of each individual through a supportive and caring environment (Erickson, 2017). In this QI project, modeling was utilized by providing individualized education during nurse-led visits based on what the patient perceived as a focus of care management. The nurse learned this by having the patient state a clear lifestyle goal to work on. By understanding the patient's goal, the nurse was able to adapt to the exclusive needs of each patient.

### ***Role-Modeling***

Role-modeling uses the information obtained through modeling to create interventions, facilitate change, and nurture the patient to achieve and maintain their health goals (Erickson, 2019; Nursing Theory, 2020). The basis of role-modeling is creating nurse-patient trust, encouraging self-control, supporting strengths, and setting mutual goals (Erickson, 2017, Erickson, 2019). In this QI project, role-modeling contributed to shared decision-making and building relationships. Through a shared decision-making model, mutual goals were created, evidence-based education and interventions were provided to the patient, and the patient had measurable objectives to obtain. The nurse-patient relationship flourished through personalized extended visits that were not rushed. After the visit, the nurse worked closely with the patient, utilizing electronic health record (EHR) portal messaging to assess the patient's needs and build relationships.

### ***Commonalities and Differences Among People***

The MRM theory affirms that people have similarities and differences, and nurses must understand this concept to provide care to the most total capacity. Five main similarities are

holism, affiliated-individualization, essential and growth needs, psychosocial stages, and cognitive stages (Erickson, 2017).

*Holism* is the idea that the body, mind, emotion, and spirit work together dynamically to create the conscious and unconscious (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). *Affiliated individualization* is the belief that all humans depend on different support systems throughout their lives and have a natural determination to be accepted in society (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). *Essential and growth needs* stem from Maslow's hierarchy of needs, asserting that fundamental conditions must be fulfilled for people to grow (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). The psychosocial and cognitive stages of human development play a crucial role in understanding the sequences of human growth and development (Nursing Theory, 2020). *Psychosocial stages* are based on Erikson's *theory of psychosocial stages* and explain that, for a person to develop, they must achieve specific developmental tasks such as developing trust and autonomy (Society for the Advancement of Modeling & Role-Modeling, 2022). If the person cannot complete a developmental task, they will not be able to accomplish future task-related work, therefore experiencing inhibited psychosocial development (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). *Cognitive stages* are based on Piaget's *theory of cognitive development* and describe how people's mental development also develops sequentially. The nurse must recognize at which stage their patient is to better address that patient's needs. In this QI project, all of these concepts were addressed during the individual appointment time between the nurse and their patient and how much of that time was devoted

to learning about the patient and their goals. By spending time to get to know the patients, the nurse was able to understand whether or not the patient's basic needs were being met, which psychosocial and cognitive step they are at if they have a support system, or the nurse may become that support system and provide holistic care rather than just focusing on one disease process.

Of the many differences among people that the MRM theory recognizes, the three concepts most applicable to this QI project are inherent endowment, model of the world, and self-care. *Inherent endowment* explains that each person is born with genes that influence their characteristics, which can affect their health status (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). Inherent endowment is addressed in this QI project through the nurse's understanding of the patient's health history and any non-modifiable risk factors for hypertension, such as a family history of hypertension, age, and race. *Model of the world* is a concept that describes how people have different viewpoints on various situations. They have their own beliefs about what will positively or negatively impact their health (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). Since these beliefs are usually based on the patient's past experiences and goals for the future, in this QI project, the nurse interviewed the patient to better understand the patient's baseline knowledge of hypertension and the patient's beliefs on what impacts their health. *Self-care* has three components: self-care knowledge, self-care resources, and self-care action (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). These three components integrate to impact how people deal with daily trials. This QI project

aims to better prepare the patient in all three aspects of self-care through education and support to promote optimal health and overall self-fulfillment.

### ***Roles of the Nurse***

The MRM theory maintains that the three roles of the nurse are facilitation, nurturance, and unconditional acceptance (Nursing Theory, 2020; Society for the Advancement of Modeling & Role-Modeling, 2022). In this QI project, the nurse facilitated healthy growth by educating and assisting in managing hypertension. The nurse provided resources to help achieve the patient stated goals. Through nurturance and unconditional acceptance, the nurse offered a judgment-free space during individualized appointments while utilizing shared decision-making to ensure those patient goals were prioritized.

### **Modeling and Role Modeling Theory in the Literature**

MRM theory is prevalent in nursing, showing usefulness in knowledge-based intervention focusing on holistic care. The theory has been proven successful in multiple patient populations and is a framework for many hospital agencies (Smith, 2015). Patients' post-myocardial infarction felt they had more control over their care plan, resulting in decreased anxiety, feeling that they were in control of their health, and felt supported in their recovery (Erickson, 2017). MRM theory has been applied to hypertension management in previous studies, two of which stand out. The first is a study created by Helen Erickson and Mary Ann Swain, two of the creators of the MRM model, in which they provided self-care resources for patients with hypertension (Erickson & Swain, 1990). They focused on holistic nursing interventions and understanding that people are multidimensional to address the patient's hypertension compared to usual treatment management, which concentrates solely on

fixing the high blood pressure (Erickson & Swain, 1990). This study recognized that nursing interventions could improve well-being through self-care, such as stress reducers and self-care resources (Erickson & Swain, 1990).

Victor et al. (2011) designed and implemented a randomized trial in which community barbers provided space for modeling and role modeling to address the increasing rates of black men with hypertension. The participant population was 675 adult black male customers of these barbers. During their hair appointments, they had baseline blood pressure screening, had blood pressure checks at each haircut, and barbers provided education to the participants. They encouraged follow-up with a PCP (Victor et al., 2011). MRM theory provided a framework for this intervention, resulting in decreased overall blood pressure, improved knowledge of hypertension, and increased follow-up with PCPs (Victor et al., 2011). Other hypertension management studies have shown that patients with hypertension who were able to provide input in their personalized care reported more control in their health, increased self-efficacy, and improved self-care, all of which improved their sense of self-being (Erickson, 2017).

### **Limitations**

The two primary limitations of this nursing theory are patient-willingness and time. If patients are not willing to sit down and take time to address the many factors impacting their health or if they are not ready to make facilitated changes, the nursing interventions will not work. Patients must have motivating factors for their health with realistic goals. Time will always be a factor when it comes to healthcare. Both patient's time and nurses' time are limiting factors in this theory. Patients need to have time during their schedule to go to the clinic, and they need time during their everyday lives to implement the changes they want to

make. In healthcare, appointments are scheduled for a set amount of time, so nurses only have a limited amount of time they can spend with each patient during the day, impacting care overall.

This QI project addressed time limitations by allowing 30 minutes for nurse-led visits. This is longer than the usual appointment time at Three Oaks Health, usually a 15-minute nurse-visit. The clinic understood the value of nursing interventions for improved health outcomes. They believed that nurses, especially in the primary care setting, share essential and intimate experiences across the patient's lifespan. Nurses have a responsibility to facilitate healing and help patients achieve their perceived maximal state of health (Erickson, 2017).

## **Literature Synthesis**

### **Evidence Search**

A literature review was conducted to explore current practices and recommendations for nurse-led visits for hypertension, patient outcomes concerning nurse-led visits, and current practice guidelines for hypertension management. Three searches were conducted utilizing the Cumulative Index of Nursing and Allied Health Literature (CINAHL) and Google Scholar, accessed through the University of Arizona Health Sciences Library. Inclusion criteria include published in the last five years, English language, full text, and peer-reviewed. International studies were not excluded since hypertension is a global problem and many countries utilize the nurse-led visit model due to the lack of healthcare providers in those countries. CINAHL was used to identify current recommendations and previous studies on implementing nurse-led visits for hypertension management. Search terms included "nurse-led or nurse-managed" and "hypertension," 31 systematic reviews were selected. Google Scholar was used to find current practice guidelines for hypertension management utilizing search terms "hypertension

guidelines” and “JNC 8 hypertension guidelines,” five systematic reviews were selected. Google Scholar was used to find current screening tools for hypertension knowledge and management utilizing the search terms “hypertension,” “scales,” “knowledge,” and “compliance,” seven articles were selected. A total of 43 articles were reviewed for this synthesis.

### **Comprehensive Appraisal of Evidence**

There are four common themes recognized from the literature synthesis: (1) hypertension screening, lifestyle modifications, and medication adherence are all patient-specific and should be individualized for the patient’s needs, (2) the patient must be an active participant in their healthcare, (3) the current barriers to optimal blood pressure management can be effectively relieved through nurse-led or co-managed visits, and (4) current recommendations for hypertension management should be focused on sustainable lifestyle changes.

### ***Current Practice Recommendations for Hypertension Management***

Hypertension often presents with no associated symptoms, and screening has a substantial benefit with minimal harm (Unger et al., 2020; U.S. Preventative Services Task Force [USPSTF], 2021). Blood pressure screening is done at a primary care office with a manual or automated blood pressure cuff (Todkar et al., 2021). Obtaining two blood pressure measurements at least five minutes apart with an appropriate arm cuff is encouraged. If blood pressure is elevated at that visit, it should be reassessed over two to three visits about one week apart. It can be confirmed by having the patient take their blood pressure at home with a validated blood pressure cuff to improve accuracy and observe trends in blood pressure as well as decrease the chance of “white-coat” hypertension (Doane et al., 2020; Eck et al., 2021; Shimbo et al., 2020; Zhu et al., 2018).

The current first-line treatment recommendations for hypertension are lifestyle modifications, which often assist in controlling other co-morbid conditions. These include smoking cessation, a low sodium diet or the dietary approaches to stop hypertension (DASH) diet, portion control, stress management, decreasing alcohol consumption, and increasing physical activity (Bangurah et al., 2017; Crittenden et al., 2017; Gorina et al., 2018; Shoulders & Powell, 2019). A blood pressure goal should be set with the patient, and frequent check-ins can keep patients accountable and empowered to be active participants in their healthcare (Simonetti et al., 2021).

Second-line treatment for hypertension involves initiating antihypertensive medications and continuing lifestyle modifications. If antihypertensive medicines have already been started, medication adherence must be assessed (Crittenden et al., 2017; Delavar et al., 2020; Marseille et al., 2021). Reviewing medications with patients, utilizing a single pharmacy for all of their medications, once-daily dosing, and reviewing how the drug works in lowering blood pressure can all be helpful in medication adherence.

### ***Screening Measures***

Screening tools are a valuable resource for assessing patients' knowledge of the hypertension disease process, understanding where patients are in their health journey, and distinguishing aspects of their healthcare that can be improved (Delavar et al., 2020; Khairy et al., 2021; Kilic et al., 2018). Assessment of hypertension knowledge and the need for education is critical in hypertension management because if a patient does not understand the disease, they are less likely to be able to be an active participant in their health (Kolcu & Ergun, 2020; Marseille et al., 2021; O'Donnell et al., 2016). A vague or universal approach to treating

hypertension is not as effective as specific or individualized care. The patient should be treated as a whole, not just the disease. These screening tools and risk calculators pinpoint where more emphasis or education is needed for each patient since there is currently no gold standard.

### ***Problems with Current Hypertension Management***

Overall, hypertension management in primary care is suboptimal. Inconsistent training of nurses and busy primary care practices with short appointment times are two of the leading modifiable barriers that primary care offices face in regard to the hypertension management (Blackstone et al., 2017; Chowdhury et al., 2020; Doane et al., 2020; Haykin et al., 2020; Lumu et al., 2021).

To get an accurate blood pressure reading, nurses and medical assistants must be trained to appropriately utilize a manual and automatic blood pressure cuff. According to Hwang et al. (2018), barriers to proper blood pressure measurements include inadequate training or knowledge on how to obtain blood pressure measurements properly, workflow constraints such as insufficient time or needing to multi-task, and equipment problems such as proper cuff sizes, seating, and automatic blood pressure monitors. Although nurses and MAs may be trained on the appropriate way to obtain blood pressure, the training needs to translate to the “real world” environment regardless of barriers they may face day-to-day (Doane et al., 2020; Haykin et al., 2020; Jian-Hong et al., 2020; Lumu et al., 2021). Some they may face include busy clinic environments, difficulty enforcing silence during blood pressure readings, using the appropriate cuff size, and having the patient rest at least five minutes before checking their blood pressure (Doane et al., 2020; Haykin et al., 2020; Jian-Hong et al., 2020; Lumu et al., 2021). Providing

proper training to those obtaining the patient's vital signs is an easy and efficient way to ensure accurate blood pressure readings.

There is a shortage of primary care providers in the US, and these PCPs are often managing multiple chronic co-morbid conditions (Brown, 2017; Chowdhury et al., 2020; Haykin et al., 2020). The lack of time that providers are allotted to spend with patients can lead to patient dissatisfaction, medical errors, and increasing the number of appointments a patient needs to schedule to cover their chronic conditions (Brown, 2017; Chowdhury et al., 2020; Haykin et al., 2020). By providing appointments dedicated to regular condition education and management through nurse-led visits, community access to personalized care can be achieved, and PCP appointment times can be efficiently utilized.

### ***Implementing Co-visits and Patient-centered Education***

A solution to the shortage of PCPs and short time slots allotted for PCPs to see and assess patients, especially those with chronic conditions, is to utilize a team-based approach by using clinic nurses to the most of their capability (Brown, 2017; Kolcu & Ergun, 2020). Nurses can utilize their skills and prioritize patient-centered education by complementing the services of the primary care provider. This healthcare model has significantly improved patient outcomes, decreased emergency room visits, and increased access to care (Simonetti et al., 2021); Wang et al., 2019). Studies have shown that nurse-led visits have reduced provider burnout and eliminated double booking of appointments, leading to improved job satisfaction (Funk et al., 2015; Sinsky et al., 2010). Overall, this leads to higher patient satisfaction and improved quality of life.

Nurse-led visits for chronic conditions provide an unhurried environment where the nurse and patient can discuss disease processes, medications, and lifestyle modifications while establishing and maintaining a trusting relationship (Brown, 2017; Chatziefstratiou et al., 2021; M. Yatim et al., 2019). These visits are cost-effective since clinics are now utilizing the nurses to the extent of their license; it is low-cost, sustainable, and increases care (Jian-Hong et al., 2020; Shen et al., 2021; Spies et al., 2018). Nurse-led visits for hypertension, specifically, show promising results. Many community members are not aware of risk factors for cardiovascular disease, so educating patients on their diagnosis and treatment plan is an essential step in achieving optimal blood pressure control. Studies have indicated that protocols and algorithms can guide nurse-led visits based on current hypertension treatment guidelines. However, there is no current standard protocol (Brown, 2017; Haykin et al., 2020; Lumu et al., 2021). Nurse-led visits as short as 15 minutes have increased patients' confidence in managing hypertension and improved blood pressure (Crittenden et al., 2017).

Patient-centered education proves to be an effective intervention in hypertension management by decreasing blood pressure, increasing physical activity, improving diet, and other modifiable risk factors. A considerable aspect of nurse-led visits is developing a relationship with patients and having a non-judgmental and supportive approach to treating hypertension (Marseille et al., 2021; Stephen, 2016). Providing support and encouraging self-efficacy is essential when dealing with chronic diseases (Khairy et al., 2021). The teach-back method and blended learning (fact sheets, pictures, weekly phone calls) have shown success and improved self-management, leading to a positive contribution to the health and lifestyle (Delavar et al., 2020; Islam et al., 2021). Overall, nurse-led visits for managing hypertension have proven

to be successful. Nurses' holistic approach to healthcare makes them a valuable resource to provide the necessary tools and education to patients with hypertension.

### **Strengths of Evidence**

Hypertension is one of the leading causes of morbidity and mortality today. The literature emphasizes the importance of a team-based approach to hypertension management, focusing on education and lifestyle modifications (Bangurah et al., 2017; O'Donnell et al., 2016; Todkar et al., 2021). Lifestyle modifications should be used as an adjunct in hypertension management, and the patient must be accepting of their diagnosis and be willing to make changes (M. Yatim et al., 2019; Stephen, 2016; Yusupov et al., 2019). Foreign countries utilize nurse-led visits in different patient populations with significant success (Marseille et al., 2021). Nurse-led visits have been approached in various ways. They all show achievement in treating chronic conditions by decreasing emergency department visits, increasing self-management of chronic diseases, and increasing patient confidence (Gorina et al., 2018; Simonetti et al., 2021). Many screening tools can be utilized to create a protocol or algorithm specific to a particular primary care practice. Creating an emphasis on screening and managing hypertension in the PCP office will spread awareness of the disease and allow patients to be active participants in their health.

### **Weaknesses of Evidence, Gaps and Limitations**

The literature review is limited because few studies encourage a specific protocol when implementing a nurse-led visit. There are insufficient validated hypertension education screening tools available, especially those created for the English language (Marseille et al., 2021). Most studies focused on specific patient populations based on ethnicity, race, and age, often providing intervention for an underserved population. There is limited data on utilizing nurse-led visits to

manage hypertension in the Caucasian middle class. Since nurse-led visits are consistently used in foreign countries, a clinic-specific adaptation can be created based on the needs of the primary care practice.

## **METHODS**

### **Project Design**

Nurse-led visits have proven to be an effective way to assist in managing chronic conditions, such as hypertension, at the primary care level (Bangurah et al., 2017; Brown, 2017; Chowdhury et al., 2020; Gorina et al., 2018). This QI project intended to improve hypertension management and patients' confidence in being active members of their healthcare through individualized clinic visits based on shared-decision making. In addition, education and training was provided to clinic MAs and RNs utilizing the *Measure Up, Pressure Down* provider toolkit with updates by the PI based on the JNC8 guidelines for hypertension diagnosis and management. Link to the *Measure Up, Pressure Down* toolkit is provided in Appendix E due to the length of the toolkit. Hypertension knowledge, medication management, and confidence were evaluated through the *Measure Up, Pressure Down* surveys. Multiple IHI PDSA cycles were utilized for the implementation of process changes with outcome measures of:

1. Patients being able to state two goals in their hypertension management.
2. Increased confidence in hypertension management.
3. Creating a structured nurse-led visit for hypertension management.

## **Model for Implementation**

### **Model for Improvement**

Quality improvement (QI) in healthcare is a method of process change based on the goal of improving patients' quality of life through adjusting different approaches to patient care with its main objectives to promote safety, efficacy, and efficiency (Institute for Healthcare [IHI], 2022). The Institute for Healthcare (IHI) developed the Model for Improvement (MFI) as a tool to accelerate improvement in practice (IHI, 2022) (Figure 2). The MFI has two parts, first is three questions to address project aims, measures, and changes. Second is the Plan-Do-Study-Act (PDSA) cycle which tests the changes to assess whether the specific aims and measures are being achieved (IHI, 2022). The three key questions include: What are we trying to accomplish? How will we know a change is an improvement? What changes can we make that will result in improvement? This QI project aimed to accomplish increased knowledge and self-management of hypertension. Measures were assessed through pre-intervention and post-intervention surveys completed by patients and staff members. Lastly, the change that was implemented was providing evidence-based education during nurse-led visits and encouraging shared decision-making.

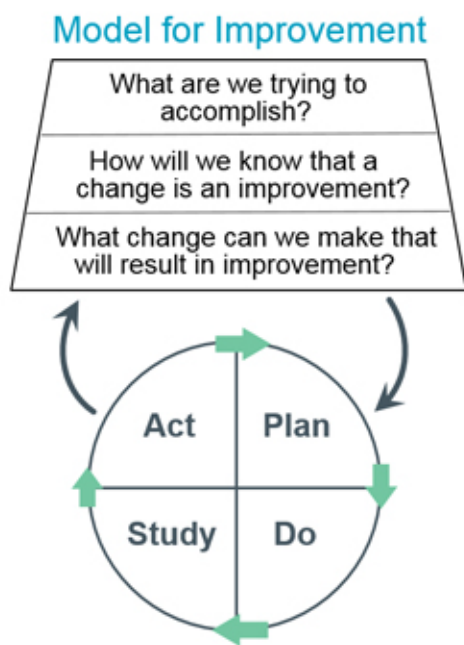
### **Plan-Do-Study-Act (PDSA) Cycle**

This continuous cycle tests a change by first planning a test or observation, then testing the planned intervention on a small scale, followed by studying the data and results from the intervention, and lastly refining the change based on what we learned (IHI, n.d.). The PDSA cycle is then restarted based on the findings from the previous PDSA cycle. PDSA cycles endorse real-time adaptations based on evaluation and feedback on the effectiveness of the

change (IHI, 2022). This allowed for challenges in the intervention to be addressed quickly so that adjustments can be made in order to reach the QI goals (IHI, 2022). The PDSA cycle guided this QI project in creating the nurse-led hypertension visit. The PDSA cycle allowed the education process and the nurse-led visit implementation to be constantly evaluated and edited to meet the needs of the clinic and meet the objectives of this QI project.

## Figure 2

### *Model for Improvement*



*Note.* The Institute for Healthcare Improvement MFI is a continuous process of refining and adapting interventions based on study findings. From “Science of Improvement: Testing Changes” by IHI, 2022.

### ***Plan***

The first step of the PDSA cycle is *plan* (IHI, 2022). The key elements of this stage were to set the objective, develop a plan to implement change, ask questions and make predictions, and create a plan for data collection (National Institute of Children’s Health Quality, 2022). This step required much preparation to ensure a strong foundation for the project development. For

this QI project, the project investigator (PI) first consulted with the business manager and lead physician of Three Oaks Health in November 2021. Through a needs assessment and chart reviews, it was decided by the lead physician and PI that creating a structured nurse-led hypertension visit would positively impact the clinic in a multitude of ways. Once the QI project was approved for implementation at Three Oaks Health, in March 2022, the PI collaborated with the lead physician, MAs, RNs, and physician assistants (PAs) to discuss what was working/not working with the other nurse-led visits, areas staff feel they could be more educated on, and goals on how the nurse-led visit would be designed. It was determined that there needed to be a more efficient way to identify patients with hypertension who are being seen at the clinic for a different chief complaint, that patients need closer management until their blood pressure is in a controlled range, and that education and shared decision-making should be the core of the nurse-led visit. Then, evidence-based resources and educational material were incorporated to provide staff education, create “hypertension folders,” and provide structure and protocol for the nurse-led visit. The PI created an outline of the education, “hypertension folders,” and nurse-led visit structure and sent it to the lead physician, business manager, and project chair for review. The *Measure Up, Pressure Down* surveys were modified for the needs of the clinic population. Once the content was finalized, the PI set dates to begin staff education (PDSA cycle 1). Once staff education was completed, the structured nurse-led visits were implemented (PDSA cycle 2). Lastly, the PI worked closely with the lead physician and RNs to determine how the project would be introduced to the patients and staff, the length of the QI project, and any finalizing details.

***Do***

The second step of the PDSA cycle is *do* which is when the intervention is implemented, unexpected observations/problems are documented, and analysis of data begins (IHI, 2022). During this step, the PI implemented and completed data collection over the course of eight weeks. A disclosure statement, pre-survey, education, and post-survey were provided to patients in a “hypertension folder.” The disclosure statement and pre-surveys and post-surveys were placed in a study-specific folder by the RN when they were completed. A separate disclosure statement, pre-survey, education, and post-survey were provided to the MAs and RNs in paper format for their educational intervention.

***Study***

Step three of the PDSA cycle is *study* which is when the data is analyzed and compared to the original predictions (IHI, 2022). This step allows time to reflect on what was learned and to prepare for the final step of the PDSA cycle. During this step, the PI examined if the project objectives and aims were met. The data was assessed to see if the planned intervention of a nurse-led visit to manage hypertension increased patient confidence, improved blood pressure management, and expanded knowledge of hypertension. A summary was synthesized to describe the QI findings and the data was critically appraised to account for intrinsic and extrinsic factors that could have impacted the results (IHI, 2022). Surprises, successes, and failures were included in this synthesis. When the results were finalized, they were presented to the team (QI project committee members & Three Oaks Health staff) to encourage discussion on the QI implementation.

### ***Act***

The fourth step of the PDSA cycle is *act*, which is when the intervention/change will be refined to promote sustainability based on what was learned in the *study* phase (IHI, 2022). After this step, the PDSA cycle restarts. The survey results and blood pressure readings were used to assess whether or not the clinic and staff benefited from the planned intervention. If the project objectives were achieved, future utilization and sustainability was discussed with the clinic staff at Three Oaks Health. If the goals were not met, the PI collaborated with the clinic staff and team to address what could be refined to meet the project goals and ensure the intervention is effective. A new PDSA cycle was used if changes to the intervention needed to be made in order to meet the project objectives.

## **Setting and Stakeholders**

### **Setting**

The nurse-led hypertension visit was implemented at a primary care clinic, Three Oaks Health, in the rural town of Johnson Creek, Wisconsin. Three Oaks Health is a privately owned family practice that prides itself on providing patient-centered, compassionate care and education, with shared decision-making being one of its core values. The clinic sees patients across the lifespan and due to the lack of healthcare access in the geographical area and the strong patient-provider rapport, Three Oaks Health often manages a multitude of acute and chronic health conditions. They currently staff one medical doctor (MD), two PAs, two MAs, and two RNs. Three Oaks Health is expanding in size and is in the midst of building a new clinic to accommodate the increase in patient load.

Clinic flow is consistent with a MA or RN reviewing health history, obtaining vital signs, documenting the chief complaint, a brief history of present illness, and a concise review of systems. The provider then is notified that the patient is ready to be seen and given a brief rundown of the MA or RNs encounter. Once the provider completes their assessment and plan, the patient is ready to leave or have labs drawn by a LabCorp phlebotomist that is onsite. If the patient needs to schedule another appointment, they are able to do that at the front desk as they leave. Three Oaks Health has initiated a nurse-led visit for diabetes management over the past year. During the nurse-led visit, the RN is the sole provider seeing the patient, unless the doctor or a PA is needed due to scope of practice limitations. With the success of the nurse-led diabetes visit, hypertension is the next condition the clinic aspired to transition to nurse-led. This QI project was implemented at the clinic location and the providers assisted in offering the nurse-led visit to patients they felt would benefit from a nurse-led visit.

### **Stakeholders**

Authorization for implementing this QI project was provided by the lead physician and Three Oaks Health owner (Appendix A). Key stakeholders included the patients at Three Oaks Health, center healthcare staff (physician, PAs, MAs, & RNs), office staff (business manager & patient service representatives), and patients' families and friends. The primary stakeholders were the patients and the healthcare staff. The patients were crucial stakeholders because it was the goal of the intervention to improve their health. The patients' experiences through their health journey impacted the success of this QI project and they were the ones providing important data for the effectiveness of the nurse-led visit. Buy-in and approval of the healthcare staff was also important because, without their support, the nurse-led visit would not be

sustainable at the clinic. Endorsement from the staff improved patient buy-in, proving how important hypertension management is. The office staff was fundamental stakeholders because their support allowed for ease in billing and scheduling as well as assisting in the details of the nurse-led visit. Lastly, the patient's families and loved ones were important because they provided support to the patient as the patient learned to manage their hypertension.

### **Planning the Intervention**

The implementation phase occurred from May 31 to July 25, 2022. The first day was dedicated to educating the MAs and RNs on proper blood pressure measurements, the blood pressure screening checklist, and the nurse-led visit structured visit; all based on the *Measure Up, Pressure Down* toolkit (Appendix E). A disclosure form for the MAs and RNs was provided (Appendix B). A pre-survey and post-survey were provided in paper to the MAs and RNs (Appendix D). During the first three days, an hour-long evidence-based education was provided on the proper way to obtain blood pressure measurements and how to utilize the “high blood pressure cards” to alert providers of patients with hypertension (Appendix E). The RNs reviewed the structure of the nurse-led visit and received education on the “hypertension folders” that were provided to patients. Over the next seven and a half weeks, clinic staff provided patients who had uncontrolled hypertension or newly diagnosed hypertension with a paper document with information about the nurse-led visit for hypertension management and information about participating in this QI project (Appendix D). Patients who met the criteria of uncontrolled hypertension or newly diagnosed hypertension were flagged via the “high blood pressure cards” so that providers were able to address the blood pressure at that visit and encouraged patients to schedule a nurse-led visit within one to two weeks. They scheduled a nurse-led visit at the front

desk or via a telephone call. Patients willing to participate signed a disclosure form at their first nurse-led visit and were assigned a random ID number (Appendix B). The project surveys were provided via paper format and education was provided to participants at their first nurse-led visit in the form of a “hypertension folder” and supplemental educational materials were provided on an as-needed basis (Appendix D & E). The pre-survey and post-survey based on the *Measure Up, Pressure Down* toolkit were provided (Appendix D). At the first nurse-led visit, the patient’s blood pressure was measured, the patient filled out the pre-intervention survey, and the patient stated and wrote down a goal in their hypertension management. The nurse utilized the data from the survey and the stated goal to personalize education for the patient as well as provide evidence-based interventions such as labs, EKG, and any other best practices. The surveys were completed and placed in a folder kept at the clinic to protect health information., The patient kept their “hypertension folder.” After the nurse-led visit was completed, the patient completed the post-survey. If a second visit was warranted, the nurse and patient reevaluated the patient’s goal, remeasured the blood pressure, and made modifications as needed. They reviewed any labs or interventions from the previous visit. After the second visit, the patient completed the post-intervention survey to assess if the objectives of the QI project had been met. The PI completed bi-weekly chart audits to assess the intervention and make changes in the PDSA cycle as needed.

### **Participants and Recruitment**

This project included both new and established patients of Three Oaks Health. For this QI project, inclusion criteria were patients with well-managed hypertension who were interested in more information or education on the disease, patients with uncontrolled hypertension, and patients with newly diagnosed hypertension. A support person was also encouraged to attend so

that the patient and the support person can work together to achieve the patient's goals while they are living their day-to-day life. The exclusion criteria were patients who do not have hypertension. A convenience sampling method was used in recruitment. Convenience sampling is a nonrandom technique and it was appropriate for this QI project because it allowed members of the target population to be selected for the purpose of this project as long as they met the inclusion criteria, were willing to volunteer, and had the time to participate (Farrokhi & Mahmoudi-Hamidabad, 2012). The clinic staff promoted and recruited patients by encouraging them to schedule a nurse-led visit for hypertension at the provider's discretion or if the patient was interested in learning more about hypertension management. Participation was voluntary. The sample size goal was to have three nurse-led visits per week, so 24 patients over the eight-week period. From January-April 2022, Three Oaks had seen an average of 45 patients/month with a diagnosis of essential hypertension, so about 11 patients/week. Having 24 patients complete nurse-led visits over the eight-week project implementation course would be about 30% of the essential hypertension patient population during that time frame.

### **Consent and Ethical Considerations**

The goal of QI in healthcare is to improve and enhance patient care. Ethical considerations need to be at the core of designing and implementing QI projects in order to protect human subjects and reduce the possibility of unintentional risk or burden (Hunt et al., 2021). Appropriate safeguards are necessary to ensure the ethical principles of autonomy, beneficence, non-maleficence, and justice are maintained (Hall et al., 2020). This project took several steps to ensure these ethical principles were preserved. The project was submitted to the Institutional Review Board (IRB) at the University of Arizona to ensure the rights and welfare of

the patients participating in this QI project were protected. This project was reviewed and approved as not human research by the IRB (Appendix A). Patient privacy was maintained by using non-patient identifiers in the data collection, randomized ID numbers utilizing randomizer.org, and proper data storage at Three Oaks Health in specific study folder kept in a locked drawer. Participants were informed that their health information will remain protected and that the data collected will be used only for analysis. Disclosure forms were provided to review prior to completing the surveys and nurse-led visit intervention (Appendix B). The survey tools were succinct in order to not take away from the time dedicated to the visit. The education provided was based on current evidence-based practice and was be delivered in the English language at no higher than an eighth-grade reading level, in accordance with the recommendations of the American Medical Association (AMA), the National Institutes of Health (NIH), and the Centers for Disease Control and Prevention (CDC) (Safeer & Keenan, 2005). There were no foreseeable risks or adverse health outcomes associated with participating in this QI project as the intervention aimed to educate and support patients in improving their blood pressure. Participants were encouraged to contact the PI or the clinic RNs to discuss any concerns they had.

### **Project Timeline**

To ensure the succession of this QI project, a project timeline (Appendix G) was completed. This project timeline was subject to change based on the University of Arizona IRB approval, project development, needs of the clinic, and implementation.

### Data Collection

The survey responses were collected via paper and kept at Three Oaks Health clinic until the completion of the QI project. Each patient received a unique participant ID that was used throughout the QI project and correlated with their surveys. The PI, RNs, and the lead physician were the only ones with access to the survey information. Once the QI project was completed, the data and materials from the project will be kept in the University of Arizona College of Nursing for six years based on the University of Arizona's data policy.

The pre-and post-intervention surveys (Appendix D) were modified from the *Measure Up, Pressure Down* toolkit by the PI to meet the objectives of this QI project. The surveys were reviewed by the project committee members; three doctorate-prepared nurse practitioners in order to confirm that the surveys were accurate and written in an appropriate manner. Demographic data included age, ethnicity, and sex. The post-intervention survey contained the same questions as the pre-intervention survey (Appendix D).

The nurse-led visit structure and education provided were based on current best practices from the JNC8 and AHA guidelines and the *Measure Up, Pressure Down* educational toolkit to ensure the validity and generalizability of the QI project. The content was peer-reviewed and reviewed by the project committee to confirm accuracy. This project is generalizable to patients at primary care practices and could be adapted to meet the needs of other chronic conditions.

The surveys for patient participants were formatted as yes/no, multiple-choice, select all that apply, Likert-like scale, and open-ended questions. The surveys for the clinic staff were formatted as multiple choice, Likert-like scale, and open-ended questions. Chart audits were

completed on a bi-weekly basis by the PI to assess compliance with education and best practices (Appendix F).

### **Data Analysis**

Descriptive statistics were utilized to analyze the survey responses. The data was exported to a Microsoft Excel document to assess and better evaluate. For the patient participants, the yes/no and select all that apply questions were analyzed as categorical with percentages to interpret the frequency of the responses. The select all that apply and open-ended questions were analyzed using multiple response frequencies. Fill-in-the-blank responses allowed the PI to trend responses to better understand the needs of the patient population and their goals. For the clinic staff, the multiple-choice questions were analyzed through multiple response frequencies with percentages to interpret the frequency of the responses.

## **RESULTS**

### **Demographics of Participants**

All (100%) of the medical assistants (MAs) (2) and registered nurses (RNs) (2) at Three Oaks Health participated in the *Measure Up, Pressure Down* pre-survey, education, and post-survey. The four participants were Caucasian females between the ages of 32-60 employed by Three Oaks Health. Over eight weeks, 32 nurse led-visits for hypertension were offered to patients who qualified for this project. 20 patients scheduled and completed a visit during the eight weeks. 12 patients refused to schedule a visit, and six of the 12 patients who refused to schedule a nurse-led visit were agreeable to home blood pressure monitoring and relaying the data to the nurses based on individualized blood pressure parameters. Of the 20 visits, 11 patients

completed the pre- and post-survey utilized for this project. There were four females and seven males between the ages of 29 and 71. All participants were Caucasian.

### **Outcomes**

The project question was: For patients with hypertension, will a structured nurse-led visit influence the patient understanding and confidence in blood pressure management? The intervention that affected the outcome was educating the MA's and RNs on obtaining proper blood pressure measurements and creating a structured nurse-led visit and "hypertension folder" utilizing individualized patient-centered and specific goals. The process to measure the desired outcome was using PDSA cycles with pre- and post-surveys before and after the staff education for the MAs and RNs and nurse-led patient visits (Appendix D).

### **PDSA Cycles**

Four PDSA cycles focused on team engagement and systems change were utilized in this QI project. Each PDSA cycle took place over the course of two weeks.

The first cycle started with a staff meeting and educating the MAs and RNs. Team engagement was achieved by having a staff meeting with the MAs, RNs, and providers to educate them on the start of implementing the nurse-led visit. At this meeting, system change was achieved by implementing the "hypertension folders", the vital signs tip sheets, the hypertension cards, and educating the MAs and RNs. After the staff meeting, the MAs and RNs took the pre-survey, had a one-hour-long education based on the *Measure Up Pressure Down* toolkit, and completed the post-survey. Blood pressure tip sheets were placed on the vital sign machines for patients to view, and the hypertension cards were placed in provider rooms for the MAs to complete if a patient's blood pressure was >140/90mmHg. After completion of the MA

and RN education, the focus switched to the initiation of the nurse-led visit utilizing the “hypertension folders.” At the end of this cycle, through a team meeting at the end of the first two weeks, three changes were made based on the assessment. First, it was determined that the MAs were to be reminded of the importance of repeating the blood pressure if it was  $>140/90\text{mmHg}$ . This was addressed through one-on-one conversations between the PI and the MAs. Second, the PI met with the three providers individually and re-educated them on the format of the nurse-led visit and that the nurse-led visit could be offered to patients that they felt would benefit. This was done through individual verbal reminders. Third, it was determined through team conversations that the hypertension cards were not being utilized due to a setback in the workflow and that the MAs preferred to verbally tell the provider if a patient’s blood pressure was  $>140/90\text{mmHg}$ , so it was decided to remove the hypertension cards and rely on the providers to offer the nurse-led visit to patients they felt would benefit.

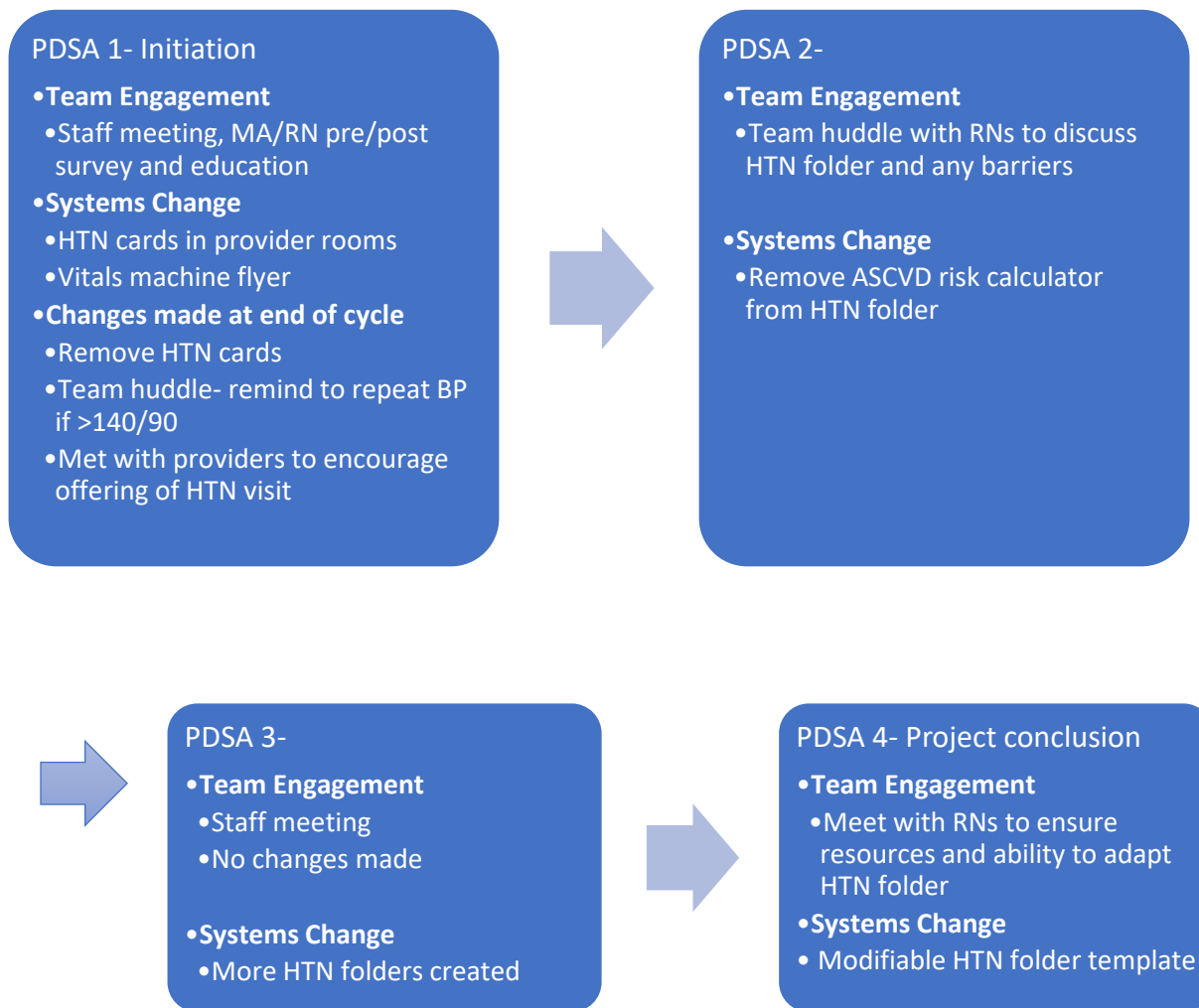
At the end of cycle two, the PI met with the RNs during a morning huddle to discuss their needs, education, or any insight on barriers to the nurse-led visit. Through this team engagement, a system change was implemented by removing the ASCVD risk calculator from the “hypertension folders”. The RNs felt that the ASCVD risk calculator was an aspect of care designated to the providers since it often involved a discussion of either adding or modifying medications and they felt the ASCVD risk should be continued to be addressed by the providers.

Cycle three concluded with another team meeting with the clinic staff to discuss any needs, questions, or concerns in regard to the nurse-led visit. The staff was reminded at this meeting to offer a nurse-led visit to patients whom they felt would benefit. At this time, no changes were made; more “hypertension folders” were created for use.

The fourth and last PDSA cycle concluded the project. At the end of this cycle, the PI ensured that the MA's and RNs had access to resources to enhance their knowledge of hypertension further and that they had the tools to continue the use of the "hypertension folder" at the practice and the ability to modify it to their needs in the future. Team engagement concluded with a debrief with the RNs on any more education they would like on hypertension measurement and management. Systems change was addressed by ensuring that the MAs and RNs had evidence-based resources to refer to during nurse-led visits and that they had the ability to continue to adapt the "hypertension folder" based on the needs of their patients.

### **MA and RN Outcomes**

The MAs and RNs took a pre-survey, received an education based on the *Measure Up, Pressure Down* toolkit, and then took a post-survey. All survey responses were kept anonymous. Pertinent outcomes learned from the survey include: 100% of the staff received blood pressure measurements in the past (n=4). 25% received education in the past year, 25% received education in the past one to three years, 25% received education three to five years ago, and 25% received education over five years ago (Table 1). There were 10 multiple choice questions based on education for the pre-survey and post-survey. For the pre-survey, there were five questions that all of the MAs and RNs got correct, four questions 75% got correct, and one question 25% got correct (Table 2). The *Measure Up, Pressure Down* education was provided to the MAs and RNs. For the post-survey given once education was completed, all questions were scored at 100% correct (Table 3).

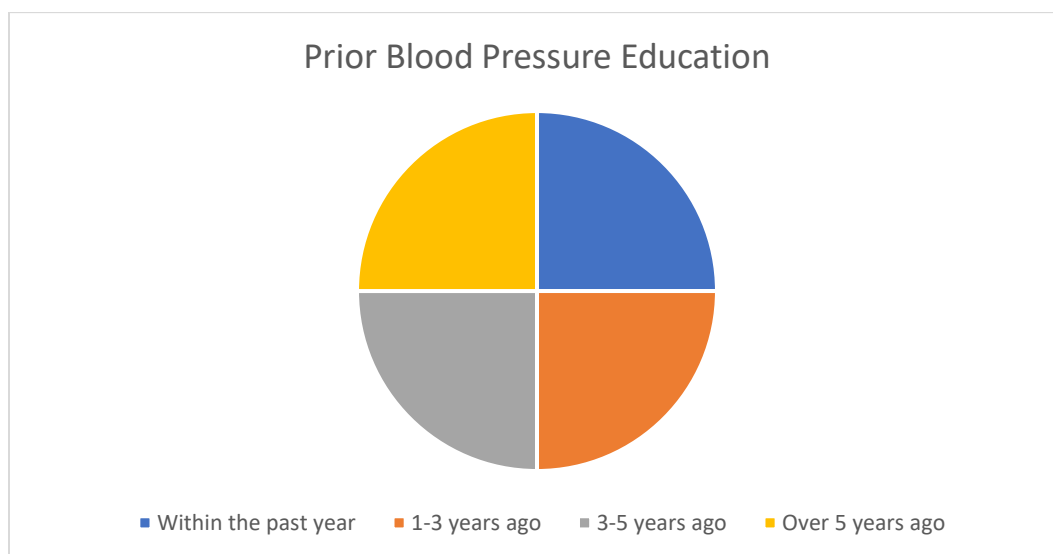
**Figure 3***PDSA Cycles*

Most (75%) of the participants agreed, and 25% felt neutral that they felt confident in their ability to get accurate blood pressure in the pre-survey. 100% strongly agreed they felt confident in their ability to get accurate blood pressure post-survey. The RNs were surveyed on their confidence in discussing blood pressure management, such as lifestyle modifications, medications, and standard labs obtained. In the pre-survey, 100% felt neutral, and in the post-

survey, 100% agreed that they felt confident (n=2) (Table 4). In the post-survey, the MAs and RNs were asked about any further education they would be interested in to expand their hypertension knowledge. Responses included more medication education, yearly training, and learning more about how impactful lifestyle modifications can be on high blood pressure. One participant did not respond to this question (Table 5).

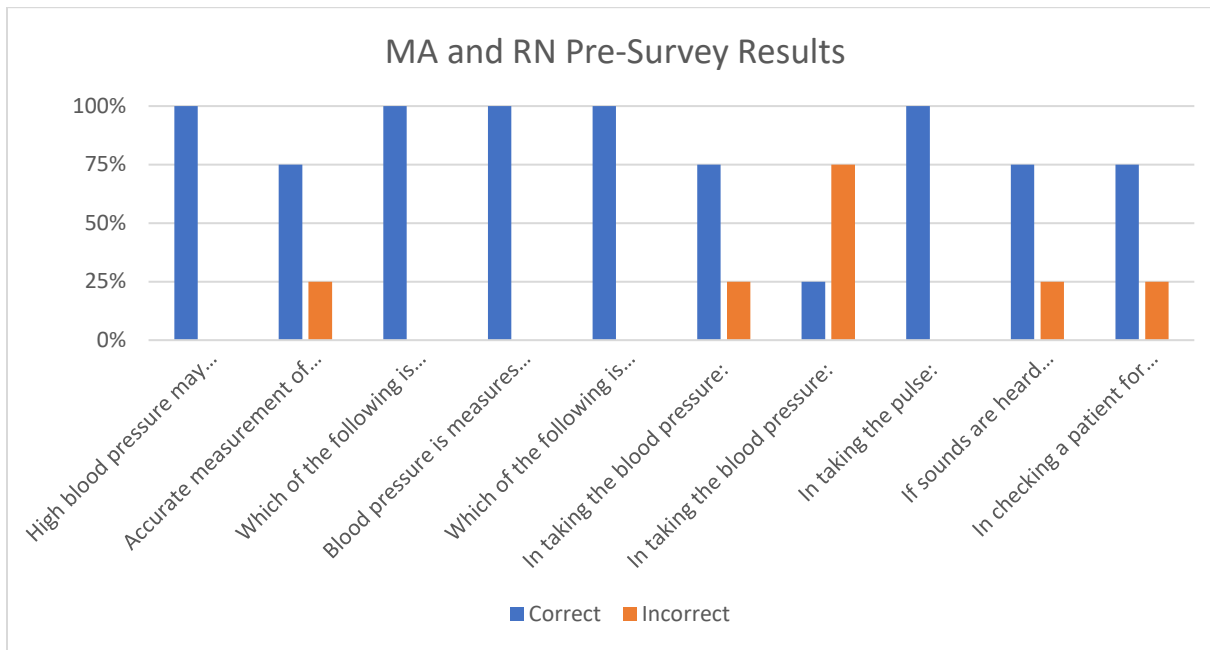
**Table 1**

*Prior Blood Pressure Education*



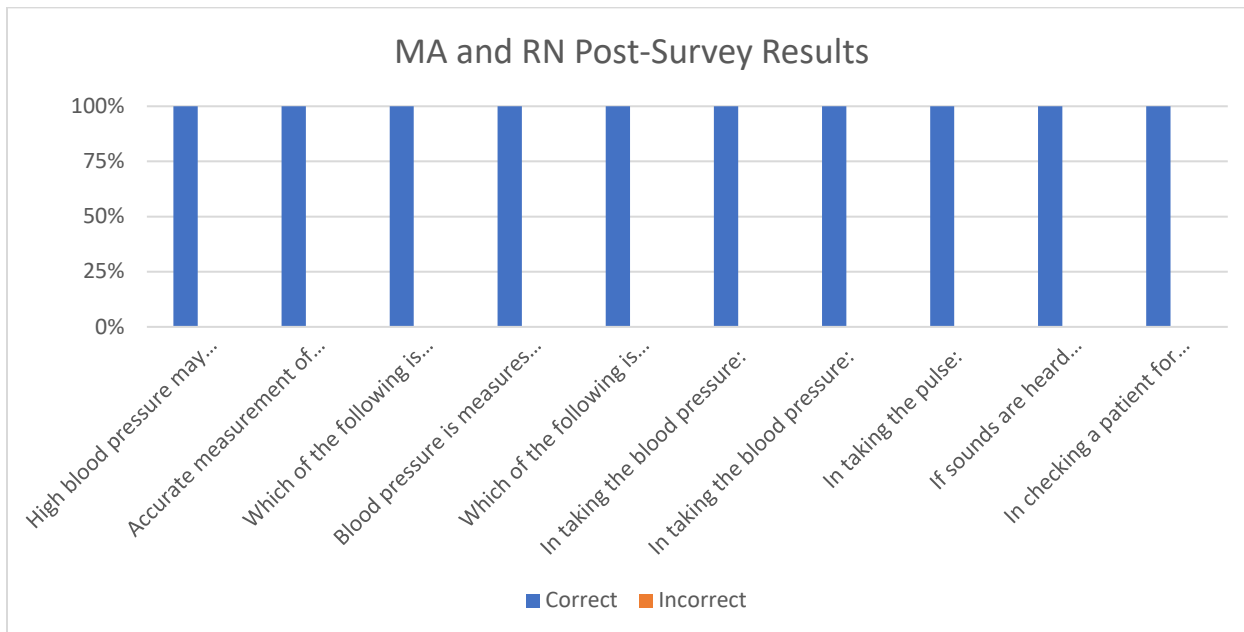
**Table 2**

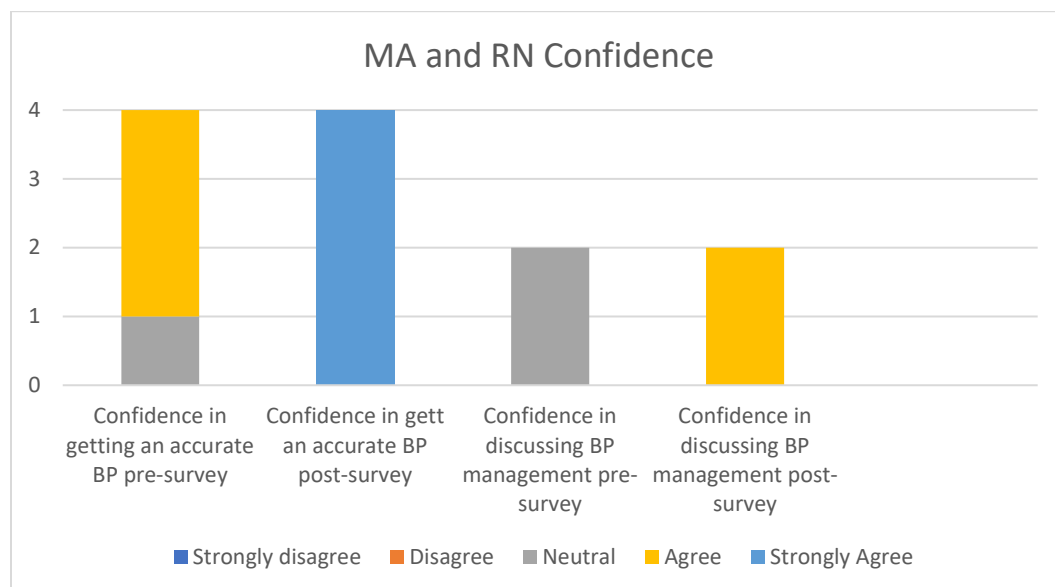
*MA and RN Pre-Survey Results*



**Table 3**

*MA and RN Post-Survey Results*



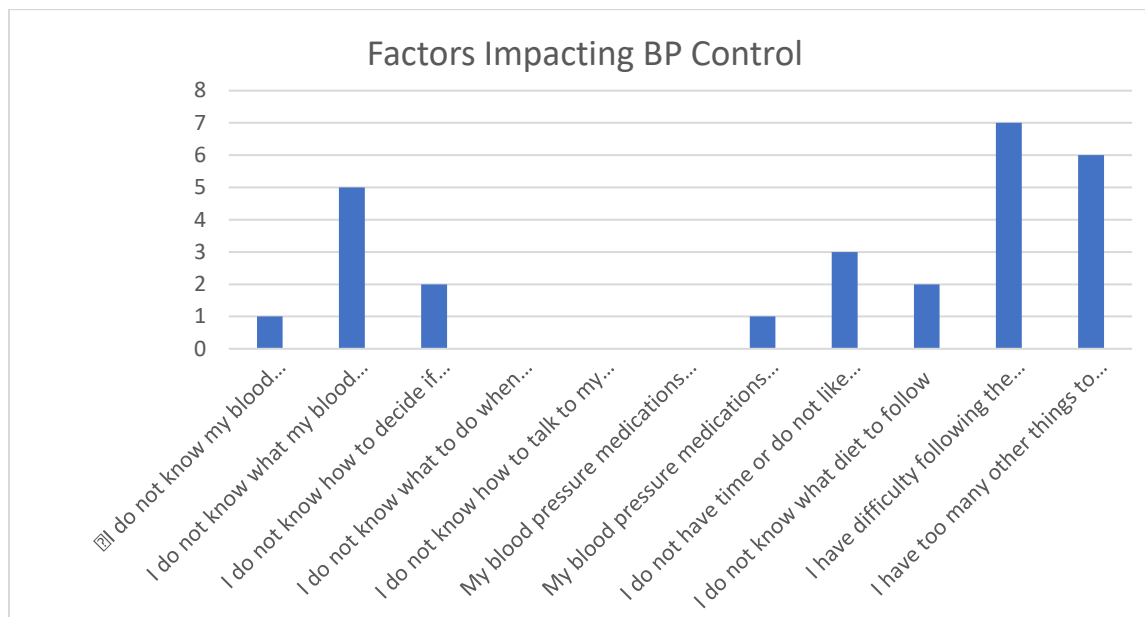
**Table 4***MA and RN Confidence Questions***Table 5***MA and RN Open-Ended Questions*

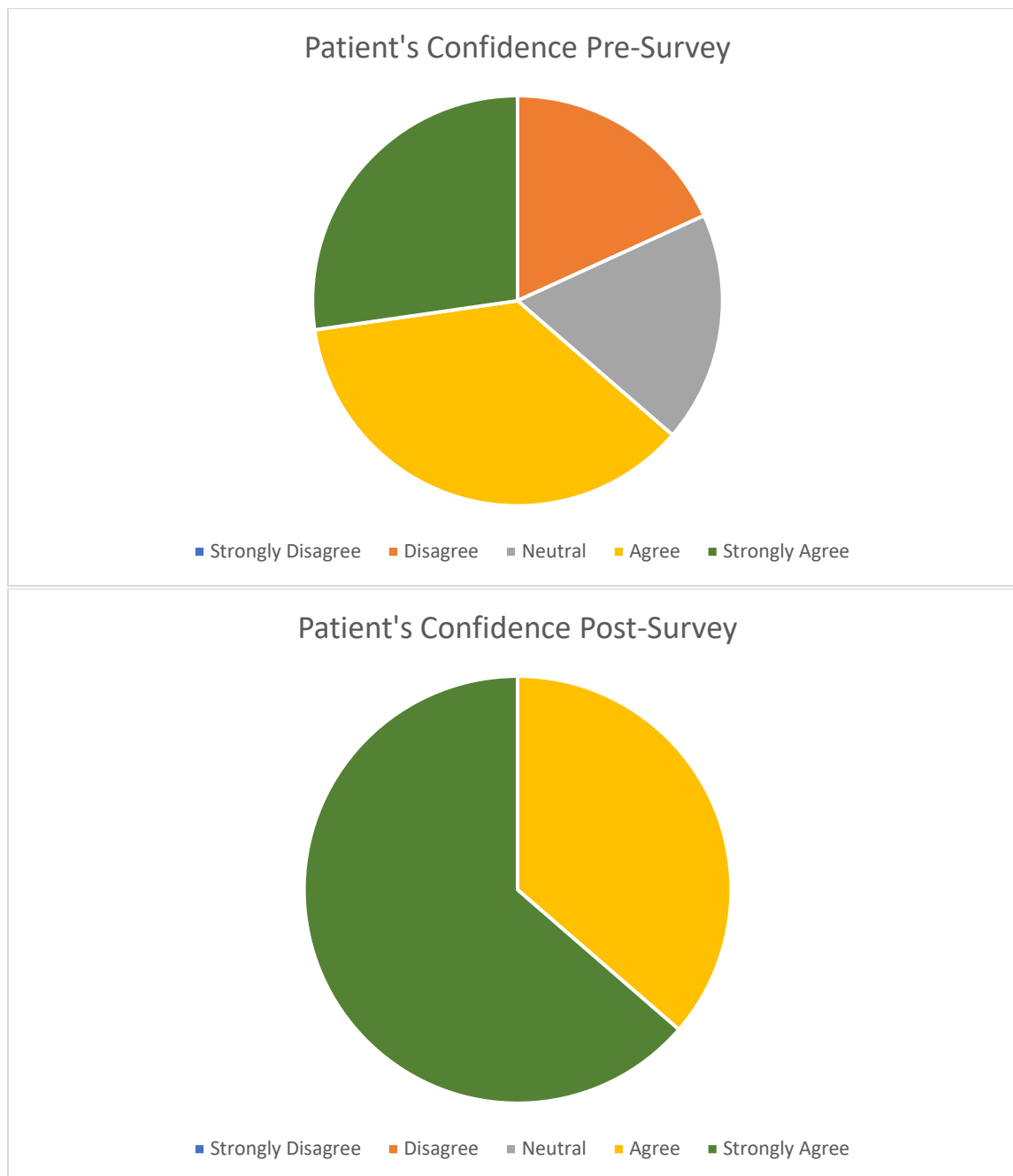
Question: Is there anything else you would like education on in regards to BP management?	1. More education on different BP medications
	2. Yearly training
	3. More information on how lifestyle modifications can impact high blood pressure.

**Patient Outcomes**

Patients agreeable to participate in this project were given a pre-survey, then participated in the nurse-led visit, and upon conclusion, were given the post-survey. Of the 11 patients who completed surveys, eight reported they did not consider their blood pressure to be “under

control,” two felt it was “under control,” and one was unsure. All 11 patients could identify blood pressure measurements considered “under control.” When asked about what factors impact their blood pressure from being in a controlled range, the top three responses were: “I have difficulty following the diet prescribed by my doctor” (seven responses), “I have too many other things to worry about” (six responses), “I do not know what my blood pressure is or how to measure it” (five responses) (Table 6). When asked in the pre-survey about the patient’s confidence in their ability to manage their blood pressure, two patients disagreed, two were neutral, four agreed, and three strongly agreed. After the nurses-led visit, when asked the same question, four agreed, and seven strongly agreed (Table 7). Various responses were reported when asked what one goal is for their blood pressure management to guide the nurse-led visit better (Table 8). Each response was endorsed once except “measuring my blood pressure at home with a validated cuff” was reported three times, “increasing activity and exercise” was reported twice, and “staying in contact with the nurses and providers on my blood pressure” was reported twice.

**Table 6***Factors Impacting Blood Pressure Control*

**Table 7***Patient Confidence in Blood Pressure Management*

**Table 8***Patient Open-Ended Question*

One goal in my blood pressure management is...	Work on increasing daily activity and exercise
	Start to measure blood pressure at home using a validated blood pressure cuff
	Letting family know blood pressure goals and lifestyle changes they would like to make to have family support
	Measuring blood pressure at home at least three times per week first thing in the morning
	Paying more attention to the foods they eat and trying to decrease sodium intake
	Taking blood pressure medications at the same time every day
	Staying in better contact with the nurses and providers at Three Oaks if their blood pressure starts to be out of their goal range

**Outcomes Connected to Objectives**

The purpose of this QI project was to create a patient-centered, team-based approach to blood pressure education and management through educating and improving the confidence of the MAs and RNs knowledge of hypertension; improving patient engagement and understanding of blood pressure management in a nurse-led visit; and creating a nurse-led visit for follow-up for patients diagnosed with hypertension. The PI used these objectives to develop education tailored for the MAs and RNs to increase confidence. Confidence of the MAs and RNs improved to 100% (n=4) of the participants strongly agreeing that they feel confident in their ability to get an accurate blood pressure (compared to 0% of them strongly agreeing) and 100% of the RNs (n=2) agreeing that they feel confident in their knowledge of blood pressure management

(lifestyle changes, medications, and standard labs) compared to 0% agreeing during the pre-survey. This correlates to a 100% increase in MA and RN confidence in blood pressure management.

The PI addressed patient confidence in blood pressure management by creating a “hypertension folder” that could be individualized based on each patient’s specific needs. Before the education, 18% disagreed (n=2), 18% were neutral, 36% agreed (n=4), and 27% strongly agreed (n=3) that they felt confident in their ability to manage their blood pressure. After the nurse-led visit and individualized education, all patients had an increase in confidence based on their survey results- 36% agreed (n=4), and 64% strongly agreed (n=7) that they felt confident in their ability to manage their blood pressure. This correlates to a 100% increase in patient confidence in controlling blood pressure.

Before creating the “hypertension folder” and implementing an individualized nurse-led visit, there were zero standardized nurse-led hypertension visits at Three Oaks Health. Often, patients would come in for a blood pressure check by the RN. However, no consistent format was used. 32 patients were offered a nurse-led visit, and 20 patients completed the visit in the eight-week project period, so 62.5% of patients offered nurse-led hypertension were agreeable to completing the visit. The 20 patient visits completed correlate to a 2,000% increase in nurse-led visits since there was no formal nurse-led visit prior to implementation. In conclusion, all three aims and the project objective were achieved through this QI project.

## **DISCUSSION**

This QI project was initiated after a needs assessment where Three Oaks Health inquired about expanding their nurse-led visits to include hypertension visits. After a literature search, the

PI identified that nurse-led visits that were patient-centered and based on the patient's goals were very effective in the management of hypertension as well as cost-effective. In fact, nurse-led visits for multiple chronic conditions have effectively reduced morbidity and mortality.

Results of the literature synthesis consistently showed that educating MAs and RNs on proper blood pressure measurement and guidelines is the first step in creating a nurse-led visit since improper measurement is a common reason for falsely elevated blood pressure. The second was to develop a structured visit that can be adapted to each patient's specific needs or goals since each patient may present different care plans based on their lifestyle.

The overall purpose of this project was to ensure proper education for the MAs and RNs at Three Oaks Health and to create an effective hypertension learning tool along with a structured visit that can be easily adapted to patient needs to improve the confidence of the MAs, RNs, and patients. Surveys were used to assess knowledge and barriers and subjective feelings of confidence in hypertension management.

### **Summary**

Outcomes of the survey reveal that educational interventions improved participant confidence in managing hypertension. The surveys also revealed that patients perceived similar barriers regarding their blood pressure management; however, most patients had differing goals for their care. This shows that the interventions provided addressed the patients' needs by providing a versatile tool to meet the individualized needs of each patient.

### **MA and RN Key Findings**

One of the key findings of the MA and RN portion of education and surveys is that the four participants were knowledgeable from prior experience on proper blood pressure

measurement and management. In the pre-survey, 5 out of 10 questions were answered 100% correctly by the four participants, 4 out of 10 questions were answered 75% correctly, and only one question was answered 25% right by the participants. The MAs and RNs have a combined total of over 50 years of blood pressure measurement experience, so it was no surprise that they did very well on the pre-survey. However, only one of the four participants had received education on blood pressure in the past year, and current literature suggests yearly competency evaluations to ensure proper blood pressure measurement techniques. Lastly, in the pre-survey, the MAs and RNs either felt neutral or agreed with the statements of confidence in blood pressure measurement and management. After the education was provided, the post-survey revealed that all four participants now agreed with or strongly agreed with the confidence statements indicating that the education served its purpose.

### **Patient Key Findings**

One of the main objectives of nurse-led visits is to provide patients with the tools to succeed in their healthcare goals. A key finding in the pre-and post-survey is that most of the patients, 8 out of 11, knew that their blood pressure was not in a goal range; however, 100% of the patients were able to identify the blood pressure value that would indicate it is in a controlled range. This suggests that the three Oaks Health providers have done an adequate job of portraying hypertension goals to their patients.

Another key finding is that most patients have more than one barrier impacting their blood pressure management, most of which were related to lifestyle modifications, not knowing how to monitor their blood pressure at home, and having multiple life stressors or other things managed at that time. Their stated goal in blood pressure management also varied from patient to

patient. This correlates to the need for individualized patient education and visits to meet the goals of each patient in their healthcare journey. In assessing patient confidence in being an active participant in their blood pressure management, the pre-survey results showed 18% (n=2) disagreed, 18% felt neutral, 36% agreed, and 27% strongly agreed that they felt confident in their ability to manage their blood pressure. This shows that the majority of patients felt confident, which again correlates to previous education provided by the healthcare providers being successful. However, after the nurse-led visit with individualized education, 100% of the patients agreed (36%) or strongly agreed (64%) that they felt confident in their ability to manage their blood pressure. This displays that although previous education by providers was overall successful, the nurse-led visit dedicated to education allowed all patients to increase their confidence in their blood pressure management. Through the “hypertension folder” adaptable to each patient’s needs, the nurse-led visit added to the tools patients can utilize to achieve their healthcare goals.

### **Interpretation**

Implementing education for MAs and RNs based on the *Measure Up Pressure Down* toolkit through an in-person education session improved confidence in obtaining proper blood pressure measurements and nurse-led management of hypertension. A core understanding of appropriate blood pressure measurement techniques is the base for blood pressure management due to the possibility of inaccurate blood pressure readings if not done correctly. For the RNs, knowing lifestyle modifications, standard labs, and the pathophysiology of hypertension improved their confidence of the RNs in providing an evidence-based nurse-led visit based on

current hypertension guidelines. These findings were congruent with the project question, findings from the literature synthesis, and anticipated outcomes for the MAs and RNs.

By discussing with the healthcare provider and utilizing shared-decision making, patients could schedule a nurse-led visit if they felt it would aid in their hypertension management. This shared-decision making ensured efficient and effective care tailored to each patient's needs by providing the patient was agreeable to participate in the visit and overall motivated to engage in the nurse-led visit. The nurse-led visit was expected to increase patient confidence and provide a resource to take home and utilize as the patient deemed fit. The nurse-led visit also proved to be a bonus of another support person for the patient in their health journey. Introducing the "hypertension folder" facilitated goal setting for the patients by narrowing down a vast, seemingly overwhelming topic to something more attainable. Also, the discussion of home blood pressure monitoring, how to utilize a validated home blood pressure cuff, how often to be checking blood pressure at home, and goal blood pressures for each patient was addressed in the "hypertension folder," encouraging home compliance and building a routine with more accurate blood pressure measurements than in-office. These findings were also consistent with the project question, findings in the literature synthesis, and expected outcomes for the patient participants.

These findings suggest that nurse-led visits for chronic conditions such as hypertension are an effective way to improve patient confidence through creating patient-centered plans and having patients state obtainable goals. Providing support, shared decision-making, and focused visits led by the RN also encourages patients to participate actively in their health.

## Implications

### Practice Implications

The RNs at Three Oaks Health intend to continue to use the “hypertension folder,” provided resources, and education during their hypertension nurse-led visits. It was also discussed with the RNs to utilize a similar structure for other nurse-led visits that have already been implicated and for the future creation of nurse-led visits for other chronic conditions. Their goal is to continue to use patient-centered care through shared decision-making to guide the nurses-led visit. This implies a shift toward utilizing the RN to their fullest license potential.

For other health clinics looking to incorporate nurse-led visits into their appointment offerings, the most crucial step is educating the RN on their role and goal of providing a base understanding of pathophysiology to ensure the RN is prepared to lead the nurse-led visit. Then, create a structured appointment that can be adapted to different patient conditions and different goals of the patient. For this project, the “hypertension folder” was an adaptable format that could be modified for other chronic diseases. Also, implementing a nurse-led visit creates a rapport and support system for the patient and a chance for the patient to have undivided attention for one condition to focus on their goals or concerns.

For PIs looking to incorporate nurse-led visits, this project is informative by utilizing the *Measure Up Pressure Down* toolkit to guide education for the MAs and RNs and surveys to assess areas that may need more attention or education. The surveys can be modified for other chronic health conditions. The knowledge of the increase in confidence in the MAs, RNs, and patients is encouraging to future PI's because patient confidence and buy-in are the essential

steps in empowering patients to be active participants in their health, especially at the primary care level.

### **Education Implications**

Results from this project imply that education tailored to the population's specific needs can increase confidence. This QI project also displayed that setting attainable goals aided confidence and that focusing on what the participant felt was most important in their health and addressing barriers to achieving their health goals helped improve their confidence in blood pressure management. This can be incorporated in a variety of settings of nursing. Healthcare workers are constantly educating, and understanding that each person learns differently is one of the most significant implications of this project.

### **Research Implications**

Further investigation is needed to determine if improved confidence and education correlate with improved patient outcomes. The literature synthesis associated nurse-led visits with a decrease in patient morbidity and mortality; however, that could not be determined for this QI project. Questions to consider include: Do nurse-led hypertension visits lead to better blood pressure control? Do nurse-led visits for hypertension decrease coronary artery disease, kidney injury, or stroke? And Does patient-centered care with education tailored to patient goals improve patient outcomes? Addressing these questions would impact whether or not nurse-led hypertension visits and improved patient confidence impact patient outcomes, affecting whether they should become a standard of care.

## **Policy Implications**

Results from the QI project indicate that hypertension education improves MA, RN, and patient confidence in blood pressure measurement and management. This may influence health clinics to pursue nurse-led visits for chronic health conditions. The MAs and RNs were supportive of this educational opportunity. A discussion was started to incorporate an annual or biennial education and skills check for blood pressure measurements and management. There was discussion to utilize a similar visit format for other nurse-led visits at the clinic. Creating additional nurse-led visits would efficiently use the RN role at the primary care clinic by allowing the RNs to work to the scope of their practice, permitting the providers to see patients who require assessment and planning by a medical provider. This increases the number of patient appointments per day, overall increasing clinic revenue.

## **Strengths and Limitations**

### **Strengths**

The strengths of this QI project start with the underlying support of the Three Oaks Health staff and providers. This was a project the clinic was planning to create, and it was willing to provide the necessary resources to implement it. The clinic has implemented other nurse-led visits for diabetes, wound care, upper respiratory infections, and urinary tract infections, so a nurse-led visit was not a new concept. They had already seen the benefit of utilizing nurses to their full scope of practice.

Another strength was the clinical experience of the MAs and RNs, who were eager to learn and very professional. With over 50 years of combined clinical experience, the MAs and RNs had good baseline hypertension measurement and management knowledge. With this in

mind, the PI could complete the MA and RN education in one day, allowing for an earlier start to the project. Additionally, the clinic staff and patients were flexible with the multiple PDSA cycles, and the providers were willing to adapt their schedule if the nurse needed assistance or if a provider's assessment was needed to change the care plan, such as ordering labs or changing medications.

An unforeseen strength of this QI project was that it opened the conversation for home blood pressure monitoring. Most patients opted to buy a validated cuff to monitor their blood pressure at home. Previous studies and hypertension guidelines encourage home blood pressure monitoring for more accurate measurement, which allows for more precise treatment. Lastly, the Three Oaks Staff has built a strong rapport with their patient population since their opening, allowing for trusting and engaged patients willing to participate in their healthcare.

### **Limitations**

A small number of willing participants limited this QI project. Although 20 nurse-led hypertension visits were completed, only 11 agreed to participate in the QI project by completing the surveys, less than the PI's goal of 24 patients. From review with the RNs, they reported that the primary concern of the patients who did not want to participate in the QI project was that they did not have the time to complete the pre-and post-survey. Although the surveys were created with time in mind, it should be remembered that an extra 10-20 minutes to complete the surveys and discuss results may not be attainable for all patients.

Another limitation of this project was that there was no standardized or structured way to flag/recognize patients who could participate in the nurse-led visit. Providers recognizing and offering the visit to patients was the primary way of recruiting patients to participate, so due to

human error, there could have been patients missed. In the future, technological, clinical decision-making such as an order-set in the EHR or an alert in patients charts in the EHR could be implemented to ensure that all patients who had a blood pressure >140/90 would be addressed and offered a nurse-led visit after a shared decision-making discussion with the patient.

A third limitation is that this QI project is not generalizable due to the small number of clinic staff and the nature of the private practice. The results can only suggest implementation for similar-sized methods with resemblant patient demographics and comparable resources and support for the MAs and RNs, such as time spent with patients during appointments and protocols for treating chronic conditions. At a large healthcare organization, these aspects of care may differ depending on their policies and protocols.

### **Doctor of Nursing Practice Essentials Addressed**

There are eight Doctor of Nursing Practice (DNP) Essentials that focus on applying evidence-based care to improve practice and patient care and ensure the preparedness of the graduating nurse practitioner (American Association of Colleges of Nursing [AACN], 2006; Edwardson, 2017). Throughout the DNP program, the DNP nurse practitioner student must meet these eight essentials through the course and clinical work. This QI project addressed four of the DNP Essentials.

#### **DNP Essential I: Scientific Underpinnings for Practice**

Essential I is based on the idea that every nurse performs from a philosophical and theoretical core and that daily practice is influenced by values, opinions, and beliefs (Eldridge, 2017). Through this, the DNP understands that human behavior is a pattern of continuous

interaction with the environment and that a foundation of nursing is understanding life processes and the function of a human being, whether they are sick or well (AACN, 2006).

This QI project addresses Essential I by incorporating an intervention based on a theoretical framework, the MRM Theory. A theoretical framework to support the QI project endorses the idea that nursing care is based on a theoretical and philosophical core. The MRM theory and the project intervention of providing an individualized, patient-centered approach to a hypertension nurse-led visit support Essential I by understanding that patient needs constantly evolve based on their interaction with the environment. This also includes knowledge of the DNP in the life processes and integrating nursing science with ethical, biophysical, psychosocial, and organizational sciences to improve nursing practice (AACN, 2006; Eldridge, 2017).

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

Essential II conveys that leadership is critical to improve health outcomes and provide effective patient care by creating system change and endorsing new care models (AACN, 2006). Essential II emphasizes the importance of being proficient in QI initiatives, emphasizing cost-effective and sustainable care (AACN, 2006). This is all done by working closely with other disciplines to meet the needs of patient populations (Wiggins-Peterson, 2017).

This QI project started by collaborating with a private practice, and the PI worked jointly with providers, MAs, and RNs to create a sustainable, cost-effective change in approach to improve patient outcomes based on the needs of the practice. A needs analysis was completed to ensure the QI project would be effectively utilized. This project was safe for patients to participate in and aimed to improve confidence in hypertension management.

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

Essential III explores the idea that DNP students are proficient in investigating and synthesizing evidence-based practice (AACN, 2006; Tymkow, 2017). They can then use the synthesized information to make connections, create change, and solve problems to improve the practice of nursing (Tymkow, 2017). In this QI project, a literature search and synthesis were completed to identify the impact of nurse-led visits on chronic conditions, best practices for hypertension management, and nursing interventions for hypertension, aligning with the ideas of Essential III. The PI utilized the knowledge found in the literature synthesis to create a structured nurse-led visit, education for the MAs and RNs, and pre-and post-surveys to make a safe and sustainable practice change.

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

Essential VI conveys that the DNP can work collaboratively in the healthcare environment to provide patient-centered care (AACN, 2006; Ash et al., 2017). Working as a team demonstrates an understanding of the different dimensions of healthcare and that patient needs should be the focus of the care team's initiatives (AACN, 2006).

In this QI project, individualized patient care and patient goals were the cornerstones of the intervention. The PI worked with the providers to create the process change based on the practice's needs. During education and PDSA cycles, the PI collaborated with the MAs and RNs to explore any changes that needed to be made with the intervention. Throughout the entire

project, open communication was maintained with staff, and the goal of patient-centered care was the priority.

### **Conclusions**

This QI project was created to address the needs of a primary care private practice, Three Oaks Health, in Johnson Creek, WI, by implementing a nurse-led visit for hypertension management. After a literature review and synthesis, it was identified by the PI that the first step would be to ensure proper education and core understanding of hypertension measurement and management by the MAs and RNs. The *Measure Up Pressure Down* toolkit provided standardized, evidence-based education. Once that education was completed, and the MAs and RNs felt confident in their ability to have appointments and educate patients on hypertension, the nurse-led visit was implemented. The PI created an adaptable “hypertension folder” based on evidence-based education on hypertension, such as background knowledge of hypertension, lifestyle modifications, non-modifiable risk factors, standard labs to obtain, and information on home blood pressure monitoring. Blood pressure tip sheets were dispersed to staff, and proper blood pressure measurement techniques were placed on the vital signs machines for patients to see. The education was peer-reviewed by the project chairs, three doctorate-prepared nurses. Surveys were provided for the MAs, RNs, and patients before and after instruction to assess the impact of the intervention.

The four MAs and RNs completed the pre-survey, education, and post-survey. All questions were answered. Results revealed that 75% of the MA’s and RNs had not received instruction on hypertension in the past year and that the education provided improved their confidence in obtaining an accurate blood pressure measurement and also increased the

confidence of the RNs in managing hypertension and presenting hypertension education to patients in a nurse-led visit.

Eleven patients at Three Oaks Health completed a pre-survey, nurse-led visit, and post-survey. The pre-survey revealed that all patients knew what blood pressure measurement would be considered “under control.” However, only two participants stated that their blood pressure was currently “under control.” The surveys also revealed that most patients had multiple barriers to why their blood pressure was not in a controlled range. Patients were encouraged to state specific goals in their hypertension management, and the nurses served as the participants' educators and support persons. After reviewing the “hypertension folder” and education, all 11 participants completed the post-survey, which indicated that all participants agreed or strongly agreed that they now felt confident and had the tools they needed to manage their blood pressure. Home blood pressure monitoring was encouraged for patients to pursue, and they could learn how to properly utilize a validated blood pressure cuff.

A nurse-led visit for chronic conditions is a reasonable option for busy primary care practices to utilize in order to address the needs of their patients. Since primary care providers are often working with patients with multiple chronic conditions, the nurse-led visit permits the nurse to see patients within the scope of their practice, allowing healthcare providers to see patients who need an advanced practice providers assessment and plan and overall, more patients can attend appointments at the practice each day. The nurse-led visit also enables the patient and nurse to spend time addressing one problem in a non-hurried environment and develop a care plan through shared decision-making.

Further investigation is needed to see if improved confidence correlates with improved patient outcomes. The literature synthesis suggests that nurse-led visits improve patient outcomes in chronic conditions, but this QI project did not assess this. The QI project was limited by a small number of participants, no standardized way to flag patients who would meet the criteria for a nurse-led hypertension visit (word of mouth/offering by the healthcare provider was how the participants were recruited to participate), and the inability to generalize due to the specific patient population. Further investigation into technological and clinical decision-making could be considered to ensure all patients with uncontrolled hypertension could be offered the nurse-led visit.

Four DNP Essentials were met during this QI project through the theoretical framework of the MRM Theory, completing a rigorous literature synthesis, collaborating with clinic staff, implementing a QI intervention, and maintaining the priority of patient-centered care throughout all steps of the project.

### **Plan for Sustainability**

The MAs and RNs were given the *Measure Up Pressure Down toolkit* to utilize in their continued practice. The PI passed the “hypertension folder” outline to the RNs to adapt as they see fit in practice and use the design for other chronic disease management that may progress to a nurse-led visit. The RNs were also given resources from UpToDate and the AHA on topics such as lifestyle modifications, antihypertensive medications, a more in-depth overview of hypertension, and alternative patient-education resources based on each patient's individualized needs. The RNs were emailed these resources. The resources are intended for the RNs to

maintain this project's sustainability and to create a structured visit for other nurse-led visits.

Patients were given the paper “hypertension folder” to keep and reference at home.

### **Plan for Dissemination**

The QI project outcomes were disseminated to the providers at Three Oaks Health through an informal meeting after the completion of the project. Dissemination continued for professionals and students at the University of Arizona School of Nursing and the public during the PI's project defense.

### **Funding**

There was no funding provided to the PI for this project.

APPENDIX A:

SITE APPROVAL LETTER/THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW  
BOARD APPROVAL LETTER

Three Oaks Health  
480 Village Walk Ln.  
Johnson Creek, WI  
53038

Date 5/9/2022

University of Arizona Institutional Review Board  
c/o Office of Human Subjects  
1618 E Helen St  
Tucson, AZ 85721

Please note that Mrs. Julia Huffaker, UA Doctor of Nursing Practice student, has permission of Three Oaks Health to conduct a quality improvement project at our facility for her project, "Increasing Patient Understanding and Self-Management of Hypertension During Nurse-Led Visits."

Mrs. Huffaker will conduct a survey of medical assistants, nurses, and patients at Three Oaks. She will recruit through word of mouth and the help of the doctor and physician assistants and a flyer will be provided for more information. The flyer will provide a description of the project, what they will be asked to do, the time involved, and how to schedule a nurse-led appointment. Mrs. Huffaker's activities will be completed by August 15, 2022.

Mrs. Huffaker has agreed to provide to my office a copy of the University of Arizona Determination before she recruits participants. She will also will present aggregate results to the providers at their staff meeting.

If there are any questions, please contact my office.

Signed,



Dr. Jim Milford, Medical Director at Three Oaks Health



University of Arizona IRB  
 845 N Park Ave., Suite 537A  
 Tucson, AZ 85719  
 Fax: 520-621-9810  
[VPR-IRB@arizona.edu](mailto:VPR-IRB@arizona.edu)

NOT HUMAN RESEARCH

May 20, 2022

Julia Huffaker

Dear Julia Huffaker:

On 5/20/2022, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	Increasing Patient Understanding and Self-Management of Hypertension During Nurse-Led Visits
Investigator:	Julia Huffaker
IRB Submission ID:	STUDY00001344
Sponsor:	None
Prime Sponsor:	None
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none"> <li>• Advisor Attestation.pdf, Category: Other;</li> <li>• Appendix B Disclosure Template (2).pdf, Category: Consent Form;</li> <li>• Appendix C Recruitment Flyer.docx, Category: Recruitment Materials;</li> <li>• BP measurement tip sheet.docx, Category: Participant Material;</li> <li>• Flyer for vitals machine.docx, Category: Participant Material;</li> <li>• Huffaker CV.docx, Category: CV;</li> <li>• Huffaker- IRB Protocol for Determination of Human Research v2021-11.docx, Category: IRB Protocol;</li> <li>• Hypertension Folder.docx, Category: Participant Material;</li> <li>• MA_RN pre_post survey.docx, Category: Data Collection Tool;</li> <li>• Patient pre_post survey.docx, Category: Data Collection Tool;</li> </ul>





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	<ul style="list-style-type: none"> <li>• Resources for the nurses.docx, Category: Participant Material;</li> <li>• signed appendix A.pdf, Category: External Site Authorization;</li> <li>• toolkit.pdf, Category: Other;</li> </ul>
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The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving humans in which the organization is engaged, please submit a new request to the IRB for a determination. You can create a modification by clicking **Create Modification / CR** within the study.

All Covered Individuals must disclose all sponsored and non-sponsored Research Projects to the Office for Responsible Outside Interests (OROI) prior to Conducting Research if the individual is an Investigator. Please visit the [OROI](#) website for more information.

We value your feedback and would appreciate you taking the time to complete our survey about your experience with the IRB staff:  
[https://uarizona.co1.qualtrics.com/jfe/form/SV\\_dgQSVxqciPhiiUd](https://uarizona.co1.qualtrics.com/jfe/form/SV_dgQSVxqciPhiiUd).

If questions arise at any time during your study, please email the general IRB inbox at [VPR-IRB@arizona.edu](mailto:VPR-IRB@arizona.edu).



APPENDIX B:  
CONSENT DOCUMENTS (DISCLOSURE FORMS)

## **Increasing Patient Understanding and Self-Management of Hypertension During Nurse-Led Visits**

**Principal Investigator: Julia Huffaker, BSN, RN, DNP Candidate**

The purpose of this project is to increase knowledge of clinic medical assistants and registered nurses at Three Oaks Health in obtaining blood pressure, improve patients understanding and confidence in the management of hypertension, and implement a hypertension nurse-led visit. The goal for the medical assistants and registered nurses at Three Oaks Health is to perform proper blood pressure measurements, report increased confidence in helping patients manage hypertension, and have an increased understanding on the management of hypertension in primary care.

If you choose to take part in this project you will be asked to:

1. Complete a short pre-survey on your baseline knowledge of measuring blood pressure and hypertension management.
2. Participate in a one-hour long education program on proper blood pressure measurement.
3. Complete a post-survey after the education program.
4. Participate in a one-hour long education on the structure of the nurse-led visit.

It will take no more than 2.5 hours to complete the surveys and participate in the education. There will be educational tip sheets provided to the participants. There are no foreseeable risks associated with participating. Benefits of participation may include increased knowledge about hypertension and its management; and providing evidence-based care to patients. Your responses are anonymous and your name will not be collected or linked to your answers.

If you choose to participate in the project, participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

For questions, concerns, or complaints about the project, you may call Julia Huffaker, BSN, RN, DNP-FNP Candidate at 262-347-6261 or [borsarij@email.arizona.edu](mailto:borsarij@email.arizona.edu)

You agree to have your responses used for this project.

## **Increasing Patient Understanding and Self-Management of Hypertension During Nurse-Led Visits**

**Principal Investigator: Julia Huffaker, BSN, RN, DNP Candidate**

The purpose of this project is to increase knowledge and confidence of patients at Three Oaks Health who have been diagnosed with hypertension. The goal for the participant is to identify modifiable and non-modifiable risk factors of hypertension, achieve a personalized stated goal, have increased confidence in being an active member of their health, and report improved blood pressure.

If you choose to take part in this project you will be asked to:

1. Complete a short pre-survey on your baseline knowledge of hypertension and your current management.
2. Participate in one to two nurse-led visits (about 1 hour in length for each).
3. Complete a post-survey.

It will take no more than 2.5 hours to complete the surveys and participate in the nurse-led visits. There will be educational hypertension folders provided to you. There are no foreseeable risks associated with participating. Benefits of participation may include increased knowledge about hypertension and its management.

Your responses are anonymous and your name will not be collected or linked to your answers.

If you choose to participate in the project, participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

For questions, concerns, or complaints about the project, you may call Julia Huffaker, BSN, RN, DNP-FNP Candidate at 262-347-6261 or [borsarij@email.arizona.edu](mailto:borsarij@email.arizona.edu)

You agree to have your responses used for this project.

APPENDIX C:  
RECRUITMENT MATERIAL (RECRUITMENT FLYER)



### **Participants needed for a Doctor of Nursing Practice Student Project!**

My name is Julia Huffaker and I am a Doctor of Nursing Practice (DNP) student at the University of Arizona. I am conducting a quality improvement project about utilizing nurse-led visits to improve patient understanding and confidence in hypertension (high blood pressure) management. This is an opportunity to learn about hypertension, improve overall blood pressure, and be an active participant in your healthcare!

If you choose to participate, you will be asked to complete a pre-survey on your baseline knowledge of hypertension, participate in two nurse-led visits, and complete a post-survey. You will be provided a hypertension folder that will contain education and resources for hypertension. The surveys are completely confidential.

#### **To be eligible you must meet the following criteria:**

- **Be diagnosed with hypertension**

This study is great for:

- Newly diagnosed patients with hypertension
- Patients with poorly controlled hypertension
- Patients interested in learning more about their diagnosis of hypertension

If interested, schedule a **nurse-led hypertension** visit at the Three Oaks Health front desk, or call 920-542-3010 to schedule.

Thank you for your consideration! For questions or concerns, please contact Julia Huffaker, BSN, RN at [borsarij@email.arizona.edu](mailto:borsarij@email.arizona.edu) or telephone at 262-347-6261

APPENDIX D:  
EVALUATION INSTRUMENTS (MA/RN PRE-SURVEY; PATIENT PRE-SURVEY; NURSE  
VISIT REPORT)

MA/RN Pre-Survey Participant # \_\_\_\_\_

Age: \_\_\_\_\_

Sex: \_\_\_\_\_

Ethnicity: \_\_\_\_\_

1. High blood pressure may lead to
  - a. Heart attacks
  - b. Stroke
  - c. Kidney damage
  - d. All of the above
2. Accurate measurement of blood pressure is important because:
  - a. You are likely to see several hypertensive patients throughout the day
  - b. Blood pressure is used to diagnose and guide therapy
  - c. Inaccurate blood pressure may lead to organ damage
  - d. All of the above
3. Which of the following is true?
  - a. The diastolic blood pressure is always greater than the systolic blood pressure
  - b. The systolic blood pressure is the first heart sound
  - c. Blood pressure is measured in mmH<sub>2</sub>O
  - d. The vast majority of patients have a normal blood pressure
4. Blood pressure is measure using:
  - a. The brachial artery
  - b. The radial artery
  - c. The main vein
  - d. A pulse oximeter
5. Which of the following is true?
  - a. It is ok to ask the patient questions while you are measuring the blood pressure
  - b. The patient should cross their legs, right over left, before the blood pressure is taken
  - c. A pulse is only necessary if the blood pressure is very low
  - d. The marking on the blood pressure cuff should be placed over the brachial artery
6. In taking the blood pressure:
  - a. You should not use the arm on the same side that was affected by a stroke
  - b. The cuff should be deflated at a rate of 2-3mmHg per second
  - c. The blood pressure should never be taken in a standing position
  - d. A & B only

7. In taking the blood pressure:
  - a. The cuff should never be placed on the bare arm
  - b. The arm should always be below the level of the heart
  - c. If the sounds never disappear, the point at which the sounds muffle is used for the diastolic pressure
  - d. None of the above
8. In taking the pulse:
  - a. You should only note whether it is regular or irregular if the blood pressure is taken while standing
  - b. You should only note the pulse if the blood pressure is abnormal
  - c. If the pulse is regular you can measure the number of beats in 15 seconds and multiply by 10 to get the pulse rate in beats/minute
  - d. The pulse indicates how many times the heart beats in one minute
9. If sounds are heard immediately when deflating the blood pressure cuff:
  - a. The cuff pressure was too high
  - b. You need to deflate the cuff and start over at a higher pressure target
  - c. The diastolic blood pressure is too high
  - d. All of the above
10. In checking a patient for orthostatic pressure:
  - a. You should check sitting then standing
  - b. The highest blood pressure should be recorded
  - c. You should check standing then sitting
  - d. A & B only

Patient Pre-Survey Participant # \_\_\_\_\_

Age: \_\_\_\_\_

Sex \_\_\_\_\_

Ethnicity: \_\_\_\_\_

Please circle one answer for each questions

1. Do you consider your blood pressure to be under control?
  - a. Yes
  - b. No
  - c. Don't know
2. At what value would you consider your blood pressure to be under control (select all that apply)?
  - a. 120/70
  - b. 130/80
  - c. 140/95
  - d. 150/100
  - e. Don't know
3. What problems do you see that stops your blood pressure being controlled? Circle all the apply
  - a. I do not know my blood pressure goal
  - b. I do not know what my blood pressure is or how to measure it
  - c. I do not know how to decide if my blood pressure is well controlled
  - d. I do not know what to do when my blood pressure is not at goal
  - e. I do not know how to talk to my doctor about blood pressure control
  - f. My blood pressure medications make me feel bad
  - g. My blood pressure medications are too expensive
  - h. I do not have time or do not like to exercise
  - i. I do not know what diet to follow
  - j. I have difficulty following the diet prescribed by my doctor
  - k. I have too many other things to worry about
4. One goal in my blood pressure management is...  
\_\_\_\_\_

MA/RN Post-Survey Participant # \_\_\_\_\_

1. High blood pressure may lead to
  0. Heart attacks
  1. Stroke
  2. Kidney damage
  3. All of the above
2. Accurate measurement of blood pressure is important because:
  0. You are likely to see several hypertensive patients throughout the day
  1. Blood pressure is used to diagnose and guide therapy
  2. Inaccurate blood pressure may lead to organ damage
  3. All of the above
3. Which of the following is true?
  0. The diastolic blood pressure is always greater than the systolic blood pressure
  1. The systolic blood pressure is the first heart sound
  2. Blood pressure is measured in mmH<sub>2</sub>O
  3. The vast majority of patients have a normal blood pressure
4. Blood pressure is measure using:
  0. The brachial artery
  1. The radial artery
  2. The main vein
  3. A pulse oximeter
5. Which of the following is true?
  0. It is ok to ask the patient questions while you are measuring the blood pressure
  1. The patient should cross their legs, right over left, before the blood pressure is taken
  2. A pulse is only necessary if the blood pressure is very low
  3. The marking on the blood pressure cuff should be placed over the brachial artery
6. In taking the blood pressure:
  0. You should not use the arm on the same side that was affected by a stroke
  1. The cuff should be deflated at a rate of 2-3mmHg per second
  2. The blood pressure should never be taken in a standing position
  3. A & B only
7. In taking the blood pressure:
  0. The cuff should never be placed on the bare arm
  1. The arm should always be below the level of the heart

2. If the sounds never disappear, the point at which the sounds muffle is used for the diastolic pressure
  3. None of the above
8. In taking the pulse:
0. You should only note whether it is regular or irregular if the blood pressure is taken while standing
  1. You should only note the pulse if the blood pressure is abnormal
  2. If the pulse is regular you can measure the number of beats in 15 seconds and multiply by 10 to get the pulse rate in beats/minute
  3. The pulse indicates how many times the heart beats in one minute
9. If sounds are heard immediately when deflating the blood pressure cuff:
0. The cuff pressure was too high
  1. You need to deflate the cuff and start over at a higher pressure target
  2. The diastolic blood pressure is too high
  3. All of the above
10. In checking a patient for orthostatic pressure:
0. You should check sitting then standing
  1. The highest blood pressure should be recorded
  2. You should check standing then sitting
  3. A & B only
11. I feel confident in my ability to get an accurate blood pressure
0. Strongly disagree
  1. Disagree
  2. Neutral
  3. Agree
  4. Strongly agree
12. One thing I would like more education on in regards to hypertension is...
- 
13. For RNs: I feel confident in my knowledge of blood pressure management such as lifestyle changes, medications, labs, and ASCVD risk calculating.
0. Strongly disagree
  1. Disagree
  2. Neutral
  3. Agree
  4. Strongly agree

Patient Post-Survey Participant # \_\_\_\_\_

Please circle one answer for each question

1. Do you feel that this nurse-led visit was informational and will help you to get my blood pressure under control?
  0. Yes
  1. No
  2. Don't know
2. At what value would you consider your blood pressure to be under control (select all that apply)?
  0. 120/70
  1. 130/80
  2. 140/95
  3. 150/100
  4. Don't know
3. What problems do you see that stops your blood pressure being controlled? Circle all the apply
  0. I do not know my blood pressure goal
  1. I do not know what my blood pressure is or how to measure it
  2. I do not know how to decide if my blood pressure is well controlled
  3. I do not know what to do when my blood pressure is not at goal
  4. I do not know how to talk to my doctor about blood pressure control
  5. My blood pressure medications make me feel bad
  6. My blood pressure medications are too expensive
  7. I do not have time or do not like to exercise
  8. I do not know what diet to follow
  9. I have difficulty following the diet prescribed by my doctor
  10. I have too many other things to worry about
4. I feel confident in my ability to manage my blood pressure
  0. Strongly disagree
  1. Disagree
  2. Neutral
  3. Agree
  4. Strongly agree
5. One goal in my blood pressure management is...

---

Nurse-Visit Report

Patient ID \_\_\_\_\_

Date: \_\_\_\_\_

Visit #1

Starting BP \_\_\_\_\_

BP Today \_\_\_\_\_

Goal BP \_\_\_\_\_

Modifiable intervention chosen \_\_\_\_\_

Medication prescribed \_\_\_\_\_

Home BP Monitoring (yes/no) \_\_\_\_\_

Visit #2

Date: \_\_\_\_\_

BP Today \_\_\_\_\_

Was goal BP met? \_\_\_\_\_

Next Intervention \_\_\_\_\_

Scheduled 3<sup>rd</sup> visit? \_\_\_\_\_

Please return to Julia or Hypertension Study Folder when completed.

APPENDIX E:

PARTICIPANT MATERIALS (GUIDELINES FOR MAS, RNS AND PROVIDERS; HIGH BLOOD PRESSURE CARD; LAMINATED FLYER FOR VITALS CARD – BLOOD PRESSURE MEASUREMENT TIPS; HYPERTENSION FOLDER/SHARED DECISION MAKING TOOL – HYPERTENSION MATERIALS FOR PARTICIPANTS; MY BLOOD PRESSURE LOG; RESOURCES FOR THE NURSES)

Guidelines for MAs, RNs, and Providers:

**The basics of obtaining blood pressure:**

Properly prepare the patient

1. Have the patient sit in a chair with feet on the floor, uncrossed legs for >5 minutes
2. Ensure the patient has not had caffeine or smoked within the past 30 minutes
3. While the patient is resting before the BP reading, ensure there is no talking
4. Remove clothing that is covering the area where the cuff will be placed

Use proper BP techniques

1. Use a BP device that has been validated
2. Support the patient's arm at heart level (resting on the arm of the chair or on the desk)
3. Use the correct size cuff- the bladder encircles 80% of the arm (make note of what size cuff was used)

Take the proper measurements

1. At the first visit, record the BP in both arms. Use the arm that gives the higher reading for the next readings.
2. Separate repeated measurements by 1-2 minutes
3. For auscultated BP measurements, inflate the cuff 20-30mmHg above the estimated pulse
4. For auscultated BP, deflate the cuff 2mmHg/second, listening for Korotkoff sounds

Average the readings

1. Use the average of at least 2 readings during at least 2 different visits

Provide the BP reading to the patient

1. Provide the SBP/DBP both verbally and in writing, and tell them where it falls on the hypertension scale.

**Discovering a patient with hypertension or uncontrolled hypertension during a regular provider visit:**

**During Intake-**

- If a patient has a BP greater than 140/90, repeat the blood pressure in 2-5 minutes or consider auscultating a blood pressure
- If BP is still greater than 140/90, fill out the red "high blood pressure card" to give to the provider seeing the patient.

**Provider-**

- The provider will initiate the conversation about the patient's elevated BP
- If the patient agrees, encourage utilizing nurse visits for hypertension education and management- schedule in 1-2 weeks.

- Start anti-hypertensive or modify the current treatment plan per the discretion of the provider
  - Provide flyer for Julia's project- patients can participate in the study if they wish
  - Have the patient schedule at the front desk or call to schedule a nurse visit for hypertension
  - Return the card to Julia to allow for chart audits
- 

### High Blood Pressure Card

Today's BP \_\_\_\_\_ Previous visit BP \_\_\_\_\_

Is the patient taking BP medication?

Yes

No

If yes, \_\_\_\_\_

Does the patient have a diagnosis of hypertension?

Yes

No

The goal BP my provider would like me to have is: \_\_\_\_\_

The patient scheduled a nurse-led visit

The patient will call to schedule a nurse-led visit

The patient declines a nurse-led visit

The patient will follow up via portal message on home BP

---

Laminated Flyer for Vitals Cart:

### **Blood Pressure Measurement Tips**

Follow these tips so we can get the most accurate blood pressure

1. Sit in the chair with your feet on the floor, do not cross your legs!
2. Sit quietly for 5 minutes prior to your blood pressure reading
3. Remove the clothing that is covering the area where the blood pressure cuff will be placed
4. Try and keep your arm still and supported on the arm of the chair or the desk while we are obtaining your blood pressure
5. If your blood pressure is elevated, we may take your blood pressure again or on your other arm.
6. If you take your blood pressure at home with a device, we would love to know what those readings are!

### **JNC8 Guidelines for Hypertension**

<b>Category</b>	<b>Systolic (mmHg)</b>	<b>Diastolic (mmHg)</b>
<b>Normal</b>	<b>90-119</b>	<b>60-79</b>
<b>Prehypertension</b>	<b>120-139</b>	<b>80-89</b>
<b>Stage 1 Hypertension</b>	<b>140-159</b>	<b>90-99</b>
<b>Stage 2 Hypertension</b>	<b>&gt;160</b>	<b>&gt;100</b>
<b>Isolated Systolic Hypertension</b>	<b>&gt;140</b>	<b>&lt;90</b>

Know your numbers & ask your provider if you have questions about your blood pressure!

Hypertension Folder/Shared Decision-Making Tool:

## Hypertension

What is hypertension (high blood pressure)?

Blood pressure is the force exerted by circulating blood against the walls of the body's arteries, the major blood vessels in the body. Hypertension is when blood pressure is too high.

It is written as two numbers. The first (systolic) number represents the pressure in blood vessels when the heart beats. The second (diastolic) number represents the pressure in the vessels when the heart rests between beats.

Hypertension is diagnosed if, when it is measured on two different days, the systolic blood pressure readings on both days is  $\geq 140$  mmHg and/or the diastolic blood pressure readings on both days is  $\geq 90$  mmHg

Here is a chart of the different categories of hypertension.

### JNC8 Guidelines for Hypertension

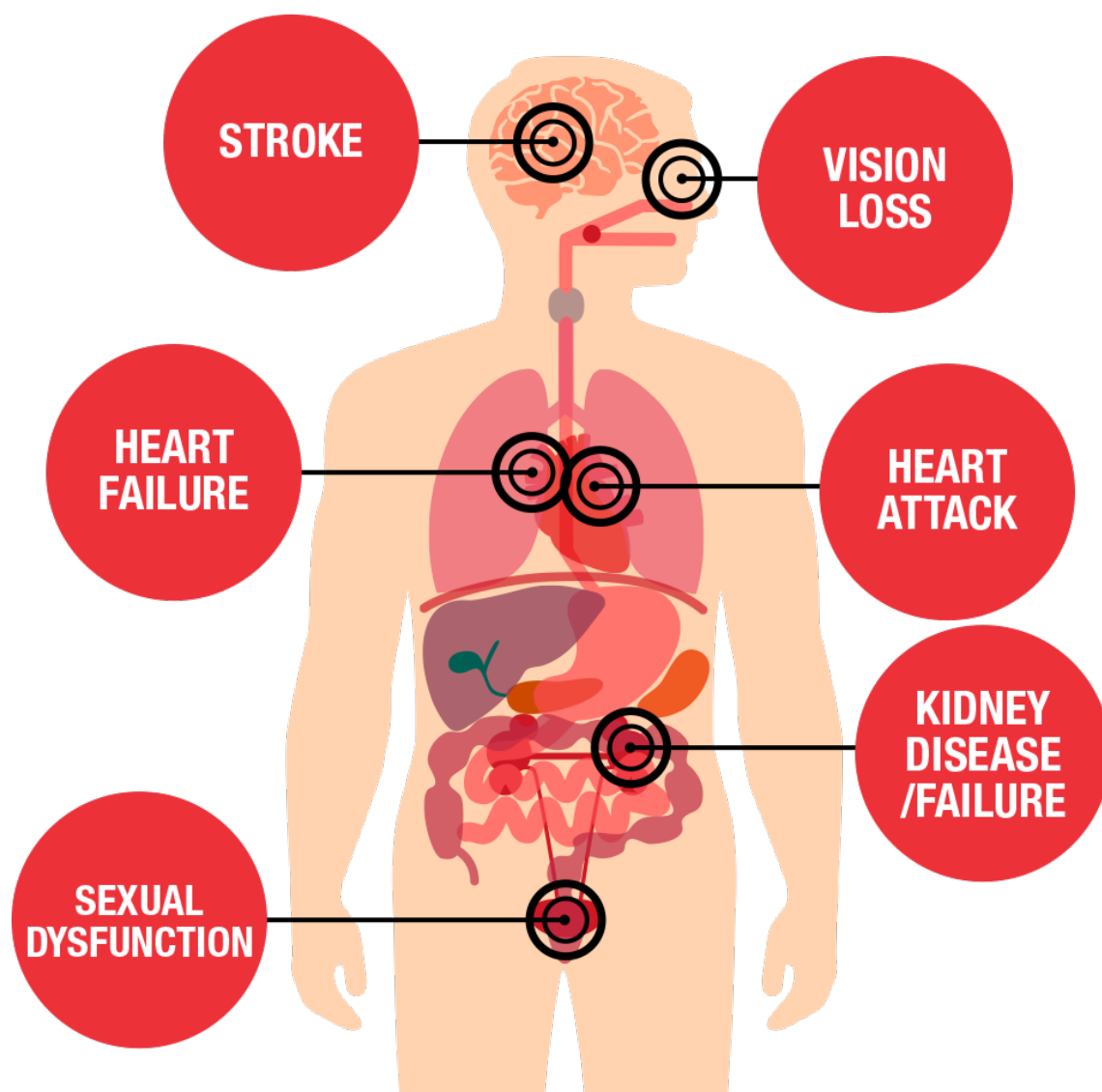
Category	Systolic (mmHg)	Diastolic (mmHg)
Normal	90-119	60-79
Prehypertension	120-139	80-89
Stage 1 Hypertension	140-159	90-99
Stage 2 Hypertension	>160	>100
Isolated Systolic Hypertension	>140	<90

Your blood pressure today in the clinic is \_\_\_\_\_

Did you know...

Almost half of American adults have hypertension, and many do not even know they have it?

Hypertension can cause heart disease, stroke, and kidney damage, as well as other health conditions- often not causing any symptoms.



**There are both modifiable and non-modifiable risk factors for hypertension.**

Modifiable changes include:

<b>Modification</b>	<b>Impact on hypertension</b>
Dietary modifications (more fruits and vegetables)	Decrease 8-14 mmHg
Sodium reduction (4g/day)	Decrease 2-8 mmHg
Physical activity- 150 minutes of activity/week	Decreases 4-9 mmHg
Maintaining a healthy weight (BMI between 18.5-24.9)	Decrease of 1 mmHg for each pound lost
Moderate alcohol consumption (less than 1 drink/day for women, less than 2 drinks/day for men)	2-4 mmHg
Stress management	Variable per patient

Other modifiable changes include:

- Avoiding use of tobacco.
- Limiting the intake of foods high in saturated fats.
- **Talk with your doctor about medications you are taking that could be affecting your blood pressure**

**One modifiable goal I have in my hypertension management is**

---



---

**Non-modifiable risk factors are things that we are not able to change in your health**

This includes:

- Age- as we age, our arteries become stiffer- causing our heart to have to work harder to pump
- Male sex
- Non-white ethnicity
- Family history of hypertension or stroke

**High blood pressure can be managed in multiple ways- it all depends on your average blood pressure and if lifestyle changes are attainable for you!**

At first, your provider may have you try and make lifestyle changes or modifications such as:

- Smoking cessation
- Diet
  - DASH diet or Mediterranean diet
  - Decreasing alcohol
  - Reducing sodium
- Increasing physical activity

Or, they may have you start an antihypertensive (blood pressure lowering) medication right away.

In about 1 month, we will reassess your blood pressure and see if the changes that were made positively impacted your blood pressure. At this time, medications may be changed or added.

This may sound overwhelming, but the goal is to create new lifestyle habits- so, choose 1 or 2 changes to make and focus on these small changes that will add up to make a big difference!

### **Antihypertensive Medications**

If you are started on a medication to treat your blood pressure, the most important thing is that you take it as prescribed!

**The blood pressure medication I have been prescribed is**

---

Ask the nurse for more information the specific medication you are taking

## Home Blood Pressure Monitoring

We understand that coming to see us at Three Oaks Health can be stressful or cause some anxiety. This can elevate your blood pressure.

One of the most useful tools in managing hypertension is tracking your average blood pressure. This is done best with a home blood pressure cuff.

We recommend buying a validated blood pressure cuff-

Check out [validatebp.org](https://www.validatebp.org) to see which cuffs are recommended.

There are validated blood pressure cuffs for sale at the front desk.

## Labs and Other Tests

Since hypertension can impact many body systems, we may want to check labs to make sure they are not being negatively affected.

This may include:

- Blood tests
  - Electrolytes and kidney function
  - Complete blood count
  - TSH- to check the thyroid function
  - Lipid profile- to check cholesterol
- Electrocardiogram
  - An electrical tracing of your heart that tells us the heart rate and rhythm
- 10-year ASCVD risk
  - This is a calculator that estimates the percent chance that in the next 10 years you would have a cardiovascular event such as a heart attack or stroke

**My ASCVD risk today is \_\_\_\_\_**

## Mediterranean & DASH Diet -“Dietary Approaches to Stop Hypertension”

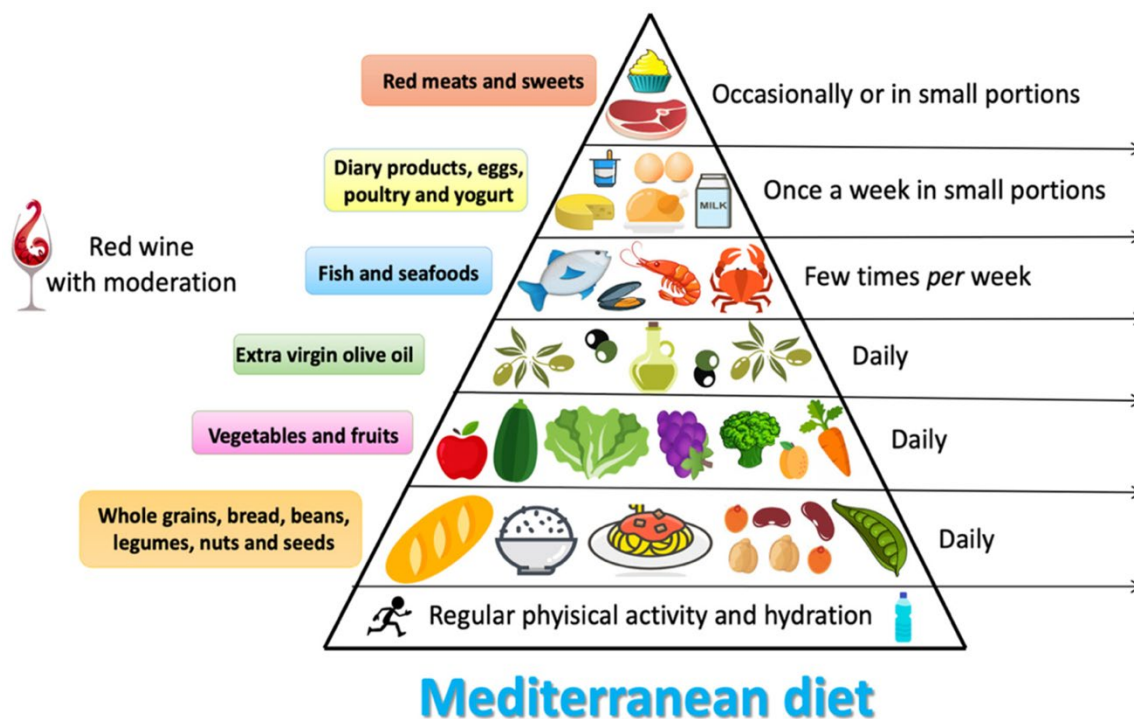
The overall focus is to eat heart-healthy foods- unprocessed and low in sodium

Eat MORE:

- Fruits
- Vegetables
- Whole grains
- Nuts, seeds, and legumes
- Low-fat dairy
- Fish
- Lean poultry

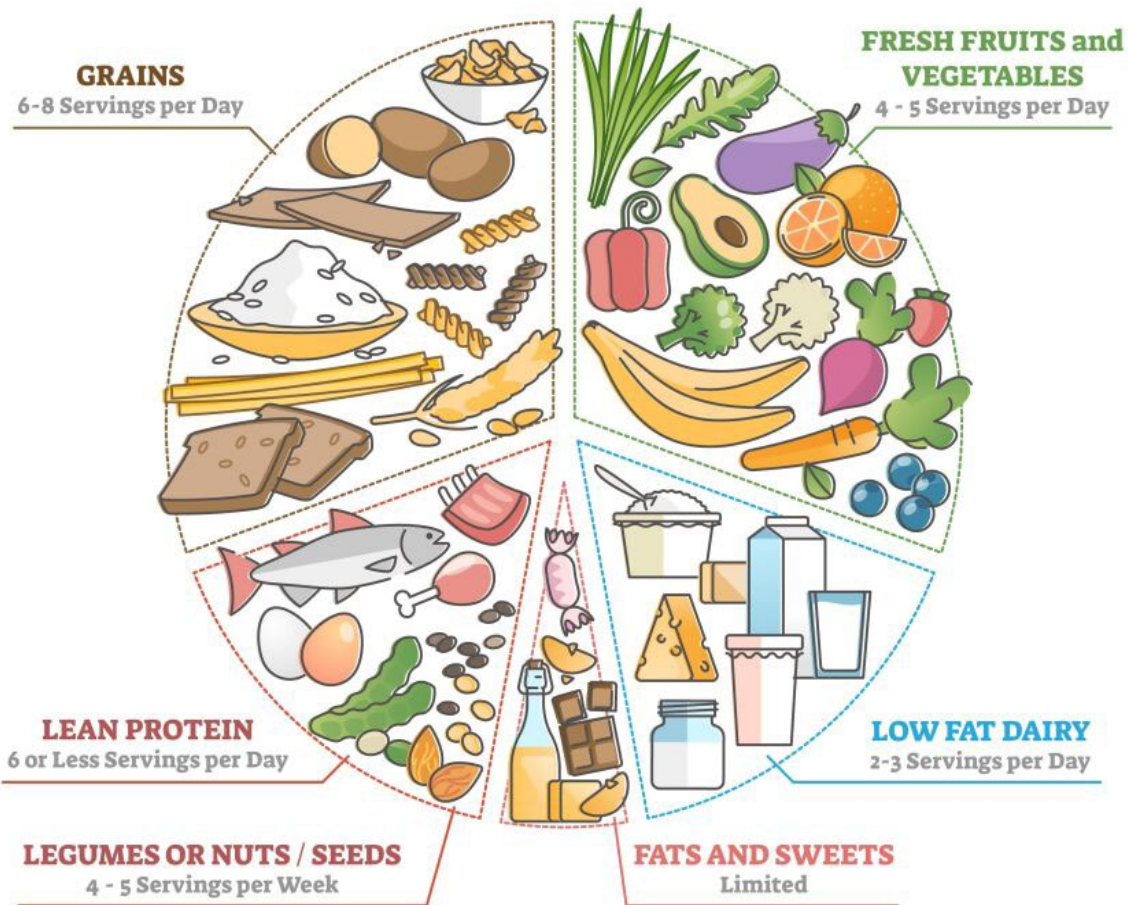
Minimize these foods:

- Fatty meats: red meat and poultry with skin on it
- Full-fat dairy: whole milk, cream, and butter
- Oils sold at room temperature: coconut and palm oils
- High-sugar foods and drinks: candy and baked goods; soda and juice
- Highly processed foods



# The DASH Diet

## DIETARY APPROACHES TO STOP HYPERTENSION





Resources for the Nurses:

Hypertension Overview:

[https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/overview-of-hypertension-in-adults?search=hypertension%20management%20adult&source=search\\_result&selectedTitle=3~150&usage\\_type=default&display\\_rank=2#H16080896](https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/overview-of-hypertension-in-adults?search=hypertension%20management%20adult&source=search_result&selectedTitle=3~150&usage_type=default&display_rank=2#H16080896)

Patient Education:

The basics of HTN: [https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/high-blood-pressure-in-adults-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see\\_link](https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/high-blood-pressure-in-adults-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see_link)

Patient Education:

Lifestyle Modifications: [https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/controlling-your-blood-pressure-through-lifestyle-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see\\_link](https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/controlling-your-blood-pressure-through-lifestyle-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see_link)

Patient Education:

Medications: [https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/medicines-for-high-blood-pressure-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see\\_link](https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/medicines-for-high-blood-pressure-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see_link)

Patient Education:

HTN Emergencies: [https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/high-blood-pressure-emergencies-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see\\_link](https://www-uptodate-com.ezproxy1.library.arizona.edu/contents/high-blood-pressure-emergencies-the-basics?search=hypertension%20management%20adult&topicRef=3852&source=see_link)

Measure Up (Blood) Pressure Down Toolkit

<http://www.measureuppressuredown.com/hcprof/toolkit.pdf>

APPENDIX F:  
CHART AUDIT FORMS

Date of visit: \_\_\_\_\_

## Chart Audit Forms

## Initial Visit

- Was BP repeated after at least 2-5 minutes if initial BP >135/80 Y N
- Arm that BP was obtained was charted. Y N
- Medication was started by provider if >140/90 at visit. Y N
- Home BP monitoring was charted if patient is utilizing cuff at home. Y N
- Was nurse-led visit offered? Y N
- Nurse-led visit was scheduled within 1-2 weeks. Y N
- If patient did not schedule nurse-led visit, did they follow up for repeat BP? Y N
- BP card was returned to Julia Y N
- Is hypertension a diagnosis in PMH? Y N

## Nurse-Led Visit

- Patient attended nurse-led visit Y N
- Is hypertension a diagnosis in PMH? Y N
- What labs/things were done at visit?
  - EKG
  - BMP
  - UA
  - CBC
  - TSH
  - Lipid panel
  - ASCVD risk
- Patient will start using home BP cuff? Y N

Modifiable intervention chosen

APPENDIX G:  
PROJECT TIMELINE

<b>Completion Date</b>	<b>Planning</b>	<b>Pre-Implementation</b>	<b>Implementation</b>	<b>Evaluation</b>
March 25, 2022	Confirm site			
March 29, 2022	Zoom with clinic nurses			
April 25, 2022	Chart audits			
April 29, 2022	Submit proposal to project chair			
May 9, 2022		<b>Project Proposal Defense Presentation</b>		
May 10-15, 2022	Make revisions to proposal	Obtain site authorization letter, finalize surveys		
May 17, 2022		Send IRB form to Alice Pasvogel		
May 20, 2022		Approval from IRB		
May 27, 2022		Walk through with Three Oaks providers		
May 31, 2022			PDSA Cycle 1: MA and Nurse pre-survey, education, post-survey.	Review MA and RN survey results
June 1-12, 2022			PDSA Cycle 2	
June 13-24, 2022			PDSA Cycle 3	
June 25- July 10, 2022			PDSA Cycle 4	
July 11-24, 2022			PDSA Cycle 5 Project concluded.	
July 25-August 12, 2022				Review patient survey results. Analyze data.

APPENDIX H:  
LITERATURE REVIEW GRID

Project Question: For patients with hypertension, will a structured nurse-led visit influence patient understanding of hypertension, confidence in blood pressure management, and improve patient's blood pressure?

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
2017, Bangurah	Hypertension in the faith community: A four-week, nurse led, diet/exercise intervention	Pre- and post-intervention study	<ul style="list-style-type: none"> <li>• Nurse-led behavioral, and lifestyle changes on BP control in African American adults 55 and older led to lower BP</li> <li>• Lower public health spending</li> <li>• Engaging people in a comfortable setting increase health behaviors</li> <li>• Showed an increase in knowledge of lifestyle changes and BP levels</li> <li>• Showed an overall decrease in BP but was not statistically significant</li> <li>• Nurses play an important role in BP management</li> </ul>	<ul style="list-style-type: none"> <li>• Often times primary and secondary lifestyle risk reductions strategies are underutilized in clinical practice</li> <li>• DASH diet to reduce SBP, education on medications, reading food labels, portion control, stress management, healthy lifestyle</li> <li>• Team-based approach, weekly or monthly telephone contact, appointment reminders, medication refill reminders, and reinforcement</li> <li>• Hill-Bone Compliance to High Blood Pressure Therapy Scale</li> <li>• Paffenbarger Physical Activity Questionnaire</li> </ul>
2017, Blackstone	Sustaining nurse-led task-shifting strategies for hypertension control: A concept mapping study to	Concept-mapping, mixed methods participation	<ul style="list-style-type: none"> <li>• Factors influencing sustainability:</li> <li>• Limited drug supply, financial support, provision of primary</li> </ul>	<ul style="list-style-type: none"> <li>• Nurse perceptions can guide uptake of interventions</li> <li>• Task shift in order to maximize resources</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
	inform evidence-based practice		healthcare, personnel training, and patient-provider communication <ul style="list-style-type: none"> <li>• Training of nurses is important</li> </ul>	<ul style="list-style-type: none"> <li>• Need stakeholder buy-in</li> </ul>
2017, Brown	Managing patients with hypertension in nurse-led clinics	Literature review	<ul style="list-style-type: none"> <li>• PCP shortage</li> <li>• Nurse-led clinics have significant improvements in patient outcomes</li> <li>• Lifestyle modifications and educational interventions</li> <li>• Encourage attainable goals</li> <li>• Shift to provide patient centered care</li> <li>• “Unhurried atmosphere”</li> <li>• Patient’s must have acceptance of diagnosis in order to set realistic goals</li> </ul>	<ul style="list-style-type: none"> <li>• Utilize full potential of RN, cost-effective, more time spent with patient</li> <li>• Using validated tools, algorithms, strategies, and programs, nurses can recognize and manage HTN- develop unified care plans</li> <li>• Delegate- education, lifestyle modification, medication titration</li> <li>• Create a protocol to follow?</li> </ul>
2021, Chatziefstratiou	Impact of nurse-initiated education on HeartScore in patients with hypertension: A randomized trial	Interventional randomized trial	<ul style="list-style-type: none"> <li>• Assess impact of nurse-led educational interventions on the total cardiovascular risk</li> <li>• Greater improvement in intervention group</li> </ul>	<ul style="list-style-type: none"> <li>• Nurse-led educational interventions should be incorporated for best management</li> <li>• SCORE tool to estimate 10-yr risk after first atherosclerotic event</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<ul style="list-style-type: none"> <li>• HeartScore- visual representation, can be updated as data changes to see CVD risk. Can assess effectiveness of intervention</li> <li>• Educational group had significantly lower BP</li> <li>• HeartScore tool is valuable</li> </ul>	<ul style="list-style-type: none"> <li>• Had printout of HeartScore</li> <li>• Need more research on educational intervention effects</li> </ul>
2020, Chowdhury	Nurse-led interventions to manage hypertension in general practice: A systematic review protocol	Systematic review of RCT's	<ul style="list-style-type: none"> <li>• Limited synthesis of literature about nurse-directed interventions</li> <li>• Nurses must be supported and competent</li> <li>• Should have a combo of behavior/lifestyle and pharmacological strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in chronic conditions, pressure on PCP's</li> <li>• Coordinated care team to manage conditions</li> <li>• HTN control is sub-optimal in the primary care setting</li> </ul>
2017, Crittenden	Health coaching and the management of hypertension	Prospective pre-post design	<ul style="list-style-type: none"> <li>• Medications alone are not effective in HTN management</li> <li>• Lifestyle modifications impact BP, patients desire to participate</li> <li>• Need the proper tools, health coaching is a promising approach for HTN</li> </ul>	<ul style="list-style-type: none"> <li>• Patient participation depended on necessary tools, education, and holistic approach- lack of participation was approached by provided necessary tools</li> <li>• Need a method to inspire change</li> <li>• Measure Up/Pressure Down Toolkit &amp;</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<ul style="list-style-type: none"> <li>• 15 minute visits- Medicare is starting to reimburse for certain behavioral health interventions, other insurances also reimburse for prevention</li> <li>• Need patients to actively participate</li> </ul>	<p>Morisky Medication adherence scale 8</p> <ul style="list-style-type: none"> <li>• 2x week over 8 weeks, phone calls, barriers discussed, BP discussed, etc. Individualized education</li> <li>• Family support important</li> </ul>
2020, Delavar	The effects of self-management education tailored to health literacy on medication adherence and blood pressure control among elderly people with primary hypertension: A randomized controlled trial	RCT	<ul style="list-style-type: none"> <li>• Health literacy index</li> <li>• Significant reduction in mean SBP and DBP due to intervention</li> <li>• Self-management education with health literacy promotes med. Compliance, but does not significantly affect BP</li> <li>• 2, 30–45-minute sessions face to face, then 4x 15 min phone calls</li> <li>• Teach back method was useful</li> </ul>	<ul style="list-style-type: none"> <li>• Medication adherence with Morisky Medication Adherence Scale</li> <li>• Tailored patient education is recommended- education plays a significant role</li> <li>• HLI- Health Literacy Index- to better personalize education and improve knowledge</li> </ul>
2020, Doane	Unattended automated office blood pressure measurement: Time efficiency and barriers to implementation/utilization		<ul style="list-style-type: none"> <li>• Unattended BP measurement improves accuracy and reduces white coat BP elevation</li> <li>• Difficult to incorporate to clinic workflow</li> </ul>	<ul style="list-style-type: none"> <li>• Patients and MA's need proper education on how to accurately do BP</li> <li>• Can increase productivity, took less</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
				<p>than 5 minutes to complete</p> <ul style="list-style-type: none"> <li>• Staff at clinic felt it was positive, feasible, efficient, and contributed to BP control</li> </ul>
2021, Eck	Efficacy of hypertension self-management classes among patients at a federally qualified health center	Nonexperimental quality improvement intervention	<ul style="list-style-type: none"> <li>• Pt's were given education, a BP cuff to use at home, and opportunity to speak to physician in a group setting</li> <li>• Men who attended multiple classes had a significant BP reduction</li> <li>• Classes led by variety of providers- physicians, RN, nutritionist, etc.</li> <li>• 4 main topic- defining HTN, effects of HTN, diet, and "ask the experts"</li> </ul>	<ul style="list-style-type: none"> <li>• Racial disparities in BP control</li> <li>• Due to policies around health insurance, difficult to implement education initiatives</li> <li>• Had to make virtual due to covid</li> </ul>
2012, Erkoc	Hypertension knowledge-level scale (HK-LS): A study on development, validity and reliability	Scale development	<ul style="list-style-type: none"> <li>• The scale showed internal consistency in reliability and construct validity, as well as stability over time.</li> <li>• Significant relationships were found between knowledge score and age, gender, educational level, and history of</li> </ul>	<ul style="list-style-type: none"> <li>• This is a valid tool to test baseline knowledge for hypertension</li> <li>• Can be translated to other languages.</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<p>hypertension of the participants.</p> <ul style="list-style-type: none"> <li>No correlation was found between knowledge score and working at an income-generating job.</li> </ul>	
2015, Funk & Davis	Enhancing the role of the nurse in primary care: The RN "co-visit" model	Model development/implementing	<ul style="list-style-type: none"> <li>Utilizing a clinic nurse to their full potential can increase access to care, reduce nurse/provider burnout, increase time with healthcare provider</li> </ul>	<ul style="list-style-type: none"> <li>Utilizing the clinic nurse can positively impact both patients and staff members</li> <li>Understanding the needs of staff members is crucial when making a practice change.</li> </ul>
2018, Gorina	Effectiveness of primary healthcare educational interventions undertaken by nurses to improve chronic disease management in patients with diabetes mellitus, hypertension, and hypercholesterolemia: A systematic review	Systematic review	<ul style="list-style-type: none"> <li>Most studies focused on lifestyle changes- but few measured change after the intervention</li> <li>High disparity in assessment tools</li> <li>Nursing staff plays an active role in education and skills</li> <li>Either individual or group sessions</li> <li>Nutrition, physical activity, adherence to medication, self-control, tobacco and alcohol use, general knowledge, weight control,</li> </ul>	<ul style="list-style-type: none"> <li>Education improves self-management</li> <li>Need to continue to create high-quality interventions in order to not only treat symptoms, but also prevent CVD</li> <li>Transtheoretical Method Belief Change &amp; Rappaport's Theory of Empowerment</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			prevention, health belief, self-care, social support	
2011, Han et al.	Development and evaluation of a hypertension knowledge test for Korean hypertensive patients	Evaluate & validate a study to create a new protocol	<ul style="list-style-type: none"> <li>• Patient's knowledge of hypertension is useful in measuring how well education programs are working.</li> <li>• Patients with controlled HTN scored higher or the hypertension knowledge scores than those with uncontrolled BP</li> </ul>	<ul style="list-style-type: none"> <li>• In order to assess how well the program is working, continuous knowledge tests can be used to see how well the program is working</li> <li>• This would work for baseline and end-goal</li> </ul>
2020, Haykin	Adapting a nurse-led primary care initiative to cardiovascular disease control in Ghana: A qualitative study	Qualitative- mixed-methods implementation science	<ul style="list-style-type: none"> <li>• 3 themes noted- 1. Community demand for CVD care, 2. Community access to CVD care, 3. Provider capacity to render CVD care.</li> <li>• Many community members were not aware of risk factors for CVD</li> </ul>	<ul style="list-style-type: none"> <li>• Nurses need proper training</li> <li>• Community education is key</li> <li>• Protocols can help guide nurse-led visits</li> </ul>
2018, Hwang	Barriers to accurate blood pressure measurement in the medical office	Qualitative evaluation	<ul style="list-style-type: none"> <li>• 6 primary care clinics and 54 patient encounters- there were multiple errors in BP measurement</li> <li>• Staff knowledge, behavior, workflow,</li> </ul>	<ul style="list-style-type: none"> <li>• Educating MA's and RN's is an important step</li> <li>• Need accurate BO monitoring</li> <li>• Need performance improvement</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			equipment, patient characteristics/behavior	
2021, Islam	Lowering blood pressure by changing lifestyle through a motivational education program: A cluster randomized controlled trial study protocol	Randomized control trial	<ul style="list-style-type: none"> <li>• Blended learning education program on lifestyle changes- EBP, fact sheets, pictures, and literature, weekly phone calls</li> <li>• 3 learning modules</li> <li>• Lowering BP by lifestyle modifications may be the most sustainable option</li> </ul>	<ul style="list-style-type: none"> <li>• Engage the community</li> <li>• Educational program on the awareness of healthy lifestyle</li> <li>• Lifestyle and behavioral changes have been shown to effectively lower BP</li> </ul>
2020, Jian-Hong	The evaluation of a nurse-led hypertension management model in an urban community healthcare: A randomized controlled trial	RCT- single-blind	<ul style="list-style-type: none"> <li>• BP in patients of the study group showed greater improvement as well as improved self-care behaviors and higher levels of satisfaction with their care</li> <li>• Protocol- home visits, telephone follow-ups and referrals- was created</li> <li>• 1<sup>st</sup> home visit, then telephone call,</li> <li>• Significant improvement in SBP and DBP, more likely to adhere to non-pharmacological</li> </ul>	<ul style="list-style-type: none"> <li>• Nurse-led HTN management is feasible and effective</li> <li>• Developed from Chronic Care Model and the 4-C Model</li> <li>• Nurses must be trained- set mutual goals, education</li> <li>• Need motivated patients</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<p>suggestions, more satisfaction</p>	
2021, Khairy	Factors associated with self-efficacy in patients with hypertension: A cross-sectional study from Palestine	Cross-sectional	<ul style="list-style-type: none"> <li>• Impairment in self-efficacy was linked to obesity, less patient-physician communication.</li> </ul>	<ul style="list-style-type: none"> <li>• Need to have self-efficacy when dealing with a chronic disease</li> </ul>
2018, Kilic	The effect of education provided using the Roy's adaptation model on hypertension management	Pre/post-test quasi-experimental	<ul style="list-style-type: none"> <li>• The education provided was effective in HTN management and reducing BP</li> <li>• Face to face interviews at home visits, BP, height, weight measured</li> <li>• 6x 1 hr. long visits</li> <li>• Education program provided positive effects on HTN management and positive contribution to the patient's health and lifestyle</li> </ul>	<ul style="list-style-type: none"> <li>• Self-efficacy Scale for Adherence</li> <li>• Individualized educational method-positive communication,</li> <li>• Nurses are more health promoting</li> <li>• Need to approach modifiable risk factors</li> </ul>
2008, Kim	Development and testing of the Hill-Bone compliance to high blood pressure therapy scale	Validity and reliability testing	<ul style="list-style-type: none"> <li>• High compliance scores correlate with better blood pressure control</li> <li>• This is a valid tool</li> </ul>	<ul style="list-style-type: none"> <li>• The Hill-Bone Compliance to High Blood Pressure Therapy Scale is a useful tool to assess how the patient is compliant with their treatment</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
2020, Kolcu	Effect of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults: A randomized controlled trial	RCT	<ul style="list-style-type: none"> <li>• SBP, DBP, and cholesterol levels were lower in the intervention group than control group</li> <li>• Increased medication adherence and knowledge</li> <li>• Action plan created with patients- removing salt shakers, scheduling exercise, etc.</li> <li>• Multiple interventions are effective</li> </ul>	<ul style="list-style-type: none"> <li>• Nurse-led HTN management is an effective program</li> <li>• 21 statement questionnaires related to HTN management- T/F statements, correct answers get points</li> <li>• Statements of habits to assess behavior</li> <li>• Quality of life is important!!</li> </ul>
2005, Krousel-Wood	Reliability of a medication adherence measure in an outpatient setting	Determine reliability of Hill-Bone compliance scale for HTN-cross-sectional survey	<ul style="list-style-type: none"> <li>• 239 participants</li> <li>• 95% confidence interval</li> <li>• It appears reliable</li> <li>• Medication compliance rated higher than dietary changes</li> </ul>	<ul style="list-style-type: none"> <li>• Hill-Bone Compliance Scale for HTN is reliable for outpatient management education</li> </ul>
2016, Kuhmmer	Effectiveness of multidisciplinary intervention on blood pressure control in primary health care: A randomized clinical trial	RCT	<ul style="list-style-type: none"> <li>• Baseline to 6 months, reduction in SBP and DBP with personalized care vs group intervention</li> <li>• Similar outcomes- decrease in BP for both groups</li> <li>• Healthcare professionals received training in order to standardize care <ul style="list-style-type: none"> <li>• Standard algorithms</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• 7<sup>th</sup> report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure guidelines</li> <li>• Baseline education screening</li> <li>• No difference in personalized vs group care</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<ul style="list-style-type: none"> <li>Manuals for 4 main areas of interest: pharmaceutical, nutrition, physical activity, and strategies to be adopted</li> </ul>	<ul style="list-style-type: none"> <li>Previous studies suggest empowerment and constant feedback and individualized care are more effective- but in this study it was not the case</li> </ul>
2021, Lumu	Effect of a nurse-led lifestyle choice and coaching intervention on systolic blood pressure among type 2 diabetic patients with a high atherosclerotic cardiovascular risk: Study protocol for a cluster-randomized trial	Study protocol for a cluster-randomized trial	<ul style="list-style-type: none"> <li>Treatment protocols should be created</li> <li>Wagner's chronic care model</li> <li>CCM- reorganizing care from the acute reactive system to a population-based proactively planned care of patients with chronic illness</li> <li>Question and answer section</li> </ul>	<ul style="list-style-type: none"> <li>Nurses must be trained-structured education, protocol based HTN management, and CVD risk factors</li> <li>Monthly text messages</li> <li>CHRONIC CARE MODEL?</li> </ul>
2020, Malik	Impact of group visit on hypertension management and self-efficacy	Program exploration	<ul style="list-style-type: none"> <li>Group visits as an extension of the primary care office</li> <li>Patients feel empowered</li> </ul> <p>A study conducted by Loney-Hutchinson and colleagues found that measures of "self-care practices, self-efficacy, and patient satisfaction" were significantly higher in patients with hypertension who participated in group</p>	<ul style="list-style-type: none"> <li>NIH supports</li> <li>Assess patients' perception of their healthcare and promote treatment adherence</li> <li>Group visits are less costly and provide greater access to healthcare</li> <li>Less specialty and ED visits</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			visits when compared with usual hypertension care. The study also demonstrated that group visits resulted in a significant reduction in healthcare utilization and cost.	<ul style="list-style-type: none"> <li>• Questionnaire assessing: symptom control, patients' role, emotional functioning, communication</li> <li>• EMPOWERMENT!</li> </ul>
2021, Marseille	Improving hypertension knowledge, medication adherence, and blood pressure control: A feasibility study	Pre/post-test feasibility study	<ul style="list-style-type: none"> <li>• Culturally tailored education program</li> <li>• Haitian immigrants</li> <li>• Significant decrease in BP over the course of 6 weeks, increased med adherence, and hypertension knowledge</li> <li>• Self-monitoring BP can enhance BP management</li> </ul>	<ul style="list-style-type: none"> <li>• Hill-Bone Medication Adherence Scale</li> <li>• Hypertension Knowledge Test</li> <li>• Culturally tailored interventions!</li> <li>• Nurses are in a prime position to educate and provide patient specific info</li> <li>• Behavioral approaches are effective in improving HTN</li> </ul>
2016, O'Donnell	Stakeholder perspectives on change in hypertension care under the patient-centered medical home	Qualitative- interviews	<ul style="list-style-type: none"> <li>• Patient-Centered Medical Home (PCMH)- model of care that emphasizes patient-centered and team-based care and focuses on quality and safety</li> <li>• Support HTN management with personalized care plans</li> <li>• Case-management meetings with patients</li> </ul>	<ul style="list-style-type: none"> <li>• Patient report cards can be helpful</li> <li>• Have the patient set their goals</li> <li>• Team approach</li> <li>• Utilize the EHR with CDS- try to customize?</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
2021, Shen	Personalized hypertension management based on serial assessment and telemedicine: A cluster randomized controlled trial protocol in Anhui, China	Cluster RCT	<ul style="list-style-type: none"> <li>• Personalized Hypertension Management (PHMA)-created a protocol with innovative approaches tailored to each patient</li> <li>• Objective behaviors-self-monitoring, healthy diet, physical activity</li> <li>• PHMA- no two patients get identical information, comprehensive</li> </ul>	<ul style="list-style-type: none"> <li>• Low cost and sustainable</li> <li>• 2 main interventions for HTN: clinical and behavioral</li> <li>• Utilize technology-smartphone, scale, home BP monitor</li> <li>• Family engagement</li> <li>• Daily education/reminder</li> </ul>
2020, Shimbo	Self-measured blood pressure monitoring at home: A joint policy statement from the American Heart Association and American Medical Association	Policy statement	<ul style="list-style-type: none"> <li>• BP may differ from in office reading to at home reading</li> <li>• Higher out of office reading = increased CVD risk</li> <li>• Self-measured BP is associated with reduced BP when used with other interventions</li> <li>• 2017 HTN Clinical Practice Guidelines recommend out of office BP monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Validated BP monitoring device</li> <li>• White coat syndrome vs. resistant HTN</li> <li>• Financial investment is needed in: providing education and training individuals and providers, building HIT, incorporating self-measured BP into performance measures, support cointerventions and enhancing reimbursement</li> </ul>
2019, Shoulders	Reaching for goal: Incorporating the latest hypertension guidelines into practice	Review of guideline	<ul style="list-style-type: none"> <li>• High incidence of poorly controlled HTN-suboptimal medication, complex regimens,</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate risk assessments &amp; algorithms- ASCVD</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<p>affordability, lack of adherence, time constraints of providers.</p> <ul style="list-style-type: none"> <li>• Weight loss, DASH diet, sodium reduction, K supplement, decrease etoh, regular exercise</li> <li>• Digital tools- text, or email on smartphones- user friendly applications</li> </ul>	<p>Risk Estimator- 10 yr. risk for CVD</p> <ul style="list-style-type: none"> <li>• Regular follow-up is important to determine effectiveness of interventions</li> <li>• Measuring inside office vs outside office- need to make sure they are taking their BP correctly</li> <li>• Home BP monitoring is cost-effective and convenient</li> <li>• Team based approach!</li> </ul>
2021, Simonetti	Effectiveness of a family nurse-led programme on accuracy of blood pressure self-measurement: A randomized controlled trial	RCT	<ul style="list-style-type: none"> <li>• FNP led program for adherence of recommendations and home BP monitoring compared to routine care</li> <li>• More holistic approach</li> <li>• 1 hr. long education for patients</li> <li>• Questionnaire to understand baseline adherence</li> </ul>	<ul style="list-style-type: none"> <li>• Increased adherence when patients were taught how to utilize home BP monitor correctly/how to use</li> <li>• Develops pt. empowerment and skills</li> <li>• Reduce clinic visits, should be added to existing interventions</li> <li>• Nurses should be encouraged to develop more training strategies and encourage self-management</li> </ul>
2018, Spies	Nurse-led interventions for hypertension: A scoping	Scope review	<ul style="list-style-type: none"> <li>• Nurse-led interventions found to increase access</li> </ul>	<ul style="list-style-type: none"> <li>• Cost-effective, affordable</li> </ul>

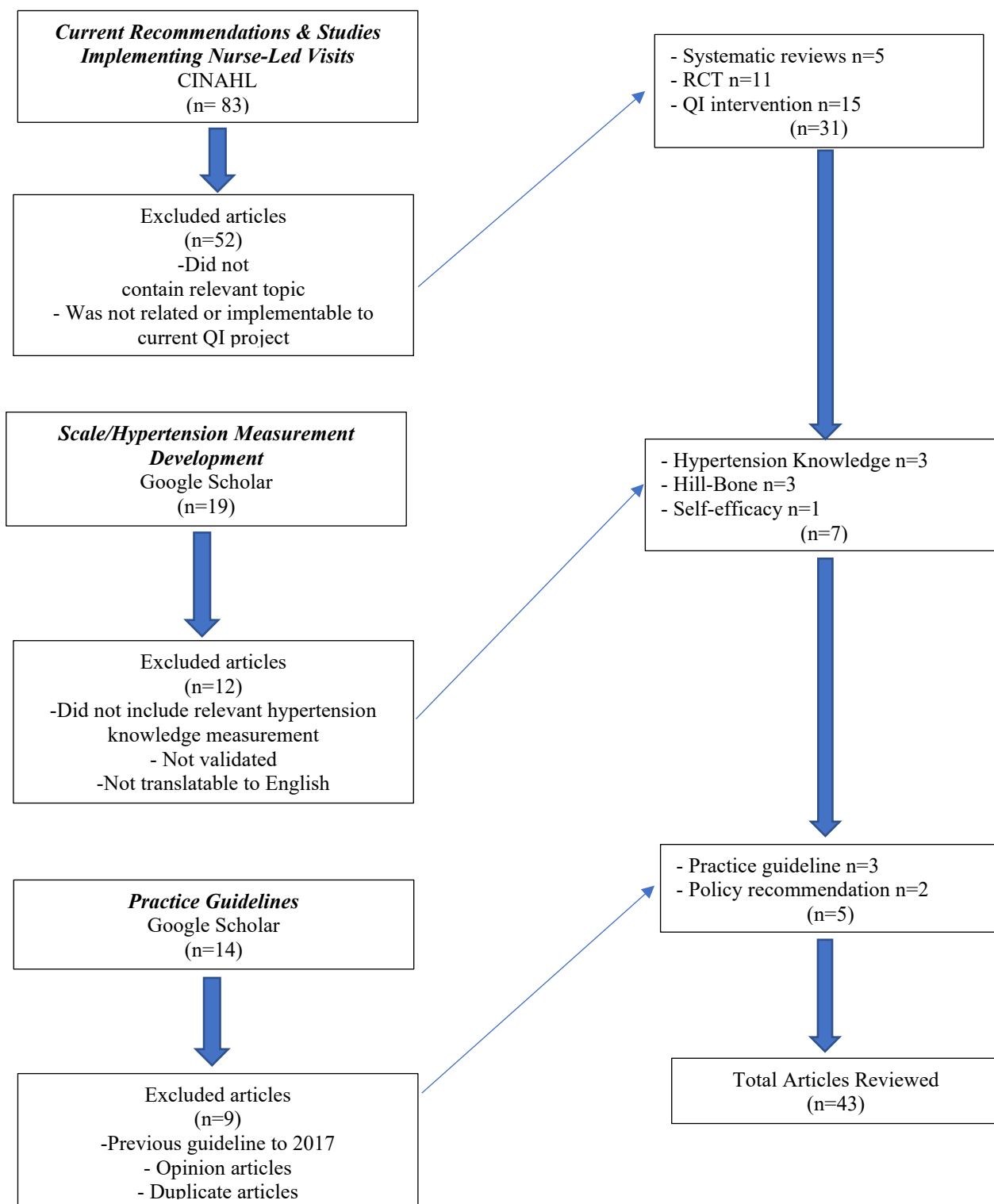
Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
	review with implications for evidence-based practice		<p>to care and be cost-effective</p> <ul style="list-style-type: none"> <li>In many underserved countries, nurses play an important role in chronic disease interventions</li> </ul>	<ul style="list-style-type: none"> <li>“Medication adherence clubs” created to increase med adherence</li> <li>Nurse made protocols can be effective</li> <li>Innovative expanded roles of nurses- working to full potential IOM</li> </ul>
2016, Stephen	Evaluation of a nurse-led hypertension management intervention in Australian general practice: The impress intervention	Program analysis	<ul style="list-style-type: none"> <li>General practice nurse supports self-management and lifestyle risk factor education</li> <li>Consultations and/or telephone support</li> </ul>	<ul style="list-style-type: none"> <li>Need to have motivation</li> <li>Feasible and acceptable</li> <li>Initial time and workload is high, but long-term sustainable</li> </ul>
2021, Todkar	Knowledge, perception, and practice of health professionals regarding blood pressure measurement methods: A scoping review	Scope/systematic review	<ul style="list-style-type: none"> <li>72 studies identified- suboptimal knowledge and practice- still need education to improve practice.</li> <li>Currently have inadequate knowledge of BP techniques and thresholds</li> <li>Home BP monitoring needs to be encouraged.</li> </ul>	<ul style="list-style-type: none"> <li>Need to educate proper way to take BP</li> <li>Team approach by HCP in BP monitoring and education</li> </ul>
2018, Uchamanowicz	Factors influencing adherence to treatment in older adults with hypertension	Cross-sectional	<ul style="list-style-type: none"> <li>150 pts</li> <li>Utilizing the Hill-Bone Compliance to High</li> </ul>	<ul style="list-style-type: none"> <li>Need tailored education for specific populations</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			Blood Pressure Therapy Scale <ul style="list-style-type: none"> <li>• Variables of age, education level, and living with family were significant factors in adherence</li> </ul>	<ul style="list-style-type: none"> <li>• The Hill-Bone Compliance to High Blood Pressure Therapy Scale is helpful in finding out barriers to HTN management</li> </ul>
2020, Unger	2020 International Society of Hypertension Global Hypertension Practice Guidelines	Practice guideline	<ul style="list-style-type: none"> <li>• Must have a multi-dimensional approach to treating HTN</li> <li>• Each patient will not be treated in the same way</li> </ul>	<ul style="list-style-type: none"> <li>• Unattended BP monitoring</li> <li>• Out of office BP monitoring</li> <li>• Diagnostic and treatment approaches</li> </ul>
2021, UPSTF	Hypertension in adults: Screening	Screening Recommendation	<ul style="list-style-type: none"> <li>• Grade A evidence that patients 18 and older should be screened for HTN at every office visit</li> <li>• Confirm with out of office BP measurements prior to starting treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage home BP monitoring</li> <li>• Every patient should be screened</li> </ul>
2019, Wang	The effect of a nurse-led self-management program on outcomes of patients with chronic obstructive pulmonary disease	RCT, single blind trial	<ul style="list-style-type: none"> <li>• Patients in the intervention group had significantly fewer COPD hospital admissions</li> <li>• Improved exercise capacity over time</li> </ul>	<ul style="list-style-type: none"> <li>• Nurse-led self-management programs are effect</li> <li>• Can decrease ED visits and hospital admissions.</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
2021, Wulandari	Educational program to improve hypertension knowledge by a community pharmacist in a rural district in Indonesia	Quasi-experimental	<ul style="list-style-type: none"> <li>• Utilized the HK-LS scale to assess hypertension knowledge</li> <li>• 96 patients- at 8 weeks the intervention group was testing significantly higher on the scale than the control group</li> <li>• Reduction in BP in intervention group</li> </ul>	<ul style="list-style-type: none"> <li>• HK-LS can help to assess baseline knowledge</li> <li>• Can assist in reducing BP</li> </ul>
2019, Yatim	Factors influencing patients' hypertension self-management and sustainable self-care practices: A qualitative study	Qualitative study-focus groups	<ul style="list-style-type: none"> <li>• Group-based allows participants to build and share knowledge</li> <li>• Complications shared by peers alarmed others to take charge of their own health</li> <li>• Self-care is difficult with peer and family influences</li> <li>• Participants felt motivated</li> <li>• Bandura's self-efficacy theory</li> </ul>	<ul style="list-style-type: none"> <li>• Self-care must be sustainable during social and cultural events!</li> <li>• The HSME (HTN self-management education) program did not have much impact on BP control, but participants felt better in terms of clinical and psychosocial outcomes- self-care, motivation, and self-efficacy</li> <li>• Pt's must be accepting of diagnosis- will not work if in denial</li> </ul>
2019, Yusupov	Quality of hypertension care: An improvement initiative in two outpatient health care centers	Non-experimental pre/post design quality improvement study	<ul style="list-style-type: none"> <li>• Survey by PCP of pre and post three-month intervention to improve HTN guideline compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Increased provider compliance with HTN guidelines, but more education on practices are needed for full</li> </ul>

Pub. Year Author's Last Name	Title of Publication	Type of Study	Main Outcomes or Findings	Support for and or link to project
			<ul style="list-style-type: none"> <li>Survey showed improvement in sodium intake, physical activity, alcohol consumption, and weight reduction, but not significant changes</li> </ul>	<p>compliance with 2017 HTN guidelines</p>
2018, Zhu	Development and evaluation of a nurse-led hypertension model: A randomized controlled trial	RCT	<ul style="list-style-type: none"> <li>Nurse-led HTN management model effectiveness in the community</li> <li>2 groups with uncontrolled HTN, nurse management had 4 components-delivery system design, decision support, clinical information system, and self-management support</li> <li>12 weeks of HTN support</li> </ul>	<ul style="list-style-type: none"> <li>BP decreased significantly in the study group.</li> <li>Greater improvement in self-care</li> <li>More satisfaction in patient care</li> <li>No significant difference in self-efficacy and quality of life.</li> </ul>

APPENDIX I:  
OTHER DOCUMENTS AS APPLICABLE TO THE PROJECT (FLOW DIAGRAM OF  
LITERATURE SEARCH)



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