Implementing A Nurse-Driven Evidence-Based Quality Improvement Protocol For Blood Pressure Management In Primary Care

A Scholarly Project Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirement for the degree

Of Doctor of Nursing Practice

By

Veronica Anderson

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Lynchburg, VA

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Scholarly Project Chair Approval

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Abstract

Hypertension is a global chronic medical condition that is life threatening and eventually fatal if left untreated. Elevated blood pressure will disrupt the function of the cardiovascular system and impact the function of major organs, resulting in devastating complications for the patient while increasing cost for the healthcare system. This evidence-based quality improvement project is aimed at increasing control for veterans with high blood pressure and lowering blood pressure to a goal under140/90 through a nurse driven education program. A quasi-experimental project design was utilized to improve nursing practice in managing hypertension care by addressing veterans understanding of self-care management and nurses' knowledge of hypertension management. Descriptive statistics were used to describe the data collected over a two-month period. Findings suggested that when using a combination of the structured hypertension education program, optimized nursing support, and frequent monitoring, blood pressure and self-care management for veterans improved. Implications for practice is to implement a nurse-driven protocol to be adopted by the Primary Care service line for enhanced hypertension care.

Key words: nurse-led clinics, hypertension, primary care nursing, nurse-managed

Dedication

It is my genuine gratefulness, appreciation, and warmest regard that I dedicate this paper to God Almighty, my creator, my source of strength, and inspiration. This is also dedicated to the memory of my ancestors, my Mom, Dad, Granddaddy, Grandmother, Aunts and Uncles, I miss and love you all so much. To my wonderful five children, I love you and this is proof that you can be successful at anything that you put your mind to. To my very good friend and confidant, Brandy Manigo, thanks for taking this educational journey with me since beginning of nursing school. I could not have completed this terminal degree without you. To my favorite special interpreter, Erin Hoyle, you always told me I will shine brightly and believe in me. Lastly, Dr. Bobbie Perdue, thank you for accepting this deaf student in the nursing program and encouraging us to pursue nursing school until we completed the terminal degree.

Acknowledgement

I would like to thank Dr. Tonia Kennedy for expert advice, listening, and extraordinary support in the scholarly project process. I am forever in debt to you for the countless hours of feedback, encouragement, and faith in my project. I would like to thank Dr. Kopis for listening to my concerns and support in this program. To my preceptor, my mentor, and my editor, Dr. Charlene Pope, I have learned so much research knowledge from your guidance and support. To colleagues at the best outpatient clinic, thank you for your support, wonderful collaboration, and assistance with this quality improvement project. This could not have been a success without the support from the best caring Goose Creek nurses. To Dr. Ana Orozco and Quanda Myers, thank you for your faith, feedback, and vast support with this project from the beginning to the end. I would like to give warm thanks to Dr. Simon Scalia and Dr. Robert Glass for being one of my first supporters of my hypertension project. I am grateful for my practicum site for allowing me to conduct my scholarly project at organization and for the wonderful practicum experience. Last and foremost, I would like to give heartfelt thank you to the veterans that have participated in this quality improvement project.

Table of Contents

SECTION ONE: INTRODUCTION

Background

Hypertension is a global health issue that impacts roughly 1.3 billion individuals who areliving with this chronic medical condition (CDC, 2020). Uncontrolled blood pressure is characterized as hypertension (HTN) which is life threatening and eventually fatal if left untreated (DePalma et al., 2018; CDC, 2020). The American College of Cardiology/American Heart Association (ANCC/AHA) Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure and the Seventh Report of the Joint National Committee onPrevention and Detection, Evaluation and Treatment of High Blood Pressure (JNC7) have collaborated in developing guidelines for defining hypertension, targeting blood pressure goals, and recognizing medical treatment for blood pressure (Muntner et al., 2018).

It is calculated that 45.6% of the veterans at the local Veterans Administration (VA) Outpatient Clinic have a medical diagnosis of hypertension (USDHV, 2021). Unfortunately, uncontrolled blood pressure will disrupt the function of major organs and lead to other medical conditions: cardiovascular accident, congestive heart failure, myocardial infarction, chronic renalfailure, end-stage renal failure, and death (CDC, 2020; DePalma et al., 2018). Hypertension is classified as blood pressure measurement over 140/90 (AHA, 2021; CDC, 2020). Due to the complications and the risk of cardiovascular health, this condition is problematic for the health care systemand suggests a need for further nurse education.

The incidence and prevalence of hypertension are increasing in individuals between 20 to50 years of age (CDC, 2020). The risk factors for hypertension in these

individuals are associated with poor self-care behaviors: increased sodium intake, unhealthy diet high in saturated and transaturated fats, lack of physical exercise, obesity, excessive alcohol intake, family history, and cigarette smoking history (AHA, 2020; DePalma et al., 2018; Stephen et al., 2019; Breaux- Shropshire et al., 2017). Specific lifestyle behavior changes will help adults recognize the need to lower blood pressure. Current research studies have suggested that a structured hypertension education program that is managed by nurses has been linked to significant control with blood pressure management (Kolcu & Ergun, 2020; Miao et al., 2020; Spies et al., 2018; Chowdhury etal., 2020; Blackstone et al., 2017; Stephen et al., 2019). In many primary care settings, nurses are the primary educators to the patients and are known to treat the client response to their medical condition (Stephen et al., 2019). A structured hypertension education is needed in the primary care setting to examine the effects on blood pressure control and effective self- management for veterans.

Problem Statement

The incidence and prevalence of hypertension is costly for individuals and the healthcare system. Currently, 45.6 % veterans at the local VA Outpatient Clinic have a diagnose of hypertension with blood pressure defined as over 140/90 (USDVHA, 2021). According to ANCC/AHA and JNC7, there are 54.3% and 39.0% of adults with hypertension that are prescribed antihypertensivemedication that have reported to have blood pressure above the treatment goal (Muntner et al., 2018). Many of these patients are taking multiple prescribed blood pressure medications for hypertension and the blood pressure is still elevated (Muntner et al., 2018; Breaux-Shropshire et al., 2017). In addition to elevated blood pressure, many of the patients have other chronic medical

conditions that will increase the risk for mortality and other complications.

Adults with elevated blood pressure over 140/90 will have higher risk for cardiovasculardisease that will affect patient outcomes and decrease quality of life (Overgaard-Anderson et al.,2016; Brown, 2017; Stephen et al., 2019; Breaux-Shropshire et al., 2017). For this reason, veterans will need to be provided with educational materials to increase understanding of hypertension and how it effects the body. Non-adherence to treatment regimen and poor behaviors are concerns that play a role in increased mortality and high risk for cardiovascular disease (CDC, 2020; AHA, 2021; Stephen et al., 2019; Breaux-Shropshire et al., 2017). Some of the greatest challenges in improving hypertension medical care are the lack of education, poor health behaviors, and noncompliance with the treatment plan (Chowdhury et al., 2020; DePalma et al., 2018; Miao et al., 2020). For these reasons, it is valuable if the focus is on improving the education materials, providing individual patient support, optimizing nurse support with routine follow-up care and engagement, and utilizing teach-back demonstration. Clinical practice guidelines have supported the idea that a reduction in health modification behaviors, structured education, and routine follow-up care that is delivered by nurses will improve patient outcomes, provide high quality of care, decrease the risk for cardiovascular, and prevent mortality (Zhu et al., 2017; Stephen et al., 2018; Spies et al., 2018; Kolcu & Ergun, 2020).

Healthy People 2030 are national objectives that are established to improve health outcomes and quality of life based on research and developmental indicators (U. S. Department of Health and Human Services, 2021). According to Healthy People 2030, there are two objectives that are related to hypertension objectives: increase

control of high blood pressure in adults and reduce the proportion of adults with high blood pressure (U.S. Department of Health and Human Services, 2021). This evidence-based quality improvement project is aimed at increasing control for adults with high blood pressure and lowering blood pressure to a goal under140/90 through a nurse driven education program.

Purpose Statement

An evidence-based quality improvement project is needed to improve the nursing process for hypertension care and to standardize education more consistently across the Primary Care service line. For nurses to provide education, the current hypertension education process is a blood pressure note that has limited information for educating patients. There is no written protocol that will guide the nurses in clinical decision-making when patients are presented in the blood pressure clinic. A structured education program for patients who need further education regarding hypertension management is vital to address the gaps in care and improving quality of care (Miao et al., 2020; Brown, 2017; Gyami et al., 2017; Stephen et al., 2019). There is sufficient evidence that implementation of nurse-led hypertension clinic will deliver a structured approach for hypertension management in primary care setting and increase control for high blood pressure in adults (Spies et al., 2018; Chowdhury et al., 2020; Miao et al., 2020; Kolcu & Ergun, 2020; Zhu et al., 2017; Stephen et al., 2019).

The purpose of this evidenced-based quality improvement project is to determine if the implementation of a nurse-driven protocol for blood pressure management will lead to an increasein control for patients with high blood pressure and self-management for patients. A nurse- driven protocol is needed to fill in the gaps of

care and to improve the education process for the patients.The importance of the structured education program is to ask the veterans the right questions and with frequent monitoring to determine if the interventions are on target to lower blood pressure. Adeseum et al. (2012) have acknowledged that limited health literacy may be related to with blood pressure management. In addition, frequent monitoring will allow for ongoing assessment of education needs and adherence to hypertension care.

Correlating DNP Essentials for the Project

The Doctorate in Nursing Practice (DNP) essentials statements are the basis and the guidance for this evidence-based quality improvement project on Implementing a Nurse-Driven Evidence-Based Quality Improvement Project for Blood Pressure Management in Primary Care. Essential 1 described the analysis of the scientific process and nursing science as the foundation for understanding changes in the cardiovascular system (Chism, 2019). This foundation is also interpreted as the knowledge that nurses use to improve nursing practice. Human behaviorpatterns explain the reasons why individuals act in their environment, make lifestyle behavior, and their daily interactions with care. Process improvement is projected to change health outcomes that affect the health care delivery system and prevent barriers in achieving performance measures (Chism et al., 2019). DNP nurses will need to develop and implement new practice strategies that are derived from nursing theories, evidence-based practice, and quality improvement methodologies (Kolcu & Ergun, 2020; Zhu et al., 2017; Himmelfarb et al., 2016).

The structured education program is a proposed evidence-based quality improvement project, so the primary care nurse can deliver an education strategy to

explain the cardiovascular function, identify current patient behaviors that contribute to hypertension and how they affect blood pressure control. Primary care nurses must have scientific knowledge of human biology and physiology to recognize hallmark signs and symptoms of high blood pressure to understand the need to initiate early medical treatment (Kronebusch et al.,2020; Kilic et al., 2016). Kronebusch et al. (2020), Stephen et al., (2019), and Himmelfarb et al. (2016) have suggested that expanding the role of the nurse in managing hypertension care is vitalto enhance quality of care, improve health outcomes, and improve the healthcare delivery system. By using the concepts of the pathophysiology process in a manner sensitive to health literacy (, new education strategies can impact healthcare delivery and quality outcomes (McNaughton et al., 2014)

Essential II is about the organizational and systems leadership for quality improvement and system thinking that integrates nursing practice with evidence-based practice approaches. The goals for the organizational and leadership will guide how problems are identified, needs assessment conducted, and implemented changes to enhance care delivery approaches to meet the needs for the patient population (Chism et al., 2019). Adequate blood pressure control falls under cardiovascular metrics for primary care which is linked to performance metrics. The healthcare delivery system had a commitment to improve health outcomes and provide high quality clinical care for the patient populations. This improvement process called for developingan evidence-based quality improvement approach for managing hypertension that will improve health care outcomes and be linked to the organizational metrics (Himmelfarb et al., 2016; Spies et al., 2018; Blackstone et al., 2017; Stephen et al., 2019).

Essential III is the clinical scholarship and analytical methods for evidence-based practice that is linked to patient preferences, organizational values, and the nurse knowledge inprocess improvement. The end results will directly impact the evidence-based practice initiatives, healthcare delivery outcomes, and patient health outcomes. By understanding evidence-based thinking, the nurse's perception is adopted from research findings, nursing implications, best practice, and patient health behaviors (Blackstone et al., 2017; Gyami at et., 2017).

Clinical Question

Will implementing a Nurse-Driven Evidence-Based Quality Improvement Protocol improve blood pressure control for veterans and increase self-care management?

Section Two: Literature Review

Search Strategy

The search strategy was conducted to search for English-language studies related to HTNprotocol in primary care settings. The databases that were utilized in the search were CINAHL Pluswith Full Text, Medline with Full-Text and Nursing/Academic Edition. This search did not reveal any gray literature for this quality improvement project. The key words used were "nurse led clinic", "hypertension", "primary care nursing", and "nurse-managed." Date delimitation were from 2016 to the present for the current research as hypertension recommendations are updatedand change over time. The search revealed 446 articles.

The inclusion criteria for research studies are for journal articles that examine the effectsof nurse-led hypertension clinic in patients in the primary care setting. The

number of studies remaining after the inclusion criteria were applied were 22 studies with a main focus on hypertension. The literature review indicated several levels of evidence that are related to applying Melnyk Level of Evidence Chart. The literature review criteria applied was based on design, validity, and applicability to hypertension care.

Critical Appraisal

A total of 22 literature reviews and studies were included in the critical appraisal that were utilized. There were five level I studies with systematic reviews (Anstey et al., 2021; Brown, 2017; Chowdhury et al., 2020; DePalma et al., 2018; Spies et al, 2018). There were seven Level2 studies with randomized controlled trials (Kolcu & Ergun, 2020; Mattei de Silva et al., 2019; Miao et al., 2020; Himmelfarb et al., 2016; Muntner et al., 2018; Stephen et al., 2019; Zhu et al.,2017). There were four Level IV cohort studies with mixed methods and cross-sectional (Gyamfi et al., 2017; Kilic et al., 2016; Blackstone et al., 2017; Overgaard-Anderson et al., 2016). Finally, there were six Level VI qualitative-descriptive studies (Breaux-Shropshire et al., 2017; Kronebusch et al., 2020; Mejzner et al., 2017; Ostlund et al., 2016; Stephen et al., 2018; Yusupov et al., 2018). The critical appraisal was completed using the approved template that willbe found under Appendix A.

Synthesis

Task-shifting

Task-shifting is an effective strategy that will shift the responsibility of hypertension education toward primary care nurses from primary care providers (Gyami et al., 2017). The meaningful use of task shifting strategy for primary care was first

developed to increase health access for patients who have poor health outcomes (Blackstone et al., 2017; Gyami at et., 2017). Most primary care providers have limited time to reinforce teaching, which is leading to gaps in hypertension care. Clinical practice improvement is needed to prevent the effects of uncontrolled blood pressure and decrease the risk of cardiovascular effects. According to Gyamiet al. (2017), Stephen et al., (2019), and Blackstone et al. (2017), the role of primary care nurses is expanded to include awareness, treatment, and management of hypertension. A structured hypertension education program will allow the nurses to assess, teach and reinforce the education process for veterans.

One important element of task-shifting strategy is to enhance the clinical decision- making skills for nurses that will benefit the patient. By providing a structured education program, the nurses will be trained on the latest evidence-based practice for hypertension care. This will empower nurses to recognize pertinent signs of symptoms of hypertension and initiate early education training. Nurse and patient engagement in this process will reinforce the seriousness of hypertension care that will improve patient outcomes (Stephen et al., 2019; Zhu et al., 2017; Miao, J. et al., 2020; Mejzner et al., 2017). Implementing a nurse-driven protocol is aneffective approach for nurses to utilize critical thinking to be proactive within their practice. A nurse-driven protocol is a detailed health recommended statement of practice that will standardize care and guide nurses in the clinical decision-making process. The healthcare system will need to design a nurse-driven protocol that can be taken into health policy to sustain the changes for hypertension care (Stephen et al., 2019; Blackstone et al., 2017; Zhu et al., 2017).

Considering sufficient evidence regarding the effectiveness of task-shifting strategy that has improved patient outcomes in other research studies; it is time that nurses are permitted to function as the highest extent of their license (Zhu et al, 2017; Miao et al., 2020; Blackstone et al., 2017). In many clinical settings, nurses are the primary educators to reinforce understandingof pathophysiology, medical treatment, disease process, and follow-up care (Stephen et al., 2019;Spies et al., 2018). Nurses have the time and established trust with their patients that will help motivate and encourage the transition of positive behaviors. Miao et al. (2020), Stephen et al., (2019), and Blackstone et al. (2017) have reported that nurses are more motivated to assess patient knowledge and behavior by developing teaching, guidance, and counseling methods to improve how hypertension care is provided. To address this concern, the task shifting strategy isdefined as an effective approach for shifting hypertension care to nurses (Blackstone et al., 2017).

Self-Management

Self-management is characterized as an evidence-based practice approach to changing health care behaviors in the patient (Chowdhury et al., 2020). Empowerment, motivation, and engagement are the characteristics that will support the patient to improve their self-managementbehavior and adopt new health behaviors that beneficial for self-care. Patient engagement is needed to implement home blood pressure monitoring, and to teach the patient how to recognizepertinent signs and symptoms of hypertension (Spies et al., 2018; Chowdhury et al., 2020). Blackstone et al. (2017) and Zhu et al. (2017) have conducted clinical studies that validated the important of hypertension education and the positive effect on self-management skills. Research

findings from a study of a nursing case management model with patients with hypertension found that it empowered patients to better self-management hypertension care at home (Mattei de Silva et al., 2019).

According to Brown (2017) and Mattei de Silva et al. (2019), the positive effect of patient's understanding the physical effects of untreated hypertension will lead to patient better managing hypertension care at home. Behavior motivating techniques will enhance patient communication, increase awareness, and improve hypertension education that is needed to change health care behaviors (Chowdhury et al., 2020). Various research studies have linked thepositive influence of nurse-led hypertension interventions and the correlation of self- management for patients (Chowdhury et al., 2020; Brown, 2017; Kolcu & Ergun, 2020). The basis of behavior modification is the knowledge of self-management for living with chronic hypertension at home (Spies et al., 2018). A patient's confidence level will increase if they are able to self-manage and will adhere to recommended treatment regimen at home.

The self-care management strategies will assist the patient in managing hypertension in the home environment. These education teaching sessions will set the theme for a patient-centeredenvironment. The patient will need to understand how to provide self-care if signs and symptomsof high blood pressure are clinically noted. By reinforcing lifestyle changes, the nurse can interact positively with the patient in setting goals that are linked to health promotion and the decrease the lifestyle risk factors. The overall focus is to eliminate barriers and implement risk reduction behaviors by implementing a nurse driven structured education program (Zhu et al.,2017).

Structured Hypertension Education Program

Hypertension is a common medical problem among patients in primary care. Individuals from age 20 to 50 years old have difficulty with understanding how to control high blood pressure at home (CDC, 2020). For these reasons, implementation of nurse-led hypertension careis needed to decrease the risk of cardiovascular disease and prevent mortality. Nurse engagement and empowerment are factors that will motivate patients to change health behaviors and lifestyle factors. Research evidence has supported the idea that nurse-led interventions have been demonstrated to reduce systolic and diastolic blood pressure control reading (Kolcu & Ergun, 2020, Miao et al., 2020; Spies et al., 2018; Kronebush et al., 2020; Kilic et al., 2016; Himmelfarbet al., 2016; Stephen et al., 2019; Mejzner et al., 2017; Breaux-Shropshire et al., 2017).

The structured hypertension program was developed to provide nurses with effective interventions that are evidence-based and demonstrated to increase control in high blood pressure patients. The structured hypertension program will facilitate the education strategies: patient assessment, lifestyle risk factors, self-management strategies, teach-back demonstration, motivational interviewing, and individual patient support to target blood pressure control (Ansteyet al., 2021; Miao et al., 2020; Spies et al., 2018; CDC, 2020).

The US Preventive Services Task Force (2021) for screening hypertension in adults recommended the implementation of home blood pressure screening with blood pressure devicein the home setting and the patient should check blood pressure at least twice times a day (Anstey et al., 2021). Home blood pressure monitoring was recommended as the preferred evidence-based practice approaches to increase control

of patients with high blood pressure to achieve the Healthy People 2020 objectives and as seen in interventions in nurse-led hypertension clinics (USDHSS, 2020; Anstey et al.,2021; Kolcu & Ergun, 2020; Miao et al., 2020; Spies et al., 2018;Chowdhury et al., 2020; Blackstone et al., 2017; Mejzner et al., 2017; Breaux-Shropshire et al., 2017). The structured education program concept is widely supported from the Million Hearts Program implemented by Center for Disease Control (CDC) in 2013. The program was called Self-Measured Blood Pressure Monitoring designed for use by public health practitioners (CDC,2013). By implementing a self-measured blood pressure monitoring program, the strategy has improved control for patients with high blood pressure (CDC, 2013; Breaux-Shropshire et al., 2017). In addition to frequent monitoring of blood pressure, there are other interventions that should be implemented: one-to-one counseling, web-based or telephone support, and educational classes (CDC, 2013). A structured hypertension education program will provide valuable feedback for primary care nurses to assist veterans to improve the quality of life related to hypertension using these approaches (CDC, 2013; Kronebusch et al., 2020; Anstey et al.,2021; Kolcu & Ergun, 2020; Miao et al., 2020; Spies et al., 2018; Chowdhury et al., 2020; Blackstone et al., 2017; Stephen etal., 2019).

Motivational Interviewing

The purpose of motivational interviewing use of a guiding style of conversation and patient-provider relationship-building to promote behavior change that will influence the patient to improve health outcomes. The integration of motivational interviewing is warranted when there is evidence of poor health behaviors, low medication compliance, and uncontrolled blood pressure measurements.

A study using the Swedish Board of Health and Welfare National Guidelines for Disease Prevention recommended motivation interviewing as an effective strategy in behavior modification change.(Ostlund et al., 2016). The nurse is positioned to assist the patient in developing positive behaviors, improve chronic health illness, and health promotion. Motivational interviewing isbeneficial for nurses in learning how to conduct change talk.

Change talk is best utilized when nurses are incorporating the following motivational interviewing techniques: open questions, complex questions and reflections that are motivated toward change (Ostlund et al., 2016). Motivational interviewing strategies will assist the patient inselecting positive behaviors that are needed to make healthy choices (Ostlund et al., 2016). A reduction in lifestyle behaviors and risk factors is linked to how the nurses motivate and support thepatient. In this descriptive study, the researchers explained positive reflections and negative questions were great strategies of motivational interviewing that directed lifestyle behavior changes (Ostlund et al., 2016). The conversation between the nurse and patient can lead to identifying barriers that may hinder the patient from making the transition to healthy lifestyle.

Conceptual Framework

The conceptual framework for this evidence-based quality improvement project is the Iowa Model of Evidence-Based Practice which is a recommended model to guidance the doctoral nursing research. This model will guide the implementation of structured education program for hypertension care using seven componentsoutlined within the model (Iowa Model Collaborative, 2017). There was permission granted from by University of Iowa Hospitals and Clinics which is listed in Appendix B.

Identify Triggering Issues/Opportunities

Hypertension management is a performance measure for primary care that is listed under a national clinical practice guideline by the VA and Department of Defense (U.S. Department of Veterans Affairs and Department of Defense, 2020) . At the selected VA Outpatient clinic, there are several primary care panel teams that are not meeting the standard of care for the performance metric.The VA Outpatient clinic performance metric for cardiovascular care is 71% and the national metric for cardiovascular care is 80% (USDVHA, 2021). For Healthy People 2030 initiatives, the two objectives for cardiovascular care are to increase control of high blood pressure in adults and to reduce the proportion of adults with high blood pressure. Currently in the VA, there is 45.6% of patients with a medical diagnosis of hypertension and have other chronic medical conditions associated to high blood pressure (USDVHA, 2021). Therefore, this project is aligned with thegoals for the organization and the national clinical practice guideline for cardiovascular health.

State the Question or the Purpose

The purpose of the evidence-based quality improvement project is to improve the qualityof care for patients living with hypertension and increase the control of their blood pressure.This project will improve the health outcomes for patient with hypertension by developing a structured hypertension education program that will be utilized by primary care nurses. Will implementing a Nurse-Driven Evidence-Based Quality Improvement Protocol improve blood pressure control for veterans and increase self-care management?

Form a Team

The involved stakeholders for this project will consist of the following team members: project lead, Primary Care Nurse Manager, Chief of Education, Chief Nurse for Research, Chief Nurse of Primary Care, Deputy Chief of Primary Care, Quality Improvement Coordinators,Primary Care Providers, Nurse Manager of Informatics, and Primary Care Nurses. The project lead will develop a chart form and ask various staff members to assist with development of the project. The project lead will assign tasks and ensure that the tasks are completed within the timeframe.

Assemble, Appraise, and Synthesize Body of Evidence

The literature review was conducted and articles relating to nurse-led hypertension clinic were included in the evidence-based quality improvement project. To sustain the evidence-basedquality improvement project, a nurse-driven protocol for blood pressure management will be implemented across the primary care service line in one community-based out-patient clinic (CBOC). The supporting literature matrix can be referenced in Appendix A.

Design and Pilot the Practice Change

This evidence-based quality improvement project will consist of pre-intervention trainingfor nurses to evaluate the nurses' knowledge, attitude, and clinical decision-making on hypertension care. Nurses will complete post-assessment to evaluate the intervention teaching. In addition, there will be pre- and post-assessment for patients to evaluate the effects of the hypertension education program and any association with patient self-management behaviors (Zhu et al., 2017; Miao et al, 2020). The Hypertension Self-Care Profile (Han et al., 2014) is an anonymous questionnaire that

will be provided to the patients before and after the intervention training. The patient will score using the Likert Tool to examine the effect of the structured education program on self- management at home. The Hypertension Self-Care Profile will be listed in Appendix F.

Disseminate Results

The results will be disseminated by presenting a grand rounds presentation to VA Outpatient Clinic and at NURSING Research Committee Grand Rounds after the completion of the project. The project lead will develop a poster presentation for primary care leadership with the recommendation for the implementation of the nurse-driven evidence-based quality improvement protocol to be adopted across the Primary Careservice line. It is recommended that implementation strategies for the dissemination stage include in-service training, ongoing consultation with the Education Department, and primary care leadership support. The purpose of dissemination is to promote quality of care across the primary service line and share best evidence-based practice with the other community-basedoutpatient clinics.

Translation of Results

A structured education program will assist in standardizing hypertension care across the Primary Care service line. The purpose of the structured education program is to improve control for blood pressure patients and to improve health outcomes for patients with hypertension. The key to improving nursing practice is utilizing evidence-based practice knowledge and integrating it into clinical practice. The nurse's role in primary care is shifting to improve health outcomes, improve the quality of care which will impact performance metrics, and improve self-management behavior for patients.

The structured hypertension education program will be utilized by all primary care nurses as a guide when educating patients at the VA Outpatient Clinics. The framework for self-care of chronic illness will improve health outcomes for patients with hypertension by enhancing self-care behaviors.

Theoretical Framework

More adults are living with chronic illness that are becoming increasing harder to manage. There is a notable difference in the ability to perform general self-care and self-care with chronic illness. Self-care is defined as normal process ones takes to prepare for daily activities of living: brushing teeth, eating nutritious meal, physical activity, and stress-free lifestyle (Riegel et al., 2018). On the other hand, self-care behaviors are different when the person has chronic illness that requires taking prescription medication, taking automatic bloodpressure, and altering the diet to decrease sodium intake as part of daily routine (Spies et al., 2018, Kolcu & Ergun, 2020, and Brown, 2017). It is a challenge for patients to respond appropriately to symptoms of illness when they do not understand their body changes and hypertension that may have no symptoms.

Self-care action is learning how to recognize signs and symptoms and use the right decision-making skills that will provide symptom relief, improve health outcomes, enhance the quality of life, and survival rate (Riegel et al., 2018). Riegel et al., (2018) explained the difference between daily self-care behaviors and self-care behavior with chronic illness which will vary from individual patient experiences, education, character, socioeconomics, and lifestyle. Nurses have the influence to improve self-care behavior in patients by establishing motivation strategies (Gyamfi, et al., 2017). This

unique relationship will encourage patient to improve behavior modification. Due to the severity of hypertension, adults who effectively manage their blood pressure will have lower risks of cardiovascular disease which will decreasethe mortality rate (Spies et al., 2018, Kolcu & Ergun, 2020, and Brown, 2017). The Theory of Self-Care of Chronic Illness describes the meaningful use of self-care deficits and how adults caneffectively manage living with chronic illness by adhering to three concepts: self-care maintenance, self-care monitoring, and self-care management (Riegel et al., 2018). Those self- care concepts are the foundation of this evidence-based quality improvement project.

Summary

Research studies have evaluated task-shifting interventions based on the cardiovascular risk for hypertension. There is a pressing concern about expanding the role of primary care nurses to shift hypertension care to improve patient outcomes, increase self-management, and enhance the quality of life. The task-shifting strategy is an appropriate approach that primary care setting is pursing. Nurses have the ability to practice to full extent of their license and delegation of hypertension falls within that scope of practices. Consequently, there is a need for nurse-driven protocol for blood pressure management in the primary care setting. This nurse-driven protocol will improve patient outcomes, enhance the quality of life, provide guidance for primary care nurses in recognizing the signs and symptoms of hypertension as well as the clinical value when beyond goal, initiate a treatment plan, and improve self-management behaviors for patients. Research studies in the primary care setting have reinforced the practice to shift the hypertension care to nurses and involvement in implementation of

health practice guidelines (Himmelfarb et al., 2016; Zhu et al., 2017; Gyamfi, et al., 2017).

Section Three: Methodology

Design

This evidence-based practice project will use a quasi-experimental approach to collectand analyze data. The project design will utilize the IOWA model to guide a practice change (Iowa Model Collaborative, 2017). The proposed intervention will utilize an evidence-based quality improvement approach for primary care nurses from the VA Outpatient Clinic and patients age 35 and older with a medical diagnosis of hypertension. The purpose of this evidence-based quality improvement project is to examine the effects of hypertension education program on achieving better blood pressure control and improving self-management for veterans.

The project lead will have the nurses take a pre-assessment questionnaire, TASSH Hypertension Knowledge Assessment (Gyamfi, et al., 2017) prior to the structured education program. The nurses willreceive a 45-minute education session to teach them how to implement the Nurse-Driven Evidence-Based Quality Improvement Protocol for blood pressure management via Microsoft TEAMS. Then, the nurses will take post assessment, TASSH Hypertension Knowledge Assessment, to determine if there is a change in hypertension knowledge after completion of the intervention education program. The evidence-based quality improvement project will use a structured education program createdby the project lead to determine if the structured education program will achieve control in blood pressure patients and improve self-management behaviors for patients within a 2-month timeframe (Appendix G). A copy

of the TASSH Hypertension Knowledge Assessment is listedin Appendix H. A letter providing permission to use the TASSH will be listed in the Appendix I.

The implementation of a nurse-driven protocol will encourage nurses to assume responsibility for managing hypertension by recognizing early signs and symptoms, responding to BP clinical values beyond goal, and initiatingmedical treatment. In addition, the structured education program will evaluate the effectivenessof the hypertension education program on the veteran patients' ability to self-manage blood pressureat home. The questionnaire, Hypertension Self-Care Profile: A Practical Tool to Measure Hypertension Self-Care (Han et al., 2014) will be utilized in this evidence-based quality improvement project for the veterans. This questionnaire will be given to 40 veterans before the educational session and at the completion of the 60-day program to evaluate self-management. A letter was provided given permission to utilize the questionnaire and will be listed in the Appendix E.

In addition, the project lead will be given access to a restricted access drive to store the data fromthe evidence-based quality improvement project. This evidence-based quality improvement project will require the following resources: access to the electronic quality metrics, blood pressure device to be provided to the veterans for home blood pressure monitoring usage, primary care nurses to conduct the hypertension training, patient education supplies to providehypertension handouts for all patients with hypertension, and space for the hypertension education training to be conducted with the patients.

Measurable Outcomes

The first measurable outcome for this evidence-based quality improvement

project is to improve control in blood pressure patients with hypertension. Clinical screenings for blood pressure will initially performed in the selected CBOC. Veterans with a confirmed reading of blood pressure over 140/90 will be provided with a blood pressure device with specific instructions on the proper way to use the mechanism for taking at home blood pressure reading (Anstey et al., 2021). This process will help shift the focus of hypertension care to the nurses and away from the providers. Research studies have indicated positive results for nurse-led hypertension care which have improved control for blood pressure in adults and improved quality of life (Spies et al., 2018, Kolcu & Ergun, 2020, Breaux-Shropshire et al., 2017, and Brown, 2017). For the second outcome, nurses willbe asked to complete a pre and post implementation TASSH knowledge assessment to assess change in knowledge on HTN education. For the third outcome, the veterans will be asked to complete a pre- and post-implementation Hypertension Self-Care Profile, on self-management behaviors.

1. Will the implementation of a nurse driven protocol increase self-management and control of HTN for veterans?
2. Will the primary nurses' knowledge increase after attending HTN educational session?

Setting

This project will be conducted at the selected VA Outpatient Clinic. This outpatient clinic provides primary care for eligible veteran residing in Dorchester, Berkeley, and Charleston counties. The VA Outpatient Clinic is operated by the federal government for veteran patients who have obtained eligibility through past service-connection in the military. This clinic is located on the Naval Weapons Station, Joint

Base Charleston navy base and has total of 8300 veterans who are receiving care divided into 12panel teams (USDVHA, 2021). There are 4300 veterans that have a medical diagnosis of hypertension (USDVHA, 2021). Permission was granted by the VA Outpatient Clinic to conduct the project and the letter was added to Appendix C.

Populations

Fourteen primary care nurses will provide education to the 40 veteran patients who attendthe clinic with medical diagnosis of hypertension with a blood pressure over 140/90. Veterans with the diagnosis were approached sequentially to recruit those willing to participate in a Blood Pressure Improvement education program until 40. The 40 veterans will be asked to complete pre/post questionnaire of the Hypertension Self-Care Profilefor self-management behaviors.

Ethical Obligations

Quality improvement activities are interpreted as improving patient outcomes linked to evidence-based practice. ANA (2015) described that ethical obligations are ensuring that patientprivacy and confidently is protected. The project lead will adhere to the ANA code of ethics for nursing moral obligations and responsibility to provide the best nursing care within nursing practice. The quality improvement project will support nursing ethics for providing patient care with justice, nonmaleficence, and beneficence (American Nurses Association, 2015).

Participants will continue to receive primary care services that are beneficial to their health. The project lead has completed the required training by obtaining certification from Collaborative Institutional Training Initiative (CITI) from Liberty University. The CITI is a certification about researchand ethics that explains the

importance of human rights protections when conducting research. This certification is listed in Appendix D. Permission will be requested from Institutional Review Board (IRB) at Liberty University IRB, the VA affiliate with MUSC IRB, and supervised by the VAMC Chief Nurse for Research.

Data Collection

There will be random selection of chart audits to review the nurse's documentation forhypertension care. In addition, data collection will include the patient blood pressure, their understanding per the self-care tool and decrease of hypertension over a 2-months timeframe. The patient will complete a blood pressure log measuring home blood pressure reading twice a day for two weeks and then return to the clinic for scheduled follow-up appointments. The project lead will monitor the quality metrics for hypertension from the primary care almanac which monitors the performance metrics for the organization.

Tools

The questionnaire for the veterans will be borrowed from "Development and Validation of the Hypertension Self-Care Profile: A practical tool to measure Hypertension Self-Care (Hanet al., 2014). The questionnaire will evaluate the self-management behavior of the patients afterattending the hypertension education program conducted by trained nurses. The original researchers have granted permission for the use of this questionnaire for this evidence-based quality improvement project. This questionnaire will be listed under Appendix F.

The questionnaire for the nurses is the Hypertension Knowledge Assessment that was adopted from the Hypertension Evaluation of Lifestyle Management Knowledge

Scale (Gyami etal., 2017). The questionnaire will evaluate the nurses' level of knowledge prior to the implementation of the Hypertension Education Training for primary care nurses. After the Hypertension Education Training, the nurses will complete post knowledge assessment to test for competency. Permission to utilize this questionnaire was given from the original researchers (Appendix I). The questionnaire for the nurses will be applicable to all the nurses employed at the VA Outpatient Clinic.

Interventions

The intervention is the structured education program that will evaluate the knowledge level of hypertension for the nurses and examine the effect of the education on self- management behavior for patients. The veterans that are >35 age with hypertension will receive education from the structured hypertension program and there are only 40 participants. A structured hypertension education program is a component of the Nurse-Driven Protocol for Blood Pressure Management. The Nurse-Driven Protocol will have the following interventions: schedule blood pressure appointment conducted biweekly for up to two months, prompt text messages regarding hypertension feedback, use of approved hypertension education handouts with blood pressure log for documentation, blood pressure device with teach-back demonstration provided in the outpatient clinic, referral to pharmacy, nutrition, MOVE weight loss management program, smoking cessation, and alcohol class referral (Appendix G).

The implementation phase of the quality improvement will address every aspect of the project. First, the nurses will attend a 45-minute hypertension education training by Microsoft TEAMS meeting with the project leader after completing a pre-competency assessment to evaluate the knowledge of hypertension. The hypertension

education program will explain the following: pathophysiology of the cardiovascular system, medical treatment, teach-back demonstration of blood pressure device, how to document hypertension training in the electronichealth records, how to order the follow-up blood pressure appointments via telephone, teams or face to face, how to motivate the veteran to adhere to the treatment plan, nutrition plan for a healthy heart, how to access the Annie application, and texting communication to receive text message by cellular phone. After the hypertension training, the nurses will take post-assessment to evaluate their understanding of the training session. The intention of the hypertension education training is to examine the effects of a structured hypertension program regarding knowledge changes.

The veteran participants will attend a 30-minute hypertension education session be given a blood pressure log to record their blood pressure, and additional services mentioned based on need assessments. The nurse will order a blood pressure device and conduct teach-back demonstration. To evaluate the effectiveness of theeducation session, the veteran will be asked to complete a post-assessment questionnaire Hypertension Self-Care Profile related to self-management behavior after the end of the two months of project.

Data Analysis

The project lead will use descriptive, univariate statistics to explain the findings of data collected. Martin et al. (2020) postulated that descriptive statistics is a common statistical method to organize the data collection process to understand the findings. This data collection process will begin by reading all the data collected in both questionnaires and making comparison notes. Martin et al. (2020) have explained the

importance of data analysis by stating that the data will be compared against each other to understand the meaning of the results. The data collected will be organized and displayed in tables and graphs to explain the results of the study.

Section Four: Results

Results

This section will discuss the results of the data analysis from the quantitative survey completed by the nurses and veterans. The project was implemented on June 21, 2021 and completed on August 21, 2021 with the patient surveys completed during the same time period. The nurses completed the 19 question TASSH Hypertension Knowledge Assessment while the veterans completed The Hypertension Self-Care Profile. The results of the surveys will be discussed in the following paragraphs.

TASSH Hypertension Knowledge Assessment

The TASSH Hypertension Knowledge Assessment was taken by the participating nurses to assess their HTN knowledge pre/post attending the structured hypertension education program. There was a total of 10 nurses that agreed to participate in the pre/post assessment with a 90% survey completion rate. There were 5 nurses that missed the motivational interviewing question, but got it correct after the structured education program. The pre-assessment mean score for the nurses was 18. After attending the structured hypertension education program, all the nurses scored all the questions correctly. Based on the results, the primary care nurses had sufficient knowledge of hypertension (Table 1).

TASSH Hypertension Knowledge Assessment	
Nurses Response	Pre/Post Response
Score (5 Nurses)	18/19
Score (5 Nurses)	19/19

Table 1: Nurses Survey

Hypertension Self-Care Profile

The Hypertension Self-Care Profile is the questionnaire that was completed by the veterans. This questionnaire was designed to assess hypertension self-management behavior. The results for the veteran survey were grouped into three categories: hypertension self-care behavior, motivation for self-care, and self-efficacy. In each category, there was possible score of 20 to 80. The higher the score for each category indicated higher levels of understanding for hypertension self-care management, motivation for hypertension self-care, and self-efficacy. Veterans were asked to complete the questionnaire at the first blood pressure appointment with the project lead.

The first category representing hypertension self-care behavior had a mean of 40 points with ten veterans taking the survey. The second category indicating motivation for self-care, had a mean of 60.3 points with 10 veterans completing the survey. The third category evaluating self-efficacy had a mean of 64.7 with total of 10 veterans completing the survey. This data is represented in Table 2. The structured hypertension program was based off the scores of the questionnaire to develop an individual care plan to improve self- management for veterans.

At the end of two months of attending biweekly blood pressure appointments, the veterans completed a post-questionnaire to determine if there was any improvement in self-management behavior (Table 2). The first category, hypertension self-care behavior, had an improved mean of 57.25 with 8 veterans taking the survey. The second

category, motivation for self-care had an improved mean of 69 with 8 veteran taking the survey. The third category, self-efficacy, had an improved mean of 73 with 8 veteran taking the survey. There were two veterans that did not take the last survey due to not attending the blood pressure appointments and were hospitalized during the two months of the project implementation.

Hypertension Self-Care Profile				
Veteran Pre/Post Survey Response				
Name	First Category	Second Category	Third Category	Total
Veteran 1	35/48	62/64	64/77	161/189
Veteran 2	33/51	47/66	64/71	144/188
Veteran 3	46/58	69/79	70/80	185/217
Veteran 4	35/57	60/80	64/78	159/222
Veteran 5	66/69	73/73	72/80	211/222
Veteran 6	57/65	61/70	60/72	178/207
Veteran 7	38/57	57/63	57/64	152/184
Veteran 8	33/53	40/57	57/64	130/174
Veteran 9	57/0	69/0	76/0	202/0
Veteran 10	40/0	57/0	53/0	150/0
Total Means	40/57	60/69	64/73	167/200

Table 2: Veteran Survey

The veterans were selected by this project lead after conducting a review of veterans from the primary care almanac that had elevated blood pressure reading of 140/90 and medical diagnosis of hypertension. The blood pressure appointments were conducted by the project lead due to a staffing shortage. The final sample size was 10 veterans after initially attempting to recruit 40 veterans for the quality improvement project. A total of 10 veterans agreed to participate in the quality improvement project with 100% response rate for the pre assessment survey and 80% for the post-assessment survey. All participants were male veterans between 40 to 70 years of age. The average blood pressure pre-assessment was 164/85. The average blood pressure post-assessment was 134/77.

Blood Pressure Reading	Column1	Column2
Patient	21-Jun-21	21-Aug-21
Veteran 1	172/67	136/60
Veteran 2	170/89	128/86
Veteran 3	158/86	126/78
Veteran 4	182/82	148/73
Veteran 5	176/100	129/85
Veteran 6	162/99	137/84
Veteran 7	146/76	129/71
Veteran 8	145/99	140/80
Veteran 9	164/86	N/A
Veteran 10	167/67	N/A

Table 3: Blood Pressure Reading

Hypertension self-care behavior category had the lowest score with mean of 40 for pre assessment and 57.5 post assessment. This result could suggest that veterans will need more follow-up appointments and more optimized nurse support to understand how to improve self-care behavior. Time to implement the behavior change is individualized to patients because managing hypertension care is a patient centered support. In the motivation for self-care category, the average mean pre-assessment was 60.3 and average post assessment was 69. This result isrelated to the veteran being motivated to change their behavior. The self-efficacy had the highest score with mean of 64.7 and post assessment mean of 73. This results means that veteran has the internal confidence and motivation to make the necessary behavior medication to improve health.

SECTION FIVE: DISCUSSION

Implication for Practice

Though the sample size was limited, the clinical significance of this project supported the need for a structured hypertensioneducation program to be standardized

across the Primary Care service line. There was an educational change in the nurse's response after the structured hypertension education program. The structured hypertension education program was perceived as effective education strategy for the nurses. Specific education strategies were considered as helpful and an excellent guide to adhere to when educating the veterans. When there is an increased in a chronic medical condition like hypertension, there should be a review of education strategies and integration of evidence-based practice to improve the nursing practice.

The quality improvement project contributed to nurses taking a more formal role in implementing education strategies to improve organizational performance measures and clinical care provided to the veterans. The task shifting concept is based on evidence -based practice and solidifying the nurse role as frontline educator. There was improvement in areas of hypertension self-care, motivation for self-care, and self-efficacy.

Managing hypertension falls under performance measures for cardiovascular care in primary care settings. The performance measure for cardiovascular care increased to 78%, which indicated that the interventions are working to improve quality of care for veterans (USDVHA, 2021). This evidence-based quality improvement project is promising to improve the organization goals for primary care. Teach-back and motivational interviewing strategies are evidenced-based practices that were integrated into the structured hypertension education program. These techniques are beneficial and have improved how education is conducted in this site in the healthcare system.

The structured education program showed self-management improvement for veterans in several areas: hypertension self-care, motivation for self-care, and self-

efficacy. For those reasons, veterans were able to apply the education strategies: dietary changes, how to cook, how to select healthier foods, and the importance of physical exercise. Veterans received the education packet that included handouts from the American Heart Association to review the education strategies that were taught in the blood pressure appointment.

Dissemination Plan

This quality improvement project will be presented at the next primary care break out session for the VA Shared Governance Committee. A new blood pressure note is in the process of being developed across the Primary Care service line. The new blood pressure note will be in the CPRS for documentation. Nurses will start distributing blood pressure devices from primary care after entering in the blood pressure consult note for tracking and resources. Nurse will utilize the patient education note to document the teach back strategies for the blood pressure device. The Shared Governance Committee will review the hypertension education handouts that are given to the veterans. Veterans will have a choice of attending biweekly or monthly blood pressure appointments for consistent follow-up. The project lead will present this quality improvement project at the Nursing Grands Round meeting at the organization.

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Appendix A

Article Critique and Leveling Matrix

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Anstey, D. E., Bradley, C., Shimbo, D. (2021). USPSTF recommendation statement on hypertension screening in adults-where do we go from here? *JAMA Network Open, 4(4), e214203* doi: 10.1001/jamanetworkopen.2021.4203	To examine the effects of home BP monitoring to office BP monitoring.	9 Literature review articles that discussed the difference between home BP monitoring	Systematic Review	There is no notable differences in office BP monitoring and home BP monitoring but home BP monitoring is the	Level 1	The limitations there was insufficient evidence regarding the poor implementation of office blood pressure monitoring in clinical practice.	Yes, this is great articles to use for high level of evidence and the intervention are great for blood

		and office BP monitoring.		preferred method for HTN screening.			pressure monitoring.
Blackstone, S., Iwelunmor, J., Plange, R. J., Gyamfi, J., Quakyi, N. K., Ntim, M., & Ogedegbe, G. (2017). Sustaining Nurse-Led Task-Shifting Strategies for Hypertension Control: A Concept Mapping Study to Inform Evidence-Based Practice. *Worldviews on Evidence-Based Nursing, 14(5), 350–357.* https://doi-org.ezproxy.liberty.edu/10.1111/wvn.12230	To evaluate the use of task shifting strategy for nurses to improve HTN management.	28 Community Healthcare Nurses participate in this study	Concepting mapping and mixed method participatory approach	Conceptting mapping indicated the five areas that nurses perceived were benefitial in HTN management: financial support, provision of primary care healthcare, inadequate drugs, communication, personnel training. There is strong	Level 4	The sample size was small which contributed to generalizability. Concept mapping was time consuming which negatively influences	Yes, because the results focus on examine the nurse perception of task-shifting strategy for management of HTN.

				evidence that task-shifting strategy for HTN management will increase sustainability. Adequate training is needed for nurses to implement the Tasking shifting strategy effectively.			
Breaux-Shropshire, T.L., Huie, R., Shropshire, T. S., Wyatt, A., Shrosphire, A., Estrada, C. A., & Patrician, P. (2017). First steps in improving blood pressure control among primary care hypertensive veterans utilizing quality improvement tools. *Alabama Nurse, 44(3), 19-22.* https://web-a-ebscohost.com/ezproxy.liberty.edu	To implement quality improvement tools to control blood pressure in Veterans in	A sample of 32 Veterans with diagnosed of HTN or HTN with DM in one	A combination of SWOT and Chronic Care Model	BP control was achieved in 18/32 Veterans. In 3 months, BP increased from 62.3% to 67.3 for Veteran	Level 6	MD may have been biased in selection of the participants for the study Need to do larger sample sized random selected the patients.	Yes because Home blood pressure monitoring supported the reduction in BP control. This

	primary care clinic.	PACT team in primary care		s with HTN. In 3 months, BP increased to 63.7% to 69.1% BP control was achieved in 18/32 Veterans. In 3 months, BP increased from 62.3% to 67.3 for Veterans with HTN. In 3 months, BP increased to 63.7% to 69.1% for Veterans with HTN and DM. In 6 months, the BP increas			is a great quality Improvement study

				ed to 75% for HTN Veterans and 79% for HTN with DM Veterans.			
Brown, V. M. (2017). Managing patients with hypertension in nurse-led clinics. Nursing, 47(4), 16–19. https://doi-org.ezproxy.liberty.edu/10.1097/01.NURSE.0000513619.81056.60	To evaluate the effectiveness of nurse-led HTN clinic to improve patient outcomes and allow the nurse to practice at the full extent of license	Literature review conducted to search for articles from 2000 to 2015 that focus on nurse-led clinic for hypertension management.	Systemic review	The results indicated that nurse-led clinic was effective in improving patient outcomes and cost effective for primary care clinic.	Level 1	The limitation is that there are not a lot of studies conducted in U.S. Most of the studies were conducted in other countries.	Yes, because there were no literature reviews that reported negative outcomes of nurse-led HTN clinic.
Chowdhury, S., Stephen, C., McInnes, S., & Halcomb, E. (2020).	To evalua te	Literature revie	Systematic revie	The finding will	Level 1	The literature review will	Yes, I believe that

Nurse-led interventions to manage hypertension in general practice: A systematic review protocol. Collegian, 27(3), 340–343. https://doi-org.ezproxy.liberty.edu/10.1016/j.colegn.2019.10.004	nurse-led HTN management in general practices	w will be conducted on journal articles relating to nurse-led HTN management interventions that are RCT conducted by only nurses.	ws	help improve the nurse-led strategies for managing hypertension and address gaps in literature.		discuss only RCT. All relevant data may not be included in this study.	systematic review will be beneficial due to highest level of evidence for HTN management
DePalma, S. M., Himmelfarb, C. D., MacLaughlin, E. J., & Taler, S. J. (2018). Hypertension guideline update: A new guideline for a new era. JAAPA: Journal of the American Academy of Physician Assistants (Lippincott Williams & Wilkins), 31(6), 16–22. https://doi.org/10.1097/01.JAA.0000533656.93911.38	To discuss the hypertension guideline for patient with high BP. This study examines study from all level	Literature review articles from RCT, Systematic reviews, nonrandomized studies, cohort studies and	Systematic Review	The task force developed new guideline from all literature reviews that recommend the following treatment:	Level 1	The limitation of the study was the number of the articles utilized	Yes, because the recommendations include finding from each study and the guidelines were developed.

	of evidence	expert opinion.		promote medication adherence, lifestyle modification, and team based care.			
Gyamfi, J., Plange-Rhule, J., Iwelunmor, J., Lee, D., Blackstone, S., Mitchel. A., Ntim, M., Apusiga, K., Tayo, B., Yeboah-Awudzi, K., Cooper, R. A, & Ogedegbe, G. (2017). Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed methods study. *BMC Health Services Research, 17(104), 1-9.* doi: 10.1186/s12913-017-2026-5	To determine if task-shifting hypertension care will improve HTN	64 Community health nurses	Mixed Methods Study	Finding indicate that pre-assessment score was 26.9% and post assessment score was 80% for improvement in nurse knowledge of HTN.	Level 4	Limitations are small sample size	Yes, because the results indicate the by teaching nurses educated program it will increase the HTN knowledge.
Himmelfarb, C. R. D., Commodore-Mensah, Y., & Hill, M. N. (2016). Expanding the role of nurses to improve hypertension care and control globally. *Annals of Global Health, 82(2), 243-253.* http://dx.doi/10.1016/jaog	To examine the role of nurses in improving hypertension	Evidenced-based practice protocols	Randomized Controlled Trials	The strategies to promote blood pressure control was identifi	Level 2	There was no limitations noted in the study.	Yes because the support and utilization of nurses in impro

h.2016.02.003	control			ed care coordination, managing the clinic or office, population health management, and performance measurement and quality improvement.			ving hypertension care was widely documented.
Kilic, M. Uzuncakmak, T., & Ede, H. (2016). The effect of knowledge about hypertension on the control of high blood pressure.	To examine the effect of HTN knowledge on patients with HTN.	485 patients with HTN from primary care settings	Cross-sectional study	There was average of low, moderate and high results finding for BP which were 31.3%, 62.1%, and 6.6%.	Level 4	Sample size was large.	This study acknowledged the importance of influence of nurse in educated patient with HTN.

Kolcu, M., & Ergun, A. (2020). Effect of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults: A randomized controlled trial. Geriatrics & Gerontology International, 20(12), 1182–1189. https://doi-org.ezproxy.liberty.edu/10.1111/ggi.14068	To evaluate the effects of nurse led hypertension education on Hypertension management in older adults.	A convenience sample of 74 older adults living in two nursing homes with age range 65-94 years old.	Randomized controlled trial	Finding indicated that nurse-lead HTN education management was very effective in lowering blood pressure management in the intervention group.	Level 2	Limitation revealed that small sample size of older adults can't be applied to larger adult population. Another finding indicated there was differences in pre-test BP measurement between both intervention and control group.	Yes, because the results indicated that nurse led HTN education was very effective in lowering blood pressure in older adults and improve the quality of lifestyle for the intervention group.
Kronebusch, B. J., Rismeyer, D. L., Enos, M.M., Swenson, L.L., Witwer, S.G., & Hunt, V.L. (2020). Registered Nurse Visits to Improve Hypertension Management: A Quality Improvement Project. *Nursing Economic$*, *38*(3), 121–132.	To examine the nurse role in lowering lower BP in patient with uncontrolled	12 Rn and 16 Providers participated in the survey and 30 patients with hypertension	Quality Improvement Project	93% patient with uncontrolled HTN have reached BP goal.	Level 6	Small Sample Size,	Yes, because the study was conducted by nurse and proved that decrea

	Hypertension	.					sed in BP when managed by RN.
Mattei de Silva, A. T., Mantovani, M. D. F., Moreira, R. C., Arthur, J. P., & De Souza, R. M. (2019). Nursing case management for people with hypertension in primary health care. A randomized controlled trial. Research Nursing & Health, 43, 68-78. DOI: 10.1002/nur.21994.	To determine if case management by nurses will decreased BP control in hypertension patients	Total sample size of 85 patients with HTN from Brazil primary care clinic.	RCT	There was significant drop in patients' blood pressure in the intervention group than control group.	Level 2	The limitation were the following: self-reported measurement were questioned the validity of the results the small size of the community increased the chance that participants communicated.	Yes, the finding of the study were significant and this is a randomized controlled trial.
Mejzner, N., Clark, C.E., Smith, L., F.P., Campbell, J. L., & Smith, L. F. (2017) Trends in the diagnosis and management of hypertension: repeated primary care survey in South West England. British Journal of General Practice, 67(658), 306-313. https://doi.org/10.3399/bjgp17x690461	To examine organizations hypertension treatment regimen for blood pressure monitoring.	117 General practice responded to the survey to analysis treatment for BP.	Questionaries	38% response rate. 73% reported changes in HTN treatment and home BP monitoring were one of the most commo	Level 6	The Limitation of the study was the length of time and the low response rate. reported. 9 years study period.	The finding were consistent with recommendation of Home BP monitoring as intervention to improving

				n interve ntions.			HTN rate.
Miao, Jian-Hong, Hai-Shan Wang, Na Liu, Miao, J.-H., Wang, H.-S., & Liu, N. (2020). The evaluation of a nurse-led hypertension management model in an urban community healthcare: A randomized controlled trial. Medicine, 99(27), 1–6. https://doi-org.ezproxy.liberty.edu/10.1097/MD.0000000000020967	To evalua te the effecti veness of nurse led HTN manag ement progra m on patien ts in urban health care.	156 patien ts with uncon trolled HTN >140/ 90.	Singl e-blind RCT	The results indicate d that there was signific ant reducti on in BP, self-care behavio rs, self-effacy, and patient satisfac tion in the inventi on group indicati ng a positive effect of nurse-led HTN manage ment progra m.	Leve l 2	The limitations indicated that the intervention was limited to one community healthcare center and the located was in urban. This further investigatio n will need to be tested on individuals living in rural community attending g	Yes, becaus e the level of eviden ce is 2 and the nurse led HTN manag ement were shown to be effecti ve in blood pressu re reducti on and more special ly self-care behavi ors.
Muntner, P., Carey, R., Gidding, S., Jones, D., Taler, S., Wright, J., Jr., & Whelton, P. (2018). Potential US population impact of the 2017 ACC/AHA high blood	To deter mine the incide nce and	623 adults partici pants with hypert ension	Anal yzed data from 2011 to 2012	Prevale nce of HTN is 45.6%, 53.4% BP was above	Leve l 2 RCT	BP was measured at single visit and there was no other BP measureme	Yes, the results indicat ed that even on BP

pressure guideline. Circulation, 137 (2), 109-118. Doi:10.1161/CIRCULATIONAHA.117.032582	prevalence of hypertension and recommendation for antihypertensive medications.	. analyzed who	and 2013 to 2014. Questionnaire and medical evaluative.	the treatment goals with antihypertensive medication. Indicating a need for more education.		nt utilized. The use of method for measuring blood pressure was using mercury sphygmomanometer.	medication, there is still need for HTN education.
Ostlund, A., Wadensten, B., Haggstrom, E., Lindqvist, H., & Kristofferzon, M. (2016). Primary care nurses' communication and its influence on patient talk during motivational interviewing. Journal of Advance Nursing, 72(11), 2844-2856. https://doi.org/10.1111/jan.13052	To examine the effectiveness of motivation interviewing on behavior change.	50 audio recorded motivating interviewing sessions among nurses and patient.	Descriptive and predictive design	The motivation interviewing techniques that were most useful are open questions, complex reflections and reflections that target change.	Level 6	Limitations was the low number of positive and negative questions and nurses recorded different number of session.	Yes, Motivating Interviewing is great strategy for encouraging change talk and behavior modification in patient.
Overgaard-Anderson, U., Ibsen, H., & Tobiassen, M. (2016). On the transition from a nurse-led hypertension clinic to hypertension control in primary care: identifying barriers to and factors	To examine the effects of the hypertension contro	294 patients with HTN that received treatm	Quasi-experimental Questionnaires	Finding revealed that there was decline in well-controll	Level 4	Sample size was limited and only half of the patient returned for re-examinatio	Yes, the results explained the with consist

acting against continuous hypertension control. *Blood Pressure, 25(4), 263-267. https://doi.org.ezproxy.liberty.edu/10.3109/08037051.2016.1156909*	l after discharge from nurse-led HTN clinic.	ent from Holbaek Hypertension Clinic.		ed BP after discharge from the nurse-led HTN clinic.		n.	ent monitoring patient will need to be reevaluated for follow up assessment.
Spies, L. A., Bader, S. G., Opollo, J. G., & Gray, J. (2018). Nurse-Led Interventions for Hypertension: A Scoping Review With Implications for Evidence-Based Practice. Worldviews on Evidence-Based Nursing, 15(4), 247–256. https://doi-org.ezproxy.liberty.edu/10.1111/wvn.12297	To evaluate nurse-led interventions on HTN management from conducting literature reviews	14 Full Text articles on evaluating the effectiveness of nurse-led HTN management.	Systematic Review	Task-shifting interventions to the nurses had a positive effective on improving HTN	Level 1	The limitations of the study were associated to diversity of cultures and language and the study isn't applicable to other cultures. Other limitations were related to nurse being the data collectors but not the nurse led interventions. The length of the study was too long and conducted over 22 months.	Yes, I would include due to the evidence that if nurses are properly trained with care protocols, then HTN management is favored to reduction in blood pressure management.

Stephen, C. M., Hermiz, O. S., Halcomb, E. J., McInnes, S., & Zwar, N. (2018). Feasibility and acceptability of a nurse-led hypertension management intervention in general practice. Collegian, 25(1), 33–38. https://doi-org.ezproxy.liberty.edu/10.1016/j.colegn.2017.03.003	To examine the if general nurse practice interventions were effective in hypertension management in primary care	55 participants and 13 General practice nurses	Qualitative descriptive study	The GPN agreed that the interventions were feasibility for the chronic care management for HTN.	Level 6	Limitations were that participants were selected from vary of general practices. The knowledge and experience level may vary among the GPN.	Yes, I would include this in my study based on positive effect of the nurse-led interventions among a vary of general practices.
Stephen, C., Holcomb, E., McInnes, S., Batterham, M., & Zwar, N. (2019). Improving blood pressure control in primary care: The impress study. International Journal of Nursing Studies, 95, 28-33. doi:10.1016/j.ijnurstu.2019.03.019	To study the effectiveness of nurse-led intervention to decrease blood pressure and risk of cardiovascular disease	The sample size 220 participants from 22 primary care practice.	This study is a multi-site cluster randomized controlled trial	The Finding indicate that by using a nurse will encourage practicing at the high scope of license, improved job benefits, and advantage of great	Level 2	Sample size might not be achieved to the large size.	Yes, I believe the evidence will strongly support the evidence of nurse-led intervention and the level of evidence is 2.

				nurse-patient relationship.			
Yusupov, E., Krishnamachari, B., Rand, S., Abdalla, M., Swivel, H. (2018). Quality of hypertension care: A improvement initiative in two outpatient health care centers. Journal of Evaluation in Clinical Practice, 25, 463-468. DOI: 10.1111/jep.13067	The objective was to evaluate hypertension performance measures to determine any areas for improvement for primary care setting	Total of 290 patients were identified via random selection and sent invitations about the research study. Only 12 surgery were completed pre-intervention and 13 completed post intervention.	Non-experimental study with a pre and post quality design method for patients with medical history of hypertension	Finding indicate that a reduction in post counseling overweight patient with weight reduction, exercise increase, limiting sodium intake.	Level 6	The pre- and post-design. The staff may be biased due to staff participating in other educational activities that may lead to increase in knowledge.	strong evidence to use toward change.
Zhu, X., Wong, F. K. Y., & Wu, C. L. H. (2018). Development and evaluation of a nurse-led hypertension management model: A randomized	To examine the effect of nurse-	115 Hypertension patients	RCT	The results indicated that nurse-led	Level 2	Nurse-led HTN interventions was limited to one	Yes, because the excellent level

controlled trial. International Journal of Nursing Studies, 77, 171–178. https://doi-org.ezproxy.liberty.edu/10.1016/j.ijnurstu.2017.10.006	led HTN management model at the community level	from community health care center		interventions were effective in non-pharmacological and nonpharmacological treatment. Also, self - care management were shown effective in the intervention group.		community health center.	of evidence and the interventions were related to nurse interventions.

Appendix B

Permission to use the Iowa Model

You have permission, as requested today, to review and/or reproduce *The Iowa Model Revised:Evidence-Based Practice to Promote Excellence in Health Care.* Click the link below to open.

The Iowa Model Revised (2015)

Citation: Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing, 14(3), 175-182. doi:10.1111/wvn.12223*

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Please contact [redacted]

Appendix C

Letter of Support

DEPARTMENT OF VETERANSAFFAIRS
Ralph H. Johnson Department of Veterans Affairs Medical Center
109 Bee Street
Charleston, SC 29401-5799

HEROIC
HEALTH EQUITY AND RURAL OUTREACH INNOVATION CENTER
CHARLESTON VA HSR&D COIN

03/15/2021

To: Tonia R. Kennedy, EdD, MSN, RN-BC, CCRN-KLiberty University, School of Nursing.

From: Charlene Pope, PhD, MPH, RN, FAANChief Nurse for Research
Ralph H. Johnson VA Medical Center
109 Bee. Street, Rm. B-249-D
Charleston, SC29401

Dear Dr. Kennedy:
This letter confirms that Ms. Veronica Anderson MSN RN MEDSURG-BC CNL, who is anRN Care Manager at the Goose Creek VA Outpatient Clinic, has completed review of her proposed quality improvement project entitled**:** *Nurse Driven Quality Improvement Protocolfor Blood Pressure Management in Primary Care.*

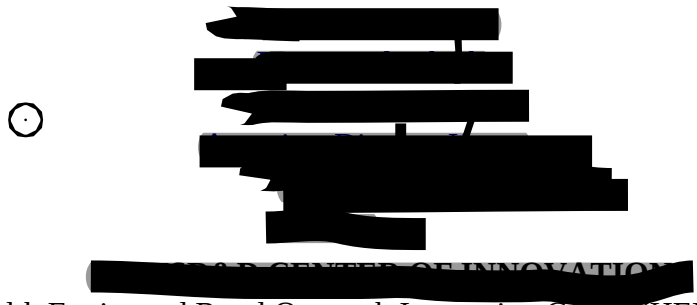
This proposal will be also be submitted to the Medical University of South Carolina (MUSC)Institutional Review Board (IRB) for its QI self-certification Tool to confirm this project is not research. Ms. Anderson will receive an approval letter from the MUSC IRB for her records.

Ms. Anderson has received access to a restricted access file on a password protected server tostore data collected for this project. This letter confirms that the student has permission to conduct this quality improvement project at the Ralph H. Johnson VA Medical Center, following the rules and requirements of the
Department of Veterans Affairs. I will have oversight of the project until completed,

Sincerely,

[redacted]

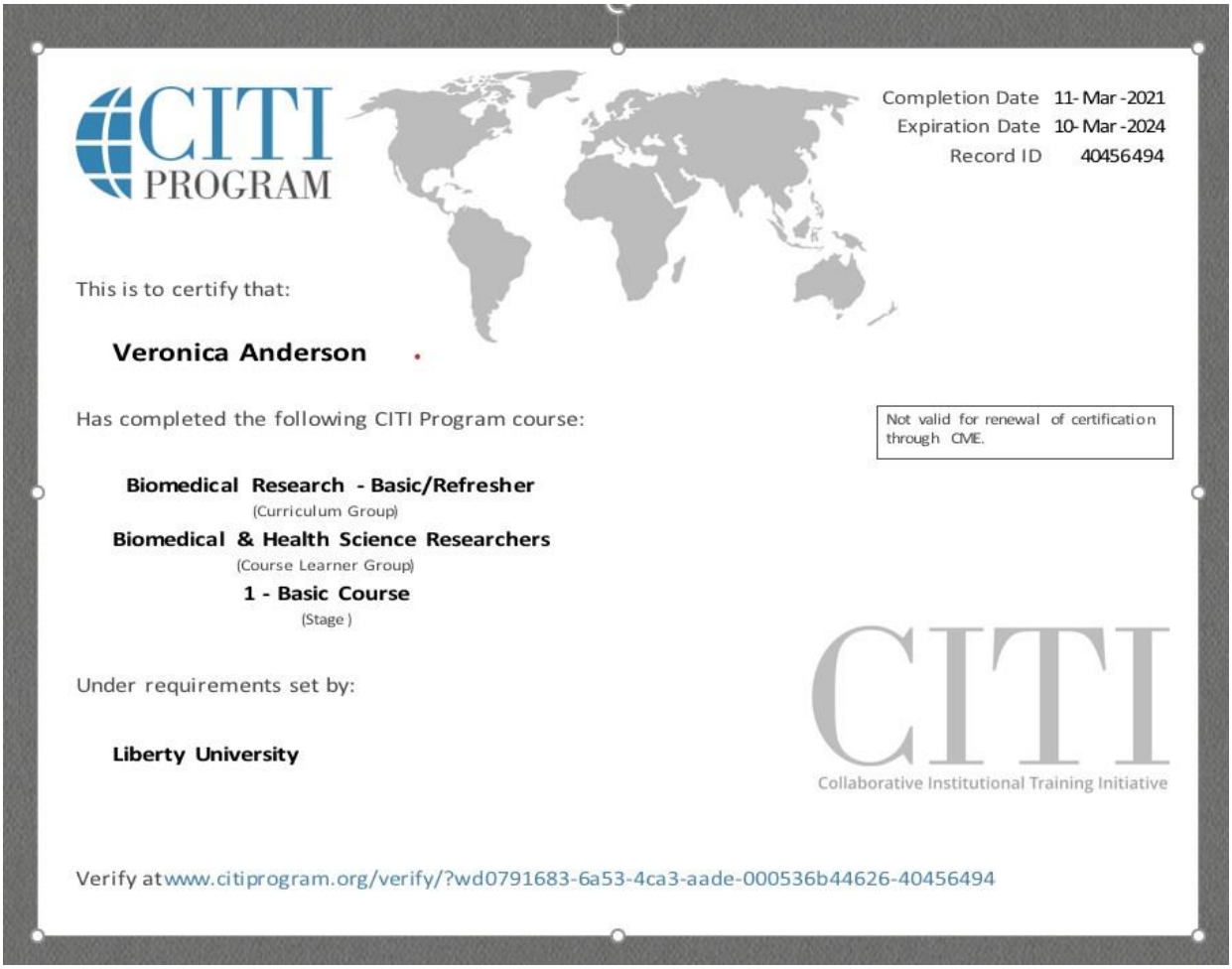
Charlene Pope, PhD, MPH, RN,
FAANChief Nurse for Research



Health Equity and Rural Outreach Innovation Center (HEROIC)

Appendix D

Collaborative Institutional Training Initiative



Appendix E

Permission to use the Hypertension Self-

Care ProfileFrom: Hae Ra Han <[redacted]
Sent: Tuesday, February 16, 2021 3:20 PM
To: Pope, Charlene A. <[redacted]
Subject: [EXTERNAL] RE: Request

Charlene,
Thank you for your interest. Here we go. Please kindly share further project info when available(e.g., sample size, inclusion/exclusion criteria, main outcome measures, data points etc). All thevery best wishes with your project. Haera

Hae-Ra Han, PhD, RN, FAAN I

Professor Isabel Hampton Robb

Distinguished Scholar"hera han"|

she/her/hers

Johns Hopkins School of Nursing

Joint Appointment with the Department of Health, Behavior, and

SocietyJohns Hopkins Bloomberg School of Public Health

525 N. Wolfe Street, Baltimore, MD 21205

[redacted]

#1 Master's & #3 DNP and Online Master's Programs - *U.S. News & World Report#3 QS World University*

From: Pope, Charlene A. <[redacted]
Sent: Tuesday, February 16, 2021
2:09 PM**To:** Hae Ra Han
[redacted]> **Subject:**
Request

External Email - Use Caution

Hello, Dr. Han,

I am mentoring a nurse in a doctoral program (DNP) who is trying to assess a quality improvement initiative focused on nurses in Primary Care teaching Veterans with hypertension. Iwrite to ask if we might have a copy of the Hypertension Self-Care Profile as it appears to patients. It would provide a valuable way of assessing outcomes.

Thank you for considering this request, Charlene

Charlene Pope, PhD, MPH,

RN, FAANChief Nurse for

Research

Health Equity & Rural Outreach Innovation Center

(HEROIC)

[redacted]

Ralph H. Johnson VA

Medical Center109 Bee

Street, Rm. B-249-D

Charleston, SC 29401

[redacted]

Appendix F

Hypertension Self-Care Profile (HTN-SCP)

The Hypertension Self-Care Profile (HTN-SCP) is a composite questionnaire including threeseparate instruments designed to assess hypertension self-care behavior (items C1-C20), motivation for self-care (C21-C40), and self-efficacy (C41-C60), respectively, in people withhypertension. The questionnaire is filled out by a person with hypertension.

To score the HTN-SCP, add up the score for each question except for items C15 and C16 whichneed to be re-coded. Based on the data from the original validation study (Han et al. 2014), researchers who plan to work with low-educated individuals are advised to consider rewording items C15 and C16 to minimize any measurement bias associated with negatively worded items.

The result is a score that ranges from 20 to 80 for each instrument with higher scores indicatinghigher levels of hypertension self-care behavior, motivation for hypertension self-care, and self-efficacy, respectively.

1. Listed below are common recommendations for persons with hypertension.
2. **How often do you do the following?**

Items	Always	Frequently	Sometimes	Rarely/ Never
C1. Take part in regular physical activity (e.g. 30 minutes of walking 4-5 times a week)?	4	3	2	1
C2. Read nutrition facts label to check information on sodium content?	4	3	2	1
C3. Replace traditional high-salt foods (e.g. canned soups, Oodles of Noodles) with low-salt products (e.g. homemade soups, fresh vegetables)?	4	3	2	1
C4. Limit use of high-salt condiments (e.g. ketchup)?	4	3	2	1
C5. Eat less than 1 teaspoon of table salt per day (6 grams)?	4	3	2	1
C6. Eat less foods that are high in saturated (e.g. red meat, butter) and trans fat (e.g. shortening, lard)?	4	3	2	1
C7. Use broil, bake or steam instead of frying when cooking?	4	3	2	1
C8. Read nutrition facts label to check information on saturated (e.g. butter, red meat) and trans fat (e.g. lard, shortening)?	4	3	2	1
C9. Replace traditional high-fat foods (e.g. deep fried chicken) with low-fat products (e.g. baked chicken)?	4	3	2	1
C10. Limit total calorie intake from fat (less than 65 grams) daily?	4	3	2	1
C11. Eat 5 or more servings of fruits and vegetables daily?	4	3	2	1

C12. Practice moderation in drinking alcohol daily (2 glasses or less for men; 1 glass or less for women)?	4	3	2	1
C13. Practice non-smoking?	4	3	2	1
C14. Check your blood pressure at home?	4	3	2	1
C15. Forget to take your blood pressure medicine?	4	3	2	1
C16. Forget to fill your prescriptions?	4	3	2	1
C17. Keep your weight down?	4	3	2	1
C18. Monitor situations that cause a high level of stress (e.g. arguments, death in the family) resulting in blood pressure elevation?	4	3	2	1
C19. Engage in activities that can lower stress (e.g. deep breathing, meditation)?	4	3	2	1
C20. See a doctor regularly?	4	3	2	1

3. Listed below are common recommendations for persons with hypertension. **How important isit to you to do the following?**

Items	**Very important**	**important**	**Somewhat important**	**Not important**
C21. Take part in regular physical activity (e.g. 30 minutes of walking 4-5 times per week)?	4	3	2	1
C22. Eat less processed foods such as (e.g. canned or frozen foods, lunch meats)?	4	3	2	1
C23. Read nutrition facts label to check information on sodium content?	4	3	2	1
C24. Replace traditional high-salt foods (e.g. canned soups, Oodles of Noodles) with low-	4	3	2	1

salt products (e.g. homemade soups, fresh vegetables)?				
C25. Limit use of high-salt condiments (e.g.ketchup)	4	3	2	1
C26. Eat less than 1 teaspoon of table salt per day (6 grams)	4	3	2	1
C27. Eat less foods that are high in saturated (e.g. red meat, butter) and trans fat (e.g. lard, shortening)?	4	3	2	1
C28. Use broil, bake or steam instead of frying when cooking?	4	3	2	1
C29. Read food nutrition facts label to check information on saturated (e.g. butter, red meats) and trans fat (e.g. lard, shortening)?	4	3	2	1
C30. Replace traditional high-fat foods (e.g. deep fried chicken) with low-fat foods (e.g. baked chicken)?	4	3	2	1
C31. Limit total calorie intake from fat (less than 65grams) daily?	4	3	2	1
C32. Eat 5 or more servings of fruits and vegetables daily?	4	3	2	1
C33. Practice moderation in drinking alcohol daily (2 glasses or less for men; 1 glass or less for women)?	4	3	2	1
C34. Practice non-smoking?	4	3	2	1
C35. Check your blood pressure at home	4	3	2	1
C36. Take your blood pressure medicine?	4	3	2	1
C37. Get your prescriptions filled?	4	3	2	1
C38. Keep your weight down?	4	3	2	1
C39. Try to stay away from anything and anybody that causes stress?	4	3	2	1

C40. See a doctor regularly?	4	3	2	1

4. Listed below are common recommendations for persons with hypertension. **How confidentare you that you could,**

Items	Very confident	Confident	Somewhat confident	Not confident
C41. Take part in regular physical activity (e.g. 30 minutes of walking 4-5 per week)?	4	3	2	1
C42. Eat less processed foods such as (e.g. lunch meats, canned or frozen foods)?	4	3	2	1
C43. Read nutrition facts label to check information on sodium content?	4	3	2	1
C44. Replace traditional high-salt foods (e.g. canned soups, Oodles of Noodles) with low-salt products (e.g. homemade soups, fresh vegetables)?	4	3	2	1
C45. Limit use of high-salt condiments (e.g.ketchup)	4	3	2	1
C46. Eat less than 1 teaspoon of table salt per day (6 grams)?	4	3	2	1
C47. Eat less foods that are high in saturated (e.g. red meat, butter) and trans fat (e.g. lard, shortening)?	4	3	2	1
C48. Use broil, bake or steam instead of frying when cooking?	4	3	2	1
C49. Read nutrition facts label to check information on saturated (e.g. butter, red meats) and trans fat (e.g. lard, shortening)?	4	3	2	1
C50. Replace traditional high-fat foods (e.g. deep fried chicken) with low-fat products (e.g. baked chicken)?	4	3	2	1

C51. Limit total calorie intake from fat (less than 65grams) daily?	🗁4	🗁3	🗁2	🗁1
C52. Eat 5 or more servings of fruits and vegetables daily?	🗁4	🗁3	🗁2	🗁1
C53. Practice moderation in drinking alcohol daily (2 glasses or less for men; 1 glass or less for women)?	🗁4	🗁3	🗁2	🗁1
C54. Practice non-smoking?	🗁4	🗁3	🗁2	🗁1
C55. Check your blood pressure at home?	🗁4	🗁3	🗁2	🗁1
C56. Take your blood pressure medicine?	🗁4	🗁3	🗁2	🗁1
C57. Get your prescriptions filled?	🗁4	🗁3	🗁2	🗁1
C58. Keep your weight down?	🗁4	🗁3	🗁2	🗁1
C59. Try to stay away from anything and anybody that causes any kind of stress?	🗁4	🗁3	🗁2	🗁1
C60. See a doctor regularly?	🗁4	🗁3	🗁2	🗁1

Appendix G

Structured Hypertension Education Program

1. **PowerPoint of Hypertension Education Program**
2. **Blood Pressure Log**
3. **American Heart Association Handouts**
4. **Annie Application Handout**
5. **Smoking Cessation Handout**
6. **MOVE! Weight Loss Handout**
7. **Alcohol Referral**
8. **Cardiac Heart Healthy Diet Plan**
9. **Instructions for Veteran Video Calls (VVC)**
10. **Motivational Interviewing Strategies**

Appendix H

TASSH
Hypertension Knowledge Assessment

Please circle the correct answer to the right ————	Responses			
1. If someone's blood pressure is 115/75, it is...	High	Low	Normal	Do not Know
2. If someone's blood pressure is 160/100, it is...	High	Low	Normal	Do not Know
3. Once someone has high blood pressure, it usually lasts for...	A few Years	5-10 Years	The Rest of Their Life	Do not Know
4. People with high blood pressure should take their medicine...	Everyday	At least a few times a week	Only when they feel Sick	Do not Know
5. Losing weight usually makes blood pressure...	Go Up	Go Down	Stay the same	Do not Know
6. Eating less salt usually makes blood pressure...	Go Up	Go Down	Stay the same	Do not Know
7. High blood pressure can cause heart attacks	Yes	No	Do not Know	
8. High blood pressure can cause cancer	Yes	No	Do not Know	
9. High blood pressure can cause kidney problems	Yes	No	Do not Know	
10. High blood pressure can cause diabetes	Yes	No	Do not Know	
11. High blood pressure can cause a person to have a stroke	Yes	No	Do not Know	
12. Moderate to vigorous exercise 30 minutes /day 3-5 times a week lowers blood pressure	Yes	No	Do not Know	
13. Smoking a pack of cigarettes per day will not affect a person risk of hypertension	Yes	No	Do not Know	
14. Motivational interviewing techniques are not useful when guiding a patient to make lifestyle changes	Yes	No	Do not Know	
15. High blood pressure cannot be cured	Yes	No	Do not Know	
16. A hypertensive individual should strive for a normal blood pressure of 120/80	Yes	No	Do not Know	
17. A person who has high blood pressure should eat less fat	Yes	No	Do not Know	
18. A person who has high blood pressure should eat more fruits and vegetables	Yes	No	Do not Know	
19. Rate your confidence in detecting and treating hypertension	Very Confident	Confident	Not confident, I will need more guidance	

Adopted from Hypertension Evaluation of Lifestyle and Management Knowledge Scale (HELM); Schapira, M.M., et al 2012

Appendix I

Permission to use the TASSH Hypertension Knowledge Assessment

Dear Veronica Anderson,
This is Abdel from Copyright Clearance Center (CCC), I am following up to our conversation onthe live chat to let you know that you do not need permission to reuse content from the article "Erratum to: Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study".

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Gyamfi, J., Plange-Rhule, J., Iwelunmor, J. et al. Erratum to: Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study. BMC Health Serv Res 17, 216 (2017). https://doi.org/10.1186/s12913-017-2161-z
If you have any further questions please don't hesitate to contact a Customer Account Specialist at 855-239-3415 Monday-Friday, 24 hours/day.

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