A Quality Improvement Project: Evaluation of Teach-Back Training on Medication Adherence in Hypertensive Older Veterans

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A DNP PROJECT

A Quality Improvement Project: Evaluation of Teach-Back Training on Medication Adherence in Hypertensive Older Veterans

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Abstract

Hypertension remains one of the most common yet uncontrolled chronic diseases among older adults. Medication adherence is a vital part in managing uncontrolled hypertension. The purpose of this QI project was to evaluate the effectiveness of using the teach-back method on improving anti-hypertension medication adherence of hypertensive older adult patients age 65 to 75 with at least two uncontrolled blood pressure readings during their most recent clinic visit in the past 6 months. **M**edication adherence was assessed using the Hill-Bone Medication Adherence Scale (HB-MAS) before and after the intervention. Health literacy scores were also recorded prior to the intervention using the Rapid Estimate of Adult Literacy in Medicine - Short Form (REALM-SF). Blood pressure readings and HB-MAS scores were summarized by teach-back intervention periods. Changes in HB-MAS scores and blood pressure measures after the intervention were calculated (post – pre) and summarized descriptively. The effectiveness of using the teach-back method in improving the adherence of medication was demonstrated. The results showed a statistically significant improvement in medication adherence of p-value = 0.0001 with a mean (SD) difference of -1.4 (2.65), on the HB-MAS scale, which represented an 11% reduction in the mean HB-MAS score from baseline.

Currently, there are very few studies that aim to evaluate health literacy and medication adherence consistently, even though both are required at an adequate level for treatment adherence and adequate patient outcomes. Teach-back is a tool that can be used in small time increments in an outpatient setting to increase adherence and close patient-provider communication gaps.

Keywords: teach-back, medication adherence, hypertension medication adherence, hypertension, older adults, and health literacy

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Hypertension, also known as high blood pressure (BP) and the silent killer, affects one out of three adults in the United States (Centers for Disease Control and Prevention [CDC], 2020). According to Mozzafarrian et al. (2015), the largest subgroup of United States adults with hypertension are adults aged 60 and older. The incidence of hypertension among older adults is primarily related to physiologic changes to the cardiovascular system as we age (MedlinePlus, 2020).

It is reported that approximately half of the adults in the Unites States diagnosed with uncontrolled hypertension are not being treated with antihypertensive medication or are nonadherent with their antihypertensive medication treatment regimen (CDC, 2020). Uncontrolled hypertension is considered the most significant risk factor for stroke and cardiovascular disease among older adult patients with hypertension (Krousel-Wood et al., 2011). Antihypertension medication nonadherence is estimated as the cause of approximately 125,000 deaths annually and costs the United States healthcare system more than three billion dollars annually due to overutilization of urgent care visits, emergency room visits, and inpatient admissions (American Heart Association [AHA], 2019a).

In general, widely available literature strongly supports that patients with antihypertension medication nonadherence are not aware of the extent of disease progression and potential for end-organ damage. There is a strong correlation in the literature that medication adherence and health literacy are two important modifiable factors that are necessary for adequate disease management and reduction of co-morbidities associated with medication management of chronic diseases such as hypertension (AHA, 2019a; Mosher, Lund, Kripalani &

Kaboli, 2012; Pignone, 2008). Positive patient outcomes also parallel with an emphasis on medication adherence as a paramount piece of communication between providers and patients that can improve patient outcomes in hypertensive patients.

Background and Significance

Annually, approximately 7.5 million people globally die prematurely due to complications related to hypertension (World Health Organization [WHO], 2020). Out of the 7.5 million, approximately 610,000 of the estimated premature deaths in the United States are related to end-organ damage caused by treated but uncontrolled hypertension (Zhou, Xi, Zhao, Wang & Veeranki, 2018). The AHA estimates that approximately 125,000 deaths or 1,100 deaths per day are related to antihypertensive medication nonadherence (AHA, 2019a; AHA, 2019b). Antihypertensive medication adherence is an important yet, variable patient action with a statistically greater impact on risk factors and disabilities amongst adults 65 and older (Krousel-Wood, Muntner, Islam, Morisky, & Webber, 2009). The financial cost of medication nonadherence in the United States, an estimated 300 billion dollars per year, is both preventable and profound (AHA, 2019a).

According to the Veterans' Administrations' (VA) Health Services Research and Development (HRSD) (2011) department, hypertension is the most common disease that disproportionately affects Veterans in terms of incidence and percentage of disabilities within the VA's healthcare system. Review of a diagnosis driven report with breakdowns of current disease management at the local Jacksonville VA primary care clinic shows that more than half of the Veterans have been diagnosed with hypertension and approximately 37% over the age of 60 have uncontrolled hypertension (J. Dunlap, personal communication, January 12, 2019). The VA's HRSD (2011) department reports that, despite provider use of the Eighth Joint National

Committee (JNC-8) evidence-based guidelines to treat hypertension, the condition remains one of the most poorly managed chronic diseases in Veterans. High rates of poor outcomes such as stroke and heart disease are thought to be related to medication nonadherence.

An important piece of hypertension disease management is health literacy. Fang Moore, Loustalot, Yang, and Ayala (2016) report that poor health literacy has been found to be a strong confounding variable found to be common among adults in terms of poorly controlled chronic conditions such as hypertension. Among older adults with hypertension, those with low health literacy are at a higher risk of stroke and vascular dementia that ultimately lead to poor self-efficacy and higher risks of disabilities related to poor outcomes than older adults with proficient health literacy (Chesser, Keene-Woods, Smothers, & Rogers, 2016; Fang et al., 2016). Conversationally, providers must be able to appreciate that health literacy and medication adherence are two facets of patient evaluation that must be assessed when patient outcomes are suboptimal.

The focus on treating uncontrolled hypertension is an essential variable in patient outcomes and quality of life, particularly for adults older than 60. Older adults make up the vast majority of high mortality and high morbidity outcomes related to hypertension. Costa et al. (2015) reported significant ramifications in terms of health complications and disability related to medication adherence, particularly among older adults. Ho, Bryson, and Rumsfeld (2009) discovered after evaluating medication nonadherence among older adults there are several primary barriers and root causes that have been analyzed. The primary causes of what is considered unintentional medication adherence are: poor health literacy, inadequate communication of the treatment plan by the provider, verification of the treatment plan by the provider or nurse, and forgetfulness (Ho et al., 2009; Pignone, 2008). According to McNaughton,

Jacobson, and Kripalani (2014) there is a statistically significant correlation between antihypertensive medication adherence and health literacy. The CDC (2019) reports that poor health literacy is most common among adults older than 60, where almost three out of four have difficulty interpreting printed patient information provided to them and more than 75% have problems with mathematical calculations and understanding numeration, both of which are imperative when following medication instructions (CDC, 2019). The literature suggests that when medication adherence and health literacy are not evaluated and addressed by health care teams, these variables may bring about poor outcomes.

The AHA (2019b) reported that in 2017 more than half of the deaths due to strokes, and one-fourth of the deaths in the United States were related to uncontrolled hypertension. The AHA (2019a) has also reported that three out of four individuals treated for hypertension and seen by a health care provider in the last two years have hypertension that is uncontrolled due to not taking medications as prescribed. This is a grave concern in regard to the correlation between poor medication adherence and poor patient outcomes in patients with hypertension, which can lead to complications such as chronic kidney disease, stroke, cardiovascular disease, and high rates of mortality associated with nonadherence (Fang et al., 2016).

There is significant scholarly evidence regarding the prevalent correlation between poor health literacy, poor hypertension control, and poor antihypertension medication adherence (Pignone, 2008). Unfortunately, there are a very limited number of systematic review (SR) studies that evaluate the incidence of nonadherence to antihypertensive medication as being a factor among adults with poor health literacy (Balakrishnan et al., 2017). However, there are quite a few cross-sectional and randomized control trials that statistically verify the correlation (Balakrishnan et al., 2017).

The most recent data that evaluated literacy among adults was completed 17 years ago in 2003 (National Center for Education Statistics [NCES], 2003). According to the NCES (2003), approximately 36% of adult Americans have only rudimentary or below average health literacy skills, and only 12% of Americans are considered adept in their ability to comprehend and follow a treatment plan that a provider prescribed. The NCES (2003) also summarized that low levels of health literacy translate into the minimal ability to read and understand simple instructions such as an appointment date and time or a very basic patient education brochure. Individuals who function at this level have difficulty comprehending more detailed information and instructions, such as following the dose instructions on a prescription bottle or understanding the information in informed consent documents (NCES, 2003). In addition to the 2003 NCES survey, scholarly literature strongly signifies that literacy affects every facet of an individuals' life, particularly the ability to participate in care as well as comprehend instructions and education in the presence of an illness or chronic disease.

In an attempt to address poor health literacy, the Agency for Healthcare and Research Quality (AHRQ) (2015) developed an evidence-based toolkit for providers to access and utilize to increase provider knowledge regarding the use of the teach-back method as a plan to improve patient outcomes and satisfaction. Successful diffusion of the teach-back method into everyday practice among providers during treatment plan discussions with patients has the potential to become a sustainable intervention to improve access and patient outcomes. Provider surveillance of health literacy and plain language communication regarding treatment plan comprehension are essential factors required to manage and improve antihypertensive medication adherence.

Problem Statement

Florida ranks third in the United States for having one of the largest veteran populations (Florida Department of Veteran' Affairs [FDVA], 2019). The FDVA (2019) also reports that more than 700,000 of these veterans are 65 and older. As of 2018, approximately 78,000 veterans live in Jacksonville, Florida (United States Census Bureau, 2019).

The specific problem is clinic chronic disease management reports indicate that older Veterans currently being seen at a local outpatient VA primary care clinic are at a higher risk of uncontrolled hypertension due to suboptimal adherence to their antihypertensive medication regimen (J. Dunlap, personal communication, January 12, 2019). In house surveys conducted among clinic providers such as doctors, nurse practitioners (NPs); nursing staff, and pharmacists revealed that from a team perspective, poorly controlled hypertension is related to poor health literacy and poor comprehension of medication instructions (J. Dunlap, personal communication, January 12, 2019). Statistically, the incidence of disability and mortality is higher in older adults with uncontrolled hypertension (Buford, 2016; Tajeu et al., 2016). Currently, 37% of hypertensive veterans 65 to 75 years old seen at a local VA clinic in Jacksonville, Florida, are classified as having uncontrolled hypertension due to nonadherence to their antihypertensive medication regimen (J. Dunlap, personal communication, January 12, 2019). Thus, veterans at this clinic represent a population at risk of serious adverse outcomes due to nonadherence to antihypertensive medication.

A multidisciplinary intervention to address antihypertensive medication adherence is a primary objective amongst the Patient Aligned Care Team (PACT) providers. The VA PACT is an interdisciplinary team that consists of a primary care provider, team pharmacist, a registered nurse (RN) care lead, NP residents, and graduate residency NPs to provide collaborative primary care services for veterans (Patient Care Services, 2019).

Scope

The impact of nonadherence affects not just patient mortality and quality of life but creates a societal impact on caring for these individuals to the extent that the healthcare system, providers, and healthcare facilities become burdened due to overutilization related to suboptimal medication adherence and health literacy. The older adult population has the highest incidence of deaths and disability due to stroke that is primarily related to poor hypertension control poor health literacy as it relates to poor adherence to antihypertensive medication (Buford, 2016; Geboers et al., 2015). These corollaries of poor antihypertensive medication adherence in the United States are estimated to cost taxpayers more than 300 billion dollars annually due to emergency room visits for treatment of exacerbation of chronic diseases, such as hypertension (AHA, 2019a). In addition to the costly expenditure of healthcare dollars, nonadherence results in poor patient outcomes that could have been prevented had patients understood their health care instructions and how to manage their health (AHA, 2019b; NCES, 2003; Tajeu et al., 2016). Evaluation of health literacy and medication adherence are two important variables to measure in order to develop meaningful quality improvement (QI) processes and interventions to improve hypertension control and medication adherence among veterans.

Purpose and Objectives

The purpose of this QI project is to evaluate the effectiveness of using the teach-back method to improve antihypertensive medication adherence in a population of poorly controlled hypertensive older VA patients and to evaluate health literacy as a confounding factor prior to participation in the intervention to correlate the effect of poor health literacy and medication adherence. The objective of the project is four-fold: (a) to identify the prevalence of low literacy and hypertension medication adherence amongst veterans age 65 to 75 years old with a diagnosis

of uncontrolled hypertension that receives care at a local VA primary care clinic; (b) to determine if the use of teach-back, an evidence-based health literacy intervention, after biweekly antihypertensive medication management classes conducted over the course of eight-weeks will improve antihypertensive medication adherence in hypertensive veterans; (c) to decrease the number of patients with uncontrolled hypertension by five percent over an eight-week period; and (d) to increase PACT members' confidence and conviction regarding the use of teach-back as an intervention.

Review of Literature Search Process

A review of the literature was conducted to evaluate the existing evidence base to establish the effectiveness of using the teach-back method to improve medication adherence in low literacy patients based on the clinical question: Can the use of the teach-back method increase medication adherence in vulnerable patients with hypertension who participate in teach-back sessions over an eight-week trial period?

A thorough search of full-text electronic databases included MEDLINE, PubMed, Gale Nursing and Allied Health, WorldCat.org, ProQuest Nursing, and Allied Health, EBSCOhost Electronic Journals Service, ScienceDirect College Edition Journals Collection - Health and Life Sciences, CINAHL Complete, and Ovid Nursing Full Text Plus. The independent and dependent variables identified in the clinical question were used to locate relevant scholarly articles to investigate the depth of evidence. Keywords were combined using Boolean operators such as 'OR' and 'AND' for the search to achieve the widest range of studies; no limits will be set for the date of publication. The following keywords were searched: *health literacy interventions, teach-back, medication adherence, hypertension medication adherence, hypertension, older adults, and health literacy*. The search resulted in a total of 104 study articles that ranged from

randomized controlled trials (RCTs), cross-sectional studies, observational studies, opinion pieces, a mixture of quantitative and qualitative study methods, and less than four SRs.

Advanced search parameters were applied for inclusion of (a) full text, (b) publication date range from 2003 through 2019, (c) English language, (d) peer review, (e) open access, and (f) keywords as listed. Studies were excluded that did not focus on health literacy or teach-back in the acute care or primary care setting. Thorough application of the inclusion/exclusion criteria and reordering of keywords narrowed the results to a total of 13 articles that met the research parameters and were pertinent to the clinical question. The study designs included three RCTs, three SRs, one quasi-experimental, one prospective experimental, two cross-sectional, one observational study, and two studies which were mixtures of qualitative and quantitative in design.

The literature discussed the use of teach-back as a proven, evidence-based intervention that can be used expeditiously to enhance health literacy and increase medication adherence. Additional health literacy interventions identified in the articles included spoken interventions, written interventions, self-management, and supportive systems such as family or caregiver support. There were limited studies that evaluated the use of teach-back on hypertensive populations. The study articles primarily originated in the United States; others included were from various countries across the globe, including Iran, India, Pakistan, and Japan. The keywords for these articles were *teach-back, medication adherence, older adults, hypertension, and health literacy.*

Review of the Literature

Health literacy is important to establish to provide effective care, and overall patient safety (AHRQ, 2019) as low or limited health literacy affects the patient's ability to comprehend

health information and health instructions. In the United States, one out every four adults have difficulty understanding health care information and acting on the information that has been discussed with them. The prevalence of low health literacy is particularly higher among vulnerable populations, particularly older adults (Geboers et al., 2015). Additional groups that are categorized as vulnerable include racial/ethnic minorities, uninsured, homeless, low income, older adults, veterans, and immigrants (HSRD, 2011). Categorization as vulnerable is highest among African Americans, Hispanics, homeless individuals, and individuals who did not graduate from high school (Institute of Medicine, 2004). Halladay et al. (2017) reported that demographically, low health literacy is more prevalent in the southern region of the United States.

Patients with low literacy are often skilled at masking their inability to comprehend health information. A few indicators that may alert providers that they are caring for an individual with low health literacy may include recurrent patterns of missed appointments or nonadherence with prescribed medications, diet, and exercise programs. Remshardt (2011) surmised that there is an absolute correlation between low health literacy and self-efficacy. Patients with low literacy do not feel confident in their decision-making as it relates to comprehension of health information, and therefore, they become stagnant due to feelings of shame or inadequacy. In summary, low health literacy perpetuates a lack of self-efficacy that creates a cycle of nonadherence, poor outcomes, and high mortality in patients with low health literacy. Providers must increase awareness regarding signs of poor health literacy and educate themselves about screening tools and health literacy interventions to improve patient outcomes.

The Impact of Health Literacy on Hypertension

The correlation between low health literacy and poor hypertension control has been thoroughly investigated in the literature when compared to other chronic diseases such as diabetes and heart failure. A review of studies that evaluated the impact and correlation between literacy and hypertension control has shown the association to be significant. Pandit et al. (2009) conducted face-to-face interviews with 330 patients diagnosed with hypertension, as well as literacy assessments and chart reviews of each patient participant's chart with the objective of analyzing the association between literacy, patient education, and hypertension knowledge and control. The results from the study showed a strong correlational relationship between the level of education and hypertension knowledge (grades one through eight: $\beta = -0.30$, 95% CI = −1.44–0.83; AOR 2.46, 95% CI 2.10–2.88). Literacy alone was a more significant predictor than education (AOR 2.68, 95% CI 1.54–4.70) regarding hypertension control.

Darvishpour, Omidi, and Farmanbar (2016) conducted a cross-sectional study to determine the relationship between health literacy and hypertension treatment control and follow-up in patients who received primary care at a rural health center. These authors also aimed to examine the effects of education on hypertension control and self-efficacy (Darvishpour et al., 2016). Using a multistage random sampling from a rural health center in the city of Rasht, 257 eligible participants with a mean age of 55.7 years were selected. Health literacy and the participants' hypertension knowledge were evaluated as the patients completed the Short Test of Functional Health Literacy in Adults and the Charlson Comorbidity Index to assess 10-year mortality. Health literacy was statistically significant in relation to the participants' educational level and monthly hypertension control (Darvishpour et al., 2016). The study supports the recommendation of screening to identify patients with poor health literacy and implementing

health literacy interventions to enhance the delivery of patient education, which can have a large impact on community health (Darvishpour et al., 2016).

Studies that evaluated the use of health literacy interventions, the effectiveness of teach-back as a method to reinforce adherence, and clarification of treatment plan instructions were also found to be effective. Halladay et al. (2017) conducted a nonrandomized control prospective cohort study to assess the impact of multilevel QI interventions on systolic hypertension in 525 patients with uncontrolled hypertension. The authors hypothesized that the delivery of multilevel interventions would improve systolic hypertension control (Halladay et al., 2017). The interventions consisted of enhancing and standardizing team-based care, providing patient self-management support to improve intermediary measures such as patient activation, medication adherence, and disease knowledge, facilitating the provision of clinical data to providers, and implementation of the principles related to health literacy. The interventions were delivered to each participant via 15- to 17-minute monthly phone coaching sessions for 12-months. Halladay et al. (2017) hypothesized that the planned interventions would be statistically significant regarding literacy level and its correlation to systolic hypertension reduction. Data was collected at six-month intervals over a two-year period. At the conclusion of the study baseline, 12-month and 24-month outcomes were compared. Overall, mean systolic blood pressure (SBP) was reduced by 5.6 mm Hg ($p < 0.00001$). The low and the high health literacy groups showed statistically significant decreases in their mean SBP (6.6 mmHg and 5.3 mmHg, respectively). The results of this study supported implementing health literacy interventions to improve BP control and health literacy (Halladay et al., 2017).

A systematic review (SR) conducted by Magnani et al. (2018) discussed the relationship between health literacy and cardiovascular disease. The authors emphasized that the health

literacy gaps, and poor outcomes are highly related to socioeconomic status (Magnani et al., 2018). Health care disparities among vulnerable socioeconomic groups are indicative of the evidence that low health literacy impacts mortality, morbidity, and overall quality of life. Commonly, vulnerable individuals have few options in regard to health care access and limited resources to dedicate to treatment in terms of prescriptions and medical equipment, in addition to lacking the knowledge to process and act on instructions.

Along with lacking resources and multiple chronic diseases, older adults are tasked with trying to overcome communication barriers related to provider use of medical terminology and written instructions that exceed their ability to comprehend health care instructions. Providers are woefully unaware and lack the knowledge of how and where to access training to meet the challenge of simplifying health care information for low-literacy patients. It is recommended that universal screening for comprehension should be adopted as standard practice as well as the use of oral, written, and visual approaches to improve health information communication in a shame-free environment (Magnani et al., 2018).

Medication Adherence and Health Literacy

The WHO (2020) defines adherence as the degree to which self-management in following a treatment regimen parallels with provider treatment plan instructions. Generally, there are five categories of medication nonadherence: (a) not filling a prescription(s), (b) taking a different dose than the prescribed dose, (c) taking medications other than the time of day or frequency that has been prescribed, (d) omitting, skipping, or taking extra doses, and (e) discontinuation of the medication (Brown & Bussell, 2011). Outcome measures (i.e., BP readings < 140/90) or process measures (i.e., pill counting, visual pill cards, or schedules) typically evaluate medication adherence and involve not just patient engagement but also

provider engagement (Brown & Bussell, 2011). Regardless of the process that is used to monitor adherence, monitoring adherence in patients with CVD and hypertension is essential to the effectiveness of their pharmacological treatment.

Antihypertensive medication nonadherence is a common behavioral manifestation related to comprehension and self-efficacy in patients with cardiovascular disease (CVD) and is the most prevalent cause of failure to achieve hypertension control. In the United States, only one-third of patients with a chronic disease take their medications as prescribed by their providers. Consequently, approximately one-half of those with chronic diseases are admitted to the hospital with medication-related issues that are primarily due to poor medication adherence (Brown & Bussell, 2011). Medication nonadherence can occur at any time during a patient's history; however, nonadherence occurs more often in patients with chronic diseases and those that are on long-term medication therapies (Jones, Treiber, & Jones, 2014).

Brown and Bussell (2011) conducted a SR of 127 articles that evaluated facets of medication adherence in relation to CVD. The authors reported that almost half of the patients diagnosed with some form of CVD are nonadherent to their medication regimen. The percentage of patients with CVD who are being treated for hypertension nonadherence is higher at 50-80%**,** despite the fact that nonadherence in patients with CVD consequently leads to higher rates of disability, morbidity, and mortality (Brown & Bussell, 2011). The risk of stroke and ischemic heart disease doubles with each increase of 20 mm Hg in SBP and every increase of 10 mm Hg in diastolic blood pressure (DBP) (AHA, 2019b).

Providers' Role in Medication Nonadherence

Identification of nonadherence is often a challenge for providers, yet the use of health literacy communication techniques can assist providers with this task (AHRQ, 2019). According

to WHO (2003), increasing the efficiency and use of adherence interventions has a greater effect on the quality of life and health outcomes than medical therapies. The AHRQ (2019) has recommended eliminating shame by increasing provider awareness of poor health literacy and its negative effect on medication adherence as a necessity. In addition to increasing provider awareness of low literacy, assessing health literacy and training providers to apply teach-back may decrease the burden of poor health literacy that patients and providers experience (AHRQ, 2019; Brown & Bussell, 2011). According to Brown and Bussell (2011), adverse side effects are the most common reason for nonadherence in the general population of patients with hypertension. Nonadherence due to medication side effects, also referred to as rational nonadherence, is a resistant form of nonadherence due to the nature of the patients' aversion to taking the medication that is causing their side effects (Brown & Bussell, 2011).

Tarn et al. (2006) conducted an observational study of 185 patient encounters that were audiotaped with 16 family physicians, 18 internists, and 11 cardiologists to evaluate provider communication about the new medications that were prescribed during the encounters. The results revealed that providers were consistent when relaying the specific name of the medication for 74% of the new prescriptions and the purpose of the medication at a rate of 87% (Tarn et al., 2006). However, Tarn et al. (2006) reported a discussion about adverse side effects that occurred during only 35% of the encounters, and specific instructions regarding dose, frequency, and time of day were 58%. Instructions regarding the number of pills that were to be taken were discussed in 55% of the encounters (Tarn et al., 2006). The authors reported instructions and information about CVD medication as a major deficit, occurring at only 17% of the encounters, and that in more than 50% of the encounters, the providers did not discuss vital information (Tarn et al., 2006).

Improving medication adherence is challenging. Yet, the impact on patients' quality of life and health literacy is worth the challenge. Providers can improve medication adherence to rational nonadherence by first assessing for rational nonadherence and addressing the patients' concerns from a therapeutic angle by openly discussing the side effects of medications that they are prescribing (Jones et al., 2014). An approach to opening up the discussion is at the time a medication is initially prescribed and at every visit afterward to assess for side effects and adherence (AHRQ, 2019). Using teach-back to review medication instructions and side effects with patients by having them recall and repeat the instructions in their own words can increase adherence (Brown & Bussell, 2011).

Rajah, Hassali, Jou, and Murugiah (2017) conducted a SR of quantitative and qualitative studies that analyzed provider perspective and perceived barriers regarding patient health literacy and their interest in interventions to use health literacy interventions such as teach-back, for instance, to improve patient outcomes. Results from the review highlighted the importance of educating healthcare providers' health literacy and reinforcing the use of health literacy interventions consistently when communicating with patients.

What Is Teach-Back?

Clear and concise communication is the most effective method for health care providers to deliver health care information to patients in terms of providing guidance and instruction in regard to treatment plans and wellness. Ambiguous communication and excessive use of medical jargon are barriers that render provider health instructions and patient understanding useless (Institute for Healthcare Improvement [IHI], 2019). Teach-back is a well-established, evidence-based health literacy intervention that incorporates plain language communication at the end of a patient-provider encounter to evaluate patient comprehension of health care

information, clarify health care instructions that the patient did not clearly understand, and reinforce adherence. Essentially, teach-back is a verbal form of coaching that enables providers to deliver health information in small increments and request that the patients repeat or recall the information in their own words to evaluate understanding. Teach-back is not a test of knowledge but rather a method to reinforce patient education and instructions to increase or improve adherence and patient outcomes (AHRQ, 2019).

Efficacy of Teach-Back in Healthcare

The global prevalence of chronic disease is increasing, as well as the rates of mortality and morbidity associated with disease-specific ailments. Ha, Bonner, Clark, Ramsbothan, and Hines (2016) conducted a SR that analyzed the effectiveness of chronic disease education programs and the use of the teach-back method to reinforce health information and improve adherence. The authors reported that the findings of the review strongly supported the use of the teach-back method on various measurable outcomes such as self-management, adherence, and retention of health information (Ha et al., 2016). However, the results from the studies were not consistently statistically significant. Ha et al. (2016) reported that one study showed statistically significant results ($p < 0.001$) in medication adherence and diet in patients with adult-onset diabetes.

Another study showed high statistical correlation improvements in self-efficacy ($p = 0.0026$ and $p < 0.001$) among an HF intervention group. Four studies that delivered disease-specific knowledge to a group of patients with various chronic diseases evaluated the impact of the knowledge interventions, which revealed via survey results a confirmed improvement in the participants' knowledge and awareness. Ha et al. (2016) concluded that the implementation of

teach-back resulted in statistical and theoretical results of improved outcomes, improved medication adherence, and improved self-management.

Ha et al.'s (2016) SR also maintained that there were improved outcomes when teach-back was used in acute care and outpatient settings. Several studies that evaluated the application of teach-back in outpatient and intermediate care settings firmly supported its effect. Liu, Li, Liu, and Chen (2017) conducted a RCT to evaluate the effectiveness of teach-back on health literacy in 127 nursing home residents and compared the outcomes to a control group of 136. A health literacy brochure was provided to each participant and teach-back was used to reinforce the education and assess the participants' recall of the education over six months. The authors reported that the use of the teach-back method to reinforce the health literacy information significantly increased the health literacy scores of the intervention group.

Bahri, Saljooghi, Noghabi, and Moshki (2018) conducted an RCT to evaluate the effectiveness of teach-back among 80 postmenopausal women. The control group and intervention group were divided evenly, with 40 women in each group. Data collected included the participants' age, occupation, level of education, and date of their last menstrual cycle. The intervention group was scheduled to attend four group sessions where they received self-care training in regard to menopause for 45 minutes. These sessions consisted of self-care tips related to diet and physical exercise during the first session, relaxation and stress control during the second session, health information related to lifestyle modifications during the third session, and health information regarding menopause in relation to chronic disease and complications during the fourth session (Bahri et al., 2018).

The control group did not receive any self-care training. A questionnaire was used before and after the use of teach-back to measure self-care and knowledge. Study results showed that

teach-back produced statistically significant differences ($p < 0.05$) between knowledge and self-care prior to its application and one-month postintervention.

Mathew et al. (2018) performed a prospective experimental study to assess how well participants who received care in an outpatient pulmonary clinic retained medication education using the teach-back method compared to standard medication counseling. Patients who received standard education were provided with a total of eight bullet points about their medication regimen via dialogue and had the opportunity to ask questions during one visit with their health care provider. Participants who received education using the teach-back method were provided with the same bullet point education about their medication regimen in addition to incremental sessions of two-way dialogue between the provider and the patients. These patients were asked to recall in their own words the information that was reviewed with them.

If there was a misunderstanding in regard to the medication regimen, the provider gave clarification to the patient. The assessors calculated pre- and post-medication counseling scores using a questionnaire that contained eight questions that were developed from information obtained from their literature review and that experts in the field of pulmonology had validated (Mathew et al., 2018). The scores were analyzed using the Mann-Whitney U test to compare scores from the teach-back group to the standard group. The group that received information using teach-back showed a statistically significant ($p = 0.0001$) increase in scores compared to the standard group.

Mollazadeh and Maslakpak (2018) conducted an RCT in which they evaluated the use of teach-back training on 84 kidney transplant recipients who were selected through a convenience sample and randomly assigned into intervention and control groups. The intervention group participants received five 60-minute teach-back training sessions. Prior to the intervention, the

investigators collected data using a validated questionnaire, the Self-Management Questionnaire for Kidney Transplant Recipients. The questionnaire contains five domains that ask questions about self-monitoring, self-care behavior in daily living, early detection and coping with abnormalities after kidney transplantation, stress management, and miscellaneous information. Mollazadeh and Maslakpak (2018) reported statistically significant results in the before and after scores calculated from the questionnaire ($p = 0.001$) when they compared scores from the intervention group to the control group. The authors concluded that teach-back training is an effective method to reinforce self-management and self-care in kidney transplant patients (Mollazadeh & Maslakpak, 2018).

The use of teach-back in the acute care setting has proven to be effective as well, particularly in the delivery of reviewing discharge instructions and increasing its use among nurses and providers by providing training to increase awareness. Holman, Weed, and Kelley (2019) aimed to improve provider use of teach-back by conducting a QI pilot study. In it, the researchers taught acute care nurses about the relevance and application of the teach-back method with the aim of improving patient health literacy. Holman et al. (2019) evaluated each nurse participant's knowledge, attitude, and use of teach-back before and after the teach-back education session. The results from the pilot showed that the nurses supported the use of teach-back and increased their use of the method when they explained information to patients (Holman et al., 2019). Holman et al. (2019) stated their results implied that applying teach-back training to develop health literate providers could be beneficial to improving overall patient health literacy.

Kornburger, Gibson, Sadowski, Maletta, and Klingbeil (2013) evaluated the use of teach-back in an acute care pediatric setting where nurses received teach-back training as a method to

improve patient satisfaction and the patients and their families' retention of discharge information. The nurses' training consisted of standard teach-back training in accordance with AHRQ instructions in which they were taught to set the tone of the conversation as they created a shame-free environment, limited the use of medical jargon, provided instructions in a plain and simple way, broke down the information into small increments, and asked the patients to repeat the information in their own words to confirm understanding. Pre- and post-survey results were collected. Post-survey results reported by Kornbuger et al. (2013) revealed that 56.7% of the nurses reported that the patients and families understood the instructions provided for using teach-back and felt a sense of empowerment. Ninety-eight percent of the patients and families who received discharge instructions using teach-back were satisfied with the delivery of their health information (Kornbuger et al., 2013).

Samuels-Kalow, Hardy, Rhodes, and Mollen (2016) conducted a qualitative study in which they interviewed patients who received emergency room care in two tertiary facilities. A purposive sample of 51 participants were interviewed that consisted of 31 adult patients and 20 parents of pediatric patients. Data collected consisted of demographic information, health literacy screening of each participant, and specific questions about the acceptability of teach-back methodology. Results showed that a majority of the patients interviewed felt that teach-back would be helpful with clarifying discharge instructions; however, some patients with adequate health literacy per the health literacy screening scores felt as though the use of teach-back was a waste of time (Samuels-Kalow et al., 2016). Patients with adequate literacy also suggested that if teach-back were to be used to deliver health information to all patients, providers should find a way to remove stigma and bias from the way the information was

delivered. Overall, as previously stated, a majority of the patients interviewed perceived teach-back as a positive form of communication when delivering health information.

Incremental Use of Teach-Back

Health literacy research and published case studies recommend the use of teach-back during treatment plan discussions with patients (AHRQ, 2019; Institute for Healthcare Advancement [IHA], 2019). Providers are instructed on breaking up health information into sessions or visits with patients to enhance adherence and comprehension. The IHA (2019) provides case studies for providers to reinforce how to apply teach-back in the outpatient setting. A particularly effective approach is to use teach-back in incremental segments over a period time, such as hypertension follow-up visits where patients are seen approximately every two weeks until BP control is achieved, if achievable (Goodwin et al., 2010). Reviewing medication(s) and treatment plan instructions is more impactful when teach back is used to deliver information in small pockets that are incorporated throughout the visit and evaluated for understanding at the end of the visit. A SR conducted by Ha et al. (2016) supports that the delivery of health information in small segments has been found to be very effective when discussing treatment regimens with patients' chronic diseases. Due to the large amount of information and the complexities related to chronic disease, the dissemination of information and request to recall and repeat have proven to be effective on medication adherence and disease self-management (Ha et al., 2016; Mathew et al., 2018).

Improving Patient Comprehension and Outcomes through Incremental Use of Teach-Back

Statistically, there are still gaps in the information delivered and the patients' comprehension and recall of the information (Fang et al., 2016). According to the IHI (2019), studies show that patients forget 40 to 80% of the medical instructions they receive and that half

of the information they retain is incorrect. Schillinger et al.'s (2003) findings from a survey of primary care patients with low health literacy revealed that 47% of the patients did not remember the health care instructions discussed with them, and 50% did not correctly repeat their health care instructions. Hersch, Salzman, and Snyderman (2015) correlated that techniques to enhance health literacy in the primary care setting consisted of several primary teaching methods to encourage patient self-management and empowerment, and the providers had the unique role of reinforcement, encouragement, and support. In terms of enhancing comprehension and patient understanding, Kountz (2009) recommended the use of teach-back to improve patient outcomes and adherence.

Limpahan, Baier, Gravestein, Liebmann, and Gardner (2013) stated that provider engagement and activation in the communication are essential to patient safety and comprehension. Methods such as teach-back are provider-initiated levels of patient engagement that break cycles of clinical inertia to improve quality of care to bridge the gaps in care. Teach-back is an effective method for communication of the intended treatment plan and assessing for misinterpretations which could be due to health literacy as well as sociodemographic variables such as age or education. Saying yes and nodding does not always mirror understanding. To summarize, studies indicated that always using teach-back improves patient safety and patient outcomes (AHRQ, 2019).

Definition of Key Terms

Relevant terms that will be used throughout the QI project are defined as follows.

Health literacy: the ability to receive, process, and understand basic healthcare information needed to act on medical information and medical instructions regarding one's health (AHRQ, 2019).

Comprehension: the action or capability of understanding something ("Comprehension", 2019).

Self-efficacy: people's confidence in their ability to complete or participate effectively in self-directed activities (Bandura & Adams, 1977).

Teach-back: an evidence-based communication technique that health care providers use to evaluate and confirm patient comprehension of health care instructions by having the patients recall and repeat the information in their own words (Teachbacktraining.org, 2019).

Adherence: the extent to which the patient's history of therapeutic drug-taking coincides with the prescribed clinical outcome and treatment (WHO, 2020); adherence implies that the patient sticks with the plan of care (Brown & Bussell, 2011).

Vulnerable population: groups or individuals who are considered to be ethnic or racial minorities, children, older adults (also known as elderly), socioeconomically disadvantaged, underinsured, or those with certain mental and medical disabilities (American Journal of Managed Care, 2006). The words vulnerable and underserved will be used interchangeably throughout the proposal as the definitions have been used interchangeably in the literature to describe the same population.

Elderly: is defined as an adult that is age 65 and older (WHO, 2020).

PACT: consists of the veteran, their caregivers or family members, and a health professional team that includes a provider, an RN care coordinator, a licensed practical nurse, a clerical associate, a social worker, and a pharmacist. The team focuses on improving wellness, patient outcomes, and decreasing healthcare costs (Patient Care Services, 2019).

Summary of Findings

Vulnerable populations, such as older adults, are at a higher risk of not adhering to their antihypertension medication regimen due to poor health literacy (Balakrishnan et al., 2017). The impact of nonadherence affects not only patient mortality and quality of life but creates a societal impact on caring for these individuals to the extent that the healthcare system, providers, and acute care facilities become overburdened due to overutilization. Balakrishnan et al. (2017) noted patients with uncontrolled hypertension are also more likely to suffer catastrophic disabilities such as stroke and myocardial infarction secondary to medication nonadherence.

Progression of cardiovascular damage that nonadherence and poor BP control cause can be minimized in the patients with poor health literacy by applying the use of the teach-back method universally among vulnerable populations (Ha et al., 2016). The literature reviewed supports the assertion that utilization of the teach-back method can increase patients' understanding of how to manage their health (Liu et al., 2017). Additionally, improving provider knowledge and awareness of the need to assess patients' levels of health literacy, along with the technique of applying teach-back in practice, can help to increase the use of teach-back among health care providers (IHI, 2019).

A small number of SRs that analyzed the impact of teach-back were found for this literature review. This finding was suboptimal in terms of systematic evaluation and diffusion of its application. However, many other studies that were conducted support the use of its application, as well as the statistical significance of results that showed improvement in the areas of patient satisfaction, medication adherence, and self-management of chronic diseases such as diabetes and heart failure (Adams, 2010).

A gap in patient understanding of healthcare information related to low health literacy, lack of literacy appropriate patient education, or providers who cite inadequate time for teach-back can exacerbate current levels of nonadherence and poor self-efficacy. Provider health literacy training is needed to increase the diffusion of such evidence-based practices and interventions to promote patient safety and positive patients' outcomes in a manner of delivery that is plain and coherent to low-literacy patients (U.S. Department of Health & Human Services, Office of Disease Prevention & Health Promotion, 2010; Office of Disease Prevention & Health Promotion, 2019). The National Action Plan for Health Literacy Committee is a strong supporter of teach-back and recommends that all health care staff and providers receive training in the application of health literacy interventions such as teach-back (U.S. Department of Health & Human Services, Office of Disease Prevention & Health Promotion, 2010). In summary, the literature revealed communication between providers and their patients is often deficient and may contribute to medication nonadherence, which ultimately leads to compromised patient safety and poor patient outcomes. Provider and facility motivation to implement health literacy interventions is a principal initiative on the path to improving patient adherence and outcomes.

Theoretical Frameworks

Health Literacy Skills Framework

The QI project's theoretical framework will be based on two theoretical frameworks that involve health literacy and health promotion in terms of medication self-efficacy and medication adherence. Squiers, Peinado, Berkman, Boudewyns, and McCormack's (2012) Health Literacy Skills Framework (Appendix A) is a concept-based framework developed from preexisting theoretical health literacy frameworks to provide guidance and insight in regard to health literacy, patient outcomes, and external factors that affect individuals with low health literacy.

According to Squiers et al. (2012), health literacy is interconnected to an individual's self-efficacy and comprehension of health information, which has been strongly correlated with health outcomes such as adherence and morbidities. The Health Literacy Skills Framework consists of "two large categories that represent the application of health literacy skills: health-related behaviors (e.g., smoking, exercise, or medication adherence) and health status or outcomes (e.g., morbidity/mortality, disease state, health care service utilization, quality of life, or health/well-being)" (Squiers et al., 2012, p. 50).

The concepts are organized into four primary paradigms: (a) communication, (b) knowledge, (c) health outcomes, and (d) societal influences. An emphasis on communication between patient and provider is noted throughout the discussion regarding the development of the framework. Clear, concise patient-provider communication that the provider directs is an essential foundation of health outcomes as health information is usually conveyed during the conversation between the patients and their provider during a clinic visit (Squiers et al., 2012).

It is assumed by Squiers et al. (2012) that age, sociodemographic, prior knowledge, and resources are interdependent on the level of health literacy that an individual achieves. The framework is structured as a compound model that encourages the evaluation of health literacy in terms of age, socioeconomic status, and education level, as each is a primary dynamic that influences the development of health literacy and thus substantiates the influence of health literacy on health outcomes. The authors encouraged increased use of the health literacy framework to identify sociodemographic variables, lack of resources, and prior knowledge to assist in creating pathways to improve health outcomes related to poor health literacy (Squiers et al., 2012).

Squiers et al.'s (2012) health literacy model is an important framework as it describes patient characteristics that influence health literacy. The framework also depicts awareness and knowledge of health literacy characteristics in which health care providers and the health care system, in general, lies at the foundation of patient comprehension as well as outcomes.

Pender's Health Promotion

Nola Pender's original framework is a middle-range theory that focuses on three domains of an individual's state of health: individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes (Pender, Murdaugh, & Parsons, 2010). The framework provides nurses with a framework that assists with guiding them to understand how patient perception influences health promotion and patient outcomes (Pender et al., 2010).

Pender's Health Promotion model prompts nurses to think about how a patient's level of self-efficacy can influence adherence to treatment, as well as the impact low health literacy has on health and ability to participate in health promotion (Pender et al., 2010). The framework has been revised several times and applied in many different empirical studies that have observed the impact of behaviors and environment on an individual's access to health promotion resources such as patient education, patient comprehension, and adherence monitoring.

The current concepts are individual characteristics and experiences, which were constructed based on behavior and personal factors such as biological, psychological, and sociocultural ones. The behavior-specific construct discusses perception and how self-perception and beliefs affect self-efficacy. Pender's observations discuss how patients' views directly shape their personal health beliefs, health promotion perception, and motivation (Pender et al., 2010). Pender et al. (2010) describe how behavioral outcomes as having the most significant impact on health outcomes. What a patient perceives as an immediate concern for

them is what justifies or manifests in the rewards (i.e., antihypertension medication adherence = good hypertension control) or no rewards (poor antihypertension medication adherence = poor hypertension control = poor health outcomes). It is at this juncture that patients are for addressing the health promotion from their perspective, which in turn determines how self-efficacy behaviors evolve in this stage. Pender's Health Promotion Model framework is relevant to this QI project because the framework assesses individuals' lifestyle habits, such as medication adherence, and how self-efficacy is based on their perceptions, which are in close correlation to their health literacy and health status.

The purpose of this QI project is to evaluate how health literacy affects medication adherence and health promotion among a vulnerable older adult population. When proposing a project regarding health literacy, medication adherence, self-efficacy, and the vulnerable, one can apply the framework model to depict the multifaceted nature of vulnerable adults who interact with the providers within the healthcare system as they pursue health (Alligood, 2014). It is imperative to note when studying self-efficacy and vulnerable populations to consider that patients' health literacy and self-efficacy represent their current level of functioning in a system, which may interfere with their ability or desire to pursue health promotion due to stigma or shame (Pender et al., 2010.

Framework Ties

Health literacy and health promotion are critical to the quality of life in the general population. Theories of health literacy and health promotion are based on the belief that by recognizing and assessing patients' societal influences regarding their health literacy level, we can improve health outcomes. An assumption that provider training is necessary to address and improve poor health outcomes has been made from the constructs of the Health Literacy Skills

Framework. The patients' ability to understand their health information is an essential component to their clinical outcomes, self-efficacy, and health promotion.

Socioeconomic, cultural, and environmental barriers play a role in minimizing the need to conduct universal assessments of health literacy and health promotion, which prompt the implementation of health literacy interventions. Health literacy interventions play an important role in removing the barriers to NP discussion of health promotion and the importance of self-efficacy in plain language with their patients. The Health Promotion Model contributes a solution to NP practice by providing a framework for understanding how patients can be motivated to attain and sustain personal health goals (Alligood, 2014).

Project Design

The goal of this QI project is to implement the use of the Always Use Teach-Back intervention, an evidence-based plain language principle used to confirm patient comprehension of health information and medication treatment regimens by having the patients correctly recall and repeat the correct number of prescribed hypertension medications, correct dose, correct time of day of administration, and side effects to make their provider aware of their own words. PACT will complete a 45-minute Always Use Teach-Back online training program (Appendix B) for health care staff to increase awareness and provide instruction on how to conduct teach-back with patients. The authors have granted full permission to use and modify the tools (Appendix B).

After completing teach-back training, the PACT will conduct the medication management classes biweekly. Patients will participate in a total of four patient education sessions held every two weeks. The purpose of these sessions is to increase their hypertension knowledge and awareness about lifestyle modifications such as diet, the purpose and side effects

of common hypertension medications, and home hypertension monitoring over an eight-week period established by the PACT medication management members. After each biweekly class, the Doctor of Nursing Practice (DNP) QI student lead and PACT medication management members will place a total of four individual post medication management class follow-up phone calls with each patient participant. During these phone calls, the teach-back method will be implemented with patients 65 to 75 years old who have been diagnosed with uncontrolled hypertension, SBP greater than 150 or a DBP greater than or equal to 90, in an effort to improve antihypertensive medication adherence and hypertension control. Teach-back will also be utilized to assess and improve each PACT member's confidence and awareness regarding the usability and appropriateness of teach-back in the primary care setting. Currently, standard monitoring of patients with uncontrolled hypertension is at each provider's discretion. Usual or standard care consists of nurse visits every two to three weeks to check BP after two or more elevated BP readings until BP control is achieved. Nurses fill out a BP check template that has an area to free-hand medication adherence responses. The medication adherence responses and elevated BP were part of the evaluation process for the project. However, there is no defined, evidenced-based method to evaluate and reinforce medication adherence in patients with uncontrolled hypertension.

Objectives

The objective of the project is four-fold: (1) to identify the prevalence of low literacy and hypertension medication adherence amongst older adults age 65 to 75 in a local VA primary care clinic; (2) to determine if the use of teach-back, an evidence-based health literacy intervention, after biweekly medication management classes will improve antihypertension medication adherence; (3) to decrease the number of patients with uncontrolled hypertension by five percent

over an eight-week period; and (4) to increase PACT members' confidence and conviction regarding the use of teach-back as an intervention.

Evidence-Based Intervention

Teach-Back Method Training for Health Professionals

Always Use Teach-Back! is an evidence-based approach to using teach-back as a method of confirming patient comprehension of medications and plan of care. UnityPoint Health (formerly Iowa Health System), in collaboration with the Picker Institute, developed the Always Use Teach-Back! training content as part of their Always Event patient safety program (IHI, 2019). The methodology of teach-back involves asking patients to recall and then explain or demonstrate the health information and instructions discussed during an interaction with their health care provider. The IHI (2019) reports that health care providers and healthcare entities widely use Always Use Teach-Back! training and tools (Appendix C) across the United States to improve quality of care and patient outcomes. Teach-back can be used any time clinicians or health care providers interact with their patients. Studies have indicated that the use of teach-back may increase the likelihood that patients will better understand information and instructions.

Setting

The setting for the proposed QI project is a VA primary care clinic located in Northeast Florida, that serves prior military service members**.** The VA Community Based Outpatient Primary Care Clinic provides a variety of specialty medical services for local veterans, such as primary care, physical therapy, ophthalmology, cardiology, and mental health care. Over 50% of the patients seen at the clinic are between 65 to 75 years old and are being treated for

hypertension, and 37% have been categorized as having uncontrolled hypertension (J. Dunlap, personal communication, January 12, 2019).

Population

The participant population consisted of veterans age 65 to 75 years old eligible to receive primary care services at the VA clinic and have coded diagnosis of hypertension with uncontrolled BP readings defined as an SBP greater than150 and DBP greater than 90 in the electronic medical record (EMR) database during the duration of the QI project. Additional participants will include VA PACT medication members that currently teach the medication management classes for patients with uncontrolled hypertension. The DNP QI student-lead will meet with the medication management PACT members to discuss the problem of uncontrolled hypertension and to inform them of the purpose of the QI project. The PACT members who have an interest in participating as providers who will use teach-back during the QI project will be asked to sign a consent form.

Recruitment

Patient participants was recruited through the clinic referrals to the hypertension medication management class received from providers and RN care coordinators at the clinic via face-to-face visits and phone calls over a two-week period. An invitation flyer (Appendix D) was given to clinic patients during routine clinic visits that met the inclusion criteria at the time of clinic check-in by PACT nurses. Recruitment of Veterans age 65 to 75 currently prescribed at least three antihypertension medications with BP readings identified as uncontrolled entered in the EMR within the past six months were retrieved and evaluated. Per JNC-8 hypertension management guidelines, SBP greater than or equal to 150 mm Hg or DBP greater than or equal to 90 mm Hg is identified as stage II and considered uncontrolled (Whelton & Carey, 2018).

Once identified, the prospective participants were contacted prior to their hypertension medication management class via the VA's secure messaging email system and phone calls by the DNP student QI lead. Participants were then be scheduled for an appointment to meet with the DNP student QI lead to discuss the intent and purpose of the QI project. The DNP student QI lead also posted flyers (Appendix D) in the waiting room and clinic exam rooms in an effort to recruit participants. The DNP QI student-lead also educated clinic staff who interact with clinic patients about the QI project and the intervention so that they could assist with recruiting clinic patients for the project.

Inclusion Criteria

The study included adults 65 to 75 years old who have been diagnosed with hypertension, have at least two uncontrolled BP readings recorded within the last six months; for example, SBP greater than or equal to 150 mm Hg or DBP greater than or equal to 90 mm Hg in the last six months; and are prescribed at least three antihypertensive medication.

Exclusion Criteria

Not included were adults less than 60 and adults greater than 75 years old who did not have a documented diagnosis of what is defined as uncontrolled hypertension SBP greater than 150 and DBP greater than 90; not currently prescribed at least three or more antihypertensive medications; did not speak or read English; have been diagnosed with cognitive impairment; have an uncorrected visual impairment or have an uncorrected auditory impairment, which the DNP QI student-lead will determine through a chart audit of clinic patients that meet the inclusion criteria or as being reported by the patient.

Ethical Considerations

The Health Insurance Portability and Accountability Act of 1996, which has established legally binding guidelines and assurances that protect the privacy of patients' health information, will protect all the participants (Health & Human Services Department, 2013). All data collected for this project will be aggregated data from the participants and the EMR and will not include any potential patient identifiers. The risks to patients who participate in this QI project will not be any different from the risks of patients who receive standard primary care services. Participant confidentiality will be assured by coding the participants using individual identification numbers. The list of participants and their identifying numbers will be kept in a locked filing cabinet in an unoccupied office behind a locked door that only the clinic manager and DNP student project leader can access. All electronic files that contain identifiable information will be password protected to prevent access by unauthorized users, and only the DNP student project lead will have access to a HIPPA complaint cloud-based server.

Measures

Socio-Demographics

Self-reported sociodemographic data will be collected, which will include the participants' age, gender, race/ethnicity, marital status, education, and the number of antihypertensive medications taken daily. Self-reported socio-demographic data will also be collected from PACT members and will include each PACT member's age and level of education.

Rapid Estimate of Adult Literacy in Medicine Short Form (REALM-SF)

The REALM- SF (Appendix E) is a brief literacy assessment that has been used globally to identify patients with low literacy in the health care setting. The REALM-SF has been revised

for a quick assessment and can be administered and scored in less than five minutes, which is pragmatic for a primary care clinical setting (Arozullah et al., 2007). The REALM-SF scores have been highly correlated regarding development ($r = 0.95$, $P < 0.001$) and validation ($r = 0.94$, $P < 0.001$) samples. The assessment is a word recognition test that is used to assess adults' ability to read words that are commonly used in the health care setting. The REALM-SF can assist providers with identifying patients who have learned to compensate for their literacy deficiencies by requesting patients to pronounce seven words that may be used during a standard clinic visit. Permission to use the REALM-SF has been granted by the authors (Appendix F)

The patient was shown will be shown word at a time and given five seconds to pronounce it. If the patient is unable to identify or pronounce the word, the providers put the missed word into a separate stack. The number of missed words will be correlated with a scoring guide that the developer will create to identify the estimated reading level of the patient. The intent is to screen patients rapidly to provide an estimate of their literacy levels. The results from REALM-SF are scored from zero to seven. A score of zero correlates with a below third-grade literacy level, one to three with a fourth to fifth-grade level, four to six with a seventh to eighth-grade level, and a score of seven correlate with high school graduate level (AHRQ, 2019).

Hill-Bone Hypertensive Medication Adherence Scale (HB-MAS)

The Hill-Bone Scales, developed by nursing faculty at Johns Hopkins University with funds from the National Institute of Health, are available for use at no cost (Johns Hopkins University, 2020). The HB-MAS (Appendix G) is a subscale of the original Hill-Bone Compliance to High Blood Pressure Therapy Scale and is composed of nine questions that can be used as a broad application across various chronic diseases and conditions to assess self-assessment of medication adherence (Kim, Hill, Bone, & Levine, 2000). Each question item is

scored using a four-point Likert-type scale as follows: one = *all of the time*, two = *most of the time*, three = *some of the time*, four = *none of the time*. A high score indicates high adherence to antihypertensive treatment, and a low score signifies poor adherence to antihypertensive treatment.

Kim et al. (2000) reported that the scale was originally written in English and that nurses and physicians who worked in various clinical settings have translated it into nine other languages as a valid teaching tool to guide behavior modification, which has led to improved antihypertensive medication adherence and hypertension control. The consistency, reliability, and predictive validity of the scale were evaluated based on communal population samples of adults diagnosed with hypertension who were enrolled in clinical research studies of high BP care and control (Kim et al., 2000). The standardized α for the total scale was 0.74 and 0.84, and the average interitem correlations were 0.18 and 0.28, respectively. A relevant literature review and an expert panel evaluated the content validity and reliability of the scales. Development and evaluation of the scale focused on cultural sensitivity and appropriateness of the instrument for individuals with low literacy (Kim et al., 2000). Permission to use the HB-MAS has been granted by the authors for this project (Appendix H).

Teach-Back Confidence and Conviction Scale

The Teach-Back Confidence and Conviction scale (Appendix I) is a survey questionnaire created by UnityPoint Health Care and the Pickering Institute. The questionnaire was developed to use prior to application of the teach-back technique and after eight weeks of applying this technique. The intended purpose of the Always Use Teach-Back! survey questionnaire is to assess health care providers' perceptions of the importance (conviction) of utilizing teach-back, their confidence in their ability to use teach-back, and how often they use teach-back (IHI, 2019).

The questionnaire will be administered after the PACT medication management members have completed the online Always Use Teach-Back! training module, which will occur before they implement the use of teach-back during clinic visits with the recruited participants and again eight weeks later at the end of the QI project.

Method of Analysis

Demographics, participant characteristics, and survey data collected will be summarized using descriptive statistics and frequency tables. The total number of participants, mean, standard deviation, median, minimum, and maximum, will be used to summarize categorical variables. A paired t-test will be carried out to determine the efficacy of the teach-back method and its correlation to BP readings obtained over the eight-week timeframe.

Assurance of Privacy

To ensure participant privacy and confidentiality, all participants will be required to sign an informed consent. The informed consent will ensure anonymity and inform the participants about why the information is needed and who will have access to it. All informed consent forms will be kept together behind a locked door and stored in a locked desk drawer at the clinic site. To protect participants, an Excel master list will be created that assigns a de-identifiable number to each participant. Participants' scores from the questionnaires will be tracked on the Excel spreadsheet under their assigned numbers.

Plan for Implementation

Plan

The PACT medication management team will complete the Always Use Teach-Back! online interactive training module during the planning phase of the project to increase their awareness of health literacy, knowledge about teach-back, and how to apply teach-back in

clinical practice. The pre-intervention Teach-Back Confidence and Conviction scale will be given to the PACT medication management team to evaluate their awareness and comprehension about teach-back before implementation of the QI project. The DNP QI student investigator will conduct teach-back method coaching during a breakfast and learn after completing the online module with the PACT medication management team a week prior to the start of the hypertension medication management class. During the breakfast and learn session, an ink pen with the words teach-back inscribed on it will be given to each PACT participant along with a laminated three-by-five index card that highlights how to perform teach-back as a reminder to use teach-back during each post medication management meeting with each patient. The medication management classrooms will have a laminated poster (Appendix K) on the wall, which references the use of teach-back, to act as a reminder for staff participants as well as to prompt questions from patients to ask PACT providers about their antihypertensive medications and treatment plan.

One week after the PACT medication management team has completed teach-back training, the DNP QI student-lead will call veterans that are on the roster for hypertension medication management classes to discuss the QI project and to ask if they would like to participate in the project. The DNP QI student-lead will also call veterans that have expressed an interest in participating in the QI project after being recruited via flyers and staff nurses. If the veteran agrees to participate in the QI project, the DNP QI student-lead will schedule to meet on predetermined dates with each prospective participant individually to obtain a baseline pre-intervention BP reading, informed consent, and to administer the REALM-SF and HB-MAS prior to their scheduled hypertension medication management class. An Excel spreadsheet will be created that contains coded numbers to ensure identifiable information is not used to track

each participant. Each participant will be assigned a coded number that will correspond to the data collected during the intervention, such as the participants' socio-demographic information, pre- and post-intervention BP readings, literacy level score, number of antihypertensive medications prescribed, and hypertension medication adherence level score.

The REALM-SF will be used to measure each participants' health literacy levels prior to the start of the QI project to ensure that participants with low-literacy have been identified. The HB-MAS will be administered to the participants to evaluate antihypertension medication adherence. During the visit with the DNP QI student lead, the participants will also be provided with instructions regarding the frequency of teach-back sessions with PACT medication management members and the DNP QI student lead. After biweekly medication management classes, the teach-back methodology will be applied to evaluate the participants' comprehension of their medication treatment plan.

Teach-back templates (Appendix J) have been developed and will be embedded in the EMR for PACT medication management members to use teach-back after each biweekly teach-back visit. These templates will serve as prompts to reinforce antihypertension medication education and adherence for patients with uncontrolled hypertension by asking the patient to state in their own words the correct time to take their medications, the correct dose, the correct number of pills, and common potential medication side effects. The templates will contain fields where the PACT medication management members can free hand documentation of the patients correct or incorrect verbalization of their medication regimen, to report barriers to adherence and the patient's ability to recall health instructions in regard to medication adherence as well as medication side effects during patient visits. The teach-back template will serve as a clinic note for the patients' primary care provider to follow the patient's progress over the eight weeks in the

hypertension medication management class and the use of teach-back to confirm the patient's understanding.

Do

The participants' baseline literacy levels will be entered into an Excel spreadsheet after obtaining a literacy score using the REALM-SF scoring legend. The same data entry procedure will be followed when obtaining a baseline hypertension medication adherence score using the HB-MAS. Baseline scores will be calculated in accordance with the HB-MAS developer's scoring tool and entered into the Excel spreadsheet as well as baseline BP readings on each participant. Participants will also be provided with hypertension patient education developed by the PACT medication management pharmacist, which discusses the definition and classification categories of high BP, common antihypertension medication classes and side effects, as well as lifestyle modifications such as diet and physical activity. Participants will be scheduled for a total of 4 follow-up phone calls with the DNP QI student-lead or PACT medication management member at two-week intervals over an eight-week timeframe to participate in teach-back to determine patient comprehension of their antihypertension regimen. The DNP QI student-lead or PACT medication management member will use the teach-back templates embedded in the EMR after each call to document the participant's ability to recall the correct number of antihypertension medications they are prescribed, the correct dose, the correct time of day to take their medication and side effects to report to their provider.

At the end of eight weeks, the participants will meet in person with the DNP QI student-lead again individually on predetermined dates to repeat the HB-MAS questionnaire to reevaluate antihypertension medication adherence and to record their post-intervention BP readings after attending their final hypertension medication management class. After the final

meeting with the participants, preintervention and postintervention BP readings will be analyzed for improvement, which the DNP QI student will identify as SBP less than or equal to 150 and DBP less than or equal to 90. The DNP QI student-lead will also compare BP readings to the baseline and post-intervention readings to identify a percentage of BP readings that show five percent improvement among the participants. The REALM-SF will not be administered again, as the initial score was obtained as a confounding variable used to identify the health literacy level of each participant with hypertension who agreed to participate in the QI project. The Teach-Back Confidence and Conviction scale will also be administered again after eight weeks to the PACT medication management members to evaluate their use and perception of teach-back.

Study

Analysis of hypertension medication adherence using the HB-MAS will be essential because the assumed objective is that there will be improved BP control as a result of improved medication adherence, which should be reflected in the scores using this tool. Means and percentages will be provided using descriptive statistics to describe sample demographic characteristics, categorical measures (age, race, sex), measurement scores, and BP readings. T-tests and logistic regression will be used to analyze pre- and post-intervention data to determine statistically significant improvements in BP. T-tests will also be used to analyze the results of the Teach-Back Confidence and Conviction scale that measures the PACT medication management members' perception of the effectiveness and confidence in the application of using teach-back.

Act

After the aggregated data are evaluated and analyzed for the effectiveness of the intervention, result outcomes regarding the use of the teach-back method to improve patient antihypertension medication adherence will be calculated. Data will be analyzed to determine if five percent of participants' BP readings decreased to SBP less than 150 and DBP less than 90 over the eight-week timeframe. Findings of the Teach-Back Confidence and Conviction scale will also be analyzed. The DNP student QI lead will schedule a meeting with the stakeholders at the clinic to discuss the results and sustainability of the intervention. The results will also be presented to the DNP chair and graduate faculty at Jacksonville University.

Timeline

Plan: April 2020 to May 2020

1. Meet with stakeholders to discuss the QI project.
2. Complete literature review.
3. Analyze needs assessment performed by PACT.
4. Identify intervention to improve hypertension control and medication adherence.
5. Identify tools to measure health literacy and hypertension medication adherence.
6. Contact authors of tools to request permission to use tools for the project.
7. Develop DNP project proposal.
8. Submit DNP project proposal to the editor.
9. Present DNP project proposal to DNP chair for approval to conduct the project.
10. Obtain QI and IRB approval.

Do: October 2020 to December 2020

1. Introduce Always Use Teach-Back! self-managed training module for the PACT medication management staff to complete.

2. Recruit participants and record their informed consent for the QI project (Appendix L).
3. Collect baseline data: demographic data, baseline BP reading, scores from the REALM-SF and HB-MAS, as well as Teach-Back Confidence and Conviction scale responses.
4. Implement Always Use Teach-Back! for eight weeks.
5. Collect pre-intervention data: post-intervention BP reading, scores from the REALM-SF and HB-MAS, as well as Teach-Back Confidence and Conviction scale responses.

Study: January 2020

1. Input/export data and enter into Excel spreadsheet on a Health Insurance Portability and Accountability Act (HIPAA) compliant cloud-based server.
2. Complete data analysis.
3. Document outcomes of QI project.

Act: April 2020

1. Present results and findings to Jacksonville University DNP chair and graduate faculty as well as clinic stakeholders.
2. Submit the manuscript for publication.

Stakeholder Assessment

The PACT members and the clinic's chief medical officer (CMO) are participating stakeholders that have expressed concerns about the degree of poor hypertension control in adults 65 and older. Hypertension medication adherence and BP control among clinic patients have been noted as a chief concern, and discussions were started to identify interventions that could be implemented by any team member. The length of time regarding the intervention was

also a concern as each team member has a specific allotted amount of scheduled clinic time with each patient. After discussions initiated by the DNP QI student-lead, it was decided to implement teach-back as a time-efficient team-based intervention to use with patients scheduled to attend a hypertension medication management program over a predetermined eight-week time frame established by the PACT medication management team to evaluate medication adherence and use teach-back to improve hypertension medication knowledge and awareness among the patient participants.

The need for this QI project was determined based upon a needs' assessment conducted by the PACT pharmacist and adult-geriatric NP in collaboration with the CMO, members of the PACT medication management members, and DNP student QI lead. The needs assessment revealed that 37% of older adult patients between 65 and 75 years old that received care in the past 12 months at the clinic have documented uncontrolled BP readings in the EMR (J. Dunlap, personal communication, January 12, 2019), which indicates the need for improvement.

An audit of hypertension medication refills was also evaluated per the EMR and found that the participants also lacked consistency in refilling their medications. Stakeholder input and participation was crucial to the implementation of the project. An in-person meeting with key stakeholders was held to discuss the current percentage of patients with uncontrolled hypertension. This elicited enthusiastic PACT staff members' perspective and feedback that most patients seen at the clinic have difficulty with comprehension and self-efficacy in regard to medication adherence. A plan was developed to evaluate health literacy and medication adherence of a purposive sampling of hypertensive patients. The stakeholders unanimously agreed to implement the use of the teach-back methodology to evaluate each patient participant's comprehension and prompt a dialogue between the PACT member and the patient participant

regarding their antihypertensive medication treatment regimen to improve medication adherence and hypertension control. The need to improve patient outcomes, such as BP readings, in this case, is a known challenge and concern; however, agreeing on a plan to implement was not a challenge for the PACT members and CMO. All the stakeholders voiced their commitment to participate in and support the QI project. They expressed their readiness to implement the QI project into standard practice for their patient population if the results are statistically significant.

Financial Costs

The estimated cost of the QI project is $705.24 (see Appendix M). Financial costs include but are not limited to purchase of pens with the words always teach-back inscribed on them, editorial review, which is required by Jacksonville University, provision of breakfast for PACT members during breakfast and learn, and printing supplies (i.e., paper, ink) for the teach-back posters, Teach-Back Confidence and Conviction scale, REALM-SF, HB-MAS, as well as informed consents.

Sustainability

Health literacy interventions are important aspects of not just medication adherence and self-efficacy but also patient safety and patient satisfaction. Always Use Teach-Back! training has been developed from evidence-based guidelines, which prove a non-stigmatizing confirmation of patient understanding is a standard that all providers should use with every patient. Always Use Teach-Back! is a free, interactive model that can be incorporated into routine provider and nursing patient communication. The use of teach-back is particularly important as it relates to patient outcomes by increasing provider's use and awareness of not only the ease of utilizing teach-back but also the imperativeness of its application in health care.

The stakeholders will need to execute the ongoing use of teach-back and monitor the impact of its application as a universal precaution in health care provider-driven educational intervention as standard practice. This attention will ensure that the application of teach-back is maintained and that the improvement in patients' antihypertensive medication adherence and comprehension remains a sustainable goal. Additional measures to determine the sustainability of the QI project may include a survey of patients' perceived perceptions of teach-back and their satisfaction with its use.

In addition, the development of teach-back templates and medication education are modifiable and sustainable interventions that future DNP students and providers that see patients at the clinic can use as a QI intervention to improve patient outcomes and patient satisfaction. PACT medication management members and clinic administration stakeholders will be encouraged to share the outcomes of the QI project with their community partners as well.

IRB Approval

Implementation of the QI project will begin after Institutional Review Board (IRB) approval is obtained from Jacksonville University, where the QI project lead is a DNP student. The VA clinic site does not have an IRB committee, nor does the facility require IRB approval for QI projects. This project is anticipated to be categorized as a QI/QA project. The IRB category two classification criteria include projects where there is less than minimal risk to subjects and includes educational tests, surveys, interviews, or observation of public behaviors. The QI project also meets QI/QA criteria requirements as the investigator will obtain and record the data in such a manner that the identity of the human subjects will not and cannot readily be ascertained, directly or through identifiers linked to the subjects. Once the project begins, the intervention will be implemented over eight weeks, after which data analysis will begin. Once

completed, the final project analysis will be constructed, and the DNP student will disseminate outcomes of the QI project to the stakeholders and the DNP chair and graduate faculty at Jacksonville University.

Evaluation Plan

The DNP QI student lead and the PACT medication management members conducted the QI project by implementing the use of the teach-back methodology after patient participation in the antihypertension medication management classes that was held biweekly over an eight-week timeframe. The target sample size was 50 participants, however a smaller sample size of 30 was allowable to maintain statistical significance and account for low numbers due to possible attrition. The independent variable in this QI project was the application of teach-back, which is an evidence-based health literacy intervention proven to improve medication adherence and patient comprehension. The dependent variables were the measures of patient antihypertensive medication adherence and BP readings, which were obtained pre-intervention during week one and post-intervention at week eight. Patients were predicted to rate higher in antihypertensive medication adherence and display clinically significant improvement in hypertension control at the end of participation in the QI project.

Evaluation Measures

The DNP QI student-lead entered all patient participant data into a password-restricted Excel spreadsheet on a HIPAA compliant cloud-based server for aggregation and analysis at the end of the QI project. The DNP student QI lead collected patient sociodemographic information after obtaining informed consent. The REALM-SF and HB-MAS scales were administered to evaluate all participant's pre- and post-intervention health literacy levels and pre- and post-intervention antihypertension medication adherence. A pre- and post- Teach-Back Confidence

and Conviction scale was given to the PACT medication management members to evaluate their perceptions regarding the application and use of teach-back.

Data Analysis

Demographics, participant characteristics, and survey data collected were summarized using descriptive statistics and frequency tables. The total number of participants, mean, standard deviation, median, minimum, and maximum, will be used to summarize categorical variables. A paired T-test were carried out to determine the efficacy of the teach-back method and its correlation to BP readings obtained over the eight-week timeframe. A repeated-measures analysis of variance was used to analyze baseline and post-intervention BP measurements.

Bar charts, pie charts, histograms, as well as box and whisker plots were considered for data visualization when appropriate. Individual item responses using the REALM-SF and HB-MAS were summarized by pre- and post-intervention period. The REALM-SF and HB-MAS scores was calculated individually for patient participants at each evaluation period as the sum of non-missing responses. A linear regression model was used to examine the association between health literacy and the HB-MAS. Selective univariate tests were conducted to evaluate the differences between pre- and post-intervention data using appropriate statistical tests for paired data. Paired t-tests were used to correlate pre- and post-intervention scores, and a Wilcoxon-signed rank test was used for individual ordinal data.

A linear mixed model was also used to analyze the REALM-SF and HB-MAS scores for repeated measures to analyze the effect of the intervention's improvement toward medication adherence and hypertension control. Each model was adjusted for demographic variables, participants' characteristics, health literacy, and hypertension medication adherence scores as

risk factors. An unstructured covariance matrix was considered to model the correlation of pre- and post-intervention measurements from the same participants.

The effect of the intervention was tested by comparing pre- and post-intervention adjusted mean scores. At the discretion of the DNP QI student lead, an additional exploratory analysis of means and percentages of PACT confidence and conviction regarding the application of teach-back was conducted. All statistical tests were conducted at a five percent significance level using R version 3.4 or higher software from R Foundation for Statistical Computing, Vienna, Austria, and SAS version 9.4 or higher software from SAS Institute Incorporated, Cary, NC.

Data Collection and Protection

The primary outcomes were the patient participants' antihypertension medication adherence and hypertension control over an eight-week period. The DNP QI student-lead evaluated antihypertension medication adherence pre- and post- intervention. The non-identifiable number assigned to data was stored on an encrypted Excel spreadsheet on a secure cloud-based server. Informed consent forms are stored in a locked drawer. An Excel spreadsheet was encrypted using BitLocker and requires any individual who accesses the cloud-based server to use a preset password. The DNP QI student-lead is the only person who with knowledge of the password to access the flash drive. Participant information, including names, demographics, and questionnaire scores, were not discussed with anyone other than those directly involved with this QI project. The data collected from this project will be kept for approximately three years. After three years, all identifiable data records will be shredded and recycled. All identifiable data kept on a HIPAA compliant cloud-based server will be erased and overwritten at least three times. If this process is unsuccessful, the flash drive will be physically destroyed.

Findings

A total of 37 patients participated in the QI project, of which 33 were male (92.0%) and four were female (8.0%). The majority were Caucasian (65.9%), while the remainder identified as African Americans (29.7%) and Pacific Islanders (4.4%). Participants' REALM-SF scores revealed that only four (10.8%) had a score of zero, which corresponds to third grade or below literacy level, indicating they would not be able to read most low-literacy material. Thirty-three (89.1%) had a REALM score of seven which is equivalent to a high school graduate reading level. Thirty-one (83.7%) of the participants were prescribed three antihypertensive medications, the remainder (16.4%) were prescribed four antihypertensive medications.

The F-tests for significant effects regarding socio-demographic characteristic factors consisted of marital status, age, level of education, and ethnicity did not show any evidence of significant effects of these factors (p-value > 0.05). Statistically, older married adults had higher hypertension medication adherence and health literacy scores with subsequent better BP outcomes. Health consequences of sustained hypertension due to antihypertensive medication(s) nonadherence were inconsistent among participants. While 89% of participants were aware of the potential for heart attack and stroke, 91% were unaware of the damage to kidneys and eyes which sustained hypertension may cause.

Post-intervention assessment of nonadherence was not as closely related to health literacy as initially thought by the PACT team. Over the eight-week timeframe, teach-back patients stated that they felt as though the dialogue was more open and clearer than the usual close-ended yes or no response to questions. Participants with higher medication adherence but poor BP control indicated that prior to the intervention that there was not clear two-way communication between the PACT and veterans. They frequently identified the cause of their uncontrolled BP

readings as unclear provider-patient and nurse-patient communication regarding the correct dose, the number of refills, and administration times. Participants also did not feel that their PACT provider or nurses were diligent in reviewing their medication regimen and reconciliation comprehensively regarding nonadherence consequences and side effects education.

The change in HB-MAS scores was found to be statistically significant (p-value = 0.0001) with a mean (SD) difference of -1.4 (2.65), which indicates better adherence to medication after the teach-back intervention. Changes in SBP were also found to be statistically significant at a five percent significance level (p-value = 0.0107), with an observed SD difference of -2.9 (8.26) mmHg between pre- and post-interventions. However, the least-square means (adjusted means) and least-square mean differences representing changes in DBP were not found to be statistically significant (p-value = 0.7024), with an SD difference of only -0.5 (8.39) mmHg.

The PACT members' pre- and post-confidence and conviction regarding teach-back stayed relatively the same. Pre-intervention results showed that 88% of the team members were already aware of teach-back and reported confidence in using teach-back. In comparison, post-intervention results showed a slight increase in this percentage to 88.5%. These results indicate PACT members found the application of teach-back to be both practical and effective.

A key barrier that impacted the project was the spread of COVID-19. Due to the restrictions on face-to-face visits, much of the communication between PACT and participants took place via virtual visits and telephone. A majority of the participants voiced that they preferred face-to-face visits over virtual visits and stated that they felt as though they were being forced to utilize virtual visits which were impersonal from their perspective. Participants reported anxiety and frustration with technology as the reason for their preference for face-to-

face visits. It was recommended that when feasible in-person communication is recommended for older adult patients. A recommendation for monthly dates at the clinic for in-person training on how to use the virtual software on the participant's personal device be made available to decrease anxiety and apprehension regarding virtual visits.

The high degree of negative feedback regarding the lack of communication between the PACT and the patients, difficulty when requesting medication refills, and inconsistent medication reconciliation by a PACT member were unintended findings. Recommendations to address each of these issues are discussed in the next section of the paper. There was a high degree of positive feedback from the provider participants regarding training and the use of teach-back during provider-to-patient communication. Evidence of a statistically significant improvement in SBP and stakeholder buy-in and participation was maintained at a high level of confidence throughout the project and served as an indicator for sustained use beyond the project's end date.

Recommendations and Implications for Practice

Patient outcomes are correlated to many variables and barriers that affect an individual's quality of life. Lack of clear communication and health literacy are confounding factors that impact medication adherence and quality of life in terms of chronic disease management (Miller, 2016). Consequently, if they are not adequate, quality patient outcomes and adherence are difficult to achieve. In today's healthcare domain, interdisciplinary teams must have the proper training and tools to assess health literacy and adherence when there are clinical red flags present. Clinical inertia regarding the assessment of patients' health literacy when non-adherence is suspected is common. Health literacy is not just based on an individual's academic level or income but should include the quality and method of delivering healthcare instructions by

healthcare teams and providers. Integrating the use of a validated measuring tool to evaluate medication adherence and health literacy into the clinical standard of care is a more precise approach and provides scaled guidance to providers in terms of the degree of adherence and literacy level. Knowledge of a patient's level of health literacy and medication adherence provides healthcare teams with a baseline of how to address patient education needs from an individualized approach for each patient. Therefore, it is recommended that health literacy should be evaluated for all patients using a validated health literacy assessment at the initial point of care and as needed.

Currently, the most common form of patient instruction that is used to address literacy is written patient education. The literature recommends providing written patient education at a sixth-grade level to address patient education comprehensively (NCES, 2003). Yet, most studies evaluated for this project showed that teach-back was used predominantly when providing patients with discharge instructions**.** Unfortunately, this is a missed opportunity for patients seen in outpatient settings when discussing medication instructions and adherence.

A discussion was held with stakeholders to address key facilitators and barriers that impacted the project outcomes. Stakeholders were informed that key barriers that impacted the project outcomes, which were primarily related to the PACT to patient miscommunication and lack of computer skills. Recommendations to address improving computer skills was discussed in the previous section. Participants also cited white coat syndrome as the reason for elevated blood pressure readings recorded during clinic visits. Blood pressure readings were not consistently repeated when the initial reading was elevated. A process to ensure rechecking the blood pressure later during the visit if the initial reading is elevated was recommended.

There were gaps in knowledge of the disease process and its relevance to the importance of medication adherence. Most patients were aware that non-adherence could lead to a heart attack or stroke. However, 91% were not aware of the potential of damage to other organs. Teach-back focused on the disease process with medication teaching was recommended to the stakeholders. There were many complaints voiced by patient participants regarding the difficulty in requesting refills from the VA pharmacy. It was observed that participants were also being medically managed by a non-VA provider in addition to being seen at the VA. Participants stated that they felt that requests to fill non-VA prescriptions from their non-VA providers were often changed when filled through the VA pharmacy.

During the project, changes of the medication from a non-formulary to a VA formulary often led to confusion for the participants as the name, dose, and instructions did not match the expected instructions and dose received from the non-VA provider. Collaboration with the PACT pharmacist to discuss medication changes to a VA formulary medication was not regularly utilized. A process to improve collaboration between providers and the team pharmacist to clarify patient medication regimen was recommended. Additionally, the need for the development of a process for medication reconciliation and provision of proper instruction for medication administration led by the team pharmacist also needs to be developed.

The PACT team members voiced a preference for teach-back templates used during the project related to their quick practical use. It is both recommended and practical to develop a patient education template note for interdisciplinary teams to document health literacy and medication adherence results in the patient's EMR. This would provide important historical information regarding what may be a patient safety issue in terms of communication or regimen

adherence. Other interdisciplinary teams could access and use the information to cater their instructions to the patient.

Thus, when a provider or healthcare team suspects that there are gaps in patient comprehension, poor health literacy, or poor adherence, a plan to close the gap should be developed. Health literacy interventions such as teach-back were created for this purpose. Most importantly, healthcare teams should be proactive in developing a plan to evaluate medication adherence and health literacy for all patients seen by them. The method of communication used by healthcare teams to relay patient instruction should not be based on assumptions but on assessments and evaluations. Implementation of teach-back accompanied with health literate disease management written materials should be used by all healthcare team members. Combining teach-back and written patient education is important to elicit patient communication that is directly related to self-advocacy of medication administration, knowledge of side effects, and prevention or minimizing the effects of chronic disease progression through treatment instructions. Consistency is germane in the application of teach-back to breakthrough health literacy and non-adherence barriers.

Conclusively, there are very few studies that aim to evaluate health literacy and medication adherence consistently. There were not any studies that evaluated the cause and effect of health literacy and medication adherence as co-variables, even though both are required at an adequate level for treatment adherence and outcomes. Teach-back is a tool that can be used in small time increments in an outpatient setting to clarify comprehension and close communication gaps. Time constraints were assumed to be a factor in the inconsistent use of teach-back in the clinic setting. The length of patient visits and time factored in for provider to

patient discussions was not evaluated during this project. However, provider-to-patient clinic visit time constraints should also be analyzed as a factor when evaluating adherence.

Patient safety and medication adherence are just a segment of ongoing continuums in healthcare that need continual evaluation via peer-reviewed studies. Robust studies are needed regarding health literacy interventions and the impact that literacy has on medication adherence. However, until interest in this particular area increases, practical and consistent use of teach-back can be the catalyst used to ensure that patients comprehend, retain, and carry out instructions at home and to promote effective chronic disease management.

A very small group of patient participants was a limitation during the implementation of this project. A future recommendation is to recruit a larger group of participants from various age groups to enhance and support the clinical significance of the data outcomes. Recommendations developed as a result of this project provide introductory data that can be useful for further development and implementation of collaborative healthcare team health literacy intervention curricula. Healthcare teams with invested stakeholders are needed to work together to develop clinic formats that can be used in outpatient clinics to close the gaps in health literacy and adherence and promote effective blood pressure control and chronic disease management.

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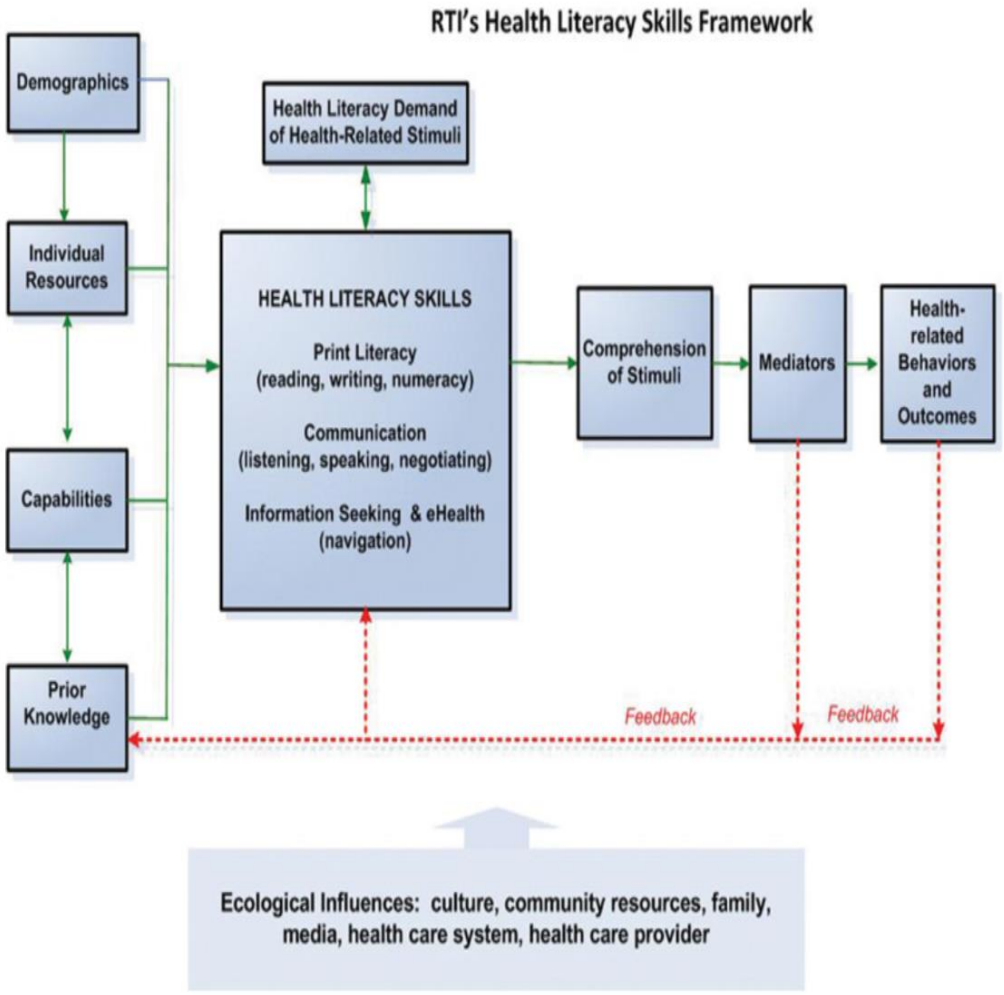
Appendix A

RTI's Health Literacy Skills Framework



(Squiers et al., 2012)

Appendix B

Always Use Teach Back!

UnityPoint Health (formerly Iowa Health System)

Des Moines, Iowa, USA

The Always Use Teach Back! tools can be used to confirm patient understanding of care instructions by asking patients to repeat the instructions using their own words. An extensive suite of tools is available for download from IHI.org (below), and more information is available at www.teachbacktraining.com.

Background

This content was initially created as part of the Picker Institute's Always Events Program. Always Events refer to aspects of the patient experience that are so important to patients and families that health care providers should reliably implement the events 100 percent of the time.

Permissions

Authors offer full permission to use and adapt these tools with attributions noted on each tool. For more information contact Gail Nielsen at gail.a.nielsen@gmail.com. The tools are in use around the globe and we hope that you will share any additional evidence of usefulness with us.

DOCUMENTS

- 10 Elements of Competence for Using Teach Back Effectively
- Always Use Teach Back Coaching
- Always Use Teach Back Conviction and Confidence Scale
- Making Teach-Back an Always Event

Appendix C

Using the Teach-back Training Toolkit

Home | Using the Teach-back Toolkit | Interactive Learning Module | Coaching to Always Use Teach-back | To Learn More | Acknowledgements

Using the Teach-back Toolkit

Print This Page

Tools and Videos

Using the Toolkit (VIDEO)

This toolkit includes:

- A description of teach-back and 10 Elements of Competence for Using Teach-back Effectively (PDF).
- An Interactive Teach-back Learning Module enabling learners to identify and use key aspects of plain language and teach-back throughout the care continuum, by following a patient's experience during hospital discharge through the home health and primary care settings.
- Coaching to Always Use Teach-back with tips and tools to help managers and supervisors empower staff to always use teach-back.
- Readings, resources, and videos To Learn More.

How Do I Use the Toolkit?

If you are working to improve your own use of teach-back:

Use the toolkit to build your knowledge and expertise in always using teach-back to make sure you were clear, and patients and families understand.

1. Look at the tools that tell about teach-back and how to move from old habits of traditional patient education to new habits of checking for understanding with teach-back.
2. Work through the Interactive Teach-back Learning Module (about 45 minutes).
3. Start using teach-back with your next patient.
4. Check how well you did using the Observation Tool (PDF).
5. Try again and build your confidence!

If you are coaching others to always use teach-back:

Appendix D

Invitation to Join

ATTENTION: Participants Needed for an Academic Project

A Quality Improvement Project: Evaluation of Teach-Back Training on Medication Adherence in Hypertensive Older Veterans

Hello, I am conducting a project to evaluate communication with providers and how it affects taking blood pressure medication.

To participate in this project, you must be:

- a veteran age 65 to 75 years old
- have blood pressure readings > 150/90
- taking at least three blood pressure medications

Project location: The project will take place at the Veterans Administration Primary Care Clinic located at 1436 North Jefferson Street, Jacksonville, FL 32209.

Contact Information:

If you are interested in participating, or would like more information, please contact:

Chelsea Hall-McArthur, BSN, RN
Doctor of Nursing Practice Family Nurse Practitioner Graduate Student
(904) 803-7164

Dr. Kines, DNP, FNP-B.C.
Faculty Advisor
(904) 256-8944
Jacksonville University
2800 University Blvd. N.
Jacksonville, FL 32211 (904) 256- 7600

This research is being conducted under the direction of [Chelsea Hall-McArthur, BSN, RN/Doctoral Student, Jacksonville University], and has been reviewed and approved by the Jacksonville University Institutional Review Board (JU IRB #1376463-1)

Appendix E

Realm-SF Form

REALM-SF Form

Patient name _____ Date of birth_____ Reading level_____

Date _____ Examiner _____ Grade completed _____

Menopause	☐
Antibiotics	☐
Exercise	☐
Jaundice	☐
Rectal	☐
Anemia	☐
Behavior	☐

Instructions for Administering the REALM-SF

1. Give the patient a laminated copy of the REALM-SF form and score answers on an unlaminated copy that is attached to a clipboard. Hold the clipboard at an angle so that the patient is not distracted by your scoring. Say:

   "I want to hear you read as many words as you can from this list. Begin with the first work and read aloud. When you come to a word you cannot read, do the best you can or say, 'blank' and go on to the next word."

2. If the patient takes more than 5 seconds on a word, say 'blank' and point to the next word, if necessary, to move the patient along. If the patient begins to miss every word, have him or her pronounce only known words.

Scores and Grade Equivalents for the REALM-SF

Score	Grade Range
0	Third grade and below; will not be able to read most low-literacy materials; will need repeated oral instructions, materials composed primarily of illustrations, or audio or video tapes
1-3	Fourth to sixth grade; will need low-literacy materials, may not be able to read prescription labels
4-6	Seventh to eighth grade; will struggle with most patient education materials; will not be offended by low-literacy materials
7	High school; will be able to read most patient education materials

Appendix F

Permission to use REALM SF Use Email

I am delighted you want to use the REALM SF Terry

Terry C. Davis, PhD
Professor - Departments of Medicine, Pediatrics, & Feist-Weiller Cancer Center Louisiana State University Health Sciences Center
1501 Kings Highway
Shreveport, LA 71130
Phone: 318-675-8694
Fax: 318-675-4319
E-mail: tdavis1@lsuhsc.edu

From: Hall-McArthur, Chelsea <calbrig@jacksonville.edu> **Sent:** Sunday, March 10, 2019 1:02 PM
To: Davis, Terry <tdavis1@lsuhsc.edu>
Subject: Request for permission to use (REALM-SF)

EXTERNAL EMAIL: EVALUATE

Greetings Dr. Davis, my name is Chelsea Hall-McArthur, and I am a Doctor of Nursing practice student with a concentration in family practice at Jacksonville University. Currently, I am working on my DNP capstone project, and I plan to evaluate the effectiveness of virtual medical room visits to monitor adherence in hypertensive patients that are 65 and older. I would also like to assess the health literacy of each participant. I am emailing you to request permission to use your quick assessment tool, the Rapid Estimate of Adult Literacy in Medicine—Short Form (REALM-SF), which aligns perfectly with my DNP project. I would really like to use your tool as a way to correlate adherence and health literacy. I would, of course, properly reference your tool in my paper if you grant me permission to use it. Please let me know if you are willing to allow me to use your tool and any other thoughts or suggestions that you may have. I look forward to hearing from you.

Kind regards,

Chelsea Hall-McArthur

FNP/DNP student

Jacksonville University

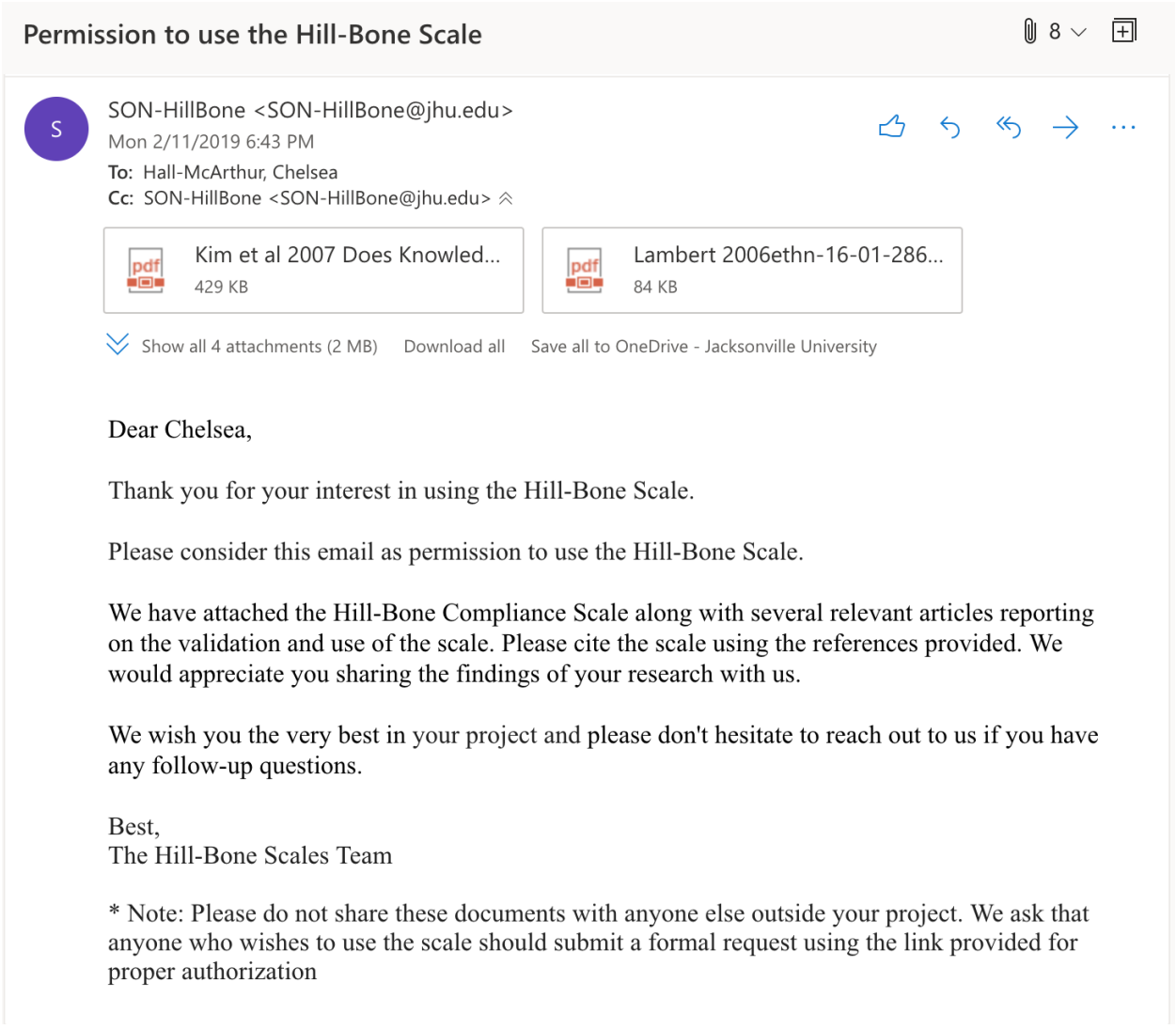
Appendix G

Hill-Bone Medication Adherence Scale (HB-MAS)

No.	Item	Response: 1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time
1	How often do you forget to take your **high blood pressure** medicine?	
2	How often do you decide NOT to take your **high blood pressure** medicine?	
3	How often do you forget to get prescriptions filled?	
4	How often do you run out of **high blood pressure** pills?	
5	How often do you skip your **high blood pressure** medicine before you go to the doctor?	
6	How often do you miss taking your **high blood pressure** pills when you feel better?	
7	How often do you miss taking your **high blood pressure** pills when you feel sick?	
8	How often do you take someone else's **high blood pressure** pills?	
9	How often do you miss taking your **high blood pressure** pills when you are careless?	

Appendix H

Permission to Use the Hill-Bone Scale



Permission to use the Hill-Bone Scale

8

S

SON-HillBone <SON-HillBone@jhu.edu>
Mon 2/11/2019 6:43 PM
To: Hall-McArthur, Chelsea
Cc: SON-HillBone <SON-HillBone@jhu.edu>

Kim et al 2007 Does Knowled...
429 KB

Lambert 2006ethn-16-01-286...
84 KB

Show all 4 attachments (2 MB) Download all Save all to OneDrive - Jacksonville University

Dear Chelsea,

Thank you for your interest in using the Hill-Bone Scale.

Please consider this email as permission to use the Hill-Bone Scale.

We have attached the Hill-Bone Compliance Scale along with several relevant articles reporting on the validation and use of the scale. Please cite the scale using the references provided. We would appreciate you sharing the findings of your research with us.

We wish you the very best in your project and please don't hesitate to reach out to us if you have any follow-up questions.

Best,
The Hill-Bone Scales Team

* Note: Please do not share these documents with anyone else outside your project. We ask that anyone who wishes to use the scale should submit a formal request using the link provided for proper authorization

Appendix I

Teach Back Confidence and Conviction Scale

Fill this out before you start using teach-back, and 1 and 2 months later.
Name:
_____
Check one: Before - Date: _____

1 month - Date: _____

2 months - Date: _____

1. On a scale from 1 to 10, how **convinced** are you that it is important to use teach-back? (Ask patients to explain key information back in their own words.)
   Not at all important Very Important

   1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how **confident** are you in your ability to use teach-back? (Ask patients to explain key information back in their own words.)

   Not at all confident Very Confident

   1 2 3 4 5 6 7 8 9 10

3. How often do you ask patients to explain back, in their own words, what they need to know or do to take care of themselves? (please put a check next to your responses)

   - ☐ I have been doing this for 6 months or more.
   - ☐ I have been doing this for less than 6 months.
   - ☐ I do not do it now, but plan to do this in the next month.
   - ☐ I do not do it now, but plan to do this in the next 2 to 6 months.
   - ☐ I do not do it now and do not plan to do this.

4. Check all the elements of effective teach-back you have used **more than half the time in the past work week.**

- ☐ Use a caring tone of voice and attitude.
- ☐ Display comfortable body language, make eye contact, and sit down.

- Use plain language.
- Ask the patients to explain, in their own words, what they were told.
- Use non-shaming, open-ended questions.
- Avoid asking questions that can be answered with a yes or no.
- Take responsibility for making sure that you were clear.
- Explain and check again if the patient is unable to teach back.
- Use reader-friendly print materials to support learning.
- Document use of and patient's response to teach-back.
- Include family members/caregivers if they were present.

Appendix J

Embedded Teach-Back Medication Education Templates

Hypertension, a.k.a high blood pressure

High blood pressure or hypertension is often treated with lifestyle changes and medications. If your readings are too high, your major organs such as your eyes, heart, and kidneys are at risk for damage that may not be reversible if your blood pressure readings remain too high. Medication adherence is an important factor to maintaining adequate blood pressure control and prevention of end organ damage.

Call 911 if you have:

- Chest pain or pressure
- Facial drooping, sudden slurred speech, or arm weakness
- Difficulty breathing
- Headache or blurry vision can be signs that your blood pressure is too high. Report blood pressure higher than 180/100
- Dizziness or feeling faint may be signs that your blood pressure is too low. Report blood pressure lower than 100/60.

What you can do to stay healthy:

- Take your blood pressure medications as prescribed.
- Check your blood pressure at home.
- Reduce dietary sodium to less than 2400 milligrams per day.
- Increase dietary potassium and calcium (unless told not to by your health care provider).
- Follow the DASH diet (Dash is high in fruits and vegetables, and has reduced saturated and total fat, and low sodium).
- Maintain a healthy weight (goal BMI or body mass index less than 25).
- Walk for at least 30 minutes most days of the week.
- Stop smoking—tobacco cessation is important!!
- Drink alcohol only in moderation (No more than 3 drinks per week for males and no more than 2 drinks per week for females).
- The "top number" or systolic number indicates the pressure in the vessels when the heart beats.
- The "bottom number" or diastolic number indicates the pressure in the vessels when the heart is at rest between beats. This number is the most concerning number because it tells your medical team the constant pressure on these vessels.
- Blood pressure readings that are too high, particularly DBP > 90, can cause damage such as thickening of the heart muscle, coronary artery disease, chronic kidney disease, and other conditions such as heart failure if not controlled (AHAb, 2019).

- Long-standing uncontrolled hypertension can lead to heart damage that is called heart failure. This means your heart "fails" to pump your blood to your body effectively.

<u>Common High Blood Pressure Medication Information</u>

Amlodipine

- Patient instructed/informed on the most commonly reported side effects of **Amlodipine, which is classified as a calcium channel blocker,** and is used to treat hypertension include headache, edema, rash, fatigue, and dizziness.

- This medication could lower your blood pressure too much when you first use it or if you are dehydrated. Stand or sit up slowly if you feel lightheaded or dizzy.

- **Inform provider or nurse** if any of the following side effects continue or are bothersome: Rapid weight gain, swelling in your hands and/or ankles and feet; acid or sour stomach, belching, heartburn, indigestion, lack or loss of strength, muscle cramps, sleepiness or unusual drowsiness, and stomach discomfort, upset, or pain.

- Avoid drinking grapefruit juice while taking this medication. Grapefruit juice interacts with some calcium channel blockers and increases the level of the medicine in your blood.

- **Missed dose—take a dose of your lisinopril as soon as you remember. If it is almost time for your next dose, wait until then and take a regular dose. DO NOT take extra medication to make up for a missed dose.**

- Keep all of your follow-up appointments.

- **Store in a closed container, at room temperature, away from heat, moisture, or direct light as this may affect the potency of the medication.**

Teach Back completed.
Patient **did/did not** recall the information provided correctly.

Lisinopril

- **Lisinopril** is a drug of the angiotensin-converting enzyme inhibitor (ACE inhibitor) class used primarily in treatment of hypertension. ACE is important because it is an enzyme responsible for producing the chemical, angiotensin II.
- **Side effects of Lisinopril include** dizziness due to a drop in blood pressure, trouble breathing, blistering, peeling, red skin rash, confusion, weakness, uneven heartbeat, numbness or tingling in your hands, feet, or lips, dark urine, or pale stools.
- **Missed dose—take a dose of your lisinopril as soon as you remember. If it is almost time for your next dose, wait until then and take a regular dose. DO NOT take extra medication to make up for a missed dose.**
- **Ask your provider before taking supplements or salt substitutes that contain potassium while taking this medication.**

- **Store in a closed container, at room temperature, away from heat, moisture, or direct light as this may affect the potency of the medication.**

Teach Back completed.
Patient **did/did not** recall the information provided correctly.

- **Metoprolol Tartrate** is in a group of drugs called beta-blockers.
- Metoprolol is used to treat high blood pressure and chest pain (angina). It is also used to treat or prevent heart attack.
- Call your provider immediately if you have any of these **serious side effects**: chest pain, pounding heartbeats or fluttering in your chest, feeling light-headed, fainting; feeling short of breath, even with mild exertion, swelling of your hands or feet, nausea, upper stomach pain, itching, loss of appetite, dark urine, clay-colored stools, jaundice (yellowing of the skin or eyes), easy bruising, unusual bleeding (nose, mouth, vagina, or rectum), purple or red pinpoint spots under your skin, wheezing, trouble breathing.
- **Less serious side effects** may include dry mouth, constipation, heartburn, vomiting, diarrhea, headache, drowsiness, tired feeling, sleep problems (insomnia), or anxiety, nervousness. **Do not suddenly stop taking metoprolol tartrate**. Sharp chest pain, irregular heartbeat, and sometimes heart attack may occur if you suddenly stop metoprolol tartrate. The risk may be greater if you have certain types of heart disease. (AHA, 2018)

Teach Back completed.
Patient **did/did not** recall the information provided correctly.

Metoprolol

- **Metoprolol** is used for treating high blood pressure, heart pain, abnormal rhythms of the heart, and some neurologic conditions; it reduces the force of contraction of heart muscle and thereby lowers blood pressure.
- **Side effects to report** to your provider when taking **Metoprolol** include diarrhea, constipation, fatigue, insomnia, nausea, depression, memory loss, fever, lightheadedness, slow heart rate, low blood pressure, cold extremities, sore throat, and shortness of breath or wheezing.
- If you experience any of these side effects, or if your blood pressure readings at home are > 160/90 or < 90/60, notify your health care provider.

Teach Back completed. Patient **did/did not** recall the information provided correctly.

Hydrochlorothiazide

Hydrochlorothiazide is a medication indicated for edema and hypertension. It is a diuretic that reduces fluid volume overload which, in turn, lowers blood pressure.

Side effects of this medication include dizziness, dehydration, weakness, pancreatitis, anemia, and nausea.

Hydralazine

- **Hydralazine** relaxes and expands blood vessels and is used to treat high blood pressure (hypertension).
- **Side effects** of this medication include dizziness, drowsiness, headache, constipation, loss of appetite, fatigue, and nasal congestion; these effects may occur as your body adjusts to the medication.
- To avoid dizziness and lightheadedness when rising from a seated or lying position, get up slowly.
- **Drink 8-10 cups of water per day while taking this medication.**
- **Drink plenty of fluids if you exercise, sweat more than usual, or are experiencing diarrhea and/or vomiting.**
- Tell your provider if you develop chest pain, muscle pain, swelling of the hands or feet, yellowing of the eyes/skin, joint pain, or a change in the amount of urine.
- This drug may cause numbness or tingling of the fingers and toes. If this occurs, notify your provider immediately.
- **Symptoms of an allergic reaction** include rash, itching, swelling, dizziness, and/or trouble breathing and should be reported immediately for prompt treatment.

Teach Back completed.
Patient **did/did not** recall the information provided correctly.

Appendix K

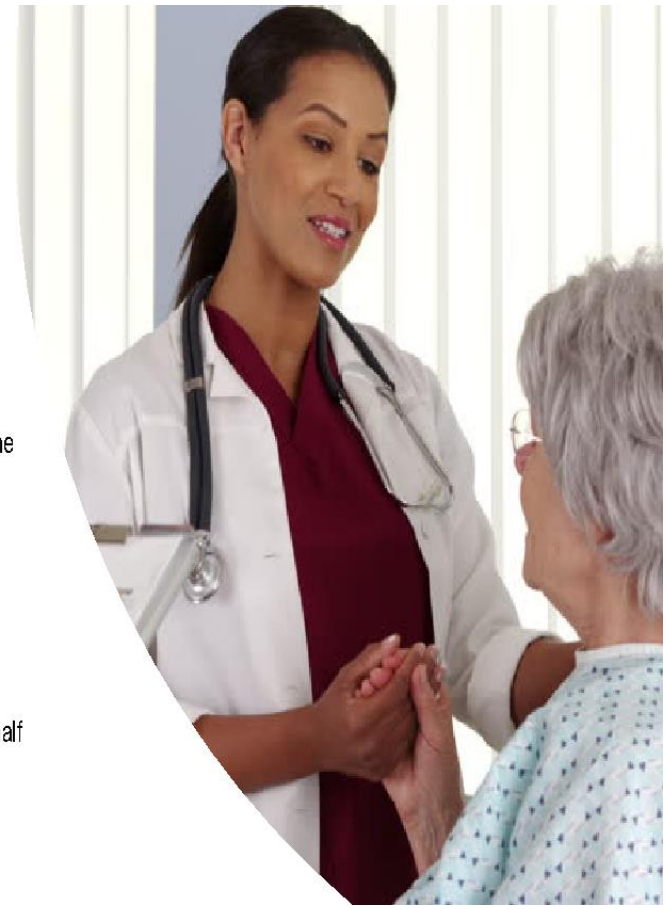
Teach-Back Poster for Exam Rooms

Remember to

Always Teach Back!!!

S – Share the information
A – Ask or assess understanding by asking questions that place the focus on the your ability to provide the information
L – Listen to the response
S – Share the information again if needed – using different vocabulary. Consider relevance.
A – Ask again

Why is teach-back important? Evidence suggests that patients forget up to 80% of what you tell them. If they do remember, only half of what they remember is correct.



Appendix L

IRB Consent Form

Office of Research & Sponsored Programs
JACKSONVILLE UNIVERSITY

INSTITUTIONAL REVIEW BOARD (IRB):

INFORMED ADULT CONSENT FORM

Project Summary

Title of the Project: A Quality Improvement Project: Evaluation of Teach Back Training on Medication Adherence in Older Hypertensive Veterans

Principal Investigator: Chelsea Hall-McArthur, BSN, RN Jacksonville University

Faculty Advisor: Erica Kines, DNP, FNP-BC, Jacksonville University

Study sponsor (applicable to external/sponsored funded projects): N/A

You are invited to join in on a scholarly project. To join the project, you must be 65-75 years old, and a patient at the VA clinic that is being treated for high blood pressure. You must be able to speak and read English, and not have vision or hearing problems that affect your ability to read and understand directions. You must not have a brain condition that prevents the ability to provide informed consent, and/or have a history of heart attack, kidney disease, or stroke. Participation in this project is voluntary.

The purpose of the project is to assess the use of using the teach-back method to improve taking blood pressure medication as prescribed and to improve blood pressure control in older adult patients with high blood pressure.

If you agree to take part in this project, you will be asked to join in a communication technique, called teach-back. After your blood pressure medication management classes, you will receive a follow-up phone call from a PACT team member or the Project Lead. You will receive a total of 4 phone calls, one every 2 weeks over an 8-week time frame. During the phone calls the Project Lead or PACT team member will ask you about your blood pressure medication. We estimate that your time in this project will be about 8 weeks. If you decide to take part in the project, you will be asked to answer two questionnaires before the project starts. The questionnaires are about taking your medication as prescribed and health care knowledge. Also, I will be collecting: your age, sex, level of education, and number of blood pressure medications currently prescribed. Blood pressure readings will also be taken at the start and at the end of the project.

The data/information that you provide will not be linked or stored in your electronic medical chart; the data will not be identifiable because your name, date of birth, social security number, or any other identifying information will not be asked.

There are some risks and or discomforts that you might experience from being in this project. The risk that you may experience, at a minimum, is a breach of privacy and/or confidentiality.

You may or may not benefit directly from being in this project. Others might benefit because there may be improvement in management of blood pressure and/or medication taking. You might benefit from being in this project because there may be improvement in blood pressure, medication taking, and communication with your provider.

If you decide to take part in the project, it should be because you really want to volunteer. You will not lose any services, benefits, or rights you would normally have if you choose not to volunteer. If you are a patient, nothing about your medical status or services will change, no matter what you decide.

If you are interested in learning more about the project, please continue to read below. If you are not interested, stop here.

Thank You.

Office of Research & Sponsored Programs
JACKSONVILLE UNIVERSITY

INSTITUTIONAL REVIEW BOARD (IRB):

INFORMED ADULT CONSENT FORM

READABILITY SCORE: 9.4

PARTICIPANT'S NAME (Print): _____

TITLE OF THE RESEARCH STUDY: A Quality Improvement Project: Evaluation of Teach Back Training on Medication Adherence in Older Hypertensive Veterans

PROJECT LEADS:

Responsible Primary Lead: Erica Kines, DNP, FNP-BC, Jacksonville University
Faculty Advisor
(904) 256-8944
Jacksonville University
2800 University Blvd. N.
Jacksonville, FL 32211

Project Lead: Chelsea Hall-McArthur, BSN, RN, calbrig@jacksonville.edu (904) 803-7164

PROJECT LEAD'S STATEMENT:
We are asking you to be in a scholarly project. The purpose of this consent letter is to give you the information you will need to help you decide whether or not to participate. Please read this form carefully. You may ask questions about the purpose of the project, the possible risks and benefits, and anything else about the project or this form that is not clear. When we have answered all your questions, you can decide if you want to be in the project or not. This process is called "informed consent." We will give you a copy of this form for your records.

THE PURPOSE OF THE PROJECT: The purpose of this project is to use the teach-back method to improve blood pressure medication adherence and improve blood pressure in a group of patients with high blood pressure.

PROCEDURES:
You will be asked to participate in receiving a communication technique, called teach-back, which the DNP project lead and medication management team will use after your medication management classes during follow-up phone calls. We expect that your involvement in this QI project will be approximately 8 weeks, consisting of follow-up phone call every 2 weeks to review your blood pressure medications, where will discuss each medication, the right time to take each

blood medication, the right dose of each blood pressure medication and common side effects. Before participating in the scholarly project, you will be asked to answer two questionnaires. The first questionnaire is the Hill-Bone Medication Adherence consists of nine questions which will be used to assess how consistent you when taking your blood medication as prescribed. The second questionnaire is REALM-SF (short form). The REALM-SF consists of seven common words in healthcare that will be used to assess communication with providers.

About 50 adult participants will take part in the project.

If you decide to be in the project, the Project Lead will collect the following information: demographic information, health literacy score, pre and post intervention blood pressure, and blood pressure medication adherence score.

I will not be using any of the de-identified data in future research.

If you have any questions now or at any time during the study, you may contact anyone listed under Project Leads.

BENEFITS OF THE PROJECT: You may benefit from being in this project. You may benefit through improvement in care and increased knowledge about hypertension, and an improvement in your blood pressure readings.

No promise or guarantee of benefits has been made to encourage your participation.

RISKS OF THE PROJECT: The risks of taking part in this project are: loss of confidentiality. There are always risks, even if only the possible loss of confidentiality. This project will not have any additional risk than this activity normally would.

To minimize risks associated from being part of the project, all data collected will be de-identified, with exception of this consent form. All data will be stored in a password/fingerprint-protected computer; only anonymized data will be shared between key stakeholders in this project, and only shared in an encrypted format.

IN THE CASE OF INJURY OR ADVERSE EFFECTS: Please contact the Project Leads of this project immediately, but also in the case of emergency, please seek medical attention. Jacksonville University has not set aside funds for any medical costs, damages, or other financial loss incurred from this project. The only exception is if it is proved that the negligence of a Jacksonville University employee has directly caused your injury or illness. “Negligence” is the failure to follow a standard duty of care.

If you become ill or injured from being in this study, your insurer may be billed for your treatment costs. If you do not have insurance, or if your insurer does not pay, then you would have to pay these costs. If you believe you have become ill or injured from this research, you should contact Chelsea Hall-McArthur at (904) 803-7164 (24-hour cell number). You should also let any healthcare provider who treats you know that you are a participant in a quality improvement study.

COSTS / COMPENSATION: You do not have to pay anything for taking part in this project.

ALTERNATIVE TO BEING IN THE PROJECT: The alternative to taking part in this project is not to participate. The alternate standard care with your PACT team providers is available if you choose not to participate in the project.

CONFIDENTIALITY: Records or data obtained as a result of your participation may be inspected by the Project Leads and/or The Jacksonville University's Institutional Review Board. However, they are legally obligated to protect any identifiable information from public disclosure, except where disclosure is otherwise required by law or a court of competent jurisdiction. These records will be kept private insofar as permitted by law. Also, other Jacksonville University officials have the legal right to review quality improvement/research records, and they will protect the secrecy (confidentiality) of these records as much as the law allows. Otherwise, your records will not be released without your permission unless required by law or a court order. However, if we learn that you intend to harm yourself or others, we must report that to the authorities.

I plan to publish the results of this project. To protect your privacy, I will not include any information that may identify you. To protect your privacy, I plan to collect information for this project anonymously. Your consent, which contains your name, will be stored separately from the data collected for this project in a locked cabinet which only the Project Lead has access to for 3 years. The original paper consent will be immediately destroyed in an industrial shredder. All electronic data will be destroyed at the conclusion of the project.

I will not keep your research data to use for future research or other purposes. Your name and other information that can directly identify you will be deleted from the data collected as part of the project.

To conduct this project, I would need access to your electronic medical record to review your blood pressure readings and blood pressure medication. During the project the PACT medication management team and the Project Lead will access only the medical information that pertains to the project and to document a follow-up note after each biweekly teach-back phone call.

CONFLICT OF INTEREST: In general, presenting study results helps the career of a scientist. The Project Leads may benefit if the results of this project are presented at scientific meetings or published in scientific journals.

RIGHT TO PARTICIPATE OR WITHDRAW: You are free to stop taking part in this project at any time without penalty and without losing any benefits. You will be provided, as applicable, with any significant new findings developed during this project that may relate to your participation.

If you decide to stop taking part in this project for any reason, you should contact Chelsea Hall-McArthur, BSN, RN at (904) 803-7164. If you choose to tell the Project Lead why you are leaving the study, your reasons may be kept as part of the project record. If you decide to withdraw from the project, it may be impossible to exclude the data that has already been collected. In addition,

Project Leads may keep and use data collected before your withdrawal, including Protected Personally Identifiable Information (PPII), as long as the uses are consistent with the project purpose and procedures as described in the IRB application and consent documents. If you have any questions regarding your rights as a scholarly project participant, you may call the JU Office of Research & Sponsored Programs at (904) 256-7151.

You may be withdrawn from the project without your consent for the following reasons: You do not meet the eligibility criteria.

CONSENT TO PARTICIPATE: You have been informed about this project's purpose, procedures, possible benefits, and risks; and the alternatives to being in the project. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. I understand that my consent does not take away any legal rights. I further understand that nothing in this consent form is intended to replace any applicable Federal, state, or local laws.

By signing this form, you voluntarily agree to take part in this project. You are not waiving any of your legal rights. You will receive a copy of this form.

"I give permission to the Project Lead(s) to use my medical records as described in this consent form."

Participant's Name Printed	Participant's Signature	Date

Person Obtaining Consent and Authorization:

Name Printed	Signature	Date

Form Created on 1/17/2019
Form Revised on 09/25/2019

Appendix M

Financial Cost of QI project

Itemized Need	Maximum Anticipated Cost
(10) Pens with Always Teach-Back inscribed @ $3.50 each	$35.00
(10) laminated instructions for applying teach-back @ $0.42 each	$4.20
Always Teach-Back Confidence and Conviction Survey Questionnaire 10 @ $0.42 Breakfast for (10) @ breakfast and learn (4) Always teach-back posters 36x24 @ $19.99 (50) Informed consent forms @ $0.42	$4.20 $50.00 $80.00 $21.00
(1) Printed and laminated REALM-SF @ $0.42	$0.42
(1) Printed and laminated Hill-Bone Hypertension Medication Adherence Scale @ $ 0.42	$0.42
Editorial review of DNP proposal	$510.00
Total Cost	$705.24