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A Quality Improvement Initiative to Increase Hypertension Treatment Adherence Among Hispanic Patients With Limited English Proficiency

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A QUALITY IMPROVEMENT INITIATIVE TO INCREASE HYPERTENSION
TREATMENT ADHERENCE AMONG HISPANIC PATIENTS
WITH LIMITED ENGLISH PROFICIENCY

by

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Abstract

The purpose of this project was to improve hypertension treatment adherence among limited English proficient Hispanic patients with uncontrolled hypertension. Limited English Proficiency significantly reduces hypertension control among Hispanics by diminishing their understanding of hypertension diagnosis, treatment adherence, and complications. A language sensitive education session focusing on antihypertensive medications, reduced sodium intake, and appointment keeping was implemented among limited English proficient Hispanic patients 21 to 85 years of age, with uncontrolled hypertension, receiving care at a federally funded south San Antonio clinic. The Hill-Bone Compliance to High Blood Pressure Therapy Scale was utilized to measure adherence in the following domains: medication, low sodium diet, and appointment keeping. At the end of the project, 30 patients completed the intervention. Baseline characteristics were similar for the group. After 10 weeks, hypertension control improved by 7%, the mean systolic blood pressure decreased by 5.44 mmHg, and mean diastolic blood pressure decreased by 2.57 mmHg. Results of paired *t*-tests showed statistical significance between pre- and post-intervention scores for medication adherence ($M = 6.47$, $SD = 4.20$, $t(29) = 8.45$, $p < .05$), low sodium diet adherence ($M = 3.60$, $SD = 2.47$, $t(29) = 7.98$, $p < .05$), and appointment keeping adherence ($M = 2.50$, $SD = 1.72$, $t(29) = 7.98$, $p < .05$). The intervention led to significant improvements in hypertension control among limited English proficient Hispanic patients, supporting the need for language sensitive patient education in the clinical setting.

Keywords: Hispanics, English limited proficiency, hypertension, patient education

Limited English proficiency (LEP) is a known risk factor for suboptimal care, increased health care costs, and adverse patient outcomes. According to Betancourt, Renfrew, Green, Lopez, and Wasserman (2012), LEP causes high readmission rates, extended hospital stays, and increased number of surgical and peripheral infections. In 2015, approximately 26 million people in the United States were considered limited English proficient and 60% of this population was Hispanic or Latino (Batalova & Zong, 2016). The effects of LEP in the Hispanic population are devastating; Hispanics with LEP experience poor access to care, incur unnecessary health care costs, and are unable to comply with treatment for chronic diseases like hypertension (HTN) (E.J.Kim et al., 2017; G. Kim, 2011).

In the 2011-2014 National Health and Nutrition Examination Survey, approximately 26% of Hispanics suffered from hypertension (HTN) and 52.6% of Hispanics had uncontrolled HTN (Yoon, Fryar, & Carroll, 2015). HTN increases the risk for developing coronary heart disease, cardiovascular disease, and cerebrovascular accidents. In 2016, approximately 7% of Hispanics suffered from coronary heart disease, 3% of Hispanics suffered myocardial infarctions, and approximately 3% of Hispanics had a cerebrovascular accident (Mozaffarian et al., 2015). It is estimated that by 2030, Hispanics will experience the highest increase in cerebrovascular accidents when compared to other races (Mozaffarian et al., 2015). Therefore, it is critical to improve HTN control among Hispanic patients to reduce mortality and morbidity. In this population, several factors are responsible for poor HTN control. These factors include poor access to care, complex medication regimes, poor patient self-monitoring, ineffective patient-provider communication, lack of health care provider counseling, and LEP (Matthes & Albus, 2014; Rash, Lavoie, Feldman, & Campbell, 2014). Even though all these factors negatively

affect Hispanic patients' ability to comply with treatment, LEP has one of the most significant effect of all (Freeman, 2012). Yet, LEP is frequently overlooked in the clinical setting.

Statement of the Problem

The rate of uncontrolled HTN is high among LEP Hispanic patients receiving primary care at a federally funded south San Antonio clinic. Ninety five percent of LEP Hispanics receiving services at the clinic suffer from HTN and only 68% of these patients have their HTN under control. E.J. Kim et al. (2017) state that Hispanic hypertensive patients with LEP do not understand HTN diagnosis, prognosis, and the importance of medication compliance and lifestyle modifications (E.J. Kim, et al., 2017). Hispanic patients with LEP may not keep follow-up appointments, follow care instructions, and may ignore recommended health screenings due to language barriers. LEP patients tend to be less educated than those that are English proficient, are likely to live in poverty, and are less likely to have health insurance (Batalova & Zong, 2016). Studies have shown that teaching LEP Hispanic patients in Spanish improves treatment adherence, increases knowledge, and potentially reduces HTN related mortality and morbidity (Davis et al., 2015; Ockene et al., 2012).

While the clinic's staff recognizes the role of language in increasing compliance with HTN treatment among LEP patients, little effort has been made to address language needs in this patient population. The clinic offers only the minimum federal required for language services, which consists of telephonic interpreter services and bilingual staff members. However, the leadership lacks oversight of the language services, and there is no quality assurance program to monitor such services. Furthermore, no effort has been made to develop any kind of language sensitive intervention in order to increase HTN adherence among Hispanic patients with LEP. Therefore, providing language sensitive education is paramount in increasing HTN treatment

adherence to prevent HTN related complications such as renal failure, cardiovascular disease, and death.

Background and Significance

Batalova and Zong (2016) describe a limited English proficient individual as, “any person aged 5 and older who reported speaking English less than very well” (p. 1). In 2015, 9% of the American population was categorized as suffering from LEP (Batalova & Zong, 2016). The highest concentrations of LEP individuals were found in cities with large populations of immigrants, such as Florida, California, New York, Illinois, New Jersey, and Texas (Batalova & Zong, 2016). As the number of LEP individuals continues to increase, LEP should be a priority when addressing health care needs in this vulnerable population. According to The Joint Commission (2011), approximately 49.1% of LEP patients experience adverse outcomes that range from mild bodily harm to death.

The detrimental effects of LEP are well known to the American health care system. Efforts attempting to address LEP can be traced back to the Civil Rights Act of 1964, which directed health care facilities receiving federal funding to provide language access services to patients with LEP (U.S. Department of Health & Human Services, 2000). In 2000, president Bill Clinton made the significance of addressing LEP in vulnerable populations publically known, by issuing executive order 13166 (U.S. Department of Health & Human Services, 2000). This executive order made it mandatory for federal health care agencies to assess, develop, and implement language services for LEP patients (U.S. Department of Health & Human Services, 2000). Throughout the years, many organizations have become actively engaged in addressing LEP within the Hispanic population. Some states have created their own medical interpreter certification programs, such as in the state of California (<http://www.chiaonline.org>). Other states

have adopted the medical interpreter certification program designed by the National Board of Certification for Medical Interpreters (<http://www.certifiedmedicalinterpreters.org>). Despite these efforts, LEP patients continue to experience poor health outcomes. The unsuccessful resolution of LEP seems to be a result of nonexistent language federal regulations, lack of standardized language services in health care organizations, limited financial incentives, and health care workers' limited knowledge of LEP. Ngai et al. (2016) reported that language services were provided for less than 25% of LEP patients during emergency room visits. Michalec, Maiden, Ortiz, Bell, and Ehrental (2015) reported that some health care providers choose not to use approved language services when treating LEP patients. Instead, they use smart phones, the Internet, and hand gestures to communicate with LEP patients (Michalec et al., 2015).

Even though LEP negatively affects individuals from all races, it is imperative to recognize Hispanics as major victims of LEP. Batalova and Zong (2016) state that approximately 64% of the total LEP population speaks Spanish. According to G. Kim et al. (2011), Hispanics with LEP are likely to receive less health education, misunderstand health instructions, have limited access to care, and experience low health literacy. As a result, LEP Hispanic patients have shown to have poor medication adherence and inadequate chronic disease management (G. Kim et al., 2011). HTN is a common diagnosis affecting Hispanic patients, and it is estimated that approximately 57% of Hispanics have uncontrolled HTN. E. J. Kim et al. (2017) suggest that LEP directly influences adherence to HTN treatment in the Hispanic population.

Assessment

Description of the Organization

This federally qualified center provides adult primary care services to residents living in the south side of San Antonio, Texas. The clinic is part of a regional nonprofit health care network, rendering services to insured and uninsured individuals. The clinic primarily offers scheduled and same day visits, with appointments lasting approximately 15 to 20 minutes depending on the complexity of the patient. The clinic provides services in teams that include a provider (physician, family nurse practitioner, or physician assistant) and a medical assistant (MA). Currently, the clinic employs one supervising physician, one family nurse practitioner, one physician assistant, and three MAs. Each provider typically sees approximately 28 patients per day. There is also clinic manager who oversees daily operations, and is responsible for handling patient complaints. The clinic uses an electronic record system to track patient care, documenting the following quality measures: weight screening, tobacco use screening, pharmacological treatment for asthma, depression screening, lipid lowering therapy, ischemic vascular disease, colorectal and cervical cancer screening, and HTN control. Lastly, the clinic offers telephonic interpreter services and hires bilingual staff members. As of now, the clinic has one bilingual provider and two bilingual MAs.

Approximately 90 patients per day visit the clinic. In the past 6 months, the clinic rendered services to 11,119 patients; 70% were females and 30% were males. The patient population predominantly consists of Hispanics (96%), White (3%), and other races (1%). Approximately one-third of the patients are uninsured. The majority of patients suffer from HTN, diabetes, and hyperlipidemia. Additionally, the clinic identified cardiology, podiatry, and ophthalmology as the top referrals obtained for this patient population.

Assessment Results

After assessing the organization's current practices, the Doctor of Nursing Practice (DNP) student arrived at the following results. First, there is daily interaction between LEP patients and clinic staff via face-to-face contact, telephone, and electronic correspondence. Second, the clinic has a poor assessment process in place to identify LEP patients. The staff does not collect data on the number of LEP patients the clinic serves. Furthermore, there is no data on the top most frequently encountered non-English languages among the patient population served.

Third, the clinic offers telephonic interpreter and in-house uncertified interpretation services for LEP patients. The organization has a limited tracking system to collect language usage, cost, and patient language preferences. There is no language certification or assessment process for potential interpreters/translators currently in place, and it is commonplace for a patient's family members and friends to serve as interpreters during appointments and consultations. Moreover, very few of the clinic's documents have been professionally translated, such as consent forms, notice of rights, notice of denial, and intake forms.

Fourth, the organization does not offer staff training on how to access and provide language assistance services to LEP individuals. Additionally, the organization does not have a staff handbook including instructions related to providing language services to LEP patients. Staff members are only informed of which number to call in case a patient needs language services. Lastly, the staff is not trained on how to request translation of written documents, such as education handouts, into other languages.

Fifth, the organization has an outdated written language policy, which was last reviewed in 2011. Furthermore, there is no language access coordinator, as the operations and business office handle all language related activities, such as paying for language services and securing

contracts with language service vendors. For the last five years, Language Line Solutions have provided language services at the clinic, and there is no quality assurance program in place to assess effectiveness, patient satisfaction, and grievances with existing language services.

Sixth, there is no indication that the staff have endeavored to focus on identifying barriers to HTN adherence, especially among LEP patients. Seventh, there is no comprehensive process in place to educate patients. During visits, providers discuss treatment with patients briefly due to time constraints and give patients a copy of the visit with treatment plan instructions.

Unfortunately, all treatment plan instructions are written in English. Eighth, the clinic does not have any HTN related performance improvement initiatives.

Overall, the clinic's current state supports the need for the proposed intervention. There is a high probability that LEP patients do not comply with HTN treatment because their language needs are not being addressed in their plan of care. The clinic receives federal funding for language services, yet it lacks the infrastructure and processes to effectively deliver these services. In addition, the clinic's staff have identified HTN control as a priority; however, it has not developed any evidence practice intervention to address the issue. Furthermore, stakeholders and the leadership seem supportive of the proposed change. They are committed to investing time, resources, and efforts to ensure its successful implementation. Most importantly, the stakeholders and leadership share a common goal, to provide comprehensive and culturally competent patient care.

Readiness for Change

In order to assess change readiness in the clinic, the DNP student interviewed all staff members and completed the Practice Improving Capacity Rating Scale created by the Robert Wood Foundation (see Appendix A). This tool has been validated and widely used in ambulatory

settings to assess change readiness (Robert Wood Johnson Foundation, 2014). The tool consists of 15 questions that cover the following areas: financial resources, leadership support, competing priorities, communication, infrastructure, community resources, quality improvement, data reliability, meaningful use, informational technology, and data reporting (Robert Wood Johnson Foundation, 2014). Participants answer questions by selecting either a red, yellow, or a green answer. Once participants complete the tool, interviewers calculate the overall total. The overall readiness level is determined as follows: red (0-99 points), yellow (100-249 points), and green (250 or greater). Furthermore, red indicates that the practice is not ready for change; yellow indicates that the practice has limited capacity for change; and green indicates that the practice is ready for quality improvement work (Robert Wood Johnson Foundation, 2014). After the DNP computed staff members' scores, the clinic scored 300 points, which indicated that the clinic was ready for change.

Additionally, when observing the clinic and interacting with staff members, the clinic seems ready to implement this intervention. Staff members are actively engaged in the collection of HTN data, and are interested in improving HTN treatment adherence among patients with LEP. Staff members recognize the need to improve education for LEP patients, and seem open to the proposed intervention. The leadership recognizes that existing language services are not effective in addressing patients' language needs and is interested in discussing quality and patient outcomes. Furthermore, the leadership is interested in changing current practice and implement an evidence-based intervention. Additionally, leadership is willing to invest time, resources, and personnel to assist with the implementation of the intervention. As of now, the clinic has the ability to fully implement the proposed intervention because it does not have any other competing quality improvement project. Lastly, the leadership as well as staff members are

fully committed to support the proposed intervention in order to improve HTN treatment adherence among LEP patients.

The DNP student also assessed patients' readiness for change. Even though the DNP student was not allowed to interview patients, providers and MAs provided relevant information about patients' readiness. Providers stated that many patients want to effectively manage their HTN. Providers also stated that patients try very hard not to miss appointments and comply with medications. Lastly, providers stated that patients want a HTN education program in Spanish. Overall, clinic staff members, leadership, and patients seem ready to implement the proposed intervention.

Methods Used to Collect Change Readiness Data

During the completion of the needs assessments, two main groups of stakeholders were involved in the process: the health care organization and providers. In order to collect data, the DNP student used interviews and surveys. The DNP student interviewed providers, MAs, front desk clerks, and the clinic manager. Each interview consisted - of identifying the interviewee's role, experience, and general assessment of the clinic. Then, the DNP student asked interviewees to complete two survey tools.

The first survey consisted of a series of questions addressing HTN management in the clinic (see Appendix B). The survey questions were developed based on the assessment survey found in the Measure-Up/Pressure-Down provider toolkit created by the American Group Medical Foundation (Matthews, Penso, Sanderson-Austin, & Yphantides, 2013). The second survey consisted of a complete assessment of language services for LEP individuals within the organization (see Appendix C). This language assessment is found in the Language Access Assessment and Planning Tool for Federally Conducted and Federally Assisted Programs

handbook created by the United States Department of Justice (Limited English Proficiency, 2011). The DNP student was unable to determine reliability and validity for the two survey tools.

Stakeholder Engagement

The health care organization, health care providers, and patients are the key stakeholders in the current issue. It is federally mandated for this organization to provide language services. Presently, the organization offers telephonic interpreter services. Typically, the front desk clerk contacts the Language Line Solutions phone line and requests an interpreter based on the patient's language. Once the service line assigns an interpreter, the patient and provider are connected to the interpreter via a dual phone handset. The clinic also hires bilingual staff members to facilitate communication with LEP patients. Currently, the clinic does not have oversight of language services, does not monitor quality of services, and does not assess patients' satisfaction with language services. Additionally, due to work schedules, bilingual staff members are not always available to assist patients and may lack proficiency in some languages. The organization does not have a verification or credentialing processes to ensure that staff members are truly bilingual. Lastly, the organization does not have certified medical interpreters on site, and has few LEP appropriate education materials. In terms of HTN control, the clinic monitors blood pressure (BP) control in hypertensive patients; however, the clinic does not recognize LEP as a factor hindering HTN adherence.

The second group of stakeholders consists of health care providers. Providers are responsible for diagnosing, treating, referring, coordinating care, and educating patients. The completion of these tasks can be quite challenging when treating LEP patients. In the presence of LEP patients, providers are obligated to use telephonic interpreter services. Unfortunately, due to time constraints, in many occasions providers have to use family members or staff members as

translators. According to providers, the use of uncertified interpreters is discouraged, but at times necessary. Research has shown that uncertified interpreters lack the skills to accurately translate medical terms (Schenker, Pérez-Stable, Nickleach, & Karliner, 2011). Additionally, uncertified interpreters may have opinions and practices that may change the meaning of the conversations between a provider and the patient (Rorie, 2015).

Providers agree that LEP patients are likely to misunderstand disease processes, take medications incorrectly, and inadvertently miss appointments. According to Freeman (2012), language discordance between patients and providers is a significant barrier to care and leads to poor health outcomes. Providers also agree that current clinic practices do not address patients' language needs and existing language services are less than ideal. In terms of HTN control, providers use the 2003 Guideline for the management of High Blood Pressure in Adults issued by the Seventh Joint National Committee (JNC 7).

The third group of stakeholders consists of patients seeking primary care services that expect to receive timely, efficient, effective, safe, and patient centered care. Patients expect to receive services and resources that meet their goals and needs. Patients with LEP expect to have access to efficient language services in order to facilitate their interactions with providers. Currently, LEP patients use existing telephonic interpreter services. However, many patients state that the service is not useful and they leave the clinic with numerous questions and concerns. Furthermore, LEP patients state that the service does not help them learn about their disease. Additionally, LEP patients state that the clinic does not provide them with language appropriate educational material. In terms of HTN control, patients receive care based on the HTN JNC 7 guidelines. However, many patients fail to comply with HTN treatment because of their poor understanding of HTN and to the language barriers.

Project Identification

Purpose

This quality improvement (QI) project aimed to improve adherence among LEP Hispanic patients 21 to 85 years of age with uncontrolled HTN, receiving care at a federally funded south San Antonio clinic, by providing HTN education in Spanish.

Objectives

The primary objective of this QI project was to improve HTN control among LEP Hispanic patients 21 to 85 years of age to reduce cerebrovascular, cardiovascular, and renal disease. The secondary objective of this QI project was to improve medication adherence, low sodium diet adherence, and follow-up care adherence among LEP Hispanic patients 21 to 85 years of age with uncontrolled HTN (BP > 140/90).

Anticipated Outcomes

By August 2017, HTN control (BP < 140/90) will increase from 68% to 78% among LEP Hispanic patients, 21 to 85 years of age with uncontrolled HTN, receiving primary care at a federally funded south San Antonio clinic.

By August 2017, medication adherence will improve from 0% to 50% among LEP Hispanic patients, 21 to 85 years of age with uncontrolled HTN (BP>140/90), receiving primary care at a federally funded south San Antonio clinic.

By August 2017, low sodium diet adherence will increase from 0% to 50% among LEP Hispanic patients, 21 to 85 years of age with uncontrolled HTN (BP>140/90), receiving primary care at a federally funded south San Antonio clinic.

By August 2017, appointment keeping adherence will improve from 0% to 50% among LEP Hispanic patients, 21 to 85 years of age with uncontrolled HTN (BP>140/90), receiving primary care at a federally funded south San Antonio clinic

The first outcome's target goal was established based on the clinic's previous three-year HTN control rates. The target goal for the second, third, and fourth outcomes was established based on the 50% national antihypertensive treatment adherence rate (Rash et al., 2014). Furthermore, the clinic does not monitor medication, low sodium diet, or appointment keeping adherence, so there is no available baseline data. As a result, the current medication, low sodium diet, and follow-up care baseline adherence was identified as 0%.

Summary and Strength of the Evidence

In the Hispanic population, several factors are known to cause poor HTN treatment adherence. These factors include poor access to care, complex medication regimes, poor patient self-monitoring, ineffective patient-provider communication, lack of health care provider counseling, and LEP (Matthes & Albus, 2014; Rash et al., 2014). However, LEP seems to have the most profound effect of all in affecting Hispanics' ability to comply with HTN treatment (Freeman, 2012).

Hispanic patients with LEP have difficulties reading written health information, understanding verbal directions, and following medication instructions (G. Kim et al., 2011). Therefore, LEP Hispanic patients are likely to have uncontrolled HTN when compared to those who are English proficient (E. J. Kim et al., 2017). These patients have a high risk for developing HTN related complications such as cerebrovascular accidents, renal disease, and MIs (E. J. Kim et al., 2017).

Additionally, LEP Hispanic patients experience suboptimal care outcomes, low patient satisfaction, decreased access to care, poor quality care, high psychological distress, and poor treatment adherence (Freeman, 2012; E. J. Kim et al., 2017). Furthermore, these patients suffer from multiple chronic health conditions, experience high disability rates, and have less access to health care services (G. Kim et al., 2011; Sentell & Braun, 2012). A systematic review by Wang, Mohering, Stuhr, and Krug (2013) showed LEP as the main barrier preventing Hispanic patients from undergoing colorectal cancer screening. A study by Khan et al. (2013) showed that LEP was a significant barrier in preventing Spanish-speaking women from understanding their medical conditions and recommended treatment. Another study by Qureshi et al. (2014) showed that LEP cancer patients were less likely to receive chemoradiation treatment than English proficient patients were.

LEP Hispanic patients also experience an increased number of unplanned emergency room visits, make frequent medication errors at discharge, and underestimate health risk factors (McElligott et al., 2014; Ngai et al., 2016; Samuels-Kalow, Stack, & Porter, 2012). Additionally, this population experiences long hospital stays, increased surgical complications, and increased hospital readmissions (Betancourt et al., 2012; Lion et al., 2013; The Joint Commission, 2011). Even though LEP negatively affects every aspect of care of Hispanic patients, it is important to recognize its impact in decreasing compliance with chronic illnesses such as HTN since this disease is highly prevalent in this population.

Research has shown that providing language sensitive health education lessens LEP effects, increases HTN control, and improves patient outcomes among hypertensive patients (Davis et al., 2015; Jih et al., 2016; Margolius et al., 2012; Ockene et al., 2012; Xu et al., 2014). A metaanalysis by Xu et al. (2014) showed that BP control significantly improved after Chinese

patients received language sensitive HTN education. A pilot study by Lin et al. (2014) and a cluster-randomized trial by Beune et al. (2014) also showed that BP control significantly improved after Asian and Black patients respectively received language sensitive HTN education. Furthermore, a systematic review by Ndanuko, Tapsell, Charlton, Neale, and Batterham (2016) showed that lifestyle focused health education significantly improved HTN control among patients. Additionally, research has shown that using more than one education delivery method is more effective than using a single method in order to improve compliance among LEP patients (Jih et al., 2016; Margolius et al., 2012). Jih et al. (2016), in a study of 756 participants, observed that individuals whom attended lectures and received handouts had greater increases in knowledge and compliance than those who only received handouts.

Additionally, a few studies have indicated that teaching health education in Spanish to LEP Hispanic patients increased knowledge, adherence, and outcomes (Araiza, Valenzuela, & Gance-Cleveland, 2015; Buckley et al., 2015; Davis et al., 2015; Howie-Esquivel, Bibbins-Domingo, Clark, Evangelista, & Dracup, 2014; Marshall et al.; 2013; Ockene et al., 2012). Three hundred diabetic LEP Hispanic patients after receiving health education in Spanish achieved significant weight loss, improved hemoglobin A1C levels, and obtained low insulin resistance (Ockene et al., 2012). A study by Buckley et al. (2014) showed that 112 LEP Hispanic patients with metabolic syndrome experienced a significant reduction in blood glucose, cholesterol, and body mass index related to metabolic syndrome after receiving health education in Spanish. Davis et al. (2015) and Marshall et al. (2013) showed that breast cancer prevention and treatment significantly increased among LEP Hispanics with breast cancer after receiving health education in Spanish. Another study by Howie-Esquivel et al. (2014) showed that LEP Hispanic patients with heart failure were successful in increasing their knowledge and compliance after receiving

disease education in Spanish. Even though these studies have not been conducted in LEP Hispanic patients with HTN, conducting health education in Spanish seems a plausible option to improve HTN control and prevent HTN related complications in this patient population.

Overall, there is a gap in the literature regarding the role of health education in Spanish in improving HTN treatment adherence among LEP Hispanic patients. Many of the studies found in the literature are descriptive and based on small or convenient samples. The majority of LEP studies conducted have been in California and have mainly focused on the Asian population. Furthermore, several studies have used the National Health and Nutrition Examination Survey data to generate findings that may underestimate the actual incidence and impact of LEP in the Hispanic population. Additionally, there are only a few studies specifically addressing the effects of LEP in HTN adherence within Hispanics. Lastly, only a few studies have analyzed the benefits of conducting Spanish teaching sessions in hypertensive Hispanics with LEP and its potential for increasing HTN compliance in primary care settings.

Methods

A teaching session in Spanish was conducted to improve adherence with HTN treatment among LEP Hispanic patients with uncontrolled HTN. Participants were recruited from a primary clinic located in the south side of San Antonio, Texas. The DNP student reviewed patient electronic medical records and identified eligible participants based on the inclusion criteria. During clinic visits, the DNP student provided information to eligible patients about the initiative to determine their interest in participating in the QI project. The DNP student accessed medical records upon approval from the University of the Incarnate Word Institutional Review Board. The DNP student coordinated appointment times to meet with participants to conduct the teaching session. One Spanish speaking DNP student conducted all teaching sessions.

Each participant was asked to return to the clinic during scheduled times for a 30 minute appointment, in which they received a BP assessment, completed the Hill-Bone Compliance to High Blood Pressure Therapy Scale (HB Comp Scale), and attended a HTN teaching session in Spanish. The HB Comp Scale (see Appendix F) was translated by the DNP student, who is fluent in Spanish, and by a clinic provider who is also fluent in Spanish, to ensure inter-rater reliability. The HB Comp Scale assesses patient behaviors for three domains of hypertension (HTN) treatment: medication adherence, reduced sodium intake, and appointment keeping (Lam & Fresco, 2015). The scale has 14 items with a four-point response format: one (none of the time), two (some of the time), three (most of the time), and four (all of the time). Higher scores on the scale indicate a lower level of adherence. It takes approximately 5 minutes to administer (M.T.Kim, Hill, Bone, & Levine, 2000). The scale has shown to be valid and reliable among hypertensive patients (Lam & Fresco, 2015). Prior to using the scale in clinical settings, its creators tested validity and reliability. A panel of experts who specialized in BP clinical research and practice tested the validity of the scale. After a rigorous evaluation process, the panel reached 100% agreement that the scale was valid since it measured intended HTN related patient behaviors (M.T.Kim et al, 2000). Additionally, the construct and predictive validity testing were assessed via clinical studies and deemed the scale valid as well (M.T.Kim et al, 2000). The reliability of the scale was tested by measuring its internal consistency and factor analysis (M.T.Kim et al, 2000). The scale showed a Cronbach's alpha of greater than 0.70 and the predicted factor analysis established by the authors (M.T.Kim et al, 2000). Overall, the scale is considered highly reliable and valid to assess adherence among hypertensive patients (M.T.Kim et al, 2000; Lam & Fresco, 2015).

The teaching session included the following topics: definition of HTN, recommended BP goals, modifiable and non-modifiable risk factors, complications of uncontrolled HTN, medication adherence, low sodium diet, importance of weight reduction and exercise, tobacco cessation, importance of self-monitoring of BP, and importance of follow-up care. The DNP student used pictures, diagrams, and charts to reinforce patient knowledge. Additionally, each participant received a take home handout to reinforce learning and to clarify the information presented.

The DNP student used the “La presion arterial y su salud.” handout created by the American Society of Hypertension in 2010 (see Appendix G). This handout complies with the LEP written translation requirements mandated by the Department of Health and Human Services Language Access Services and Centers for Disease Control and Prevention. The handout contains plain language, clear information, and is culturally appropriate. The handout is written at a fourth-grade level with recommended font size and style. Lastly, the handout clearly highlights the key patient actions to successfully manage HTN. Participants were asked to return to the clinic within 10 weeks after the teaching session to receive a BP assessment and complete the HB Comp Scale. All participants received the DNP student’s contact information for follow-up questions regarding the teaching session and handout. In the event that a participant did not complete the post-intervention session, the DNP student made one attempt via telephone to reschedule the session.

Setting

The QI project was conducted at a federally funded clinic located in the south side of San Antonio, Texas. This site was selected due to the prevalence of LEP Hispanic patients receiving primary care services for HTN. Between August 2016 and January 2017, 95% of Hispanics seen

at the clinic suffered from HTN. Furthermore, only 68% of these patients have their BP under control. At this clinic, patients receive chronic disease management, basic medical care, follow-up services, and counseling services. The clinic delivers care based on the team concept, consisting of: one supervising physician, one mid-level provider, and one medical assistant. Each provider typically sees approximately 28 patients per day.

Population

Participants were recruited from patients receiving care at a federally funded south San Antonio clinic between May and August 2017. Patients were eligible if they:

- identify themselves as Hispanic or Latino;
- identify Spanish as their preferred language, as evidenced by their language selection on the clinic patient form;
- are 21 to 85 years of age;
- have a clinical diagnosis of uncontrolled HTN (BP >140/90);
- take at least one antihypertensive medication;
- follow verbal and written instructions in Spanish; and
- participate in a clinic sponsored health care program.

Organizational Barriers

Although the clinic was receptive to implementing the proposed intervention, there were barriers that can potentially hinder the process (see Appendix D for SWOT Analysis). The clinic did not emphasize the importance of LEP when aiming to increase HTN adherence among non-English speaking patients. The clinic did not adequately assess patients' language needs and the staff was not trained to access and provide language services. A language competency process will need to be developed to ensure that those who will be educating LEP patients are competent

interpreters. Patients' appointments were scheduled to last approximately 15 minutes, leaving almost no time for conducting patient education. The clinic did not have a quality assurance process for neither language services nor patient education. Lastly, the clinic allocated few resources for the development of written and electronic language appropriate materials.

Organizational Facilitators

While numerous barriers existed, the clinic had drivers that could facilitate the implementation of the proposed intervention. The clinic received federal funding for language services and used an evidence-based clinical practice guideline: the JNC7 guidelines for HTN management. Monthly HTN compliance data was collected and reported to the Uniform Data System. Clinic providers and MAs recognized the importance of providing language appropriate education to LEP patients, in order to increase HTN treatment adherence. Additionally, the leadership had shown commitment to allocate time and resources to implementing the proposed intervention. Lastly, staff members and the leadership shared a similar culture of patient safety and high quality care.

Ethical Considerations

This QI project consisted of offering appropriate language education to patients in an effort to increase adherence to HTN treatment. Prior to implementation, the University of the Incarnate Word Institutional Review Board reviewed the project to ensure compliance with federal, state, local, and university regulations. Patients and providers were able to choose not to participate in the QI project. The proposed intervention posed minimal risks for participants while maximizing potential benefits. Participants' privacy and confidentiality was maintained and protected throughout the project. The DNP student and mentor accessed patients' electronic medical records in a locked office and used password protected computers. During the QI project, patients' personal information was not used; only the DNP student and mentor assessed

patients' electronic records in a secured office. Each patient's record was assigned a number, and all data findings were reported as aggregate data in order to maintain anonymity. Lastly, the DNP student received approval from the organization to conduct the project.

Results

Twenty-five women (83.3%) and five men (16.7%), with the majority of the participants being married (70%) participated in the project. Ages ranged from 29 to 71 years, with a mean age of 54.2 years ($SD = 9.8$). Fifty percent of participants had educational levels below high school, and the other 50% completed high school (40%) or some college (10%). More than 50% of participants were overweight and 36.7% were obese. Ninety six percent of participants had at least one comorbidity to include diabetes, hyperlipidemia, or obesity. The majority of participants (63.3%) were taking one, 23.3% of participants were taking two, and 13.3 % were taking three antihypertensives respectively.

HTN Control

After 10 weeks of implementation, HTN control among participants was 77% (23/30); a 7% increase from baseline (70%). The mean systolic BP decreased by 5.44 mmHg (140.37 to 134.93) and mean diastolic BP decreased by 2.57 mmHg (83.90 to 81.33). Table 2 shows BP measurements before and after project intervention and their corresponding descriptive statistics.

Medication Adherence

After 10 weeks of implementation, medication adherence scores showed a percentage increase from 0% to 32.55%. Percentage increase was calculated by using the following formula: $(y_2 - y_1)/y_1 * 100$. A paired *t*-test was computed to determine whether there was a difference in medication adherence scores before and after 10 weeks of the project implementation. Consistent

Table 1

Demographic and Clinical Characteristics of Participants

Characteristic	Percentage	Mean	<i>SD</i>
Gender		1.80	0.40
Male	16.70		
Female	83.30		
Age		54.23	9.80
29-49	36.70		
50-70	53.40		
> 70	3.30		
Education Level		17.30	1.01
Less than High School	50.00		
High School Completion	40.00		
Bachelor's Degree	6.70		
Advanced Degree	3.30		
BMI		3.30	0.60
Healthy (18.5-24.9)	6.70		
Overweight (25.0-29.9)	56.70		
Obese	36.70		
No. of Comorbidity		2.03	0.93
0 to 2	66.70		
3 to 4	33.30		
No. of Medications		1.50	0.73
1	13.30		
2	23.30		
3	13.30		

Note. *SD* = Standard Deviation, BMI = Body Mass Index, *n* = 30.

Table 2

Blood Pressure Measurements Before and After the Intervention

Patient ID	<u>Pre-Intervention</u>		<u>Post-Intervention</u>	
	SBP	DBP	SBP	DBP
1	142	92	135	80
2	147	79	138	80
3	141	81	130	76
4	155	79	145	78
5	158	76	144	74
6	146	88	140	88
7	142	84	138	84
8	183	95	155	88
9	145	90	138	83
10	139	90	120	70
11	135	68	124	81
12	135	85	134	78
13	140	90	138	86
14	130	80	126	82
15	140	70	120	82
16	132	85	124	82
17	138	83	126	84
18	132	80	136	80
19	134	83	124	82
20	140	83	130	84
21	130	84	132	88
22	140	89	140	80
23	138	78	128	70
24	145	87	130	82
25	120	91	140	92
26	126	90	146	84
27	140	89	142	80
28	138	78	134	80
29	140	80	140	80
30	140	90	141	82
Mean	140.37	83.90	134.93	81.33
SD	11.08	6.40	8.54	4.83

Note. SD = Standard Deviation

with the project's desired outcome, post-intervention medication adherence scores ($M = 13.40$, $SD = 5.73$) were lower than pre-intervention medication adherence scores ($M = 19.87$, $SD = 8.22$). There was a statistically significant difference between pre-intervention and post-intervention medication adherence scores ($M = 6.47$, $SD = 4.20$, $t(29) = 8.45$, $p < .05$). Table 3 shows the paired t -test statistical analysis for medication adherence scores before and after the intervention.

Table 3

Results of Paired t -test for Medication Adherence Scores Pre- and Post-Intervention

	Mean	SD	SEM	95% CI for Mean Difference		t	df
				Lower	Upper		
Participants' medication adherence score pre- and post-intervention	6.47	4.20	.77	4.90	8.03	8.45*	29

Note. SD = Standard Deviation, CI = confidence interval, SEM = Standard Error of the Mean.

* $p < .05$.

Low Sodium Diet Adherence

After 10 weeks of implementation, low sodium diet adherence scores showed a percentage increase from 0% to 47.79%. Percentage increase was calculated by using the percentage increase formula listed above. A paired t -test was computed to determine whether there was a difference in low sodium diet adherence scores before and after 10 weeks of the project implementation. Consistent with the project's desired outcome, post-intervention low sodium diet adherence scores ($M = 3.93$, $SD = 1.39$) were lower than pre-intervention low sodium diet adherence scores ($M = 7.53$, $SD = 2.46$). There was a statistically significant difference between pre-intervention and post-intervention low sodium diet adherence scores (M

= 3.60, $SD = 2.47$, $t(29) = 7.98$, $p < .05$). Table 4 shows the paired t -test statistical analysis for low sodium diet adherence scores before and after the intervention.

Table 4

Results of Paired t -test for Low Sodium Adherence Scores Pre- and Post-Intervention

	Mean	SD	SEM	95% CI for Mean Difference		t	df
				Lower	Upper		
Participants' low sodium adherence score pre- and post-intervention	3.60	2.47	.45	2.68	4.52	7.98*	29

Note. SD = Standard Deviation, CI = confidence interval, SEM = Standard Error of the Mean.

* $p < .05$.

Appointment Keeping Adherence

After 10 weeks of implementation, appointment keeping adherence scores showed a percentage increase from 0% to 50%. Percentage increase was calculated by using the percentage increase formula listed above. A paired t -test was computed to determine whether there was a difference in appointment adherence scores before and after 10 weeks of the project implementation. Consistent with the project's desired outcome, post-intervention appointment keeping adherence scores ($M = 2.50$, $SD = 1.01$) were lower than pre-intervention appointment keeping adherence scores ($M = 5.00$, $SD = 1.66$). There was a statistically significant difference between pre-intervention and post-intervention appointment keeping adherence scores ($M = 2.50$, $SD = 1.72$, $t(29) = 7.98$, $p < .05$). Table 5 shows the paired t -test statistical analysis for appointment keeping adherence scores before and after the intervention.

Table 5

Results of Paired t-test for Appointment Keeping Adherence Scores Pre- and Post-Intervention

	Mean	SD	SEM	95% CI for Mean Difference		t	df
				Lower	Upper		
Participants' appointment keeping adherence score pre- and post-intervention	2.50	1.72	.31	1.86	3.14	7.98*	29

Note. SD = Standard Deviation, CI = confidence interval, SEM = Standard Error of the Mean.

* $p < .05$.

Discussion

The present QI project aimed to increase HTN control among Hispanic patients with LEP suffering from uncontrolled HTN by increasing medication adherence, low sodium diet adherence, and appointment keeping adherence. After the project completion, these four outcomes improved significantly. However, only appointment keeping adherence achieved its desired goal of 50%. HTN control, medication adherence, and low sodium diet adherence increased by 7%, 32.55%, and 47.79% respectively. A potential explanation for the failure to achieve the HTN control outcome is that HTN trends were not taken into account when assessing HTN control; instead, only the two BP measurements taken at the clinic were considered. Furthermore, there was no control for white coat HTN among participants. Additionally, there is a possibility that patients were not taking their medications. The project did not track patients' prescription pick-up habits from pharmacies, nor did it directly observe patients taking their daily medications. A potential explanation for the failure to achieve desired medication adherence and low sodium diet adherence is the short amount of time given (10 weeks) for the project to be implemented. Some patients stated that they require more time to form new behaviors like adhering to HTN medications or reducing their sodium intake. According to Lin et al. (2014),

significant changes in HTN treatment adherence are observed at least at the 12-months mark. These positive changes in patients' behaviors are even more profound at the 24-months mark. Additionally, the project did not account for patients' ability to afford and have access to low sodium foods.

Even though HTN control, medication adherence, and low sodium adherence did not achieve their anticipated goal, overall project findings are similar to previous studies. Language sensitive education has shown to improve HTN control and HTN treatment adherence. Studies by Davis et al. (2015) and Margolius et al. (2012) have shown that providing language sensitive education increased HTN control and improved outcomes among LEP patients. Other studies have shown that providing health education in Spanish to LEP Hispanics patients increased patients' knowledge and adherence (Araiza et al., 2015; Buckley et al., 2015; Ockene et al., 2012). Therefore, this project supports previous findings, which show that language sensitive education improves HTN control among LEP Hispanic patients.

Although the project was successful in general, the DNP student identified the following challenges during implementation. There was a limited number of proficient Spanish speaking staff members to assist with the intervention, so delegating this intervention to other clinic members was nearly impossible. There was a high appointment cancellation rate due to patients going on vacation and patients losing funding due to termination of a clinic-assisted program. Therefore, the project lost many potential candidates. Additionally, the clinic leadership was not supportive as expected; the project was no longer a priority.

On the other hand, the project had some successes and strengths. First, providers recognized the importance of providing language sensitive patient education to improve HTN control in this population. Second, patients seemed actively engaged in their care and voiced

their own initiatives to improve HTN treatment adherence. Third, providers and patients recognized the ease and effectiveness of implementing the education session and using the take home handout, “La Presion Arterial y su Salud.” Furthermore, providers agreed that the intervention was cost-effective since it can be included in a patient’s BP check appointments and can be delivered by any Spanish speaking staff member with basic medical knowledge. Fourth, the HB Comp Scale was easy and quick to administer, and was clearly understood by the majority of participants. Lastly, this project is one of the few language sensitive QI initiatives implemented among LEP Hispanic patients suffering from uncontrolled HTN.

Limitations

Limitations of this QI project include a relatively small convenience sample, the use of a self-assessment tool (HB Comp Scale), and potential bias due to the use of only one instructor (DNP student) providing the language sensitive education session. Another limitation is in the resources needed to implement the intervention. Organizations may not be able to obtain additional funding for printed materials and bilingual staff members. Another limitation is that data on participants’ health literacy was not included in the project. Often times, health literacy coexists with LEP and further decreases individuals’ adherence to medical treatment.

Recommendations

To continue the implementation of this QI initiative, the organization should develop a reliable LEP assessment tool for all patients. Moreover, the organization’s language access policy must be updated, wherein a language competency tool is developed to ensure that language services truly meet the needs of LEP patients. Furthermore, competent bilingual staff members should be hired to deliver language sensitive patient education. Additionally, the organization must establish quality measures to monitor treatment adherence in the LEP

population. Lastly, the organization should create LEP sensitive weekly group classes at this location to increase patients' access to HTN education and prevent complications.

Implications for Practice

As one can see, LEP directly affects the health of minorities. In order to improve outcomes among LEP patients, health care professionals must provide language sensitive education when delivering care. The findings from this QI project suggests that primary care settings make changes to meet the needs of the current demographically diverse patient population. First, organizations must stop pretending to comply with federal mandates regarding language services for LEP patients. Instead, organizations should develop processes and procedures that truly addresses this population' needs, such as creating a reliable LEP patient assessment tool. Second, organizations must enhance respect, understanding, and awareness of different cultures among staff members. Cultural competence training should be provided for staff members, within which staff members' abilities to work with the LEP population are rigorously assessed. Third, organizations must implement sustainable quality measures to plan and deliver care that truly meets the LEP population's needs, such as assessing monthly patients' adherence to medications.

Doctoral-prepared nurse practitioners (DNP-NPs) have the skills and clinical expertise to implement these changes across organizations. DNP-NPs can create a LEP patient assessment tool that identifies LEP patients early in the care process, allowing staff members to secure language services prior to the encounter. DNP-NPs can also design cultural competence training programs for staff members to increase their knowledge and understanding of patients' cultural and language needs. Additionally, DNP-NPs can develop QI initiatives to monitor and improve the population health by offering monthly BP clinics. Lastly, DNP-NPs can work with

organizations such as the federal government, U.S. Department of Health and Human Services, Office of Minority Health, Institute of Medicine, National Council on Interpreting in Healthcare, and The Joint Commission to develop sound health care policies to improve patients' access to language services. All in all, LEP significantly affects Hispanics' ability to adhere to medical treatment. Therefore, strategies such as providing language sensitive education during care encounters are paramount in reducing mortality and morbidity in this population.

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Appendix A

Assessing Change Readiness Tool

Question	Weight	Criteria	Scripted Questions	Red (0 points)	Yellow (5 points)	Green (10 points)	Score	Comment
1	3	Commitment: Senior Leadership: QI Champion/ sponsor <i>Senior leadership: person or group that has responsibility for designation of time, finances, and resources</i> <i>(Physician, RN, office manager)</i>	Can you tell me about the commitment that senior leadership (the administration/ the practice) has made to the project? <ul style="list-style-type: none"> Do you have a designated leader? Is there a team that meets regularly? In terms of time, finances, resources? 	No designated leader for quality improvement or if designated, not actively engaged.	Leader designated for quality improvement work—however quality improvement team non-existent, or if exists, not meeting regularly to review project status/data.	Leader designated for quality improvement work and quality improvement team meets regularly to review project status/data and discuss improvement opportunities.		
2	3	Commitment: Financial Resources	IF NOT ANSWERED ABOVE: How do the leader and the QI team fit in QI work with their other responsibilities in the practice? <ul style="list-style-type: none"> Are they paid for working on a QI project or is it volunteer work? 	No time budgeted for QI activities. No specific funding to support QI activities.	Insufficient amount of FTE allocated for QI activities and/or limited/small amount of funding for QI activities.	Sufficient amount of dedicated FTE and funding allocated to QI activities.		
3	3	Level of Physician Leader Support	Do you have a physician leader who supports this effort? <i>(Physician leader is one whom the other clinicians and staff look up to and identify as a leader.)</i> <ul style="list-style-type: none"> What is the relationship between this person and the QI team? 	Physician leader has not been engaged in discussions regarding QI initiatives or has not yet confirmed their formal support.	Physician leader has confirmed their formal support of QI initiatives, but there are no regular meetings or interactions to discuss/review progress.	Physician leader demonstrates behaviors consistent with actively supporting QI efforts—this includes convening regular meetings with QI team leaders to review progress and help address issues/challenges.		
4	3	Level of Practice Administrator Support	Does your practice administrator or office manager support this effort? <ul style="list-style-type: none"> How do they demonstrate this to the staff? (How does the staff know they support it?) Do they meet with the QI team? How do/ will they help the QI team with this effort? 	Practice administrator has not been engaged in discussions regarding QI initiatives or has not yet confirmed formal support.	Practice administrator has confirmed formal support of QI initiatives, but there are no regular meetings or interactions to discuss/review progress.	Practice administrator demonstrates behaviors consistent with actively supporting QI efforts—this includes convening regular meetings with QI team leaders to review progress and help address issues/challenges.		

Note. Adapted from “Practice Improvement Capacity Rating Scale” by the Robert Wood Johnson Foundation, 2014, Retrieved from <http://www.rwjf.org/en/library/research/2014/01/practice-improvement-capacity-rating-scale.html>. Copyright 2001-2017 by the Robert Wood Johnson Foundation.

Appendix A — Continued

Assessing Change Readiness Tool

5	3	Competing Priorities	<p>Are there any changes that have occurred/are going to occur that may have an effect on this project?</p> <p>Are there any other projects the practice will be working on while this QI project is going on?</p> <ul style="list-style-type: none"> How do you see them affecting this QI project? Do they overlap in terms of goals or data collection? 	<p>Currently converting to an EMR</p> <p>OR</p> <p>Significant staff turnover/changes</p> <p>OR</p> <p># of QI projects competing for time of staff and resources</p> <p>OR</p> <p>Change in leadership expected or imminent</p> <p>OR</p> <p>Merger or acquisition anticipated in near future.</p>	<p>Modest competing priorities, such as end phase of EMR conversion</p> <p>OR</p> <p>Other QI projects, but winding down soon</p> <p>OR</p> <p>Relatively stable staff and leadership structure.</p>	<p>No significant competing priorities</p> <p>OR</p> <p>Significant issues/challenges impacting execution of QI activities</p> <p>AND</p> <p>Stable staff and leadership structure.</p>		
6	2	Communication	<ul style="list-style-type: none"> Does the rest of the staff know about this effort? How have you kept the staff up to date with the progress of other projects in the past? How are you communicating the work being done by the QI team to the rest of the practice? 	<p>Project not discussed at regular staff meetings, limited knowledge among practice physicians/staff, no data/information posted or distributed</p>	<p>Some effort devoted to sharing project information and updates with practice physicians/staff</p>	<p>Project information and updates discussed with practice physicians and staff at regular practice meetings, data/information shared, input/feedback recruited. Data posted in visible place.</p>		
7	2	Access/Use of QI Infrastructure/ Resources Available in the Community	<p>Does your practice participate in any community improvement efforts?</p> <p>Any EMR sponsored or trade industry sponsored improvement efforts?</p>	<p>No practice awareness of QI infrastructure or resources available in the community.</p>	<p>Some awareness of QI infrastructure and resources available, but not yet accessing/using.</p>	<p>Practice is accessing/using QI infrastructure/resources available in the community.</p>		

Note. Adapted from “Practice Improvement Capacity Rating Scale” by the Robert Wood Johnson Foundation, 2014, Retrieved from <http://www.rwjf.org/en/library/research/2014/01/practice-improvement-capacity-rating-scale.html>. Copyright 2001-2017 by the Robert Wood Johnson Foundation.

Appendix A — Continued
 Assessing Change Readiness Tool

8	2	Prior Experience Executing QI Projects	<p>Tell me about the Improvement work your practice has done in the past</p> <ul style="list-style-type: none"> • What kind of experience do the members of the QI team bring to the effort? • Do you keep a record of what you have tried and how it went? • How do you decide if what you try/ change is working? (You are looking for answers that indicate they use data to drive improvement.) 	No identifiable Improvement Interventions pursued to date.	Improvement Interventions pursued; but no formal QI method used (Model For Improvement, Lean, Six Sigma, etc.)	Previous Improvement Interventions pursued using formal QI method.		
9	2	QI team designated with appropriate representation	<p>Who is/will be on your QI team? Why?</p>	<p>No QI team in place</p> <p>OR</p> <p>Several team members identified for QI activities, but there is a lack of balance representing the testing to be done (e.g., no RN included on team for PCMH)</p>	<p>Team members identified for QI activities.</p> <p>Balanced representation of staff based on QI activity.</p> <p>No patient partner on QI team.</p>	<p>Team members identified for QI activities.</p> <p>Balanced representation of staff based on QI activity.</p> <p>Patient/parent part of the team.</p>		
10	2	Reliability of data	<p>How reliable do you think your reports are?</p> <ul style="list-style-type: none"> • Does the information seem accurate to you? • Do you compare your data to other practices or national benchmarks? • Is there someone who looks over the reports for accuracy? • Does the QI team review the reports? 	No designated point person reviewing data for accuracy.	Point person designated, but no defined process for monitoring accuracy/timeliness of data.	<p>Accuracy/timeliness of data monitored and addressed.</p> <p>Quality leadership person/team discusses data accuracy at regular intervals and identifies/pursues Improvement opportunities.</p>		

Note. Adapted from “Practice Improvement Capacity Rating Scale” by the Robert Wood Johnson Foundation, 2014, Retrieved from <http://www.rwjf.org/en/library/research/2014/01/practice-improvement-capacity-rating-scale.html>. Copyright 2001-2017 by the Robert Wood Johnson Foundation.

Appendix A — Continued

Assessing Change Readiness Tool

11	2	Reliability of data collection	<p>How reliable do you think your data are?</p> <ul style="list-style-type: none"> Do you think the data you need are reliably entered into the EMR with each encounter? Is there a way to tell if they are? Does everyone follow the same process for getting info/data into the EMR? 	Data collection solely dependent on clinicians at time of encounter.	Redundancy built into data collection process. Point person designated, but no defined process for monitoring accuracy/timeliness of data entry.	Defined process for monitoring accuracy/timeliness of data entry. Quality leadership person/team discusses data collection process at regular intervals and identifies/pursues improvement opportunities.		
12	2	External Payment Incentives from Commercial/ Governmental Payers Linked to the QI Project	<p>Is the practice being paid to participate in an improvement effort other than MU?</p> <p>Are you being paid to report on or meet quality measures?</p>	Not currently.	Currently being discussed by commercial/ governmental payors, but not yet in place.	Currently in place.		
13	1	Meaningful Use	Where is your practice in terms of applying for meaningful use?	Not attested to meaningful use.	Meaningful use in design phase.	Meaningful use implemented and criteria met.		
14	1	Source of IT support	<p>What do you do when you need to add fields to collect data or run reports?</p> <ul style="list-style-type: none"> Do you do this in office? Do you need to contact someone outside the office? Does this arrangement meet your needs/the needs for the QI project and QI team? 	No internal or external IT support available to the practice.	Internal or external IT support available to the practice, but not meeting needs of QI initiatives.	Internal or external IT support to the practice is meeting the needs of QI initiatives.		
15	1	Use of EMR/Registry/ Analytic Reporting Tool for Measurement/Data Reporting	<p>What data will you be collecting for this project?</p> <p>How do you plan to collect the data you will need for this project?</p> <ul style="list-style-type: none"> Is the information currently collected in your EMR? Can you get reports based on the data from your EMR easily? 	No EMR.	EMR in place, but data fields linked to key measures not embedded, or related data reporting capabilities (EMR, registry, or other analytic tool) not yet in place.	EMR with data fields linked to key measures embedded, and data reporting capabilities in place.		
Total Score								
Must-Pass Criteria Met							Yes / No	
Final Score—Circle level		Red: 0-99	Yellow: 100-249	Green: 250 or greater and all must-pass criteria met				

Note. Adapted from “Practice Improvement Capacity Rating Scale” by the Robert Wood Johnson Foundation, 2014, Retrieved from <http://www.rwjf.org/en/library/research/2014/01/practice-improvement-capacity-rating-scale.html>. Copyright 2001-2017 by the Robert Wood Johnson Foundation.

Appendix B

Hypertension Assessment Survey

The following series of questions helps to understand how the clinic manages hypertensive patients:

- 1) How are hypertension guidelines used and monitored in the clinic?
- 2) Has your organization formally adopted compliance goals for hypertension?
- 3) Does the clinic report hypertension control metrics to any external organization?
- 4) Does the clinic use a hypertension registry to track patients?
- 5) Do team members receive training in importance of blood pressure goals and compliance metrics?
- 6) Is there a prevention, engagement, or self-management program in place?
- 7) If hypertension education program in place, how does the program, incorporate cultural preferences and language needs?
- 8) Does the clinic has identified patient and system barriers to hypertension compliance?

Appendix C

Language Assessment Tool

1. Understanding How LEP Individuals Interact with Your Agency

The following series of questions helps agencies understand how an LEP individual may come into contact with your agency:

1. Does your agency interact or communicate with the public or are there individuals in your agency who interact or communicate or might interact or communicate with LEP individuals?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Please describe the manner in which your agency interacts with the public or LEP individuals:	<input type="checkbox"/> In-Person <input type="checkbox"/> Telephonically <input type="checkbox"/> Electronically (e.g. email or website)	<input type="checkbox"/> Via Correspondence <input type="checkbox"/> Other: (please specify)
3. Does your agency provide federal financial assistance to any non-federal entities? (Federal financial assistance includes grants, training, use of equipment, donations of surplus property, and other assistance. Recipients of federal funds can range from state and local agencies, to nonprofits and other organizations.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. If your agency does provide federal financial assistance to non-federal entities: a. Do you have an active program in place to require your recipients of federal financial assistance to comply with Title VI and language access standards? b. Does your agency inform recipients of federal financial assistance that they should budget for language assistance services? c. Does your agency inform recipients of federal financial assistance about which grants can be used, in whole or in part, to improve language access?	Yes a. Yes b. Yes c. Yes	No a. No b. No c. No

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs ” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix C (Continued)
 Language Assessment Tool

2. Identification and Assessment of LEP Communities

The following series of questions aims to identify the LEP population you serve:

<p>1. How does your agency identify LEP individuals? (Select all that apply)</p>	<input type="checkbox"/> Assume limited English proficiency if communication seems impaired <input type="checkbox"/> Respond to individual requests for language assistance services <input type="checkbox"/> Self-identification by the non-English speaker or LEP individual <input type="checkbox"/> Ask open-ended questions to determine language proficiency on the telephone or in person <input type="checkbox"/> Use of "I Speak" language identification cards or posters	<input type="checkbox"/> Based on written material submitted to the agency (e.g. complaints) <input type="checkbox"/> We have not identified non-English speakers or LEP individuals <input type="checkbox"/> Other (Please specify): _____
<p>2. Does your program have a process to collect data on:</p> <p>a. The number of LEP individuals that you serve?</p> <p>b. The number of LEP individuals in your service area?</p> <p>c. The number and prevalence of languages spoken by LEP individuals in your service area?</p>	<p>Yes</p> <p>a. Yes</p> <p>b. Yes</p> <p>c. Yes</p>	<p>No</p> <p>a. No</p> <p>b. No</p> <p>c. No</p>
<p>3. How often does your agency assess the language data for your service area?</p>	<input type="checkbox"/> Annually <input type="checkbox"/> Biennially	<input type="checkbox"/> Not Sure <input type="checkbox"/> Other: _____
<p>4. What data does your agency use to determine the LEP communities in your service area? (Select all that apply)</p>	<input type="checkbox"/> Census <input type="checkbox"/> US Dept. of Education <input type="checkbox"/> US Dept. of Labor <input type="checkbox"/> State Agencies	<input type="checkbox"/> Community Organizations <input type="checkbox"/> Intake information <input type="checkbox"/> Other: _____
<p>5. Do you collect and record primary language data from individuals when they first contact your programs and activities?</p>	<p>Yes</p>	<p>No</p>
<p>6. If you collect and record primary language</p>		

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs ” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix C (Continued)
 Language Assessment Tool

data, where is the information stored?		
7. What is the total number of LEP individuals who use or receive services from your program each year?		
8. How many LEP individuals attempt to access your programs or services each month?		
9. How many LEP individuals use your programs or services each month?		
10. Specify the top six most frequently encountered non-English languages by your program and how often these encounters occur (e.g., 2-3 times a year, once a month, once a week, daily, constantly).	Language	Frequency of Encounters
	1.	1.
	2.	2.
	3.	3.
	4.	4.
	5.	5.
	6.	6.

3. Providing Language Assistance Services

The following set of questions will help you assess how well your agency is providing language assistance services to LEP individuals:

1. Does your agency currently have a system in place for tracking the type of language assistance services it provides to LEP individuals at each interaction?	Yes	No
2. What data, if any, do you maintain regarding language assistance services? (Select all that apply)	<input type="checkbox"/> Primary language of persons encountered or served <input type="checkbox"/> Use of language assistance services such as interpreters and translators <input type="checkbox"/> Funds or staff time spent on language assistance services	<input type="checkbox"/> Number of bilingual staff <input type="checkbox"/> Cost of interpreter services <input type="checkbox"/> Cost of translation of materials into non-English languages <input type="checkbox"/> Other (Please specify):
3. Does your agency have a system to track the cost of language assistance services?	Yes	No
4. What types of language assistance services does your agency provide? (Select all that apply)	<input type="checkbox"/> Bilingual staff <input type="checkbox"/> In-house interpreters (oral) <input type="checkbox"/> In-house translators (documents) <input type="checkbox"/> Contracted interpreters <input type="checkbox"/> Contracted	<input type="checkbox"/> Language bank or dedicated pool of interpreters or translators <input type="checkbox"/> Volunteer interpreters or translators <input type="checkbox"/> Interpreters or

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs ” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix C (Continued)
 Language Assessment Tool

	translators <input type="checkbox"/> Telephone interpretation services <input type="checkbox"/> Video interpretation services	translators borrowed from another agency <input type="checkbox"/> Other (Please specify):
5. Does your agency a) have a certification or assessment process that staff must complete before serving as interpreters or translators for LEP individuals? b) Does the process include use of standardized language proficiency exams?	a) Yes b) Yes	a) No b) No
6. Does your agency ask or allow LEP individuals to provide their own interpreters or have family members or friends interpret?	Yes	No
7. Does your agency have contracts with language assistance service providers (in-person interpreters, telephone interpreters, video interpreters, or translators)?	Yes	No
8. Does your agency provide staff with a list of available interpreters and the non-English languages they speak, or information on how to access qualified interpreters?	Yes	No
9. Does your agency identify and translate vital documents into the non-English languages of the communities in your service area?	Yes	No
10. Which vital written documents has your agency translated into non-English languages?	<input type="checkbox"/> Consent forms <input type="checkbox"/> Complaint forms <input type="checkbox"/> Intake forms <input type="checkbox"/> Notices of rights <input type="checkbox"/> Notice of denial, loss or decrease in benefits or services <input type="checkbox"/> Notice of disciplinary action	<input type="checkbox"/> Applications to participate in programs or activities or to receive benefits or services <input type="checkbox"/> Other (please specify):
11. Does your agency translate signs or posters announcing the availability of language assistance services?	Yes	No
12. When your agency updates information on its website, does it also add that content in non-English languages?	Yes	No

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs ” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix C (Continued)
 Language Assessment Tool

4. Training of Staff on Policies and Procedures

The following series of questions will help you identify whether staff receive appropriate training on your language access policies and procedures:

1. Does all agency staff receive initial and periodic training on how to access and provide language assistance services to LEP individuals?	Yes	No
2. Who receives staff training on working with LEP individuals? (Select all that apply)	<input type="checkbox"/> Management or senior staff <input type="checkbox"/> Employees who interact with or are responsible for interactions with non-English speakers or LEP individuals	<input type="checkbox"/> Bilingual Staff <input type="checkbox"/> New employees <input type="checkbox"/> All employees <input type="checkbox"/> Volunteers <input type="checkbox"/> Others (Please specify): _____ <input type="checkbox"/> None of the above
3. Are language access policies and LEP issues included in the mandatory training curriculum for staff?	Yes	No
4. Does your agency staff procedural manual or handbook include specific instructions related to providing language assistance services to LEP individuals?	Yes	No
5. Does staff receive periodic training on how to obtain and work with interpreters?	Yes	No
6. Does staff receive periodic training on how to request the translation of written documents into other languages?	Yes	No
7. Do staff members who serve as interpreters receive regular training on proper interpreting techniques, ethics, specialized terminology, and other topics?	Yes	No
8. Do staff members who serve as interpreters receive interpreter training from competent interpreters or other trainers familiar with the ethical and professional requirements of an interpreter?	Yes	No

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs ” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix C (Continued)
 Language Assessment Tool

5. Providing Notice of Language Assistance Services

The following series of questions will help you assess how you provide notice of language assistance services to the LEP population in your service area:

1. How do you inform members of the public about the availability of language assistance services? (Select all that apply)	<input type="checkbox"/> Frontline and outreach multilingual staff <input type="checkbox"/> Posters in public areas <input type="checkbox"/> "I Speak" language identification cards distributed to frontline staff <input type="checkbox"/> Website	<input type="checkbox"/> Social networking website (e.g. Facebook, Twitter) <input type="checkbox"/> E-mail to individuals or a list serv <input type="checkbox"/> Other (Please specify): _____ <input type="checkbox"/> None of the above
2. Do your translated program outreach materials inform LEP individuals about the availability of free language assistance services?	Yes	No
3. Does your agency regularly advertise on non-English media (television, radio, newspaper, and websites)?	Yes	No
4. Does your agency inform community groups about the availability of free language assistance services for LEP individuals?	Yes	No
5. Does your agency inform current applicants or recipients about the availability of language assistance services?	Yes	No
6. Does the main page of your agency website include non-English information that would be easily accessible to LEP individuals?	Yes	No
7. Does your agency have multilingual signs or posters in its offices announcing the availability of language assistance services?	Yes	No

6. Monitoring and Updating a Language Access Procedures, Policy, and Plan

The following set of questions will help you assess whether you have an effective process for monitoring and updating your language access policies, plan and procedures:

1. Does your agency have a written language access policy?	Yes	No
2. If so, is a description of this policy available to the public?	Yes	No
3. How often is your agency's language access policy reviewed and updated?	<input type="checkbox"/> Annually <input type="checkbox"/> Biennially	<input type="checkbox"/> Not Sure <input type="checkbox"/> Other: _____

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs ” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix C (Continued)
Language Assessment Tool

4. When was the last time your agency's language access policy was updated?	Month _____	Year _____
5. How often does your agency update its data on the LEP communities in your service area?	<input type="checkbox"/> Annually <input type="checkbox"/> Biennially	<input type="checkbox"/> Not Sure <input type="checkbox"/> Other: _____
6. Does your agency have a language access coordinator?	Yes	No
7. Does your agency have a formal language access complaint process?	Yes	No
8. Has your agency received any complaints because it did not provide language assistance services?	Yes	No
9. Do you monitor the system for collecting data on beneficiary satisfaction and/or grievance/complaint filing?	Yes	No
10. Do you obtain feedback from the LEP community on the effectiveness of your language access program and the language assistance services you provide?	Yes	No

Note. Adapted from “Language access assessment and planning tool for federally conducted and federally assisted programs” by Limited English Proficiency.gov, 2011, Retrieved from <https://www.lep.gov/>. Copyright 2011 by Limited English Proficiency.gov.

Appendix D

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Access to telephonic interpreter services. • Organization receives federal funding for language services. • Leadership and staff members' commitment to provide safe, efficient, and patient centered care. • Defined roles and responsibilities of staff members. • Use of current clinical practice guidelines for HTN management. • HTN control is a quality measure for the organization. • Technology (e-prescribing, medication reconciliation list, and patient education resources). • Access to care. 	<ul style="list-style-type: none"> • Poor assessment of patient's language needs. • Outdated policy and plan for language services. • Lack of quality assurance program for usage and delivery of language services. • Lack of staff training and competency on language needs and services. • Lack of written education materials for LEP patients. • Lack of education program for hypertensive patients with LEP. • Limited number of bilingual staff members.
Opportunities	Threats
<ul style="list-style-type: none"> • Develop partnerships with local communities to increase HTN education among LEP individuals. • Develop partnerships with nearby health care organizations to hire onsite medical interpreter services. • Create educational program for LEP patients with HTN with the city and state health department. • Work with the Texas Health and Human Services office to develop a certification for staff members to ensure they are competent interpreters or translators. 	<ul style="list-style-type: none"> • Potential changes in insurance marketplace. • Lack of regulations from federal and state agencies to ensure quality of language services. • Future changes in clinic reimbursement rates by the federal government. • Lack of qualified medical interpreters. • Lack of national accreditation for medical interpreters/translators. • Patients' preference to using family members as interpreters during encounters. • Choice of health care network.

Appendix E

Blood Pressure Protocol

- Ensure comfortable room temperature and proper calibration of wall mount sphygmomanometer by medical maintenance.
- Position table at a height that a patient's upper arm is supported and the brachial artery is level with heart.
- Position the monitor at screener eye level and within one meter from the screener.
- Select appropriate cuff size: small adult: 22-26 cm, 12x24 cm, adult (standard): 27-34 cm, 16x30 cm, and large adult: 34-44 cm, 16x36 cm.
- Ask if the patient has smoked or used caffeine within the past 30 minutes, or if they need to empty their bladder.
- Ask patient to seat quietly for five minutes before blood pressure check with legs uncrossed, feet flat on the floor, back supported, and upper arm bare.
- Ask patient which arm is usually used for checks. If the patient does not know, take pressure in both arms (the arm with the highest pressure will be used for the second reading).
- Position the patient's arm, so it is relaxed and resting on the table, with palm up and brachial artery at heart level.
- Explain that some pressure will be felt around arm for about 30 seconds.
- Inform that there be no talking by the patient or screener during the reading.
- Palpate the brachial artery and place middle of the bladder length over the brachial artery.

Note. Adapted from "Measure Up Pressure Down" by Matthews, B., Penso, J., Sanderson-Austin, J., & Yphantides, P. E., 2013, Retrieved from <http://www.measureuppressuredown.com/hcprof/toolkit.pdf>. Copyright 2013 by the American Medical Group Foundation.

Appendix E (Continued)

Blood Pressure Protocol

- Position the cuff half to one inch above elbow joint, and wrap and secure the cuff snugly (screener should be able to slide only one finger between the cuff and the arm).
- Palpate the radial artery, rapidly inflate cuff, note the reading when the radial pulse disappears (this is an estimate of systolic pressure).
- Deflate rapidly and completely.
- Place bell of stethoscope lightly over brachial artery (bell should not touch clothing or cuff to avoid friction sounds).
- Inflate cuff rapidly to 30 mmHg above the number where the radial pulse disappeared, then deflate at two to three mmHg per second.
- The first of two consecutive sounds is recorded as the systolic pressure. The diastolic pressure is recorded at the level where the sound disappears. Record reading to the nearest two mmHg.
- Measure blood pressure twice, 30 seconds apart. If the second reading is more than 10 mmHg systolic or 6 mmHg diastolic different from the first reading, wait two minutes and measure twice more, 30 seconds apart.
- Record date, reading, and which arm was used on the patient's medical record.

Note. Adapted from “Measure Up Pressure Down” by Matthews, B., Penso, J., Sanderson-Austin, J., & Yphantides, P. E., 2013, Retrieved from <http://www.measureuppressuredown.com/hcprof/toolkit.pdf>. Copyright 2013 by the American Medical Group Foundation.

Appendix F

Hill-Bone Compliance to High Blood Pressure Therapy Scale

No.	ITEM	RESPONSE
		1. NONE OF THE TIME 2. SOME OF THE TIME 3. MOST OF THE TIME 4. ALL OF THE TIME
1	How often do you forget to take your HBP medicine?	
2	How often do you decide not to take your HBP medicine?	
3	How often do you eat salty food?	
4	How often do you shake salt on your food before you eat it?	
5	How often do you eat fast food?	
6	How often do you make the next appointment before you leave the doctor's office?*	
7	How often do you miss scheduled appointments?	
8	How often do you forget to get prescriptions filled?	
9	How often do you run out of HBP pills?	
10	How often do you skip your HBP medicine before you go to the doctor?	
11	How often do you miss taking your HBP pills when you feel better?	
12	How often do you miss taking your HBP pills when you feel sick?	
13	How often do you take someone else's HBP pills?	
14	How often do you miss taking your HBP pills when you are careless?	

Note. Adapted from “Development and Testing of the Hill-Bone Compliance to High Blood Pressure Therapy Scale” by Kim, M. T., Hill, M. N., Bone, L. R., & Levine, D. M., 2000, *Progress in Cardiovascular Nursing*, 15(3), 90-96. Copyright 2000 by *Progress in Cardiovascular Nursing*.

Appendix G

La Presion Arterial y su Salud Handout

La presión arterial y su salud

SU GUÍA PARA:

- ♥ **Conceptos básicos sobre la presión arterial**
- ♥ **El peligro de la presión arterial alta**
- ♥ **Medidas para evitar o disminuir la presión arterial alta**

Note. Adapted from “La presión arterial y su salud.” by the American Society of Hypertension, 2010. Copyright 2010 by the American Society of Hypertension.