

A Quality Improvement (QI) Project to Reduce Emergency Department (ED) Readmissions Among Patients with Limited English Proficiency (LEP) Through Utilization of Interpretive Services by Healthcare Providers

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A Quality Improvement (QI) Project to Reduce Emergency Department (ED) Readmissions

Among Patients with Limited English Proficiency (LEP)

Through Utilization of Interpretive Services by Healthcare Providers

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Abstract

Background and Review of Literature: Patients with Limited English Proficiency (LEP) are a vulnerable population with greater risk for poor health outcomes due to provider-to-patient communication barriers. Emergency Department (ED) health providers are routinely confronted with problems of ineffective communication thereby, leading to lack of patients' knowledge of their diagnoses and medications, and subsequently lead to medication-related adverse events and ED readmissions. *Purpose:* The purpose of this DNP quality improvement (QI) project is to evaluate the standards of care and examine factors that contribute to underutilization of interpretive services for patients with LEP who seek care at the ED to reduce ED Recidivism, improve discharge instructions, and increase patient satisfaction. *Methods:* The DNP student and ED providers collaborated to implement a QI project using the QI Plan Do Check Act (PDCA) cycles model. The ED providers were presented with an evidence-based educational intervention (Power-point presentation) along with a pretest and post-test survey questionnaire.

Implementation Plan/Procedure: The overall mean improvement in knowledge was 64%%, and the post-test showed that 83% of the ED providers gained the knowledge regarding the importance of increasing the utilization of interpretive services for patients with LEP. *Implications/Conclusion:* The project is an exemplar of how DNPs may design and facilitate efforts to optimize health care among vulnerable populations and apply health care delivery methods designed to improve language disparities that are optimal for minority populations. QI project confirmed the intervention was effective in increasing and facilitating interpretive services access. Completion of the QI project had a significant positive impact on both the Baystate Medical Center Emergency Department (BMC-ED) and on Interpreter Services. *Keywords: Interpreters, Limited English Speakers, Emergency department, recidivism, Humility, cultural competency, cultural awareness.*

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Introduction

In recent years, there has been a dramatic increase in immigrants migrating to the United States (U.S). According to the Centers for Disease Control and Prevention (CDC, 2011) and Zong, Batalova, & Auclair (2015) in 2015 approximately 1.3 million foreign-born individuals moved to the U.S; top five countries of origin included Mexico (75, 977), Russia (38, 920), Vietnam (37, 069), Dominican Republic (33,627) and India (24, 624). Secondary to this, approximately 59 million people in the U.S speak a language other than English at home and 25.2 million have Limited English Proficiency (LEP) (Flores, 2014).

A 2011 census reported that 972,000 Hispanics reside in Springfield, MA (Pew Research Center, 2011). Unfortunately, as reported in Pew Research Center (2011), in Springfield most Hispanics have limited English skills and are uninsured, making them a vulnerable population. In 2005, it was estimated that BMCH-ED has 84,000 annual patient visits; furthermore, approximately 61% of its Springfield's population speak another language than English at home, ranking the fourth highest percentage of patients with LEP after Texas, New York, and Hawaii (BHS,2016: Pew Research Center, 2011).

Emergency Departments (ED) are often overcrowded due to the high influx of uninsured patients with LEP who cannot seek access to primary care providers (PCP) (ACEP, 2015). The Baystate Medical Center Hospital-Emergency Department (BMCH-ED) is the site for this QI project. The BMCH-ED has recognized the health disparities created when interpreters are not available. In response to this issue, the organization has implemented the Office of Diversity, Equity and Inclusion recommendations to address language barriers between the large LEP population who seek services at BMCH-ED (BHS, 2016).

Discharge counseling should focus on informing patients of major diagnoses, medication changes, follow-up appointments, self-care instructions, and who to contact if problems develop is recommended. According to Auerback, Karliner, Napoles, & Nickleach (2012), Interpretive Services (IS) are means of providing access to the spoken word and to facilitate communication, among patients with LEP by ED providers. This care transition counseling responsibility using appropriate interpretive services such as Video or phone translation and in-person interpreters for patients with LEP is infrequently standardized and often delivered in a rushed and complex manner by multiple professionals, often involving use of English-language materials written at a high literacy level.

One challenge that the hospital faces is in creating personalized written discharge instructions, currently there is no software to translate these instructions for these patients with LEP. These instructions should be written documents translated into their native spoken language and given to the patients with LEP during discharge process.

Another challenge is the fact that, BMCH-ED has an existing database called "exit writer" to facilitate with discharge process. This database contains pre-translated discharge instructions in 5 selected languages (Spanish, Russian, Vietnamize, Chinese and English). About 45% of the providers are not aware of it and do not use it. The few who make use of them, report that they're not user friendly. These instructions can be printed and given to the patient or guardian, upon discharge to home, for the purpose of facilitating safe and appropriate continuity of care (Karliner et al., 2012).

Background

Patients with LEP are vulnerable and at increased risk for poorer health outcomes, complications, and lack of treatment due to inappropriate provider-to-patient communication barriers (Diamond, Schenker, Curry, Bradley, & Fernandez, 2009). In 1964, in an effort to address language and discrimination inequality, The United States (U.S.) Congress passed the Civil Rights Act Title VI which clearly defined, No person may be subjected to discrimination on the basis of national origin in health and human services programs because they have a primary language other than English (Brooks, Chen, & Youdelman, 2009). Additionally, in 1998 the Office for Civil Rights of the Department of Health and Human Services released a memorandum addressing patients with LEP. The memorandum declared that any recipients of Medicaid or Medicare had the right to receive professional interpretation (PI) from any medical organization, and delay of medical care secondary to language-barrier constitutes discrimination (Flores, 2006). Despite the regulations established to bridge language barrier gaps in health care, recent data suggest that few health care organizations meet the National Standards for Culturally and Linguistically Appropriate Services in Health Care (CLAS) and are not providing adequate linguistic access services (The Joint Commission, 2016).

The period of discharge from the hospital is one of the most vulnerable and complex times for a patient during their journey through the health-care continuum. Approximately 19% of patients have an adverse event post-discharge. Patients often experience anxiety, uncertainty, or a lack of understanding regarding discharge instructions, which may produce unnecessary telephone calls, contribute to hospital readmission rates, and impact the overall perception of the hospital experience (Karliner et al., 2012). Unfortunately, the quality of discharge instructions can vary between the providers responsible for producing and educating patients about their hospitalization and post-discharge care. Enhancing and standardizing provider-patient communication is a key factor in improving a patient's ability to comprehend discharge instructions and can ultimately improve the patient experience (Karliner, Auerback, Napoles, & Nickleach, 2012).

According to the US Department of Health and Human Services Office of Minority Health (2016), standards for healthcare organizations that are culturally and linguistically appropriate must offer, at no cost, language assistance, such as a professional interpreter or use of technological interpreter ad-hoc tools to all patients who have LEP. Flores (2014) estimated that 46% of US Emergency Department cases that involved LEP patients had no interpreter during a clinical encounter and 39% of the interpreters used had no training. Additionally, only 23% of U.S. teaching hospitals require or provide interpreter staff training; thus, not meeting CLAS standards (Flores, 2014). Underutilization of professional interpreters or ad-hoc tools during ED visits contributes to poor health outcomes, as evidenced by LEP patients who are less likely to see a primary care provider, more likely to miss follow-up appointments, and experience adverse medication effects (Flores & Ku, 2005; Flores, 2014). In fact, Diamond, Wilson Stronks, and Jacobs (2010) reported that out of 239 U.S hospitals only 13% met all four CLAS standards required per federal regulation and 19% met none of the CLAS standards.

For the patient population with LEP, patient satisfaction is significantly lower than for English speaking patients. This is primarily due to a lack of meaningful access to healthcare information. Healthcare providers who are unable to communicate effectively with their patients tend to utilize more diagnostic resources, invasive procedures and overprescribe medications. On the other hand, effective patient-provider communication can positively influence a patient's ability to regularly take prescribed medications, self-manage chronic conditions and take recommended preventive health measures.

Many health care organizations do not provide adequate interpretation because of the perceived financial burden, they neglect to take into account the cost of the consequences of failing to provide adequate interpretation or the potential benefits of improving communication with patients. This may be due in part to the paucity of data documenting these costs and benefits. According to Flores and Ku (2005) in a 2002 report the Office of Management and Budget (OMB) estimated an annual cost of \$268 million for the cost of interpreter services within the hospital.

Although some organization members have made efforts to eradicate language barriers, problems still exist regarding accessibility of professional interpreters to meet organizational needs. For example, despite mandated regulations and evidence that language services improve care, recent reports indicate few health care organizations provide adequate linguistic access services and provide interpreters proficient in less commonly spoken languages such as, Ukrainian, Turkish, Romanian, and Amharic (census.gov, 2015; Diamond, Wilson-Stronks, & Jacobs, 2010; Hadziabdic, Heikkilä, Albin, & Hjelm, 2011). The lack of medical interpreters during clinical care has been attributed to 59% of serious adverse patient effects. The Joint Commission's Sentinel Event Database approximated that 49.1% of adverse effects involving physical harm were attributed to communication problems strictly related to LEP patients (The Joint Commission, 2016a). Failure to address language barriers negatively affects patient satisfaction and contributes to preventable morbidity, due to misunderstanding of medical diagnoses and treatment.

Problem Statement

There is 8.6% risk of readmissions to the Emergency department among patients with Limited English Proficiency (LEP), indicated by communication barriers that make patients misunderstand discharge and medication instructions, resulting from underutilization of culturally competent interpreters and lack of appropriate teach back discharge instructions from healthcare providers (Flores, 2014).

To describe the factors that contribute to increase in ED readmissions and low implementation rate of Interpretive Language Services (ILS) for Limited English Proficiency (LEP) patients who seek care at Baystate Medical Center Emergency Department (BMCH-ED) related to the use of in-person professional interpreter services and technological interpreter adhoc tools, the DNP student proposed a QI project using the Plan-Do-check Act (PDCA) model. The PDCA model has been successfully used in many countries by health care organizations to improve multiple health care processes and outcomes (IHI, 2016a). Speroff and O'Connor (2004) describe QI-PDCA projects as associative relationships between behavior and the output. PDCA models provide a foundation to test interventions in healthcare settings by facilitation of planning, implementing, observing and evaluating the results (IHI, 2016a).

Organizational "Gap" Analysis of Project Site

Despite the Civil Rights Acts to decrease health disparities for the LEP population, significant communication gaps between patients' and their providers still exist. Elimination of language-based health disparities calls for implementation of national efforts and innovative solutions, such as the provision of a well-designed patient-centered health care paradigm that addresses patient language barriers. Patient quality of care, safety, and cost are negatively impacted with inadequate or a lack of a professional interpreter during clinical interaction (Bradley, Curry, Diamond, Fernandez, & Schenker, 2009).

Springfield, MA is home to the largest population of immigrants and non-English Speaking population in North America (CDC, 2017). A community-based hospital in Springfield is challenged with improving the health outcome of this population they serve. Most of the patients who seek health care services at the hospital are immigrants. The most commonly requested language at Baystate Medical Center-ED (BMCH-ED) interpreter services is Spanish (90%) in comparison to 70% Russian, 54% Vietnamese, 40% Nepalese and 30% Arabic (Baystate Health Services [BHS], 2016). BMCH-ED providers are currently using in-person professional interpreters, telephone interpreter services, Video technical intervention ad-hoc tools and exit writer database for discharge instructions, however they do acknowledge the under-utilization of the interpretive services to facilitate communication and the under-use of exit writer database for discharge instructions. In response to this issue, the organization has implemented the Office of Diversity, Equity and Inclusion recommendations to address language barriers between the large LEP population who seek services at this hospital. Annually, approximately 90,000 patients are seen at the BMCH-ED, and more than 45,000 patients are seen in outpatient clinics (Baystate Health Services [BHS], 2015). The ED experiences very high LEP patient populations. Although limited prevalence data exist for the LEP and patient population, 2010 data indicated 30% of Springfield's population spoke another language other than English at home (BHS, 2016).

According to the Baystate Medical Center Hospital Interpretive Language Service (ILS) Dashboard Report (2016) an estimated 80% of LEP patients require services in Spanish. Due to this high volume, there are insufficient numbers of professional interpreters available for bedside

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services, and providers often seek alternatives, such as family members vs utilizing professional interpreters or interpreter ad-hoc tools, which in turn has decreased patient satisfaction by 35%. Diamond et al. (2009) discovered providers often use the "getting by" method, where they use family members or attempt to use their own language skills to communicate. Interpreter ad-hoc tools are defined as a unit telephone or Vocera technology that dials an interpreter and Stratus electronic video to interpret in the language requested such as Spanish.

Currently at BMCH-ED, providers do recognize the importance of using an interpreter and know that effective communication could not be achieved through non-verbal means only or communicating through family members. Organizational gaps that hinder service for required language interpretation include delays in obtaining a professional interpreter or language services, the use of family members or untrained staff as interpreters, insufficient number of inperson interpreters and lack of education and awareness of best practices.

Review of the Literature

A literature review was conducted within the following search engines: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar and PubMed of the National Library of Medicine. The following Medical Subject Headings (MeSH) terms were used for both search: *Interpreter, Limited English Speakers, Linguistics, Emergency Department, Recidivism, and Cultural Competency,* yielding 200 articles in the last 10 years. This was further narrowed down to "*Interpreters, Emergency Department and Limited English Proficiency,*" and 50 articles were retrieved. A further literature search was completed with CINAHL using the same terms, which yielded 20 in the last ten years. Inclusion criteria consisted of scholarly articles that discussed the need, barriers and/or clinical outcomes in terms of the use of a professional interpreter and interpretation through telephones or mobile computer technology in a clinical

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health setting. Additionally, inclusion criteria were extended to include patient satisfaction, and improving discharge instructions. A total of 10 full text articles relating to language barriers and interpreter services in health care met inclusion criteria and were evaluated. The articles were reviewed based on their applicability to the project study, the quality and the strength of evidence using the University of Minnesota level of evidence and grades of recommendations criteria.

A preponderance of the investigation reviewed, showed evidence of the need for professional enhanced Interpretive services, within the Healthcare environment, particularly in the ED and noted a lack of interpreters and the negative health outcomes that affect the patient or organization (Baker, Parsons, Smith-Gorvie, & Hudak 2014; Wasserman et al., 2014). The goal for optimal care includes patient satisfaction, innovative practices seek to incorporate professional interpreters, telephone interpretation and mobile technology interpretive services during patient care as a requirement, rather than an option. Parés-Avila, Sobralske and Katz (2011) report only 37% of LEP patients are aware of their legal right to have a professional interpreter during every clinical visit or medical personal encounter as detailed in Title VI Civil Rights Act.

Addressing language barriers is a multifaceted problem and must include understanding provider and staff perceptions of the importance of professional interpreter use and/or use of during clinical encounters. Collectively Diamond et al. (2009), Hadziabdic, Heikkilä, Albin, & Hjelm (2011), Parsons, Baker, Smith-Gorvie, & Hudak (2014), and Wasserman et al. (2014) assessed a significant number of providers, who identified communication as the greatest barrier to patient management. Providers identified the lack of resources to train staff, costs of providing language access services, and the numerous languages spoken within the communities as the top three obstacles to facilitating interpreter services (Levinson, 2012). Due to the fast-paced environment of the ED, patient demand, and high acuity staff used personal judgment to 'get by' using self, family members, or no interpreters, as compared to the 'get help' theory that would require a professional interpreter (Parsons, Baker, Smith-Gorvie, & Hudak, 2014).

Similarly, González, Vega and Tarraf (2010) reported experiences and ratings on quality of health care among LEP patients who experienced provider language concordance. The authors found most providers in clinical practice utilize ad-hoc alternatives, such as family members and office staff. Crossman et al. (2010) report higher LEP patient satisfaction with bilingual providers or telephonic use during interpretation than with the use of a professional interpreter. Attributions to such disparity could be due to less opportunity for patient and physician relationship by virtue of a third person in the examination room (Crossman et al.,2010). Therefor Health care organizations must follow Culturally and Linguistically Appropriate Services (CLAS) in Health Care National Standards Title VI, which states that 'patients will not be discriminated against as a result of their national origin or primary language' (HHS, 2001).

Ginde et al. (2010) conducted a multi-center survey in the U.S., in which they compared four Boston emergency departments and their use of professional interpreters between 2002-2008. Authors surveyed consecutive adult patients for two 24-h periods at 4 Boston EDs in 2008. They used identical questions as in their 2002 study to assess English language barriers and to measure use and type of interpreter for those with language barriers. They enrolled 498 patients (66% of eligible). Of these, 8% had a significant English language barrier, but any interpreter was used for only 69% of these patients; the corresponding data for 2002 were 11% and 89%, respectively. In 2008, compared to 2002, professional interpreter use was similar (18% vs. 15%; p = 0.70), but a friend or family member interpreted more often (59% vs. 24%; p < 0.001), and hospital staff less often (10% vs. 47%; p < 0.001). Findings demonstrated that the routine practice of offering language services to LEP patients remained low. Lastly, despite state mandatory interpreter laws, Ginde et al. (2010) found only 69% of LEP patients had interpreter services during their care in 2008, compared to 2002, where results showed 89% of LEP patients were provided PI services.

Similar to Ginde et al. (2010), Gallagher, Porter and Monuteaux (2013), conducted a study to compare the rate of return visits resulting in admission in LEP patients to the rate in the English-speaking patients. They assembled a retrospective cohort of patients cared for in ED. Eligible patients included those who were discharged on the first encounter, and those who returned and were admitted to the hospital within 72 hours of ED discharge. A logistic regression was performed comparing the rate of return visits resulting in admission in the LEP and non-LEP populations adjusting for emergency severity index and time of day at ED visit. A total of 119,782 patients were discharged from the ED during a 32-month study period. Of these patients, 11.7% (14,053) identified a language other than English as their primary language. The rate of return visits resulting in admission was 1.2% (1279/105,729) among English speakers and 1.6% (220/14,053) in the LEP population. Patients with LEP were more likely to return to the ED for admission (odds ratio, 1.30; 95% confidence interval, 1.12-1.50; P < 0.001) The increased risk of a return visit for LEP patients remained significant after controlling for age, emergency severity index, and time of day (adjusted odds ratio, 1.43; 95% confidence interval, 1.23-1.66; P < 0.001). The authors concluded that patients with LEP are at higher risk of return visit for admission.

Similarly, Fernandez, Grudzen, Lee, Ngai and Richardson (2014), conducted a retrospective cohort study to evaluate whether patients with LEP experience different quality of care than English-speaking patients in the ED, using unplanned revisit within 72 hours as a

surrogate quality indicator. They conducted a retrospective cohort study in an urban adult ED in 2012, with a total of 41,772 patients and 56,821 ED visits. Compared 2,943 limited English proficiency patients with 38,829 English-speaking patients presenting to the ED after excluding patients with psychiatric complaints, altered mental status, and nonverbal states, and those with more than 4 ED visits in 12 months. Two main outcomes—the risk of inpatient admission from the ED and risk of unplanned ED revisit within 72 hours—were measured with odds ratios from generalized estimating equation multivariate models. The authors concluded that no difference in hospital admission rates between limited English proficiency patients and English-speaking patients. Yet limited English proficiency patients were 24% more likely to have an unplanned ED revisit within 72 hours, with an absolute difference of 0.9%, suggesting challenges in ED quality of care.

In contrast, Jacobs, Sadowski and Rathous (2007), conducted a Prospective intervention study to investigate how language barriers and the provision of enhanced interpreter services impact the costs of a hospital stay. They measured patient satisfaction/outcome, hospital length of stay, adherence with discharge instructions, use of emergency department (ED) services and hospitalizations in the 3 months after ED discharge, and the costs associated with provision of the intervention and any resulting change in health care utilization. Participants included three hundred twenty-three adult inpatients: 124 Spanish-speakers whose physicians had access to the enhanced interpreter intervention, 99 Spanish-speakers matched to Spanish-speaking participants on age, gender, and admission firm. The enhanced interpreter service intervention did not significantly impact any of the measured outcomes or their associated costs. The cost of the enhanced interpreter service was \$234 per Spanish-speaking intervention patient and represented 1.5% of the average hospital cost. Having a Spanish-speaking attending physician significantly increased Spanish-speaking patient satisfaction with physician, overall hospital experience, and reduced ED visits, thereby reducing costs by \$92 per Spanish-speaking patient over the study period. The Study concluded that, physician–patient language concordance reduced return ED visit, improved patient satisfaction and hospital costs.

Similarly, Bagchi, Dale, Eisenstein and Zavotsky (2010), evaluated whether availability of in-person professional interpreter services during emergency department (ED) visits affects satisfaction of limited English proficient patients and their health providers. They assessed the intervention's effects on patient and provider satisfaction through a multilevel regression model that accounted for the nesting of patients within time blocks and controlled for the patient's age and sex, hospital, and when the visit occurred (weekday or weekend). During the 7-month intake period, 242 patients were enrolled during 101 treatment time blocks and 205 patients were enrolled during 100 control time blocks. Regression-adjusted results indicate that 96% of treatment group patients were "very satisfied" (on a 5-point Likert scale) with their ability to communicate during the visit compared with 24% of control group patients (odds ratio=72; 95% confidence interval 31 to 167). (Among control group members who were not very satisfied, responses ranged from "very dissatisfied" to "somewhat satisfied.") Similarly, physicians, triage nurses, and discharge nurses were more likely to be very satisfied with communication during treatment time blocks than during control time blocks. They concluded that Use of in-person, professionally trained medical interpreters significantly increases Spanish-speaking limited English proficient patients' and their health providers' satisfaction with communication during ED visits.

Auerbach, Karliner, Napoles and Schillinger (2012), evaluated the association of a language barrier and effective communication at ED discharge for an optimal transition and to avoid adverse events. They measured data from Spanish, Chinese and English-speaking patients who were admitted to two urban hospitals between 2005-2008, comparing patient understanding of follow-up appointment type, and medication category and purpose between limited English proficient (LEP) and English proficient (EP) patients. Of the 308 patients who participated, 203 were LEP. Rates of understanding were low overall for follow-up appointment type (56%) and the 3 medication outcomes (category 48%, purpose 55%, both 41%). In unadjusted analysis, LEP were less likely than EP patients to know appointment type (50% vs. 66%; p = .01), medication category (45% vs. 54%; p = .05), and medication category and purpose combined (38% vs. 47%; p = .04), but equally likely to know medication purpose alone. The authors were able to conclude that understanding of appointment type and medications post-discharge was low, with LEP patients demonstrating worse understanding of medications.

Similarly, Battle, Brooks, Diaz and Erlich (2016), evaluated the patients' perspective on barriers to medical interpretation and experiences in the clinical setting. They conducted focus groups with 22 LEP Spanish-speaking adults. Focus groups were transcribed and analyzed in their original Spanish. Authors concluded that LEP patients face multiple barriers to accessing adequate interpretation leading to a perceived worsening in the quality of care.

Evidence Based Practice: Verification of Chosen Option

The service provided by interpreters is a significant component of providing culturally competent care. There is sufficient evidence to support the importance and enhanced effectiveness of interpretive services if appropriately used. It is an important adjunct to care of the emergency patient and should be available in all EDs and health systems. Effective communication through enhanced Interpretive Services can exert a positive influence on understanding and confidence with discharge instructions addition to the emotional health of the patient. Effective use of Interpretive Services by ED Providers may improve patient outcomes in situations where language barriers exist.

Therefore, the purpose of this DNP quality improvement (QI) project is to evaluate the standards of care and examine factors that contribute to underutilization of interpretive services for patients with LEP who seek care at the ED to improve discharge instructions through enhanced Interpretive Services, increase patient understanding and, satisfaction, cultivate safe, effective, and efficient patient experiences in the ED, in order to reduce ED recidivism.

Theoretical Framework/Evidence Based Practice Model

Campinha-Bacote's (2011) Process of Cultural Competence Model (see Figure 1) can be used globally to address the diverse healthcare needs of ethnic minorities and racial groups. This theory is appropriate to the implementation of this project to improve the quality of care for individuals with LEP seeking care in ED. Campinha-Bacote's (2011) Process of Cultural Competence Model is most specific to nursing and thus can serve as a framework for nurses to incorporate health literacy and cultural competence into their practice and deliver culturally appropriate care. The model includes five constructs (cultural awareness, cultural skills, cultural knowledge, cultural encounters and cultural desire) representing the mnemonic 'ASKED'. This mnemonic can be used as a guide to achieving cultural competence and including both health literacy and cultural values and beliefs in healthcare services. This model begins and ends with the seeking and experiencing of many cultural encounters and it is only through continuous cultural encounters that one acquires cultural awareness, cultural knowledge, cultural skill and cultural desire. From this perspective, cultural competence can be viewed as an ongoing journey of unremitting cultural encounters. This model allows the ED nurses to incorporate culturally appropriate assessments and provide healthcare information at appropriate literacy levels in caring for ethnic minorities and thus assist in reducing health disparities. This model is one resource that can assist nurses to identify health literacy deficits while simultaneously respecting the cultural norms of diverse populations.

When incorporating cultural competence into nursing care, patients' perceptions of their illness, socio-cultural norms, previous healthcare encounters and language barriers should be considered. Acknowledgement of these strengthens the patient–nurse relationship and establishes trust, decreases misconceptions, and assists nurses to avoid potentially offensive behaviors, enhancing cultural competence. As a health care professional, one should be able to appreciate that the health professional's ways are not better than the client's. Cantatore and Quappe (2005) describe cultural awareness in different levels, where *my way is the only way is the first level, I know their way but my way is better is the next level, my way and their way is the third, and the highest level is our way.* The final stage brings people from different cultural backgrounds together and creates a shared meaning. In attaining the highest level of cultural awareness, the nurse/healthcare provider is able to provide optimal care.

Ingram (2012) applied Campinha-Bacote's process of cultural competence model to examine the relationship between health literacy on LEP patients and how culturally competent are healthcare providers. Applying Campinha-Bacote's Process of Cultural Competence Model using the mnemonic ASKED (awareness, skills, knowledge, encounters and desire) involves incorporating culturally appropriate assessments and disseminating healthcare information at lower literacy levels and is needed for nurses to provide care for ethnic minorities and diverse populations. Health literacy should be assessed, and care should be based on a client's level of understanding and cultural values and norms. Nurses can care for ethnic minorities by using resources that target health literacy deficits and by increasing their own cultural competence.

Grady (2014), applied Campinha Bacote's model in assessing the Process of Cultural Competence Among Healthcare Professionals. According to the author, enhancing culturally competent home care may require changing cultural lenses, and learning to perceive health and illness through the eyes of ethnically diverse patients. Cultural competency requires that providers' behaviors and attitudes are compatible with the cultural values and beliefs of the ethnically diverse patients. Cultural competency in clinicians may correspond with improved patient satisfaction levels and measurable improvement outcomes.

Aponte (2009) described how nurses in all healthcare settings can deliver culturally competent and sensitive holistic care to a diverse group of Hispanic clients by applying Campinha-Bacote's model *"The Process of Cultural Competence in Delivery of Health Care Services,"* which provides a framework for developing and implementing such care, and to discuss the role of healthcare organizations in establishing the necessary infrastructure that will enable nurses to do so.

To develop adequate health literacy, it is important for nurses to use effective teaching strategies. These strategies should be centered on patients' cultural beliefs and values, and their levels of health literacy. It is equally important to develop and maintain trusting client-nurse relationships and respect. Trust opens the communication line for detailed patient health histories and helps patients feel more comfortable when sharing personal, but necessary information with nurses. A trusting relationship helps clients feel more comfortable telling the nurse that they cannot read or write and explaining cultural beliefs that affect their healthcare-related behaviors. In addition, patient compliance increases when nursing practice is culturally competent. Care should be based on a client's level of understanding and cultural values and norms. Campinha-

Bacote's Process of Cultural Competence Model can assist nurses in addressing cultural issues

associated with low health literacy (Ingram, 2011).



Figure 1: Campinha-Bacote's process of cultural competence model.

Goals, Objectives and Expected Outcomes

As defined by Issel (2004), goals are broad statements regarding the outcomes to be achieved with the implementation of a specific health program. The overarching goal of this QI project was to effectively inform and educate primary care providers in the Emergency Department on the importance of utilizing interpretative services on LEP patients within 12 weeks of implementation at Baystate ED in Springfield MA. This DNP as the project investigator of this QI project aimed to accomplish these goals by first assessing provider awareness and knowledge of cultural competency followed by providing the in-person educational programmatic intervention aimed at increasing awareness to current guideline standards through the use of an educational handout, power-point presentation and pre-test

survey. Secondly, increased the utilization of interpretative services and reduce readmission rates

(see Table 1 below).

Table 1. Guais, Objectives and Expected Outcom	Table 1:	Goals, Ob	jectives and	Expected	Outcomes
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Goals	Objectives	Expected Outcomes	Results
1. Assessing provider's increased awareness and knowledge of cultural competency.	Implementation of educational programmatic intervention aim to increase awareness to current guideline standards through the use of an educational handout, power-point presentation and pre-test survey.	80% of sampled providers who see LEP patients demonstrate increased knowledge pertaining to current best practices of cultural awareness screening and assessment.	This goal was met by 4% knowledge increase by Providers.
2. Increase the utilization of enhanced interpretive services by ED providers.	The ED providers effectively take care of LEP patients by using interpreters.	60% of ED providers accurately communicate with their LEP patients with the help of interpreters.	This goal was met by 4% increase on utilization of interpretive services in ED
3. Reduce re-admission rates in the ED among LEP patients.	ED Providers collaborate with Interpreters and attend educational sessions applicable to their daily practice	10% reduction in the ED readmissions among LEP patients within 6 weeks of project implementation.	Goal not met. (see discussion).

Project Design

This DNP Project included a Quality Improvement (QI) project plan with an educational evaluation design for the purpose of educating and refreshing providers knowledge and communication patterns with patients with LEP plus evaluating the effectiveness of using Interpretive services and improving ED discharge instructions by utilizing exit writer database for discharge instructions and increase patient satisfaction. The QI project plan included establishing the QI team of; ED providers and staff along with the director and nurse educators. The DNP student and ED providers (Physicians, Physician Assistants, Nurse Practitioners and Registered Nurses) collaborated to implement a QI project using the QI Plan Do Check Act (PDCA) cycles model. The project design considered employee empowerment, shared governance, and active involvement of all key stakeholders. Ongoing feedback allowed for review and revision of planned interventions to meet set objectives and goals.

Project Site and Population

The stakeholder agreement was obtained in June 2017, and was signed by the nursing manager of ED. The stakeholders in this process include, the Director of nursing services and professional development and Nursing educators.

This DNP project was conducted at a Baystate Medical Center Hospital - ED (BMCH-ED) in Springfield, MA. The emergency department registers about 1,000 patients a day (BHS, 2016). Among the 1,000 patients approximately 50.8% are identified as LEP (BHS, 2016). The hospital is staffed with 24-hour professional interpreters through Interpreter Language Services (ILS) program that offers professional interpreters to patients with LEP. Baystate-ED has a designated professional interpreter 24/7; however, the designated professional interpreter must prioritize trauma and Intensive Care Units (ICU) patients over any other patient requesting interpretation. The most interpreted language at Baystate – ED is Spanish followed by Russian, Vietnamese, Nepalese and Arabic.

The QI team recruited from clinical providers and nursing staff from the ED, the type of participants recruited include Physicians, Physician Assistants, Nurse Practitioners and Registered Nurses from weekday day/night shifts along with weekend day/night shifts. Baystate Medical Center Hospital – ED serves patients from diverse cultures with minimal education to the health care professionals on cultural sensitivity and cultural competency. The population in the city of Springfield is 60% Hispanics, and the remaining 40% is comprised of African

Americans, Africans, Vietnamese, and Asians from various cultures and traditions ("City of Springfield Demographics Estimated for Year 2016").

The ED has 200 total providers consisting of Physicians, Physician Assistants and Family Nurse Practitioners. Other staff members include management staff, medical assistants, and dedicated interpreters available at the site during hours of operation. Prior to the implementation of the project, all providers and staff members working at the site were informed and given a brief introduction about the program interventions. In order to recruit volunteers, an email was sent out to employees in the ED, to inform them about the project, and request those willing to participate. The email included directions for the participants to complete a pretest survey using the survey monkey followed by an online hour power-point presentation.

Setting facilitators and challenges.

The leading strength of this QI project was the collaboration and engagement obtained from the BMC-ED department leaders and stakeholders to increase quality care for LEP patients. An additional strength of this project was the cooperation from unit stakeholders to form the QI team and meet on monthly basis to evaluate PDCA cycles progress. Lastly, ILS gained a deeper understanding of the access barriers BMC-ED staff faced, consequently, building collaborative efforts and increased interaction between the two departments. Lastly, the interpreter ED services were impressed by the QI project results and plans to continue the intervention for the future.

Time restrictions for the QI project implementation were one of the main challenges of this project. The time delineation required to complete this work within the academic calendar for a DNP Project prescribed a three-month window for intervention limiting time to evaluate the change between pre- and post-intervention. While 20-minute pre-shift huddle sessions were implemented, this QI project would have benefited from more time for presentation and education regarding the QI project content and CLAS standards. This hindrance is difficult to avoid in ED due to the fast-paced workload demand and complexity of the unit.

Implementation/ Procedures

The Emergency Department is a complex unit that requires the multifaceted Plan-Docheck-Act (PDCA) model to provide feedback loops of continuous progress in the QI process. The PDCA model involves a four-step structured groundwork that supports methods to drive QI improvements, initiatives, and evaluate QI interventions (Taylor et al., 2014). The PDCA cycle is a four-step QI model used for improving processes and implementing change (Minnesota Department of Health, 2014) (Figure 1). According to Taylor et al. (2014), the PDCA method was developed by Shewhart and Deming to direct QI processes in an industrial manufacturing setting (Taylor et al., 2013). The four-cycle step design seeks to adapt changes aimed at examining the utilization of a professional interpreter or use of technological interpreter tools for LEP patients seeking care at BMCH-ED. Although originally designed to fit industrial context, the PDCA cycles have been successfully beneficial for testing changes in healthcare settings (Taylor et al., 2014). The PDCA cycle model is based on scientific methods that form QI frame work to develop, implement, and test QI improvements (Institute for Healthcare Improvement, 2015a). Initiating QI PDCA cycles in small-scale trials such as at BMCH-ED minimizes risk to patients and allows stakeholders to freely act, learn, and build evidence for change (Taylor et al., 2014). This design fits the project by addressing all BMCH-ED stakeholders to collaborate and engage in a structured way to improve access to professional interpreters and interpretive tools (Dückers, Groenewegen, & Wagner, 2014). The PDCA model (Figure 2) was the central component of the QI project, as the team sought to identify factors that contribute to the utilization of professional interpreters or use of interpretive tools for LEP patients at BMCH-ED.



FIGURE 2. Plan-Do-Check-Act (PDCA) Cycle (Minnesota Department Of Health, 2014)

Plan

In the first part of the PDCA model, the *Plan* phase, the DNP student provided background information of the identified problem to the QI team and emphasized the need for change (Speroff & O'Connor, 2004). Data that demonstrated the prevalence of LEP patients at Baystate-ED, the limited use of interpreter services, improving discharge instructions, and a synthesis of the literature was presented. In this Plan phase, in-order to engage the staff the DNP student attended weekly pre-shift huddle sessions and facilitated 10-minute discussion of factors that reduce the use professional interpreters or interpretive tools, and adherence to emergency department (ED) discharge instructions by using pre-formatted discharged instructions via exit writer database on patients' native language.

Meetings were held with the Director of Nursing Services & Professional Development, and the Director of Emergency Room Department to plan the process; and the rest of communication continued via emails. The DNP student prepared an online pretest tool (Appendix B), which included demographic questions, communication, values, attitude, and skills statements. The DNP student also prepared a 50-minute PowerPoint presentation for the ED providers to reinforce the importance of utilizing in-person interpreters and ad-hoc tools to facilitate the discharge process.

Pre-shift huddle teams brainstormed and collaborated to identify barriers that contribute to access professional interpreters, interpreter ad-hoc tools, exit writer database for discharging instructions. The DNP student was able to investigate further by stating the problem and asking, "how would environment limit access to professional interpreter to interpreter ad-hoc tools?", "how can ED environment impede patients' understanding of their discharge instructions?" and "why there is no easy access to the exit writer database?". As the staff respond, probing questions were used to further investigate the contributing factors creating barriers to using of Interpreter Language Services (ILS), exit writer database and follow up discharge instructions. At the end of each pre-shift huddle session the DNP student discussed relationships between each category and association to limited access to professional and interpreter ad-hoc tools and barriers to understanding discharge instructions. The most common provider's reported barriers to utilization of professional interpreters and ad-hoc tools include 1) delay in waiting for inperson interpreters, 2) Patients' desire to use family members for translation and 3) difficult to hear interpreter through telephone or video device. The team agreed on the interventions that entailed improvement of interpreter communication using ad-hoc tools, creating easy access to exit writer database and improving discharge instructions. Interventions included; Vocera a hands-free technological device, used at BMCH-ED to provide communication within ED staff members. Vocera uses intuitive commands to enable instant telephonic two-way or one-to-many conversations (Vocera.com, 2016). To improve discharge instructions, patients are given written instructions in their native language to explain the post-discharge plan of care including symptom management, follow-up recommendations, and medication use.

DO

After creating and identifying the plan, the Do cycle initiates implementation of the proposed action plan. The DNP student attended weekly huddles at the beginning of every shift for a week. Huddles are brief meetings at the beginning of every shift where the clinical managers put out information to all of the ED staff.

Prior to the huddles the anonymous pre-assessment of clinical providers and nursing staff's knowledge and comfort with using interpretive services was electronically distributed in the form of Survey monkey link and the anonymity of the participants was maintained.

The ED providers were presented with an evidence-based educational intervention (Power-point presentation) along with a pretest and post-test survey questionnaire to reinforce the importance of utilizing in-person interpreters and ad-hoc tools (such as video and Telephonic ad-hoc tools) to facilitate the ED discharge process. A one month written (post-test) follow up survey was conducted to assess if the interventions improved the ED providers knowledge and comfort with the improved discharge process, as well as increased implementation rates of interpretive resources including in-person professional interpreters or use of interpreter ad-hoc tools. The educational material also covered cultural awareness, humility, sensitivity, and competence and how these factors impact care for patients from different cultures. The power point presentation addressed contextual data and review of the literature of negative outcomes associated with lack or insufficient use of professional interpreters for Limited English Proficiency (LEP) patients who seek care in the emergency department. The DNP student educated the staff about the Culturally and Linguistically Appropriate Services (CLAS) in Health Care National Standards Title VI that aims to protect LEP patients from discrimination due to national origin or primary language (HHS, 2001). To demonstrate the need for change, the DNP student presented evidence-based practice of local and national data demonstrating the impact of lack of professional interpreters with LEP reported by Office of Minority Health (OMH) and Pew Research Center (2011). Copies of the power-point brochures were given to the attendees.

The final step of the action plan was the implementation of Pre-formatted discharge instructions from the exit writer database in patients' own native language. Pre-formatted discharge instructions are in 5 selected languages (Spanish, Chinese, Vietnamize, Russian and English), may contain less physician writing but more information than unstructured instruction notes, oblige the writer to be concise, and allow quick interpretation and transfer of information to computerized patient records. Though most of the ED providers do prefer to write their own customized discharge instructions, there isn't any software to translate these instructions yet, to resolve this issue the in-person interpreters are currently translating them in writing for the providers.

Check

In the 'check' cycle, careful examination and evaluation of the de-identified data of the utilization of interpretive services collected by the methods described above was presented using

Histogram and pie charts. The DNP student electronically distributed the anonymous post-assessment questionnaire to assess the clinical provider and nursing staff's knowledge and comfort with the improved discharge education process over time, as well as increased implementation rates of interpretive resources including in-person professional interpreters or use of technological interpreter ad-hoc tools and improving access to the current discharge care note instructions for LEP patients. A general comparative analysis was used on the de-identified patient satisfaction rates and comments compiled on excel spreadsheets for review (by the ED administrators and QI team) from the three months prior to the implementation to the three months after the implementation of the improved ED and discharge teaching processes and increased implementation rates of interpretive resources including in-person professional interpreters or use of technological interpreter ad-hoc tools and improving access to the exit writer database for discharge instructions for patients with LEP.

At the end of each week the QI team met to discuss process changes and issues with intervention implementation. Through the intervention weeks, the DNP student followed up with pre-shift huddles to assess efficacy or issues with intervention. Expected outcomes of this QI project focused on increasing implementation rates of interpretive resources including in-person professional interpreters or use of technological interpreter ad-hoc tools and improving access to the current discharge instruction database for LEP patients.

Act

Post education discussions with stakeholders were conducted to obtain opinions and suggestions of probable solutions for continued improvement. In the Act stage, intervention modifications were made, based on obtained data and discussions resulting from the previous Study stage. This is a crucial step in the QI project in which the team may adapt and modify identified changes; consider adopting the changes to the unit; or abandon identified change and restart another PDCA cycle (Speroff & O'Connor, 2004).

The educational sessions were designed to eventually enable employees to develop better skill to care for patients from different cultures. For this reason, the tool that was utilized measured knowledge and attitudes with minimal focus on skill. The DNP student documented the findings, and results to be disseminated to the stakeholders.

Measurement Instruments

The goals of this QI project were measured using the Pre/post survey questions, the Likert scale of 5 digits – questionnaire, to be completed electronically by Providers and nursing staff. The pre/post-assessments were designed to anonymous, quick, and easy to complete. The pretest/posttest tool was adapted from the National Center for Cultural Competence at Georgetown University with permission for duplication. The tool is very broad and can be used in a variety of settings to evaluate Cultural Competence and Linguistics. However, some statements were eliminated to suit the objectives of the DNP project. Statements related to interactions with patients with limited English proficiency, cultural and spiritual and professional development were utilized (Appendix A and Appendix B).

The statements used were not modified in order to maintain the validity of the tool. This tool has been shown to be a reliable measure of health care providers' cultural and linguistic competency through a psychometric analysis completed in 2010 (National Center for Cultural Competence, 2011). Power-point presentations to the providers and nursing staff through-out different shifts. Addressing contextual data and review of the literature of negative outcomes associated with lack or insufficient use of professional interpreters for Limited English Proficiency (LEP) patients who seek care in the emergency department. Enhancing and monitoring the technical intervention of telephone interpreter services, and in person professional interpreters to facilitate communication between LEP patients and staff who are caring for them.

The Hospital and Emergency Department Consumer Assessment of Healthcare Providers and Systems (HCAHPS and EDCAHPS) are Press Ganey questionnaires that are universally used by hospitals across the country. The Baystate Hospital has used these tools in some capacity since 2016. Since then, patients discharged from the ED receive either the HCAHPS or the EDCAHPS; it is a random process and evenly divided for which inventory is administered. In order to evaluate for improved patient satisfaction scores, the ED's HCAHPS and EDCAHPS scores and patients' comments for the three months prior to project implementation were compared to the scores from the three months after implementation. Emergency Department providers currently do utilize the exit writer database for patient discharge instructions, the goal here is to improve and increase the utilization of this database.

Data Analysis

The DNP student was responsible for reviewing and interpreting the pre- and postassessment results from clinical providers and the nursing staff. The qualitative data is based on the providers' knowledge and comfort level and their opinions on the sustainability of using interpretive services during discharge. The Nursing Director of Emergency Services receives aggregate patient satisfaction scores from the de-identified HCAHPS and EDCAHPS that patients complete and return.

The quantitative scores are compiled monthly and sent electronically to the nursing director. The de-identified scores are recorded and archived on an excel spread sheet, so the ED director has access to the satisfaction scores for the three months prior to the project implementation as well as the three months after implementation. Utilizing a Fishbone (Ishikawa) diagram (Figure 3) cause analysis to examine and to demonstrate cause and effect of the identified problem. Fishbone diagrams pinpoint all possible causes for the problem and allows for the structure of brainstorming and categorizing. This tool identifies six categories; materials, methods and process, environment, equipment, people, and measurement that aid the stakeholders to associate the relationship potential of causes and outcome (American Society for Quality, 2016).

The DNP student applied quantitative methods by analyzing statistical information of a total number of LEP patients seen at the ED, along with a total number of professional interpreters and interpreter services ad-hoc tools requested over a 3 months period. Histograms were utilized to plot the monthly use of professional interpreters, interpreter ad-hoc tools, to determine the response to the implemented changes. These enabled the DNP student and QI team to analyze data patterns and identify the average or median.

Fishbone Diagram or Ishikawa



FIGURE 3. Fishbone or Ishikawa Diagram

The DNP student met with QI team and presented the completed Fishbone Diagram (see figure 4 below) obtained during BMC-ED pre-shift huddles. The QI team reviewed the information and through two meeting sessions collaborated to analyze and select an intervention.



Figure 4: Completed Fishbone or Ishikawa diagram.

Results

The aim of this QI project was to increase implementation rates of interpretive resources including in-person professional interpreters or use of technological interpreter ad-hoc tools for patients with LEP, in return reduce re-admission rates and increase patient satisfaction from baseline measure within twelve weeks of implementation at the BMC-ED. The expected primary outcome was a significant increase in the use of in person professional interpreters and ad-hoc tools during the 12 weeks of QI implementation.

Pre-presentation surveys (Pre-test), were disseminated via survey monkey database from September -October 2017 with 77 responses back from Physicians (32), Physician Assistants (3) and Registered Nurses (42). Regarding how often they use interpretive services for their patients with Limited English Proficiency, 64% of providers indicated using interpretive services every day, 32% somedays and 3% less than often. Regarding the importance of using interpretive services, 90% of providers felt it was very important and 9% of providers felt it was important to use interpretive services on their patients with LEP. Regarding comfortability, 25% of providers strongly agreed to be comfortable using in-person professional interpreters vs family members, 58% of providers agreed and 17% providers neither agreed nor disagreed.

Although providers acknowledged pre-intervention that it was important to use Interpreter Services for patients with LEP (89.61% of ED providers); post intervention results showed an even greater recognition of importance (93.75% of ED providers), representing a 4% increase in use of interpretive services in the short interval available to pilot this project's intervention geared to reinforce and improve use of Interpretive Services for all patient with LEP. This reflects on goal # 1, with 4% knowledge increase of providers who see patients with LEP in the ED.

1. Assessing provider's	Implementation of	80% of sampled providers	This goal was met by
increased awareness and	educational programmatic	who see LEP patients	4% knowledge
knowledge of cultural	intervention aim to increase	demonstrate increased	increase by
competency.	awareness to current	knowledge pertaining to	Providers.
	guideline standards through	current best practices of	
	the use of an educational	cultural awareness screening	
	handout, power-point	and assessment.	
	presentation and pre-test		
	survey.		

Enhancing knowledge about available Interpretive Services and reinforcing the importance of use of Interpretive Services for patient with LEP in the ED, 83% of the ED providers gained the knowledge of the importance of using and increasing utilization of interpretive services for their patients with LEP. The overall mean improvement in knowledge about importance of use of Interpretive Services was 64%, and the post-test showed that on the

importance of using interpretive services, in pre-intervention, agreed it was very important to use interpreters.

Figure 5 (below) depicts the results of educating/reinforcing providers about importance and use of Interpretive Services for their ED patients' best outcomes.



Figure 5: The importance of using interpretive services.

According to the Emergency Room Interpreter ED Dashboard in the month of September also known as pre-intervention month, data showed a low of 737 total interpretations, including in-person interpreters and ad-hoc tools (from Pods A, B, C and D) with a range in the 3 months prior to project intervention of 737-848 interpretations and an average of about 799 interpretations. Over the next 4 months post intervention, the number of interpretations range from a low of 780 to a high of 888, with an average of about 837 separate uses of interpretive services showing as post intervention increase of about 9% in overall interpretations completed. By January there was an overall increase in use of services to 888, a new high for the ED. This

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represents a positive upward trend in services use for the ED (see figure 6 below showing ED

Interpretive services numbers). This reflects to goal # 2, with 4% increase on utilization of

Interpretive services.

2. Increase the utilization	The ED providers effectively	60% of ED providers	This goal was met by
of enhanced interpretive	take care of LEP patients by	accurately communicate with	4% increase on
services by ED providers.	using interpreters.	their LEP patients with the	utilization of
		help of interpreters.	interpretive services
			in ED.



Figure 6: Emergency ED Interpretive Services Dashboard.

As of October 2017, the hospital started disseminating patient satisfactory surveys in Spanish language to patients who indicated that Spanish was their spoken language. Prior to October 2017, patient satisfaction has been monitored via patient surveys, sent out one week after discharge. Unfortunately, these surveys have been in English language only, regardless of language spoken by the patients receiving them. The rate of return surveys from English speaking patients was 98% vs 2% returns from non-English speaking patients.

Interpretation/Discussion

The DNP student and QI team successfully completed one full PDCA cycle. Upon completion of the PDCA sequence the aim of this QI project was achieved. The PDCA cycle facilitated the identification of factors impacting the implementation of interpretive resources including in-person professional interpreters or use of technological interpreter ad-hoc tools for patients with LEP. The QI team successfully collaborated to select an appropriate intervention based on results from pre-shift huddle sessions. Twelve-weeks of pre-intervention and post intervention data were evaluated for improvement in utilization of BMC Interpreter services for patients with LEP. Success of the QI project was three-fold: 1) 4% increased implementation rates of interpretive services including technological interpreter ad-hoc tools for patients with LEP; 2) 9% increase in the number of interpretations done; and 3) two in-person professional interpreters hired. Thus, the intervention increased interpretations for LEP patients at BMC-ED and met BMC-Interpretive services vision to cultivate a safe, effective, and efficient environment for improved patient outcomes. As an ultimate goal of this Magnet hospital is to meet 100% compliance, that said DNP student will continue to monitor/follow up on this project for 6 months, then re-assess results to see if another refresher course is needed. This being a QI project, re-evaluations/assessments will continue for a year to meet Magnet compliancy.

The goal of reducing ED recidivism among patients with LEP was not met, currently the hospital does not keep records of re-admission rates for patients with LEP, data collected is not divided by language spoken or patient nationality. More work is needed to change, Information Technology (IT) in the ED will have to change their data collection to capture and correct this inorder to meet Magnet requirements.

There was a low rate of patient satisfaction survey returns among patients with LEP compared to English survey returns. This could be explained as due; 1) low literacy level of patients; 2) limited time period; 3) language barrier. This project being a pilot, more time is needed to continue developing the surveys in Spanish and other commonly spoken languages in the ED other than English. The ED administration and IT services could implement phone survey to collect patients' satisfaction data via interpreters.

This QI project demonstrates one approach of how Doctorally prepared Nurse Practitioners may implement EBP and systematic change models to improve outcomes for vulnerable populations such as LEP patients, still, much more work is needed. Despite the mandated National CLAS standards, approximately only 69% of LEP patients have interpreter services during emergency care visits and 46% of US ED LEP cases had no interpreter during a clinical encounter; while 39% of the interpreters used had no training (Ginde et al, 2010; Flores, 2014b). Adherence to CLAS standards promotes high quality of care, safety, and reduced cost (Diamond, Schenker, Curry, Bradley, & Fernandez, 2009). This DNP Project is critical because training ED providers in understanding the interpreter role as well as the evidence-based benefits of their engagement is critical—both for improved patient outcomes and decreased medicolegal costs. Finally, it is important to give providers confidence in interpreter quality by increased training in medical knowledge.

The aforementioned ED percentage of 'need met' suggests that through stakeholder education and collaboration BMC-ED could produce beneficial outcomes to bridge language barriers. Providing CLAS standard education and awareness led to organizational change and implementation that addressed patient language barriers. Additionally, the intervention facilitated telephonic access from ED staff to interpreter services. This diminished the BMC-ED staff need to seek alternative methods such as to get by, utilize family members, and create disparities in time delays; thus, decreasing cost and most importantly meeting CLAS standards. Meeting CLAS standards is a federal requirement and is optimal to provide effective health care, improve outcomes and decrease healthcare cost.

Cost-Benefit Analysis/Budget

Implementation of this project did not affect patient care/income. The participants were able to complete the online education module at their own time and did not need to take time off from their departments to attend. Over time the education provided to the participants improved patient care, and the impact was seen in the access and positive health outcomes of minority groups served at the hospital (see table 2 below).

Item	Cost
Human Resources	
• DNP student-150hrs @ \$30/hr.	\$4500 (Donated time)
• Preceptor-50hrs@ \$40/hr.	\$2000 (Donated Time)
Education Resource- 20hrs	\$800 (Donated time)
@\$40/hr.	
Education and Meetings	
• Staff pay for 1hour x 20	\$600
participants@\$30/hr.	\$0 (Free)
Conference room	\$0
Survey Monkey	\$140
Material and Supply	
• Printing/copying & Ink (DNP	\$100
student)	
Total Cost	\$8140

 Table 2: Cost Itemization.

Ethical Considerations/Protection of Human Subjects

The University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained prior to initiating the DNP project (Appendix C, letter of approval). The DNP quality improvement project used evidence-based practice to improve how the ED staff provides education to all patients and family members and so did not single out or differentiate between patients for any reason. All patients seen in the hospital are protected by and continue to be protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) which, among other guarantees, protects the privacy of patients' health information. All information collected as part of evaluating the impact of this project was aggregated data from the project participants and not include any potential patient identifiers.

Conclusion

This QI project was aimed at increasing implementation rates of interpretive services including in-person professional interpreters or use of technological interpreter ad-hoc tools for patients with LEP. This QI project's results confirmed the intervention was effective in increasing and facilitating interpretive services access. Completion of the QI project had a significant positive impact on both the Baystate Medical Center Emergency Department (BMC-ED) and on Interpreter Services. Additionally, this QI project was successful in increasing interpretations for LEP patients at BMC-ED and meeting Interpretive services vision to cultivate a safe, effective, and efficient environment for improved patient outcomes. This QI project was considered a success due to the collaboration, engagement, and cooperation obtained from the BMC-ED leaders and stakeholders. Consequently, Interpretive services gained a deeper understanding of the access barriers BMC-ED providers faced, leading to build collaborative efforts and interaction between the two departments.

Evidence shows that unaddressed language barriers put patients at high risk for adverse events (Flores, 2014). For example, LEP patients are more likely to experience medical errors due to communication problems than English-speaking patients and are more likely to experience physical harm when errors occur. Further, pediatric patients with LEP families who speak Spanish have a much greater risk for serious medical events during hospitalizations than patients whose families are English proficient (Flores, 2014).

Great power! Given the communication challenges LEP patients face, it is critical that hospitals make special efforts to address the role of language and cultural factors so that LEP patients receive safe and effective care. Poor communication can lead to medical errors, patient safety events, and overall lower quality of care (Crossman et al, 2010). Patients may not feel comfortable revealing that they have trouble communicating in English. Thus, it is important to offer professional interpretation services, even when patients seem to speak enough English to *get by*. In addition, the Department of Justice and the Department of Health and Human Services have stated that failure to provide appropriate interpreter services can be considered discrimination based on national origin. Such discrimination is prohibited by Title VI of the Civil Rights Act of 1964 for any entity receiving Federal funding such as Medicare or Medicaid payments.

Having interpreter services available is not helpful if they are not used effectively. All staff should have training on how to use interpreter services and should understand the interpreter's role in the patient encounter. This includes fostering a culture of safety for LEP patients where the entire care team, including the interpreter, is prepared to identify and address potential safety issues (Alpers, 2014). Interpreters should receive standardized training in how to interpret effectively and in relevant aspects of clinical care. The National Council on Interpreting

in Health Care and the International Medical Interpreters Association have developed national certification standards to guide the design of services, processes, and programs to ensure quality control and accountability (Alpers, 2014).

Implications for Practice

Improving knowledge of ED providers will result in early diagnosis and prevent or delay progression of diseases or complications caused by communication barriers. This QI project emphasizes the significance of the use of systematic change models and the importance of incorporating evidence-based practice (EBP). Doctorally prepared Nurse Practitioners (DNPs) are equipped to provide and apply EBP education, operate and organize leadership driven models that are fundamental in quality improvement projects. This project is an exemplar of how DNPs may design and facilitate efforts to optimize health care among vulnerable populations such as patients with LEP and apply health care delivery methods designed to improve language disparities that are optimal for minority populations.

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APPENDIX A and B

PRE- SURVEY QUESTIONNAIRE

POST- SURVEY QUESTIONNAIRE

APPENDIX A

Pretest

To take the Pretest test go to: https://www.surveymonkey.com/home/?ut_source=header#

INSTRUCTIONS - PLEASE READ CAREFULLY

On this inventory, you are asked to indicate your own personal opinions. In other words, you should indicate honestly how much you agree or disagree with each of the opinion statements listed below. There are no right or wrong responses--only opinions and your responses will remain completely anonymous. In order to complete this inventory, read each statement carefully and decide how much you personally disagree or agree. Then, using the Likert scale provided (Choices 1-5 below) in the columns to the right of each statement, indicate your response by placing an X in the column space most representative of your opinion (1=Definitely Disagree through 5= Definitely Agree). For the non-Likert scale questions/answers, please indicate how comfortable/uncomfortable with each of the stated opinion statements.

Please give a response for each of the items, leaving none blank, but mark only one response choice per item.

Statement	1 Definitely	2 Mostly	3 Neither Agree	4 Mostly Agree	5 Definitely
	Disagree	Disagree	nor Disagree		Agree
When interacting with					
individuals and families					
who have limited					
English proficiency. I					
always keep in mind					
that: Limited in English					
Proficiency is in no way					
a reflection of their level					
of intellectual					
functioning;					
When interacting					
with individuals and					
families who have					
limited English					
proficiency. I always					
keep in mind that					
they may or may not					
be literate in their					
language of origin or					
English					
Linghoin,					
I avoid imposing values					
which may conflict or be					
inconsistent with those					
cultures or ethnic groups					
other than my own;					
I understand that my					
knowledge about other					
cultures is limited to my					
experience					

A QI PROJECT TO REDUCE ED RE-ADMISSIONS

I am willing to learn			
about other cultures and			
how they perceive health			
and disease			

Statement	Physician	Physician Assistant	Registered Nurse	Nurse Practitioner
What is your title.				

Statement	Very comfortable	Comfortable	Not comfortable	Not sure/do not know
How comfortable are you in caring for patients from different cultures?				
How Comfortable are you in using Interpretive services for your Spanish Speaking patients?				

Statement	Everyday	Somedays	Less than often	I do not use interpreters
How often do you use interpretive services for your Spanish speaking patients?				

Statement	0-11 months	1-5 years	6 – 10 years ago	> 11 years
How long ago did you receive any form of education on caring for patients from different cultures?				

What do you think, the barriers are in utilizing the interpretive services in the Emergency Department and what could be done to improve this?

What would you recommend improving patient satisfaction and reduce recidivism among Spanish Speaking patients who seek care at the Emergency Department?

Some of the questions are adopted from the National Center for Cultural Competence Web site: http://www11.georgetown.edu/research/gucchd/nccc/index.htm (C. Ndissi, personal communication, April 2017)

APPENDIX B Post-Test

INSTRUCTIONS - PLEASE READ CAREFULLY

Please select what best describes how you feel caring for patients of different culture, after receiving the educational materials.

In order to complete this inventory, read each statement carefully and decide how much you personally disagree or agree. Then, using the Likert scale provided (Choices 1-5 below) in the columns to the right of each statement, indicate your response by placing an X in the column space most representative of your opinion (1=Definitely Disagree through 5= Definitely Agree). For the non-Likert scale questions/answers, please indicate how comfortable/uncomfortable with each of the stated opinion statements.

Please give a response for each of the items, leaving none blank, but mark only one response choice per item.

Statement	1	2	3	4	5
	Definitely	Mostly	Neither Agree	Mostly Agree	Definitely
	Disagree	Disagree	nor Disagree		Agree
I understand that					
the perceptions					
of health and					
wellness and					
preventive					
health services					
have different					
meanings to					
different cultural					
or ethnic groups					
I accept that					
religion and					
other beliefs					
may influence					
how individuals					
and families					
respond to					
illness, diseases					
and death					
The teaching					
sessions were					
very beneficial					
and educational					

Statement	Physician	Physician Assistant	Registered Nurse	Nurse Practitioner
What is your title				

Statement	Very comfortable	Comfortable	Not Comfortable	Not sure/do not know
How comfortable				

A QI PROJECT TO REDUCE ED RE-ADMISSIONS

are you in caring for		
patients from		
different cultures?		
How Comfortable		
are you now in using		
Interpretive services		
for your Spanish		
Speaking patients?		

Statement	Very Important	Important	Not important	Not sure/do not know
How important is it for you now in using interpretive services for your Spanish Speaking patients.				
How important is it for you to understand how to care for patients from a different culture from your own?				

Statement	Everyday	Some days	Less than often	I do not use
				interpreters
How often do you				
use interpretive				
services for your				
Spanish speaking				
patients				

APPENDIX C

BAYSTATE MEDICAL CENTER PERMISSION TO CONDUCT QUALITY IMPROVEMENT (QI) PROJECT

BAYSTATE MEDICAL CENTER - EMERGENCY DEPARTMENT

June 28th, 2017

Dr. Jean DeMartinis,

The University of Massachusetts, Amherst.

Dear Dr. DeMartinis,

The Emergency Department at BMC supports Christine Ndissi RN, DNP student who will be conducting a quality improvement project in collaboration with Emergency Department providers and Lynn Garreffi MS, RN, CNL. Christine will be leading the project which will focus on improving the utilization of in-person professional interpreters or use of technological interpreters ad-hoc tools for limited English proficiency patients seeking care in the emergency department: in-order to reduce ED recidivism among these patients. This is a Quality Improvement project to refresh and evaluate the Standard of care, data collection about project dissemination and outcomes. Thank you for your consideration.

Sincerely,

Lynn Garreffi MS RN CNL

Emergency Department Manager.

APPENDIX D:

BAYSTATE MEDICAL CENTER IRB REVIEW NOT REQUIRED LETTER



Institutional Review Board



DATE:	November 17, 2017
TO:	christine ndissi
FROM:	Baystate Health IRB
STUDY TITLE:	[1095205-2] A Quality Improvement Project to Reduce Emergency Department (ED) Readmissions Among Patients with Limited English Proficiency (LEP) through Utilization of Interpretive Services by Healthcare Providers
IRB REFERENCE #:	BH-18-041
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION THAT PROPOSED ACTIVITY IS NOT HUMAN SUBJECTS RESEARCH
DECISION DATE:	November 15, 2017

Thank you for your submission of New Project materials for this project. Based on the information provided, it has been determined that the proposed activity does not constitute "human subjects research" as defined by the federal regulations. As such, IRB review is not required.

Any alteration to the project that could potentially change this determination must be submitted for review prior to implementation, unless such a change is necessary to avoid immediate harm to subjects, in which case the IRB must be notified as soon as possible.

If you have any questions regarding this determination, please contact the IRB office at (413) 794-4356.