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Fostering Linguistic Competency: A Case for Medical Education for Healthcare Providers

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Fostering Linguistic Competency: A Case for Medical Education for Healthcare Providers

By

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Abstract

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The United States is experiencing a linguistically diverse population growth. Although linguistically based healthcare disparities are well documented, there is a paucity of strategies to mitigate the effects on the quality of care and communication with limited English proficient. Educating healthcare providers is one solution that may influence linguistically competent communication; however, there is limited evidence that provider training enhances communication with LEP patients.

The dissertation was conducted to connect what is known about linguistic competency with best practices in medical education. The presented research expands on this gap by identifying successful strategies of outcomes based educational practices, determining the communication needs of LEP patients and their providers in one pediatric clinic, and incorporating and evaluating these lessons into a novel data-driven linguistic competency training for clinicians.

A comprehensive literature review was conducted on linguistic competency training programs with patient, provider and systems outcomes. Thirteen studies were identified as either providing language acquisition or communication skills training to work effectively with interpreters to improve access to care for LEP patients and evaluated using the Medical Education Research Study Quality Instrument (MERSQI). All studies evaluated the impact of the training on provider outcomes, such as knowledge and skill, patient outcomes, such as satisfaction, and system outcomes, such as increased interpreter use. A detectable but small effect on provider competency was demonstrated for most studies, but the primary impact on patients was limited to improved patient satisfaction. In addition, the studies tended to be heterogeneous in the curricular type and model used as well as how outcomes were measured. The results provided examples of curricular elements for engaging health care providers through training in order to improve their ability to care for their LEP patients.

Prior to developing a curriculum on communicating with LEP patients and working effectively with interpreters, a needs assessment was performed at one pediatrics outpatient clinic. One hundred monolingual Spanish-speaking LEP patients participated in the needs assessment and responded to survey questions about their knowledge of language laws and policies, familiarity and utilization (and type) of

interpreter services, and assessment of their clinician's language skills. Thirty-one pediatric clinicians in the same clinic also responded to additional questions about: prior training programs on language skills, if they speak any languages other than English, the extent to which they interact with LEP patients, the percentage of their LEP patients and the frequency with which they experience language barriers, and their level of frustration during language discordant communication.

Patients were satisfied with the language services and communication strategies provided to them in the clinic. Just under half of all patients reported communicating directly with a Spanish-speaking clinician and that they were satisfied with their clinician's level of Spanish. LEP patients expressed high satisfaction when able to speak in their language, either with a trained medical interpreter or a Spanish-speaking clinician. Although prior studies have shown limited awareness of language laws and policies amongst LEP patients, patients at this clinic had higher rates of familiarity than the historical figures and nearly three-quarters of monolingual Spanish-speaking patients surveyed were familiar with local policy regarding their rights to request an interpreter for their visit. There was no association between patients' familiarity with laws providing them the right to have an interpreter during a clinic visit; however, there was a significant association between awareness of local policies on interpreter usage and having a Spanish-speaking clinicians.

Clinicians rated themselves highly on their ability to speak another language, often frustrated in their ability to communicate with LEP patients during language discordant visits, experienced prior language skills training and some exposure to working effectively with interpreters. Clinicians felt confident in their ability to schedule interpreters and establishing rapport with LEP patients; however, most clinicians did not feel confident in their ability to answer LEP patient questions. In addition, clinicians felt confident that they were able to identify the need for interpreters but not their abilities to work effectively with interpreters. Some clinicians stated that they often regret not using an interpreter when needed. Clinicians were mostly aware of both language laws and local policies on providing interpreters. Knowledge of language laws was not associated with the frequency with which clinicians offered trained medical interpreters during language discordant visits. Conversely, knowledge of local policy on interpreter use was highly associated with offering interpreters.

The combined data from the systematic review and the needs assessment ultimately informed the development of a focused educational intervention based on the gaps in knowledge, skills and confidence previously measured. Eighteen pediatric residents and attendings participated in the highly interactive workshops with specific training elements to enhance their abilities to communicate effectively during language discordant visits by working with interpreters (in-person or telephone), competence in working with hospital interpreter services, and their knowledge of language laws and policies as they relate to patient care and services. Participants evaluated the workshops by self-assessing their knowledge, skill and confidence for specific training elements with a retrospective and post assessment. All training element items were significantly higher after the workshop, including confidence, suggesting that a focused training on working effectively with interpreters is a valuable tool in developing a

linguistically competent healthcare practitioner. Developing a data-driven linguistic competency educational intervention suggests an effective approach to training healthcare providers to enhance their communication with LEP patients.

Dedication Page

This dissertation is dedicated to my family, especially my brother Thomas who always believes in me. Also to Nick, thank you for your love and support throughout.

Table of Contents

List of Figures

List of Tables

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Chapter 1: Background Information

Statement of the Problem

All patients should receive the same level of care, regardless of the language they speak and their ability to communicate with their providers. In our current healthcare system, Limited English proficient (LEP) patients have many barriers to overcome, such as access to interpreter (recognition of need, scheduling) and appropriate utilization of interpreters (working effectively with interpreters) and training for increased language services needs. Although cultural and linguistic-based disparities are well known and widely studied, primarily as an access issue (IOM, 2001a), healthcare systems and providers are still struggling to provide equitable care for their LEP patients. This study identifies key publications to assess the current state of linguistic competency training for healthcare professionals, describes a needs assessment of interpreter services at one clinic, and evaluates a novel data-driven educational intervention for physicians designed to enhance the communication between LEP patients and their providers.

Background

The United States is experiencing a population growth that includes greater linguistic diversity. In California specifically, nearly two-fifths of the population speaks a language other than English in the home (Census Bureau, 2003), with many speaking English "less than well." In order to provide the standard of care, healthcare providers and health systems, such as hospitals, must respond to the linguistic needs of their limited English proficient (LEP) patients. Patient-physician and patient-health system interactions are particularly challenging during LEP and cross-language patient care. Although there are several federal statutes that protect against discrimination (Civil Rights Act of 1866; Title VI of the Civil Rights Act of 1964), LEP patients still receive significantly lower quality and access to care, with more medical errors and misdiagnoses, reduced utilization of services, and increased reporting of adverse events than their English speaking counterparts (Smedley et al., 2001; Divi et al., 2007; Fernandez et al., 2010; IOM, 2001b). However, since language access policies, including utilization of medical interpreters and bilingual staff, are shown to improve communication with LEP patients and their quality of care (Smedley et al., 2001; IOM, 2001b; Snowden et al., 2010), healthcare organizations and physicians have an opportunity to enhance how they provide language services to their LEP patients.

Language Laws

Language rights have had a tumultuous history (Snowden et al., 2007) since as early as 1866 (*Civil Rights Act*, 1866), which protected individuals against intentional discrimination due to identifiable characteristics, such as language, primarily in the housing and employment settings. Nearly one hundred years later, Congress enacted the Civil Rights Act of 1964, allowing protected classes recourse for unintentional

discrimination and disparate impact of policies. The specific anti-discriminatory statue, Title VI of the Civil Rights Act of 1964 (*Title VI*, 1964) states that:

> No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal funding assistance (*Title VI*, 1964).

The intentions behind Title VI were to prohibit both intentional and unintentional discrimination for the protected classes. The Supreme Court has broadly interpreted the statute by stating that discrimination based on the special class of "national origin" is a surrogate for language discrimination (*Lau v. Nichols*, 1974). However, the courts have oscillated how they interpret the statute over the last half century (*Alexander v. Choate*, 1983; *Alexander v. Sandoval*, 2001; *Chevron U.S.A., Inc. v. NRDC*, 1984), continuously altering the policy landscape around language rights.

As a result of the ever-changing policy landscape around language rights and Title VI interpretations, federal and state laws have made efforts to protect LEP persons. Congress appropriated authority to federal agencies, rather than the legal system, to address disparate impact violations, which are neutral policies that inadvertently impact members of a protected class, such as language minorities (*Alexander v. Choate*, 1983). Following intense legal battles in the 1980's and 1990's of Title VI violations in labor, education, and health fields (Plantiko, 2002), President Clinton enacted Executive Order 13166 in 2000 to improve access to services for LEP persons (Clinton, 2000). The Department of Health and Human Services (DHHS) promptly responded by developing system-wide cultural and linguistic standards (CLAS)(US DHHS, 2001) by requiring healthcare systems to provide, among other things, language services for patients and ensuring competence of these services. DHHS also enabled their Office for Civil Rights (OCR), to evaluate how federally funded health care systems ensure language access and provide competent interpreters at no cost to LEP patients. DHHS's stance was consistent with Title VI, and ensured that there was no discriminatory conduct within their jurisdiction for the provision of equitable care for LEP patients.

CLAS Standards 4, 5, 6, 7 and 10 specifically deal with language access in healthcare organizations in that they are required to: offer and provide language services, provide written and verbal notifications in the patient's preferred language, determine competency level and educate those serving as interpreters, provide notices at appropriate health literacy levels, and collect written and spoken language preference patient data (US DHHS, 2001). In addition to providing guidance on how healthcare organizations must serve the needs of LEP patients, the guidelines also suggest specific flexible strategic implementations of these language services based on the healthcare system's LEP population's needs. By reinforcing anti-discrimination the DHHS guidelines also serve as a legal mechanism to reinforce the spirit of Title VI through OCR legal action (Plantiko, 2002). Table 1 describes the CLAS Standards regarding language services in healthcare organizations.

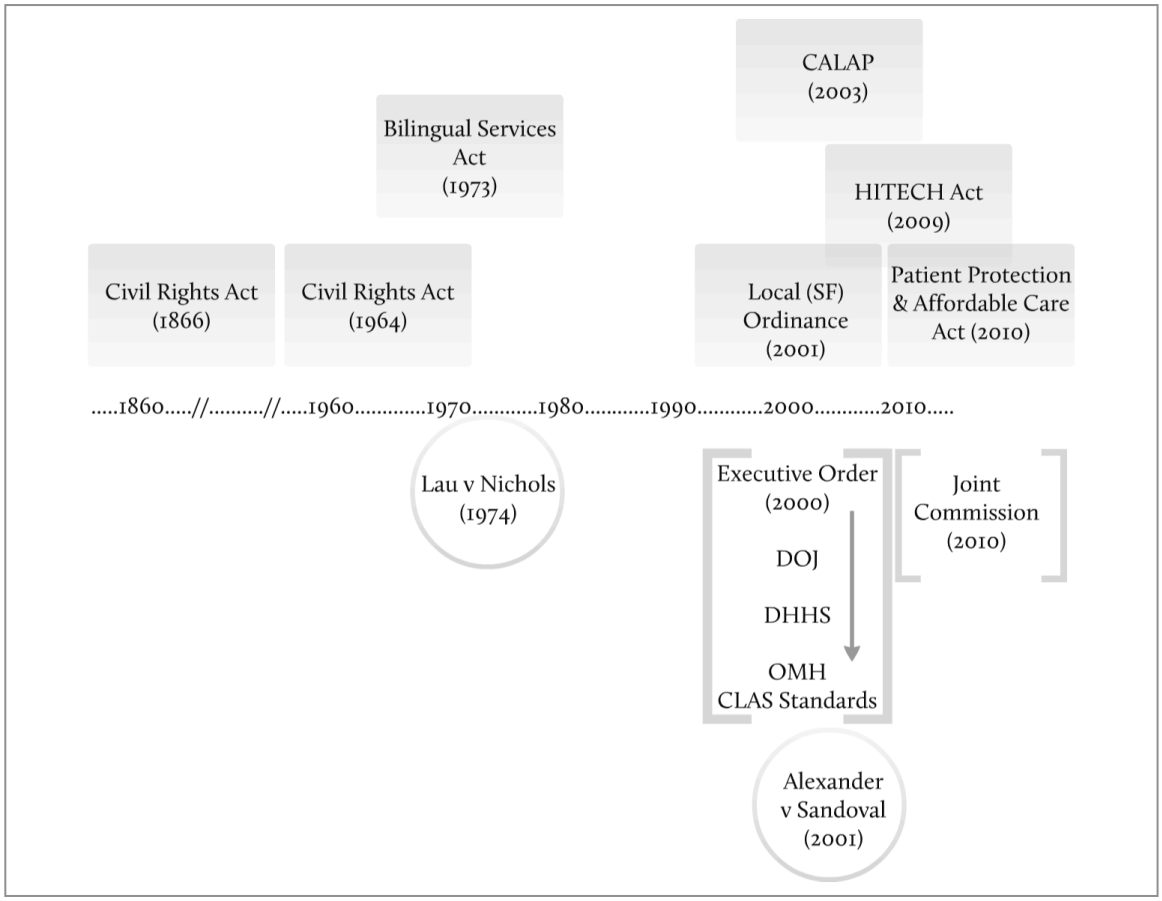
Table 1. CLAS Standards Associated with Healthcare Organization Language Services

CLAS Standard	Description *
Standard 4	Health care organizations must offer and provide language assistance services, including bilingual staff and interpreter services, at no cost to each patient/consumer with limited English proficiency at all points of contact, in a timely manner during all hours of operation.
Standard 5	Health care organizations must provide to patients/consumers in their preferred language both verbal offers and written notices informing them of their right to receive language assistance services.
Standard 6	Health care organizations must assure the competence of language assistance provided to limited English proficient patients/consumers by interpreters and bilingual staff. Family and friends should not be used to provide interpretation services (except on request by the patient/consumer).
Standard 7	Health care organizations must make available easily understood patient-related materials and post signage in the languages of the commonly encountered groups and/or groups represented in the service area.
Standard 10	Health care organizations should ensure that data on the individual patient's/consumer's race, ethnicity, and spoken and written language are collected in health records, integrated into the organization's management information systems, and periodically updated.

* *From the CLAS Standards* (CLAS) (US DHHS, 2001)

In 2010, Congress passed the Patient Protection and Affordable Care Act (PPACA) (*PPACA*, 2010), focusing on patient-centered and equitable care. PPACA increased the focus on language services by incentivizing healthcare systems and providers to offer interpreters during LEP encounters, as well as mandating data collection and quality improvement strategies to determine how language relates to care. Even prior to the passage of PPACA nationally, in California, the California Language Assistance Program (CALAP) law required state and federally funded health care plans and insurers to: assess the linguistic needs of its enrollee population, provide interpretation and translation services, and develop and implement language assistance programs (*California Language Assistance Program (CALAP)*, 2003). Although this bill passed in 2003 and was enacted in early 2009, healthcare providers are generally unaware of the language rights afforded LEP patients (Grubbs et al., 2006). In addition, Health Information Technology for Economic and Clinical Health Act (*Health Information Technology for Economic and Clinical Health (HITECH) Act*, 2009) provided for collection of and utilization of patient language data to develop language-specific quality improvement projects. Figure 1 expands on a pictorial representation of pertinent United States language laws and timeline.

Figure 1. United States Language Laws and Regulations Timeline



Knowledge of Laws

Although prior surveys have determined the low prevalence of patients' knowledge about language laws (Grubbs et al., 2006), none have addressed congruence of patient and provider knowledge of language laws nor the impact of this on utilization of language services in the clinic setting.

While most language access research on LEP patients focus on the presence of language barriers, few studies consider the impact of language laws on LEP patient utilization of language services. In addition, changes in recent federal and state laws may have impacted both patients' and providers' knowledge of LEP rights, as well as influenced the utilization and type of interpreters (AAMC, 2009; Lie et al., 2008; Wilson-Stronks et al., 2010), requiring further inquiry.

One study of 1,000 Californian LEP patients showed that only 37% of the participants were aware of language laws (survey question: "Did you know the law in the United States gives you the right to a [participant language] interpreter when you visit a clinic or hospital?"). Furthermore, awareness of language laws was not found to empower LEP patients to increase their utilization of language services, although

knowledge of the law did increase their likelihood of seeking out a language-concordant provider (Grubbs et al., 2006).

Linguistic Competency Training

Recent education standards have prompted the development and implementation of interpreter- and LEP-related trainings specifically for undergraduate (medical school), graduate (residency and fellowships) and continuing medical education accrediting bodies. Providers are now required to be able to meet the needs of diverse patient populations, such as patients requiring interpreters. In addition, providers must be able to address biases that affect health care quality and effectiveness, including the large LEP population. The Association for American Medical Colleges' (AAMC) tool for assessing cultural competency training (TACCT) specifies the importance of linguistic competency and provides a framework for training for specific knowledge and skills in working effectively with interpreters (Lie et al., 2008). Along with cultural competency core standards, the Accrediting Council for Graduate Medical Education requires residency programs to provide an environment that includes language services (ACGME, 2009; AAMC, 2009), which is in conjunction with new teaching hospital accreditation and regulatory linguistic competency standards (Wilson-Stronks et al., 2010), and enhanced language services and data collection methods in hospital quality improvement. These accrediting agencies and other regulating bodies, are in alignment with PPACA, which offers significant incentives to provide language services in the health care setting (California Language Services Report, 2010).

While there is a regulatory push for utilization of language services in the healthcare setting, there are limited resources to provide training for providers to ensure competence in language access issues. In addition, limited published research exists on the effect of this type of training on patients and healthcare systems. Prior cultural competency systematic reviews suggest that some skill and attitude improvements are due to trainings, including a few linguistic competency curricular interventions (Beach et al., 2005), but these publications generally lack in methodological rigor of this curricula (Lie et al., 2011; Price et al., 2005).

Provider-specific knowledge, skills, and attitudes are just part of the problem, as few have instruction in working effectively with interpreters (Bischoff et al., 2003; Hudelson & Vilpert, 2009; Lee, 2006), and the primary exposure is during preclinical training in medical school (Bereknyei et al., 2010; Lie et al., 2009), years before entering the workforce, or in residency programs. In 2004, over two thousand third-year residents responded to inquiries about instruction during their residency, with 59.8% receiving training on "a patient's legal right to have a professional medical interpreter (Lee, 2006)." Surprisingly, in the same study, less than a quarter of the residents received training on how to schedule an interpreter at their practice site, and 35% claimed to have received no or little instruction on working effectively with interpreters during patient visits, suggests that interpreter services information is not emphasized during hospital orientations or during residencies, consistent with other survey results with limited training on working with interpreters (Hudelson & Vilpert, 2009).

Physicians and Organizations

Physicians are an excellent source to determine an organization's culture and climate on utilizing interpreter services, as well as a point of entry for future interventions for improved patient outcomes (Bischoff et al., 2003). Providers generally believe that trained interpreters do enhance LEP encounters and promote effective communication with patients (Kairys & Like, 2006), however providers continue to rely on suboptimal communication strategies (Burbano O'Leary et al., 2003) due to numerous barriers to working with trained medical interpreters (Diamond et al., 2009). Not surprisingly, when departments encouraged the use of interpreter services, physicians utilized these services more often than when departments did not support the use of interpreters (Hudelson & Vilpert, 2009). Greater institutional support is needed to promote increased utilization of interpreters, and providers need organization and leadership models to encourage increased use of interpreter services.

Theoretical Framework

Background

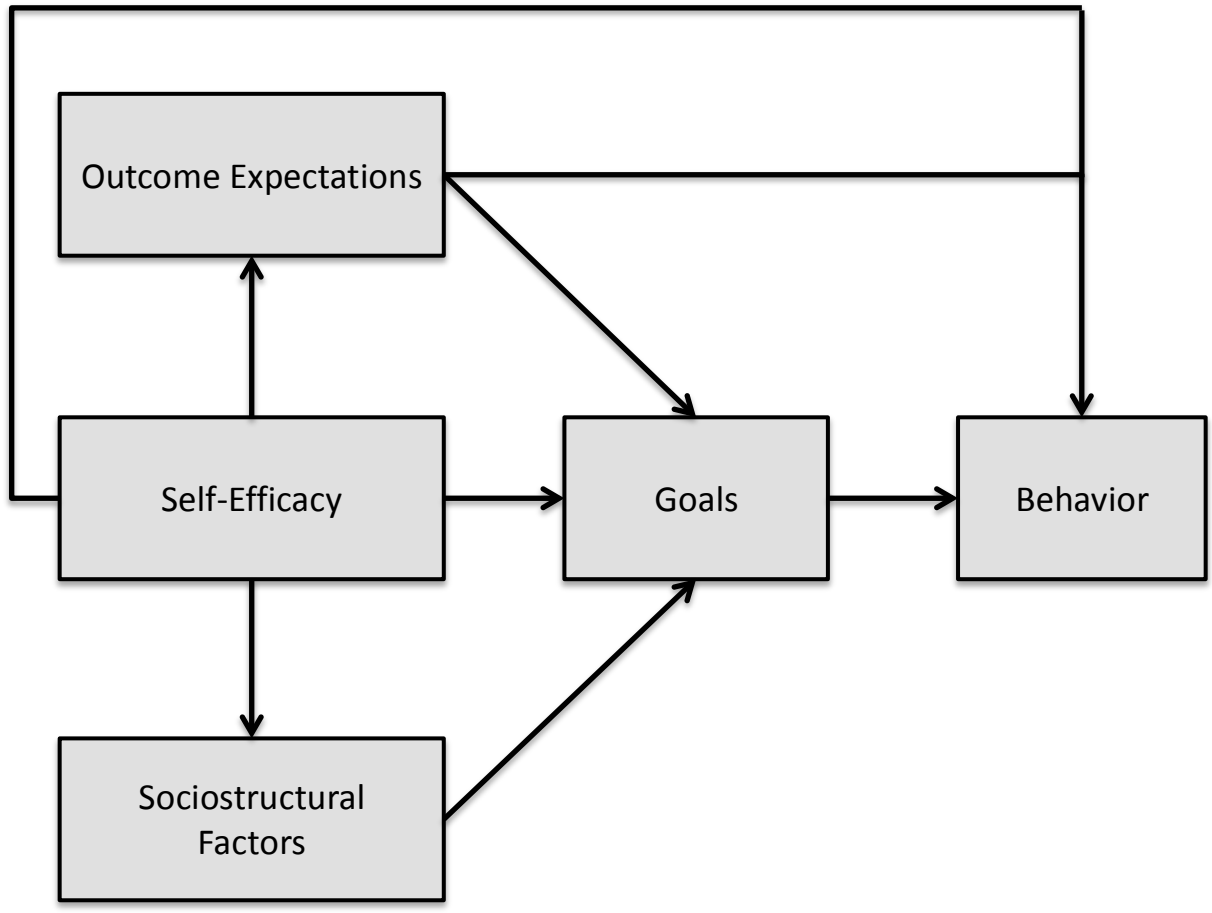
Healthcare professional behaviors and adoption of practices are guided by environmental, organizational and regulatory factors, and interpreter usage is no exception. Currently, many hospitals do not meet regulatory standards nor state and federal laws (California Language Servcies Report, 2010; Wilson-Stronks et al., 2010). Hospitals may be fined, lose accreditation, or lose federal funds if they do not comply with new language access standards set forth by the Joint Commission (Wilson-Stronks et al., 2010) or comply with CLAS Standards (US DHHS, 2001). Since healthcare organizations such as hospitals are dependent on these funds, they have incentives to provide appropriate care to their LEP patients. However, it is the responsibility of healthcare providers themselves to adopt communication practices, such as working with interpreters, to be in compliance with the aforementioned policies. Healthcare organizations may influence external factors, such as providing interpreters to providers or enforcing policies on working with interpreters. As individual agents, factors such as values on working with interpreters and self-efficacy, confidence in abilities to communicate with LEP patients, serve as motivating factors to regularly adopt this practice. As such, the theory of self-efficacy provides a context to understand how to motivate healthcare providers to not only be compliant with current regulations on working with interpreters, but to embody the communication practice in order to provide better care for LEP patients.

Self-Efficacy

As a factor in personal agency, self-efficacy is "people's beliefs about their capabilities to exercise control over events that affect their lives (Bandura, 1982)." As described by Bandura, efficacy, or their belief in their capabilities, directly influences a person's goals and behaviors. It is not just the direct influence of a person's perception in their capabilities that impact behavior, however, but also the environmental, or

sociostructural factors in place, as well as a perceived value in the behavior that also impact a person's goal-setting and subsequent behavior, or performance. If a person has an expectation that they do not have the skills necessary for a good performance, their expectation is that they will have poor or mediocre outcomes. These lower expectations, therefore, influences a person's goal by them subsequently resetting the goals to poor or mediocre performance. However, if there is substantial belief in their capabilities or associated confidence, the performance expectation is higher as is their effort to reach that goal. Sociostructural factors, or a system or rules and regulations, are structurally present in healthcare systems but are acted on, or ignored, by people. These agents vary in their interpretation of the rules, thereby providing individual influences on goals and behaviors, as framed by the interpreted regulations (Bandura, 2001). See Figure 2 for Bandura's self-efficacy causal model.

Figure 2. The influence of self-efficacy on outcome expectations and sociostructural factors on goals and behavior

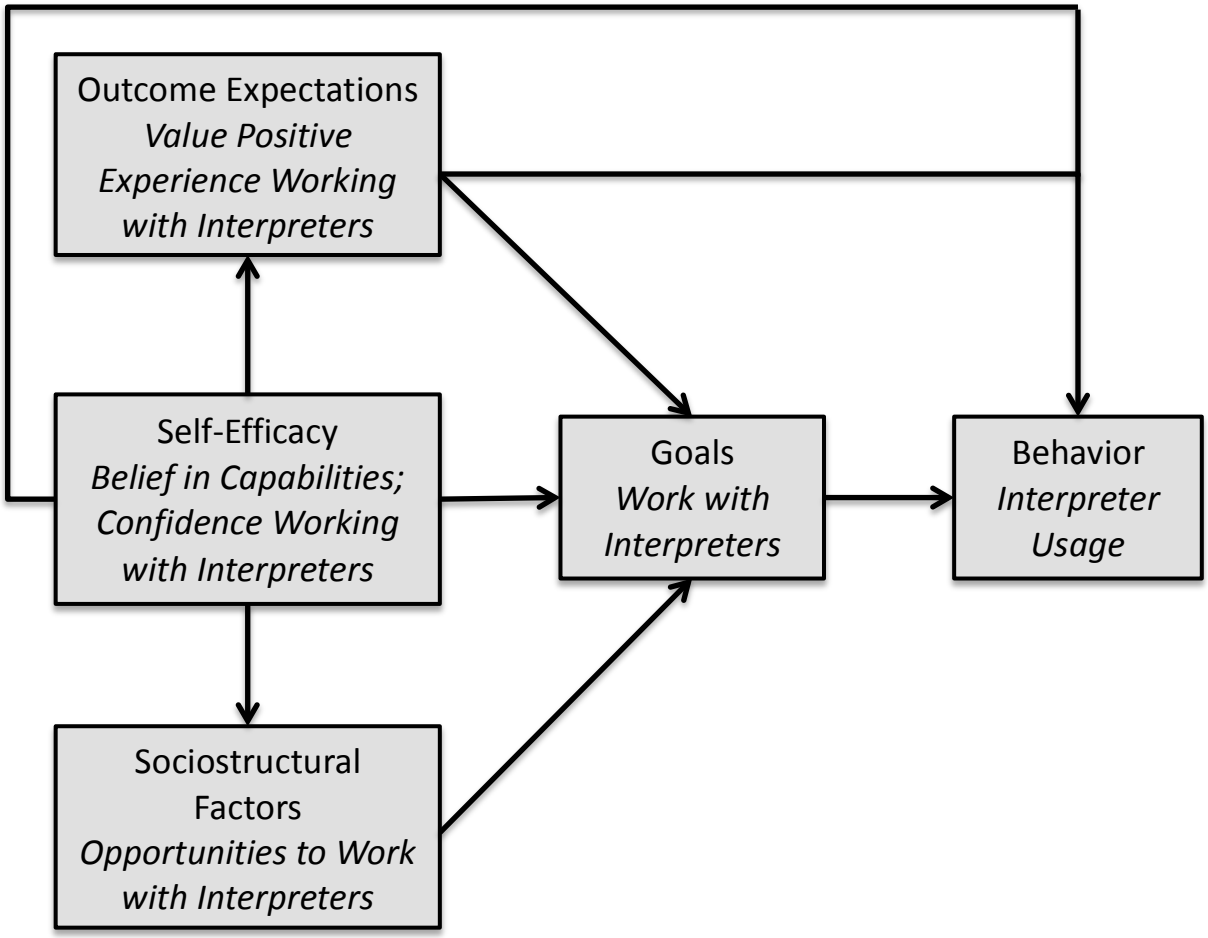


Causal model of factors influencing goal-setting and behavior change, (Bandura, 2000)

In the context of interpreter use in the healthcare setting, self-efficacy, or belief and confidence in abilities working with interpreters is vital to facilitate goal setting and behavior change to increase interpreter usage. Self-efficacy for working effectively with interpreters is also important in the values placed in working with interpreters (i.e. if a provider does not believe that an interpreter enhances the communication process or provides misinformation, this would hinder subsequent interpreter usage). Similarly, sociocultural factors are the personal interpretations of hospital policies such as under which circumstances the policy of using an interpreter is in effect. A provider might take this policy to mean that under no circumstance will they communicate with an LEP patient without an interpreter present, thereby developing a goal of always having an interpreter present which in itself will increase that provider's interpreter usage. If that same provider believes that working with interpreters is a positive experience, those outcome expectations would only reinforce the goals and behaviors of working with interpreters. Figure 3 is an example of Bandura's self-efficacy causal model in the context of working effectively with interpreters.

This model provided a guiding framework in developing content for the educational intervention in order to address providers' confidence in working with interpreters and opportunities to practice working with interpreters to set goals to work with interpreters as well as enhance interpreter usage among providers.

Figure 3. Mechanism of impact on working with interpreter goals and behavior by cultivating self-efficacy, outcome expectations and sociostructural factors



Influencing factors on goal-setting working with interpreters and interpreter use behavior change, modified from (Bandura, 2000)

Relevance

Healthcare providers, including housestaff (residents) and teaching attendings (physician supervisors), are expected by legal and regulatory frameworks to work with interpreters, but few training opportunities exist within healthcare systems. Although it is vital for providers to work with interpreters and communicate with their LEP patients, many other training programs for regulated policies compete with education and curricular time. Identifying physician's self-assessed capabilities of working with interpreters may be the first step in developing training programs designed to enhance their knowledge, skill level and confidence in communicating with LEP patients. In line with social learning theory (Bandura, 1989), enhancing efficacy through modeling, observation and practice, are necessary components of such a training program.

Research Questions

The following describes the research questions and methods used. The next chapter addresses the question: *What are the current best practices in linguistic competency training and the effects on provider competence on patient, provider and systems outcomes?* A systematic review of the published literature provides information on what is currently known on linguistic competency within healthcare professional education.

The following chapter considers the following question: *What are the communication and interpreters needs of healthcare providers and limited English proficient (LEP) patients?* LEP patients and their providers respond to survey question on a needs assessment concerning their awareness of knowledge of language laws and policies, utilization (and type) of interpreter services, assessment of clinician language skills, prior training on working with interpreters and confidence in utilizing interpreter services.

The final chapter considers the research question: *What are the lessons learned from the implementation of a novel linguistic competency curriculum for practicing physicians?* This included incorporating results from the previous research questions to develop and implement a quasi-experimental linguistic competency educational intervention for clinic-based pediatric physicians and assess the effectiveness and acceptability of the educational intervention for provider competence interacting with LEP patients and working with interpreters.

Chapter 2: A Systematic Review of Linguistic Competency Training and Its Effects on Provider Competence and Patient Outcomes for Limited English Proficient Patient Populations

This review aims to assess the current state of linguistic competency research and determine if the studies provide a direct link between training effectiveness and patient- and system-based outcomes. The following research question is the focus of this chapter: *What are the current best practices in linguistic competency training and the effects on provider competence on patient, provider and systems outcomes?*

Introduction

Although English is the primary language spoken in the US, as the nation becomes linguistically diverse, an increasing proportion of patients are also limited in their English proficiency (AAMC, 2012; ACGME, 2009; Wilson-Stronks et al., 2010). Health profession accreditation bodies have recently emphasized the importance of education to improve access to care for limited English proficient (LEP) patients, through working with interpreters or other strategies, as part of cultural competency training to meet the needs of diverse patient populations (AAMC, 2012; ACGME, 2009; Wilson-Stronks et al., 2010). Available literature suggests that LEP patients are likely to have poorer health outcomes secondary to poor communication leading to lower adherence and self-efficacy (Siebens & Julia, 2011). The Association of American Medical Colleges' (AAMC) tool for assessing cultural competency training (TACCT) specifies the importance of linguistic competency and provides a framework for training for specific knowledge and skills in working effectively with interpreters (Lie et al., 2008). The Accrediting Council for Graduate Medical Education requires residency programs to provide an environment that includes language services (ACGME, 2009). This is in conjunction with new teaching hospital accreditation and regulatory linguistic competency standards (Wilson-Stronks et al., 2010) and enhanced language services and data collection methods in hospital quality improvement (IOM, 2009). The recent health reform bill, the Patient Protection and Affordable Care Act, offers significant incentives to provide language services in the health care setting (*PPACA*, 2010).

Prior cultural competency systematic reviews suggest that cultural competency training can improve skill and attitudes of learners (Beach et al., 2005), but there remains a need to produce rigorous studies demonstrating positive patient care outcomes (Price et al., 2005; Siebens & Julia, 2011). In particular, there is limited published research on the effect of linguistic competency training on patient care outcomes and healthcare systems. Training providers with the goal of improving language access is particularly challenging because of the large number of languages and dialects across health care settings and geographic locations.

The systematic review intends to ask: what are the types of training offered to improve linguistic competency of healthcare providers and trainees; and what are the effects of training on provider competence and patient- and system-outcomes?

Research Methods

Study Eligibility

To be included in the review, a study had to meet all of the following criteria: (1) include an educational intervention designed to improve language access for patients (such as training to work effectively with interpreters, or language training); (2) state the healthcare learner population (such as practicing physicians, nurses or pharmacists, or health professions trainees); and (3) document training outcomes such as provider competence or impact on patients (satisfaction or clinical) and/or health services (systems outcomes). Articles were excluded if they described that addressed patient education only, that did not report outcome measures, reported in non-English journals, or did not specify the target trainees.

Study Identification

Studies published between January 1990 and June 2011 were identified through online database searches of PubMed (biomedical literature database), Scopus (general peer-reviewed and website database), CINAHL (citation index for nursing and allied health literature), PsycLIT (reference site for psychology), and Web of Science (science journal and conference proceedings database). The search strategy used for PubMed were (1) communication barriers AND teaching AND language AND (professional patient relations OR physician patient relations), (2) communication barriers AND educational models AND language AND (professional patient relations OR physician patient relations), and (3) communication barriers AND program evaluation AND language AND (professional patient relations OR physician patient relations). The key terms used for the Scopus search were: "communication barriers" AND cultural competency AND health AND training. Searches in the CINAHL, PsycLIT and Web of Science databases replicated PubMed or the Scopus search terms. In addition to the database search, a hand search was performed of the bibliographies of selected studies, a search for educational research publications and conference abstracts (BEME, 2012).

Data Extraction and Quality Assessment

Each study was assessed by three reviewers, including the author, for the following information (1) primary author and publication year, (2) trainee type and sample size, (3) study design (pre/post, observational, randomized), (4) curricular description (working with interpreters, language training), (5) language/s assessed, (6) patient type (7) setting (clinical or standardized), (8)duration of training, and (9) study duration. Where information was provided, the training effect was evaluated by: degree of improvement documented for provider/trainee competencies, change in patient satisfaction or disease outcomes (e.g. blood pressure), and change in system outcomes (for example, utilization of interpreters).

The 10-item 18-point Medical Education Research Study Quality Instrument (MERSQI) was used to assess study quality (Table 2) (Green, 2001; Morrison et al., 1999; Reed et al., 2007). This tool was selected because of its usability and proven validity and reliability for educational research (Green, 2001; Morrison et al., 1999; Reed et al., 2007). In addition, MERSQI was designed to compare the quality of medical education research across different research designs, rather than subjective measurements such as writing clarity. Briefly, the domains addressed using the MERSQI are: type of study design, sampling and response rate, type and validity of evaluation measurement, description of data analysis, and types of outcomes measured. The type of study design, for example, assigned scores based on the hierarchy of research design (single group post-test study score of 0.5, randomized control trial is assigned a maximum score for the domain of 3). Further, the type of data provides more points to studies with an objective measurement (score of 3) as opposed to a self-assessment by study participants (score of 1). A single-group pre and post knowledge test educational intervention would be assigned a 1.5 score for study design and a 3 for the type of data. Description of the MERSQI items and item scores are presented in Table 2.

The presence and description of these domains are allotted specific scores dependent on the item of concern within the domain, with a maximum score of 3 per domain. The publication MERSQI score ranges from five to 18, with 18 being the highest quality, and five being the lowest. Study quality was categorized as low (score five to eight), moderate (score of nine to 13) or high (score of 14 to 18) based on scaling from a prior study (Lie et al., 2011).

Table 2. Medical Education Research Study Quality Instrument (MERSQI) scoring

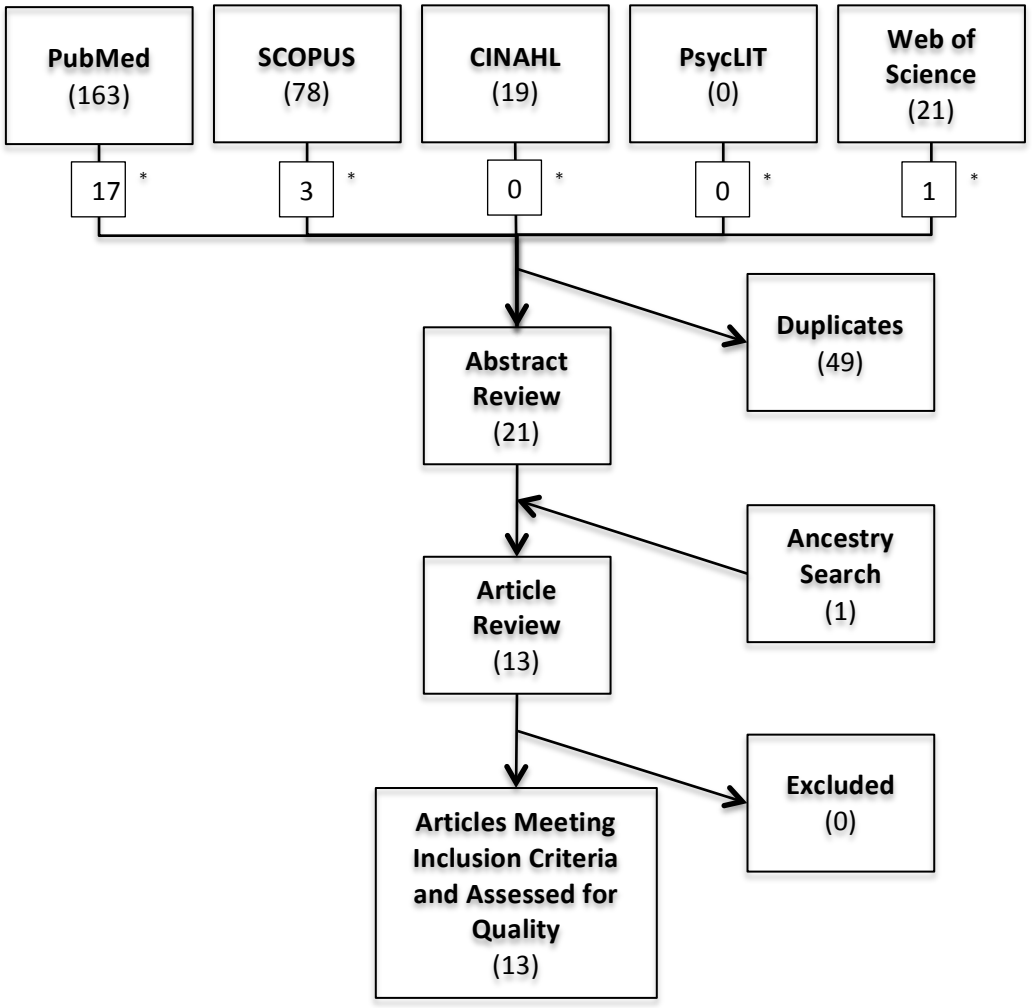
Domain	MERSQI Item	Item Score	Maximum Domain Score
Study Design	**1. Study Design**		3
	Single group cross-sectional or single group posttest only	1	
	Single group pretest and posttest	1.5	
	Nonrandomized, 2 group	2	
	Randomized controlled trial	3	
Sampling	**2. No. of institutions studied**		3
	1	0.5	
	2	1	
	>2	1.5	
	3. Response rate, %		
	Not applicable		
	<50 or not reported	0.5	
	50-74	1	
	>=75	1.5	
Type of Data	**4. Type of Data**		3
	Assessment by study participant	1	
	Objective Measurement	3	
Validity of evaluation instrument	**5. Internal structure**		3
	Not applicable		
	Not reported	0	
	Reported	1	
	6. Content		
	Not applicable		
	Not reported	0	
	Reported	1	
	7. Relationships to other variables		
	Not applicable		
	Not reported	0	
	Reported	1	
Data Analysis	**8. Appropriateness of analysis**		3
	Data analysis inappropriate for study design or type of data	0	
	Data analysis appropriate for study design and type of data	1	
	9. Complexity of analysis		
	Descriptive analysis only	1	
	Beyond descriptive analysis	2	
Outcomes	**10. Outcomes**		3
	Satisfaction, attitudes, perceptions, opinions, general facts	1	
	Knowledge, skills	1.5	
	Behaviors	2	
	Patient/health outcome	3	
Total Score			**18**

Results

Search Results

The initial electronic search resulted in 231 unique articles for review. Of these, 210 were excluded prior to abstract review by not reporting on direct linguistic competence educational interventions for healthcare providers and learners. After reviewing the abstracts, nine additional abstracts did not meet the inclusion criteria for study eligibility, resulting in 12 articles for review. One article was added in a manual search of known articles. The resulting 13 are listed in Table 3 (Amerson & Burgins, 2005; Barkin et al., 2003; Bereknyei et al., 2010; Bischoff et al., 2003; Escott et al., 2009; Fung et al., 2010; Han et al., 2009; Kalet et al., 2002; Marion et al., 2008; Mazor et al., 2002; Prince & Nelson, 1995; Reuland et al., 2008; Wu et al., 2006). The systematic review flow chart is represented in Figure 2.

Figure 4. Systematic Review Flow Chart



* *Number of articles that met inclusion criteria from database searches for abstract review during database search, by database.*

Study Descriptions

The studies involved a wide learner population: seven with students (medical, nursing and physician assistant), three with practicing physicians, two with residents, and one with clinical faculty. The known number of learners in the study ranged from five to 260, with one unknown learner population. The duration of the content varied in length, such as one three-hour session on working with interpreters to an integrated four-year curriculum optimizing communication and delivery of care to Latino patients. Language immersion and working with interpreters were the two types of curricular interventions reported. Six articles focused primarily on language acquisition, ranging from an intensive immersion experience to integrating medical vocabulary and phrases in a fundamentals course. Eight studies implemented curricular content to enhance working with interpreters and communicate effectively with LEP patients. Two studies implemented a hybrid curriculum by combining teaching language skills as well a working effectively with interpreters (Marion et al., 2008; Reuland et al., 2008).

All studies evaluated the impact of curriculum on provider outcomes (knowledge and skills), patient satisfaction and system outcomes. Six studies reported knowledge-based outcome measures using multiple choice questions and language-specific vocabulary testing (Amerson & Burgins, 2005; Barkin et al., 2003; Bereknyei et al., 2010; Kalet et al., 2002; Mazor et al., 2002).

Half of the studies included a skill-based evaluation component by critically assessing skills learned during observed structured clinical exams and listening comprehension exercises (Bereknyei et al., 2010; Fung et al., 2010; Han et al., 2009; Marion et al., 2008; Mazor et al., 2002; Prince & Nelson, 1995; Reuland et al., 2008). Three studies reported learner perception of the impact of the curriculum on their attitudes through qualitative student feedback (Escott et al., 2009), satisfaction and perception of an instrument facilitating vocabulary during history taking(Han et al., 2009), and confidence communicating in Spanish after participating in the curriculum (Mazor et al., 2002). Patient satisfaction or simulated patient feedback on the level of communication skills was reported in five studies (Bischoff et al., 2003; Escott et al., 2009; Han et al., 2009; Mazor et al., 2002; Prince & Nelson, 1995; Wu et al., 2006). Only one study reported an impact on the system, reporting an increase in interpreter use after implementing the curriculum (Bischoff et al., 2003). Table 3 provides a summary description of study objectives, study participants, type of intervention, study length, evaluation measures and MERSQI scoring. The following is a narrative description of the systematic review studies with MERSQI quality in parantheses.

Amerson 2005. This study examined the post-intervention outcome of Spanish language proficiency of 46 nursing students during their nursing fundamentals course. Common Spanish language phrases and questions with “yes” or “no” responses were taught, labeled as the “Spanish Minute.” Nursing students were evaluated on their abilities to correctly translate Spanish phrases over five examinations. The majority of students (86.2 percent) met or exceeded the minimum passing score of 75%. This was a

single-group single-institution post-intervention evaluation on knowledge with no reporting on validity criteria (moderate quality).

Barkin (2003). This pre- and post-test study examined the impact on Spanish language proficiency of five pediatricians from a two-week language immersion course followed by monthly hour-long refresher sessions. The language proficiency significantly increased due to the course and was sustained for six- and twelve-month post intervention. Language proficiency and patients' perceptions on effectiveness of communication were tested using validated instruments. Small sample population but thoughtful usage of validated instruments and curricular design recommend this study (high quality).

Bereknyei (2009). This study interspersed medical student curriculum on working effectively with interpreters by incorporating an online web-based module along with multiple didactic and role-play sessions. Knowledge and skills were assessed at baseline and subsequently tested at end of years one and four high-stakes standardized patient exams for three cohorts (n=260) of medical students. The study showed significant improvement in a validated knowledge assessment and on validated performance (skill-based) scales during the standardized patient exams. Although the study included multiple cohorts and employed instruments with content validity, there was high attrition over the study time period and did not report internal structure or criterion validity (moderate quality).

Bischoff (2003). This pre- and post-educational intervention study determined the impact on patients' and physicians' assessment of the quality of communication while using an interpreter. The educational intervention consisted of four workshops over a two-month period with primary care physicians. Patient assessments of physicians' quality of communication significantly increased after the intervention, as well as the percentage of times an interpreter was used during language discordant encounters. The study went beyond general descriptive analysis with relationships to other variables reported, although did not use validated instruments and focused primarily on satisfaction scores of patients and physicians (moderate quality).

Escott (2009). This single-group study describes an interactive one-day workshop for 108 medical students on working effectively with interpreters. The course consisted of case study discussions, sharing specific communication skills strategies, and practicing skills with bilingual simulated patients. The researchers evaluated the session in three ways: student feedback forms, feedback from simulated patients, and reflections from the course organizers. There was general support in the satisfaction scores, although the study did not collect objective measurements and used descriptive data only, which contribute to a low rating on the quality assessment (low quality).

Fung (2010). This study describes a 3-hour skill-based workshop subsequently evaluated by student performance. The workshop consisted of combining discussion with active student participation in demonstrating the skills necessary to interact with interpreters and LEP patients. The researchers evaluated the effectiveness of the session based on student performance scores during a high-stakes standardized patient

exam. Although majority of the students did not attain a passing score on the exam, the study identified specific skills that were lacking and which impacted standardized patient satisfaction scores. The single-group post-test only study did not report on validity of the instruments, but did use more than descriptive analysis to report on skills outcomes (moderate quality).

Han (2009). This small single-group study tested the impact of a training session and usage of Portuguese translation aid on eight clinician/patient pairs over a 3-month period. The language education instrument was a self-study, designed for clinicians to review the materials at home and play a compact disc to learn correct pronunciation of terms. Evaluation of the effectiveness was done by observations of actual patient encounters followed by an interview with both clinicians and patients and a survey with just clinicians. The unique approach found that the translation aid was well received and that patients appreciated clinicians' attempts at speaking in Portuguese. The pilot study had a small sample size and focused on descriptive data on satisfaction outcomes (moderate quality).

Kalet (2002). This single group pre- and post-test study describes an interactive online workshop for medical students on teaching strategies to work more effectively with interpreters. Evaluation of the effectiveness of the workshop compared pre- to post-test knowledge-based items, with a significant increase in knowledge after completing the workshop. Although this study did use knowledge gain as a barometer for effectiveness, the test was not previously validated (moderate quality).

Marion (2008). This study determined the impact of a combined working with interpreters course and standardized patient exam with language skills for two cohorts of physician assistant students. The evaluation showed significant competence gained interacting with standardized patients. There was a focus during the evaluation period on internal consistency on the skill-based outcomes, however other quality assessment domains were missing in the study description (moderate quality).

Mazor (2002). This study describes a 10-week medical Spanish language course to nine pediatric emergency department physicians. Patient satisfaction surveys and interpreter usage pre- and post-intervention were recorded for evaluative purposes. There was a significant decrease in usage of Spanish interpreters in the post-intervention period as well as a significant increase in patient satisfaction scores. The study description reports on content validity, descriptive analysis only; however, physician behavior in interpreter usage was determined as a study outcome (moderate quality).

Prince (1995). This single group post-intervention study describes the effects of medical Spanish language course on pediatric resident Spanish grammar and vocabulary while interacting with LEP patients. For six months post-intervention, Spanish-speaking patient encounters were audiotaped and analyzed. Minor and major grammatical and vocabulary errors were found in the majority of the Spanish-speaking interactions. The study attempts to enhance the language capabilities of pediatric residents (knowledge and skill outcomes) although evaluated on basic descriptive data (moderate quality).

Reuland (2008). This single group pre- and post-test study describes a longitudinal Spanish language program for intermediate/advanced Spanish speakers in medical school. The study participants were identified using an independent language testing service and focused on those students who had some Spanish language skills already. The curriculum included didactic, experiential, language immersion, service learning and standardized patient exam elements over a two-year period. Although the participating students felt that upon program completion their language abilities were maintained or enhanced through the program, there was no significant difference in their speaking proficiencies as compared to the beginning of the program. This study utilized an external testing service and compared knowledge/skill scores over the study timeline (moderate quality).

Wu (2006). This study examined the effect of a cultural education program for pediatric residents on parent satisfaction scores. Healthcare interpreters were the cultural educators for the residents and provided guidance on cultural and interpretation issues. The residents were their own historical controls over four phases of interpreter usage: telephone, in person, cultural education with interpreters, and telephone. The program evaluation consisted of parent satisfaction, resident self-assessment and program coordinator feedback. There were significant increases in patient satisfaction scores from the second to third phase, cultural education, and, subsequent a decrease in patient satisfaction from the third to final, telephone, phase of the study. The study used complex data analysis across the phases and multiple evaluation instruments; however, the outcome measures were primarily patient and resident satisfaction scores (moderate quality).

Quality Assessment

MERSQI quality scores ranged from seven to fourteen, with a mean score of 10.6 and median score of 10.5. The majority of studies were of moderate quality, with one study earning a high quality rating due to reporting on: pre- and post-test study design, participant response rate, objective measurements, and using data analysis to determine the relationship of the educational intervention on participant knowledge and skills. The majority of the articles described single group study designs, with one article describing a two-group study design where the participants acted as their own controls (Wu et al., 2006). Similarly, the majority of the study settings took place at one institution (Marion et al., 2008). The studies reported high response rates, with 11 having at least 75% response rates across the assessments. Due to the nature of the search criteria, the majority of the data included objective or external measurements of learners. Notably, MERSQI items scoring for validity was not stated or present for the majority of the studies (Table 3).

Tests of association to determine effect size were completed on ten of the studies; however, in most cases the measure considered for effect size was for satisfaction and knowledge scores only. When effect was calculated, there was a strong effect due to the intervention (Amerson & Burgins, 2005; Barkin et al., 2003; Bereknyei et al., 2010; Bischoff et al., 2003; Fung et al., 2010; Kalet et al., 2002; Marion et al.,

2008; Mazor et al., 2002; Reuland et al., 2008; Wu et al., 2006); suggesting that focused training to attain linguistic competency is a feasible and viable tool to enhance communication with LEP patients and work more effectively with interpreters.

Table 3. Description of linguistic competency studies reporting provider and patient outcomes

Author (Year)	Objective	Population	Intervention	Study Length	Evaluation	MERSQI
Amerson et al. (2005)	Teach common Spanish phrases, be able to respond to yes/no questions.	46 associate degree nursing students	Teaching Spanish fundamentals and phrases, "Spanish Minute."	Embedded in fundamentals course	End-of-unit exam correctly translating Spanish phrases. Single group, post-test only.	9.5
Barkin et al. (2003)	Improve physician language skills to enhance the relationship between non-Latino doctor and Latino patient.	Five pediatric faculty physicians	Two-week language immersion course followed by 12 monthly one-hour Spanish lessons.	One year	Single group pre and post Spanish language proficiency testing. Pre and post assessment of parent's rating of patient-doctor communication and trustworthiness.	14
Bereknyei et al. (2010)	Prepare students to recognize LEP health disparities, utilize LEP communication strategies and address LEP patient needs.	260 medical students	Preclinical LEP curriculum: an online module, role-play, and didactic sessions. Clerkship experience participating in training exercises with facilitated feedback.	Embedded in two-year doctoring course and pediatrics clerkship	Single group knowledge pre and post testing; series of high-stakes standardized patient exams.	11

Author (Year)	Objective	Population	Intervention	Study Length	Evaluation	MERSQI
Bischoff et al. (2003)	Improve physicians' communication skills and ability to work with interpreters.	physicians	A series of four interactive workshops.	Two months	Single group pre and post intervention self-administered patient and physician surveys.	10.5
Escott et al. (2009)	Enhance student skills in consulting with LEP patients.	108 medical students	A workshop with case-based scenarios and bilingual simulated patients.	N/A	Student satisfaction survey; Standardized patient satisfaction interviews. Single group, post-test only.	7
Fung et al. (2010)	Teaching students how to work with interpreters.	152 medical students	'Working with Interpreters' workshop on complex issues; demonstrate effective use of interpreters.	Three hour workshop embedded in a preclinical doctoring course	High-stakes standardized patient exam eight weeks following the workshop. Single group, post-test.	10.5
Han et al. (2009)	Facilitating clinicians in taking the histories of Portuguese-speaking patients.	Eight clinicians	An instrument including a pocket guide containing medically relevant Portuguese words and phrases accompanied by a CD audio guide.	Three months	Observations of clinician history taking skills with and without the instrument; Clinicians and patients surveys on perception of the instrument's usefulness. Single group, post-test only.	10

Author (Year)	Objective	Population	Intervention	Study Length	Evaluation	MERSQI
Kalet et al. (2002)	Teaching students to work with interpreters and diverse patient populations. Raising student awareness of related legal, ethical, and cultural issues	160 medical students	An interactive web-based module.	N/A	Single group online pre and post multiple choice question assessment	10
Marion et al. (2008)	Determine if physician assistant students could effectively use interpreters to communicate with Spanish speaking patients after implementation of a cultural competency and Medical Spanish curriculum.	90 physician assistant students	Curriculum included a medical Spanish language acquisition course, communication skills training on using an interpreter.	Two years	Observations during a standardized patient exercise evaluated by clinicians and bilingual evaluators. Single group pre- and post-test.	10.5
Mazor et al. (2002)	Increase physician language skills and cultural competency.	Nine physicians	Medical Spanish language acquisition course.	10 weeks	Single group pre- and post-test, a written test; physician confidence survey; and patient satisfaction surveys.	11

Author (Year)	Course Objective	Population	Intervention	Study Length	Evaluation	MERSQI
Prince et al. (1995)	Enable physicians to improve patient rapport, increase communication, and avoid errors inherent in bilingual interactions.	Eight residents	Medical Spanish language acquisition course.	45 hour course	Review of audiotaped physician/patient interactions by interpreters and a native Spanish speaker. Single group post-test only.	10.5
Reuland et al. (2008)	Train students to deliver appropriate care in Spanish.	45 medical students	Didactic coursework, simulated patients, socio-cultural seminars, clinical skills rotations at sites serving Latinos, service learning, and immersion.	Four year curriculum	Qualitative focus groups, listening comprehension assessments, and speaking proficiency evaluation. Single group pre- and post-test.	11
Wu et al. (2006)	Improving residents' sensitivity and awareness of Latino culture to increase parent satisfaction.	49 residents	One 30-minute group session led by a trained interpreter. Participants also received two one-on-one individual sessions related to particular patients.	Two months	Patient satisfaction survey where residents were their own pre- and post-test controls.	12

Discussion

Thirteen studies were identified as either providing language acquisition or communication skills training to work effectively with interpreters to improve access to care for LEP patients. A detectable but small effect on provider and trainee competency was demonstrated for most studies but the impact on patients was limited to improved patient satisfaction. There was significant heterogeneity in the curriculum used and outcomes measured. None of the studies on improving language proficiency used a validated language proficiency assessment tool. Most studies examined access to care for Spanish-speaking patients. All studies were limited by addressing only one non-English language. However a strategy that improves Spanish language access may not apply to improvement in care for Korean-speaking patients, for example.

Limitations

This systematic review has several limitations. The proposed criteria and search strategies may have been too narrow in scope to capture all published linguistic competency interventions. Although every effort was made to include a variety of healthcare databases, the search strategy specifically focuses on published articles and therefore perpetuates "publication bias." In addition, article review was limited to the English language, thereby potentially excluding linguistic competency interventions published in non-English journals. Lastly, the search strategy does not include "grey" or unpublished literature and there is a publication bias. Although experts were contacted, there were no new results from the field of medical education linguistic competency research.

Next Steps

Only 13 studies met our study criteria, with most reporting moderate research design quality. Although there is potential for curricular innovations in developing language acquisition and communication skills to interact effectively with LEP patients, more methodologically rigorous studies are needed in the literature. By considering elements in the MERSQI during research design, educators may develop curricular research with greater validity and reliability, while enhancing linguistic competency education. Health professional educators should consider incorporating validated instruments into the curriculum, such as language proficiency exams or behavior checklists, in addition to enhancing patient health and systems outcome measurements. Since the studies lacked uniformity in study design, assessment and outcomes, it is difficult to determine the generalizable effect on patient care.

Considering the language diversity in the US (Siebens & Julia, 2011), it is not surprising that Spanish language acquisition and Spanish-speaking patient outcomes constituted over half of the studies. However, it is unclear if enhancing communication skills for a specific population or language is generalizable to other languages. One pilot study assessed skills in a standardized patient setting in four languages and another provided simulation experiences in European and East Asian languages. However, there were with no discernible differences in outcomes among the languages, although the

study should be performed at other sites with more participants and tested with real patients.

The review did not specifically exclude language barriers, such as deaf or hard of hearing populations, but the search strategies were not sensitive enough to extract these types of studies. The search terms may not have been specific enough to capture curricular innovations for these populations, and would require further inquiry to determine if there are comparable studies in this area.

Since there was an overall lack of uniformity in assessments determining patient and systems outcomes, it was difficult to establish curricular effects on patient care. Future studies should address training healthcare providers in linguistic competency training to patient and systems outcomes.

Conclusion

With new regulations and a healthcare climate demanding enhanced use of language services, there is an implicit understanding of a link between linguistic competency education leading to increased utilization of language services, and enhanced quality of care. While there are clear indications that language barriers contribute to disparities in medical care (Jacobs et al., 2006), until now, there has been little evidence to suggest that curricular interventions impact patient-centered outcomes (e.g. increased satisfaction), clinical outcomes (e.g. better control of blood pressure), or systems outcomes (e.g. improved access) (US DHHS, 2000). This review identified the various curricular approaches to fostering linguistic competency education, including language immersion and communication skills training focusing on working effectively with interpreters. The effect of such training on LEP patients and provider competence was heretofore unknown.

In conclusion, few studies exist that rigorously address outcomes from training healthcare providers to communicate effectively with LEP patients. Although linguistic competency is integral to in health professional education, more research studies are needed to show changes in provider and patient outcomes. The results provide important information about the potential for engaging health care providers through training in order to improve their ability to care for their LEP patients.

Chapter 3: Designing the Intervention

Introduction

The overarching goal of this study was to increase providers' utilization of interpreter services and enhance their ability to communicate with LEP patients by piloting a linguistic competence training program. The first step was determining current best practices in linguistic competency training; the process and findings of which are described in the prior chapter. A needs assessment was done with patients and providers at Stanford Hospital and Clinics (SHC) to identify training needs for the LEP population and utilize information toward the developing a data-driven educational intervention at SHC. The culmination of the research evaluated the impact of the educational intervention on provider outcomes.

The next section describes the needs assessment performed with LEP patients and their providers at a pediatrics clinic. The following section describes the educational intervention, as derived from the systematic review and needs assessment results. The last section discusses the impact of the workshop on providers' knowledge, skills and confidence in their abilities (or self-efficacy).

Site Selection

The site for the study was the Stanford Pediatrics Ambulatory Care Clinic (ACC), of the Mary L. Johnson Ambulatory Care Center, an outpatient clinic site of the Lucille Packard Children's Hospital (LPCH), in Palo Alto, CA. The clinicians at ACC are pediatric residents and attendings providing care to underserved patients as a primary care clinic. ACC was an optimal clinic to identify the language needs of both patients and clinicians due to the population present. There are approximately eight to ten residents and three to four attendings working at ACC during any given day caring for 80-100 patients per day.

The clinic directors, for both the physicians and staff, welcomed the research opportunity at ACC. Although there have been prior language service studies at ACC, mainly for internal program development, none have addressed the specific concerns of both clinicians and patients (A. E. Stuart, personal communication, April 11, 2011). ACC is a resident-driven clinic where the primary physicians, residents, provide acute, continuity and well-child care to patients at the clinic. Pediatric attendings have dual roles whereby they supplement resident education and training as well as overseeing patient care. Although residents perform as full healthcare providers, they are still considered "in training," and are monitored by attendings for continuing training purposes. With the clinic directors' and pediatric residency director's support, there was ample opportunity and access to determine the language services needs of clinicians, residents and attendings, in preparation of developing data-driven educational intervention.

In addition, ACC provided an ideal setting to study interpreter services for LEP patients, as Stanford Hospitals and Clinics and affiliated LPCH have mandated a policy to provide trained medical interpreters at all times and in a variety of formats and modalities(*Policy: Interpreter and Translation Services*, 2010). However, despite these efforts, underuse or misuse of interpreter services still exist (Diamond et al., 2009).

Although prior quality improvement projects at Stanford have addressed LEP patient preference for language assistance (A. E. Stuart, personal communication, April 11, 2011), none have attempted to survey both clinicians and their LEP patients. Since an opportunity arose to systematically develop a training program on working with interpreters in the Department of Pediatrics, a needs assessment was conducted to determine current practices working with interpreters and identify objectives for an educational intervention.

Needs Assessment: Participants and Recruitment

The needs assessment survey was conducted on a convenience sample of LEP patients and their healthcare providers in one clinic at Stanford (ACC). The needs assessment data collection occurred during usual clinic hours over a two-week period in 2011.

Patients

Patients qualified for the survey if they self-reported to the intake receptionist that their primary language was other than English and were asked to report to study staff after their visit to answer additional questions about improving language services at the clinic. Patients were provided a choice in answering surveys in English or translated into Spanish (Appendices 1 and 2, respectively). Along with the surveys, patients were provided informational sheets, in both English and Spanish, describing the purpose of the study as well as contact information if they wished to follow up.

In order to have 95% confidence that the patient survey sample would be representative of the target population, it was necessary to enroll at least 77 Spanish-speaking patient participants. Based on prior studies (Karliner et al., 2008), a conservative estimate of the expected response rate was 60% with the goal to sample at least 128 Spanish-speaking patient participants at the clinic.

Clinicians

All clinicians at SHC Pediatrics working at ACC during the 2-week data collection time period qualified for enrollment in the study. A convenience sample of pediatric physicians (residents and attendings) was contacted at the clinic during morning report and noon conferences to complete the needs assessment surveys. Clinicians were asked to complete the survey on language needs of their patient population, as well as answering general demographics questions (Appendix 3). Clinicians were excluded from responding to surveys if they had previously completed them over the course of the study timeline.

Needs Assessment: Instrumentation

During the course of the study, clinician- and patient-level surveys were implemented to examine knowledge and practice surrounding the use of interpreter services by clinicians at ACC. The surveys were developed based on current published surveys and extensive literature review in order to capture specific latent constructs on awareness of language laws and policies, as well as utilization and types of interpreter services (Grubbs et al., 2006; Karliner et al., 2008). In addition, experts in the field (medicine, interpretation) provided input on important latent constructs and suggestions to phrase questions in a culturally appropriate manner.

Survey Latent Constructs

The patient survey gathered patients', or their family members if the patient was of minor age, perspectives and demographics on the following three latent constructs: knowledge of language laws and policies, utilization (and type) of interpreter services, and assessment of clinician language skills (Appendix 1, English; Appendix 2, Spanish). Although health literacy and written communication modes are vital to understand for effective communication, the survey was limited to verbal communication issues only. The patient survey was developed to be readable at a fifth-grade level. The patient surveys were translated into Spanish by professional translators at Stanford Hospital and Clinics and then back translated into English to check for accuracy and intent.

In addition to general demographics questions, the clinician surveys information similar to the patient questions for comparison purposes: knowledge of language laws and policies, utilization (and type) of interpreter services, and self-assessment of clinician language skills (Appendix 3).

In the first section of the survey, clinicians self-assessed about participating in prior training programs on language skills, including speaking a language other than English in the home as a child and if they currently speak any languages other than English. Additional questions in the section asked participants to the extent to which they interact with LEP patients, the percentage of their LEP patients and the frequency with which they experience language barriers. The remainder of questions in this section asked participants to report their level of frustration during language discordant communication, where language barriers necessitate "the use of medical interpreters, and communication in which the provider and patient share little or no common language (Brugge et al., 2009)."

In this survey, the term language discordance used the broader scope to include all encounters when the patient and provider share little or no common language. Although the term "language discordance" is not commonly used in the medical setting, there is ample usage of the term in the literature referring to differences in quality of communication and patient care by language discordant pairings (Brugge et al., 2009; John Baptiste et al., 2004; Ngo-Metzger et al., 2007). Conversely, the term "language concordance" is a more commonly used term to identify medical visits where the patient and provider share a common language (Ngo-Metzger et al., 2007). Rather than

having clinicians assume language concordance with their patients, the survey questions focused on situations when such language mismatches occurred. The definition of language discordance was embedded in the survey questions to mitigate any misunderstandings of the term.

The second section of the survey measured knowledge of language laws and policies. Specifically, the questions asked about the participant's familiarity with Federal statutes and SHC policies, as well as at which points they received training in language laws, including during medical school, during their training at Stanford and during a continuing medical education (CME) course in the past year. In accordance with the theory of self-efficacy (Figure 3), the participants then self-reported on their abilities and knowledge to recognize the need for interpreter services, schedule interpreter services and utilize interpreters during medical visits.

The physician participants responded to demographic questions in the final section of the survey. The questions included: gender, ethnicity, race, age, graduation year from medical school, and specific clinical role. If the participant was an attending, generally a clinical instructor or mentor for medical students, residents and fellows, then they were asked if they have ever assessed a mentee's Spanish language ability, and if so, in which modality they assessed the language skills.

Results: Pediatric Patients

Demographics

Patients, and their family members, had a greater-than-expected response to the study, with a total of 100 needs assessment surveys completed out of 116 sampled (86 percent response rate). The majority of survey respondents were female (80 percent) and was a parent of the patient (95 percent) of a well child visit (70 percent). Most of the patient survey respondents have lived in the in the United States for six or more years (86 percent), and had a high school equivalent or greater educational attainment (54 percent). Although the preferred survey language was Spanish (98 percent), a significant minority of patients responded as speaking Spanish less than "very well" (30 percent) and understanding Spanish less than "very well" (24 percent). Conversely, a small number of respondents reported to speaking English "very well" (9 percent) and understanding English "very well" (4 percent).

Lack of time was the primary reason potential participants declined taking the survey. The majority of survey respondents were female (80 percent) and a parent of the patient (95 percent) of a well child visit (70 percent). Most of the patient survey respondents self-reported to living in the in the United States for six or more years (86 percent), and have had a high school equivalent or greater educational attainment (54 percent). Although the preferred survey language was Spanish (99 percent), a significant minority of patients also responded as speaking Spanish less than "very well" (30 percent) and understanding Spanish less than "very well" (24 percent), suggesting linguistic mastery in another language, such as an indigenous language. Conversely, a small number of respondents reported to speaking English "very well" (4 percent) and

understanding English “very well” (9 percent), as expected when sampling a primarily monolingual Spanish-speaking population. The average wait time to see the clinician for their scheduled appointment was 14 minutes (range 2 to 120 minutes). A large majority (87 percent) considered that they were “extremely likely to return” for an additional visit, followed by few patients either “moderately likely” (9 percent) or “somewhat likely” (4 percent) to return for medical care. See Table 4 Patient Demographics and Table 5 for Patient Language Demographics.

Table 4. Patient Demographics

	N = 100; N (%)
Gender	
Female	80 (80%)
Ethnicity	
Hispanic	98 (98%)
Education	
Less than high school	42 (42%)
High school or equivalent	45 (45%)
College	4 (4%)
Graduate	0 (0%)
Post-graduate	1 (1%)
Decline	1 (1%)
Unknown	3 (3%)
Less than high school	*42 (42%)*
High school or greater	*54 (54%)*
Years in US	
Less than 1 year	0 (0%)
1-5 years	14 (14%)
6-10 years	23 (23%)
11-15 years	30 (30%)
16-20 years	23 (23%)
More than 20 years	10 (10%)
Decline to state	0 (0%)
Unknown	0 (0%)
5 or less years	*14 (14%)*
6 or more years	*86 (86%)*
First Visit	
Yes	5 (5%)
Type of Visit	
Sick child	30 (30%)
Well child	70 (70%)
Survey Respondent	
Parent	95 (95%)
Other family member	5 (5%)
Wait time	
>20 minutes	19 (19%)

Table 5. Patient Language Demographics

	N = 100; N (%)
Preferred Language	
Spanish	99 (99%)
Survey Language	
Spanish	98 (98%)
How well understand Spanish	
Well	24 (24%)
Very well	76 (76%)
How well speak Spanish	
Not well	2 (2%)
Well	28 (28%)
Very well	70 (70%)
How well understand English	
Not at all	11 (11.1%)
Not well	43 (43.4%)
Well	36 (36.3%)
Very well	9 (9.1%)
How well speak English	
Not at all	18 (18.2%)
Not well	48 (48.5%)
Well	29 (29.3%)
Very well	4 (4.0%)
Familiar with Title VI right to an interpreter	
Yes	51 (51.5%)
Familiar with Stanford policy to provide an interpreter	
Yes	73 (74.5%)

Interpreter Modality

Although Stanford policy is that medical interpreters should be used during all occasions when there is a language barrier (Stanford Policy on Interpreter Use, 2010), one fifth (21 percent) of patients did not have an interpreter present during their visit, while just under half (45 percent) relied upon the Spanish-speaking skills of their providers. Other modalities, such as telephone interpreting were also utilized (22 percent). Over one tenth (11 percent) of the patients reported that *ad hoc* interpreters were used during the visit, including friends, family members or clinic staff, which practice is also not congruent with suggested good medical interpretation practices (US DHHS, 2001).

Satisfaction

In general, patients were satisfied with the language services and communication strategies provided to them in the clinic. Patients were either "extremely" or "moderately" satisfied about their ability to communicate with their clinician (54 and 42 percent, respectively), with few patients "somewhat satisfied" (4 percent). Although the scores are high and skewed to the more satisfied end of the scale, only half considered their ability to communicate with their clinician as "extremely satisfied."

Approximately half of the patients were "very satisfied" that in their perspective during the last visit, that their clinician understood what the patient was trying to say (49 percent). The other half were mostly "pretty much" or "a little" satisfied about their clinician's perceived understanding of their conversation (46 and 5 percent, respectively). Similarly, the patients felt satisfied that they generally understood what the clinician was saying to them, with the majority being "very satisfied" (52 percent) and a large minority "pretty much satisfied" (43 percent) with the remaining "a little satisfied" (5 percent). Most of the patients were "extremely likely" to return to the ACC clinic for medical care in the future (86 percent), with some respondents "moderately" or "somewhat" likely to return for medical care (10 and 5 percent, respectively). All patients were at least somewhat likely to return for care as there were no "not at all likely" to return responses.

Communicating in Spanish

Of the 45 patients (45 percent) self-reporting to speaking directly with a Spanish-speaking clinician during the past visit, the majority of patients stated that they were "very satisfied" (72 percent) with their physician's level of Spanish. There was some variation in the other responses, with "pretty much" and "a little" satisfied responses (26 and 2 percent, respectively).

For all patient visits, just over half (54 percent) of patients were "very satisfied" with their own ability to communicate with their Spanish-speaking clinicians. The remaining 46 patients were "pretty much" or "a little" satisfied with their ability to communicate (42 and 4 percent, respectively) during these encounters. Similarly, approximately half of the patients with Spanish-speaking clinicians during the last visit

reported that they were “very satisfied” in their perception that their clinician understood the patients (51 percent) or were “very satisfied” that they, the patient, understood the clinician (53 percent). There was a range in responses from “pretty much” to “a little” satisfied in the remaining patient responses. Table 6 depicts patient satisfaction with communication results.

Table 6. Patient Satisfaction with Communication

	N = 100; N (%)
Who interpreted during the most prior visit	
Did not use one	21 (21%)
Physician spoke Spanish	45 (45%)
Nurse, clerk or other staff (*ad hoc*)	2 (2%)
In person interpreter	1 (1%)
Telephone interpreter	22 (22%)
Friend or family member (*ad hoc*)	9 (9%)
If ever used telephone interpreter, how satisfied were you	
Not at all	3 (3%)
Somewhat	3 (3%)
Moderately	14 (18%)
Extremely	26 (26%)
Never used telephone	54 (54%)
Satisfied your physician understood what you were trying to say	
Not at all	0 (0%)
A little	5 (5%)
Pretty much	44 (44%)
Very	51 (51%)
Satisfied you understood what your physician was trying to say	
Not at all	0 (0%)
A little	6 (6%)
Pretty much	41 (41%)
Very	53 (53%)
Satisfied with ability to communicate with physician	
Not at all	0 (0%)
Somewhat	4 (4%)
Moderately	42 (42%)
Extremely	54 (54%)

Although satisfaction scores suggest low overall satisfaction trend, patients, in general, associated greater satisfaction with Spanish-speaking clinician than any other interpreting modality (Fisher’s exact p=0.019), suggesting a greater preference for language concordant visits (Ngo-Metzger et al., 2007). Additionally, patients perceived that the Spanish-speaking clinician was more likely to understand them, the patient, as compared to other interpreting modalities (Fisher’s exact p=0.048), although this was

not the case when patients responded about their own understanding when interacting with their Spanish-speaking clinician (Fisher's exact p=0.670).

Trained Medical Interpreters

For the purposes of the needs assessment, patients were asked to identify trained professional interpreters (in-person, telephone, or video monitor interpreting) used during the most recent visit. One quarter (23 percent) of the patients' self-reported utilization of the professional medical interpreter services during their most recent visit, including in-person, telephone and video monitor interpreting. Only one patient (1 percent) had an in-person Spanish interpreter present, while one fifth (22 percent) had a telephone interpreter help facilitate the communication with the clinician. There was no video monitor interpreter usage reported during the study period in the study setting.

The largest communication modality used in this sample population, professional medical interpreters over the telephone (22 percent), experienced more variation in satisfaction with communication ability than Spanish-speaking clinicians. Of the 12 patients who used telephone interpreters during the most recent visit were "extremely satisfied" (55 percent), a third, or eight, only "moderately satisfied" (36 percent) and two patients even "somewhat satisfied" (9 percent) with their ability to communicate when using the telephone interpreter during the prior visit.

In the small sample population of all professional trained medical interpreters (in-person and telephone), there were no clear differences of the presence of trained third-party medical interpreters (excluding *ad hoc*) on any of the patient satisfaction scores: satisfied with the ability to communicate with clinician (Fisher's exact p=0.365), satisfied that clinician understood the patient (Fisher's exact p=0.209) and satisfied that the patient understood the clinician (Fisher's exact p=0.799).

Of note, patients with *any prior experience*, not just the most recent visit, using the telephone interpreting system self-reported using this modality during any previous office visits (46 percent). This is not surprising as an overwhelming number of patients have previously sought health care in the clinic (95 percent) and may have been exposed to telephone interpreting as the dual headset telephones are in every clinic room and may be used depending on the language proficiency of the clinician. Of the 46 patients with prior telephone interpreting experience, the majority of patients were "extremely" or "moderately" satisfied " (57 and 30 percent, respectively), with a small minority "somewhat" or "not at all" satisfied" with telephone interpretation (seven percent each).

Familiarity with Language Laws and Policies

Prior studies have shown limited awareness of language laws and policies amongst limited English proficient (LEP) patients; however, LEP patients who are aware of such laws, are shown to have an increased likelihood to seek and procure language concordant healthcare providers (Grubbs et al., 2006). Patients surveyed at ACC had higher rates of familiarity than the historical figures (52 percent versus 37 percent),

although almost a decade has passed since the prior study asked the similar question on awareness of language laws. In addition, nearly three-quarters of monolingual Spanish-speaking patients surveyed were familiar with Stanford's policy regarding their rights to request an interpreter for their visit (74 percent).

There was no association between patients' familiarity with Title VI laws providing them the right to have an interpreter during a clinic visit for any of the interpreter modalities: trained professional interpreter (χ^2 p=0.259), Spanish-speaking clinician (χ^2 p=0.137), nor a difference in using *ad hoc* interpreters (χ^2 p=0.208). However, there was a significant association between awareness of Stanford policies on interpreter usage and having a Spanish-speaking clinician (χ^2 p=0.025), although the same was not true for any other interpreting modality: trained professional interpreter (χ^2 p=0.354) or usage of *ad hoc* interpreters (Fisher's exact p=0.249).

Results: Pediatric Clinicians

Demographics

A total of 31 pediatric clinicians completed the surveys, of which 24 were residents (81 percent) and seven attendings. The clinician survey response rate was high (88 percent) and exceeded historical expectations for pediatrician response rates (range is 52-81 percent, mean 68) (Cull et al., 2005), which may have been due to in person administration and collection of completed surveys. The majority of the respondents were female (78 percent), White (71 percent), of non-Hispanic ethnicity (87 percent) stated that they "can speak another language" (81 percent) and "understand another language" (84 percent). First-year residents, or interns, were the largest clinical level group with 13 respondents (42 percent) with seven attendings and seven second-year, or junior, residents tying as the second largest clinical groups (23 percent each), followed by four senior, or third-year, residents (13 percent). Not surprisingly, the majority of clinicians graduated in the year 2010 with 13 (42 percent), seven in the year prior (23 percent), four in two years prior (13 percent) and seven between 1972 and 2007 (23 percent). Clinician general demographics are listed in Table 7.

Table 7. Clinician Demographics

	N = 31; N (%)
Gender	
Female	24 (77%)
Race	
Asian	7 (23%)
Black/African American	1 (3%)
Native Hawaiian/Other Pacific Islander	1 (3%)
White/Caucasian	22 (71%)
Ethnicity	
Hispanic	4 (13%)
Clinical Level	
1st year resident (intern)	13 (42%)
2nd year resident (junior)	7 (23%)
3rd year resident (senior)	4 (13%)
Attending	7 (23%)
Graduation year from medical school	
2010	13 (42%)
2009	7 (23%)
2008	4 (13%)
1972-2007	7 (23%)

Language Skills and Interpreter Modality

Clinicians rated themselves highly by being able to "speak another language" (81 percent) and "understand another language" (84 percent), the majority of which was Spanish but also included: French, Hindi, Japanese, Mandarin, Romanian, Tagalog and Thai. The majority of physicians said that they could converse in Spanish with their patients, and responded affirmatively to any type of conversation they can have (casual conversation, standard medical interview, or serious medical interview). Out of 31 clinicians, 21 said they were able to casually speak (68 percent) such as greetings or discussing the weather, with less than that number, 19, able to conduct a standard medical interview (61 percent) such as a well-child visit with no pressing medical concerns. Only four claim to be able to conduct a serious medical discussion in Spanish (13 percent), which is considered the most technically challenging way to converse due to medical terms and highly emotional nature of the conversation content.

There was an equal distribution amongst the pediatric clinicians of the number of language discordant clinic visits, in which the clinician and patient share little or no common language (Brugge et al., 2009), over the prior 30 days of when the survey was taken. Nine clinicians had less than a quarter of their patient census with language discordant patients (32 percent), 11 with between 25 to 49 percent of visits (39 percent), seven with over half of the visits (25 percent), and only one whose patient census was over three quarters to nearly all language discordant visits (4 percent). All clinician language demographics, frustration with language discordant encounters and familiarity with language laws data are reported in Table 8.

Table 8. Clinician Language Demographics

	N = 31; N (%)
Can speak another language	25 (81%)
Can understand another language	26 (84%)
Number of non-English languages	
1	20 (65%)
2	5 (16%)
3	1 (3%)
Languages Spoken (multiple responses)	
Spanish	21 (68%)
Hindi	3 (10%)
French	3 (10%)
Thai	2 (6%)
Japanese	1 (3%)
Mandarin	1 (3%)
Romanian	1 (3%)
Tagalog	1 (3%)
Can speak Spanish (multiple responses)	
Converse casually	21 (68%)
Conduct medical interview	19 (61%)
Serious medical discussion	4 (13%)
% Language discordant with primary care patients (n=28)	
0 – 24%	9 (32%)
25 – 49%	11 (39%)
50 – 74%	7 (25%)
75 – 100%	1 (4%)
Frustration with language discordancy (n=30)	
Never	1 (3%)
Rarely	5 (17%)
Sometimes	12 (40%)
Often	9 (30%)
Always	3 (10%)
Knowledge of Title VI right to an interpreter	
Yes	18 (58%)
No	13 (42%)
Knowledge of Stanford policy to provide an interpreter	
Yes	23 (74%)
No	8 (26%)

Frustration with Language Discordant Encounters

Considering that the clinicians surveyed had ample exposure to language discordant visits, there was an expected distribution of frustration levels with those language discordant encounters. Six claimed to "rarely" or "never" experience frustration (20 percent), whereas the remainder (80 percent) expressed being at least "sometimes" (40 percent), "often" (30 percent) or "always" (10 percent) frustrated during language discordant visits.

Prior Training and Language Acquisition Skills

Considering the breadth and depth of language skills reported by clinician, many of the pediatric clinicians learned their skills on the job (n=12) such as regularly interacting with patients speaking that language. Formal language training was acquired during language immersion (n=8), general language training (n=11) and during training specific to medical terminology (n=4). Another way clinicians acquired language skills was by being exposed to the language at a young age (n=10), presumably learned in the home with relatives speaking the specific language.

Clinicians reported being generally exposed to prior training on working effectively with interpreters (68 percent), although this is disconcerting considering that all clinicians working at Stanford are required to have this training during work orientation. Of those having prior training, multiple sources of training were possible, leading to multiple responses by the clinician. Medical school was the primary source of the curricular concepts (57 percent) followed by training through a Stanford hospital program (38 percent). Seven clinicians noted having informal training (33 percent), such as on the job or learning through observation, on working effectively with interpreters.

Of the seven attendings, four noted having experience assessing residents, or mentees, Spanish fluency skills. In write-in responses, attendings assessed these skills primarily by asking the resident to reflect on their fluency, discussing importance of and using interpreters or other trained professionals, and observing residents interacting with patients or family members. Prior training on working with interpreters and language acquisition results are listed in Table 9.

Self-identification of prior training regarding working with interpreters (yes/no question) was significantly associated with higher rates offering interpreter services (Fisher's exact p=0.006). However, there was no significance for prior training occurring at a specific site (medical school, current hospital, continuing medical education course, or informal training).

Table 9. Clinician Prior Training and Language Acquisition Experience

Multiple responses available	
Setting(s) where learned non-English language skills (Spanish)	
On the job	12
Language immersion	8
Medical language training in school	4
General language training	11
Exposure to language at a young age	10
Do not use in a medical setting	3
Received prior training on how to use a medical interpreter (N=31)	
Yes	21 (68%)
No	8 (26%)
Don't know	2 (6%)
Setting(s) of training on working with interpreters	
Medical school	12 (57%)
Hospital	8 (38%)
Informal	7 (33%)
Other	1 (5%)

Familiarity with Language Laws and Policies

Much like the patient population they serve, approximately three-quarters of clinicians knew about Stanford policy on providing interpreters to LEP patients (74 percent); over half were aware of Title VI right to an interpreter (58 percent). Contrary to prior expectations, knowledge of Title VI was not associated with the frequency with which clinicians offered trained medical interpreters during language discordant visits (Fisher's exact p=1.00). Knowledge of Stanford policy, however, was highly associated with offering interpreters (Fisher's exact p=0.013).

Clinicians Offering Interpreter Services

Clinicians offered interpreter services most of the time during language discordant visits, with few offering interpreters "rarely" or "never" (six and zero percent, respectively). Interpreter services offered "always" or "often" were the most prevalent (13 percent each), followed by "sometimes" (10 percent). However, when the question specifically related to when *trained interpreters* were requested, the responses differed somewhat. While a large portion of clinicians still claimed to request interpreters in 75 percent of the time with language discordant visits or more often (45 percent), more clinicians admitted to lower rates of offering interpreters for 50-74 percent of the time (19 percent), 25-49 percent of the time (13 percent) and zero-24 percent of the time (13 percent). The discrepancy may be due to greater usage of *ad hoc* interpreters or not using interpreters at all. There are many explanations why a greater emphasis on *ad hoc* interpreters or situations with no trained interpreters present may occur, confidence in ability to communicate and use hospital interpreter services are just some

of the reasons, elaborated on in the next section. All results in this section are listed in Tables 10 and 11.

Table 10. Clinician Confidence in Communication Skills

	N = 31; N (%)
Frequency of offering interpreter	
Never	0 (0%)
Rarely	2 (6%)
Sometimes	3 (10%)
Often	13 (42%)
Always	13 (42%)
Confidence in determining how well patient understands you	
Yes	19 (61%)
No	12 (39%)
Confidence in answering patient's questions (N=30)	
Yes	9 (29%)
No	21 (68%)
Confidence in establishing patient rapport	
Yes	24 (77%)
No	7 (23%)
Confidence in recognizing need for interpreter services	
Not at all	0 (0%)
Somewhat	1 (3%)
Moderately	9 (29%)
Extremely	21 (68%)
Confidence in scheduling interpreter services	
Not at all	1 (3%)
Somewhat	6 (19%)
Moderately	12 (39%)
Extremely	12 (39%)
Confidence in working effectively with medical interpreters	
Not at all	0 (0%)
Somewhat	1 (3%)
Moderately	12 (39%)
Extremely	18 (58%)

Table 11. Clinician Self-Assessing Interpreter Usage

N=31; N (%)	
Language discordant patients where trained interpreter was requested (past 30 days)	
0 – 24%	4 (13%)
25 – 49%	4 (13%)
50 – 74%	6 (19%)
75 – 99%	10 (32%)
100%	7 (23%)
Language discordant patients where *ad hoc* interpreter was used (past 30 days)	
0 – 24%	23 (74%)
25 – 49%	6 (19%)
50 – 74%	2 (6%)
75 – 99%	0 (0%)
100%	0 (0%)
Language discordant patients where no interpreters used at all (past 30 days)	
0 – 24%	23 (74%)
25 – 49%	2 (6%)
50 – 74%	5 (16%)
75 – 99%	1 (3%)
100%	0 (0%)
Reasons for not using interpreter in past 30 days (multiple responses)	
Diminish quality	2 (6%)
Diminish rapport	1 (3%)
Time constraint	15 (48%)
Slow medical interview process	6 (19%)
Technical issues	6 (19%)
Other	6 (19%)
Interpreter usage compared to other clinicians	
Much more frequently	2 (6%)
More frequently	11 (35%)
About the same	10 (32%)
Less frequently	7 (23%)
Much less frequently	1 (3%)
Regret at not using an interpreter (N=28)	
Never	2 (7%)
Rarely	10 (36%)
Sometimes	6 (21%)
Often	5 (18%)
Always	5 (18%)

Confidence in Communication Skills

When rating their confidence in communicating with patients' whose primary language is not their own (i.e. language discordant, defined previously), many clinicians were confident in their ability to schedule interpreters (61 percent) and establishing patient rapport (77 percent); however, most clinicians rated themselves as not confident in their ability to answer their patient's questions (68 percent) during language discordant encounters. This is particularly striking because clinicians are saying that they are able to establish good rapport and converse to the extent of being able to inquire as to the patient's level of understanding of the conversation during the visit, but readily admit to not being confident in their ability to answer the patient's questions when they do not know the language.

Confidence in working with Interpreters and Interpreter Services

Relatedly, clinicians rated on their confidence level of their abilities to connect with Interpreter Services by recognizing the need during language discordant visits, scheduling in the system for an interpreter, and working effectively with medical interpreters. Most clinicians felt confident that they were able to identify when interpreters were needed ("extremely" and "moderately," 68 and 29 percent, respectively).

With somewhat less confidence but still with high rates in the upper ratings, clinicians were confident in their abilities to work effectively with medical interpreters. 18 were "extremely" confident in this skill set (58 percent) and 12 "moderately" confident (39 percent) in managing a language discordant visit with a trained interpreter present. Again, one clinician rated their confidence in working with interpreters as "somewhat" confident (3 percent).

Finally, clinicians were "extremely" or "moderately" confident in scheduling interpreter services (39 percent each) by either contacting either for in-person or telephone interpreter services. All ACC clinic rooms, and most in the hospital, have double headset telephones where both the patient and provider can participate in the conversation with the connected line. Considering the high propensity of suggested telephone usage, over a fifth of clinicians felt "somewhat" or "not at all" confident (19 and 3 percent, respectively), and over three-quarters were less-than-"extremely" confident (78 percent, combining everything besides designated "extremely" ratings) in using these common methods.

Regret and interpreter usage

Just under half of the providers stated that they "sometimes", "often", or "always" regretted not using an interpreter with their language discordant patients (46 percent). This question was imported from a prior published focus group study (Diamond et al., 2009) and a quantitative survey study (Karliner et al., 2004) as a means to quantify how often clinicians wished to have interpreters present but proceeded with the language discordant visits without interpreters.

Clinicians noted multiple reasons why they may not utilize interpreters in a time-sensitive environment during language discordant encounters. As expected, the main reason why clinicians do not use interpreters is time (mentioned 15 times, approximately half of the clinicians), followed by slowing down the medical interview process and technical issues with the telephone (mentioned six times each). Although anticipated, but not generally supported in this population, diminished quality of the conversation and rapport were not primary reasons of not using trained interpreters (mentioned two times each). Other reasons for not using a trained interpreter included: using *ad hoc* interpreter, using limited language ability to get by, using a physician colleague to interpret for them, or respecting patient's preference to have a friend interpret for them.

Chapter 4: Implementing the Intervention

Educational Intervention

All data from the needs assessment was extracted and used for data analysis. Survey results informed the specific learning objectives for the educational intervention by honing in on LEP patient needs, such as focusing learning objectives on working more effectively with telephone interpreters. In addition, the survey data provided context about the relevance of the training program by including data from patient population served.

Workshop Description

The workshop was designed to be informative and interactive as well as feasible to implement during a clinician's busy day. The intervention was offered to two groups of physicians: one with pediatric residents (junior and senior years), and pediatric attendings including pediatric fellows. Due to scheduling, the resident seminar was one 90mn session, whereas there were two 60-minute sessions with pediatric attendings.

The workshop components were directly informed by the systematic review and the results from the needs assessment. The results suggested that practicing clinicians lacked knowledge, comprehension and application of linguistic competency concepts (Bloom, 1956) were important concepts to incorporate into the training session. These include: ability to communicate effectively during language discordant visits by working with interpreters (in-person or telephone), ability to use hospital interpreter services, and enhance knowledge of language laws and policies as they relate to patient care and services.

Based on the needs assessment, clinicians overall responded that they felt comfortable establishing rapport with LEP patients yet lacked the ability to answer questions during language discordant visits. Considering the importance of language as a vehicle to establishing rapport with patients, this suggested that clinicians needed more tools to effectively communicate with LEP patient. Potential participants in the workshop would most likely be exposed to in-person or telephone interpreters. Skill practice through dramatization and participation was a key workshop component to enhance participants' abilities to work with interpreters. This includes knowledge of how to interact with interpreters, specific contributions interpreters can make in patient care and also role-play exercises to solidify the emphasis on working with interpreters.

Although patients in the needs assessment reported that they were generally satisfied with the telephone interpreter as a communication modality (57 percent "extremely satisfied"), the remaining patients can have an enhanced experience with telephone interpreters. Although clinicians were exposed to double-headset telephones intended to connect with interpreters via the telephone throughout their work environment, clinicians were less than "extremely confident" using this modality (78 percent). Technical problems or usage challenges are limiting factor for this modality,

therefore an emphasis on how to utilize this service more effectively was integral to the workshop. As such, a role-play specifically focusing on navigating through the telephone interpreter system was included in the workshop.

Lastly, knowledge of language laws and polices appeared to have an effect on proper interpreter use for both clinicians and patients, as noted in the systematic review. The workshop, therefore, incorporated a didactic component on current laws pertaining to language and interpreters in the healthcare setting such as Title VI of the Civil Rights Act of 1964, National Standards on Culturally and Linguistically Appropriate Services (US DHHS, 2001) and Stanford policy on using interpreters (Stanford Policy on Interpreter Use, 2010). Sharing needs assessment data with the participants as an educational tool provided context of these laws and policies to their LEP patient population in their work environment. This data was used as a "hook" in the workshop to provide a voice to LEP patients regarding their experiences as well as enhancing impact of learning objectives derived from the workshop on future patient care.

Resident Educational Intervention

The linguistic competency training for residents consisted of a 90-minute training session. The educational intervention occurred during a regularly scheduled meeting during a required noontime conference for junior and senior residents (residents in their second and third year of general pediatric residency). Training elements included: current state of language access at Stanford, federal and state laws on language access issues, knowledge skill development to work more effectively with interpreters, sharing information about their patient population (from the needs assessment) and identifying systems-level opportunities for improving language services for LEP patients.

The training developed for pediatric residents consisted of the following learning objectives (in order of appearance during the session):

- Be able to explain current language standards and Stanford policy and applications to your practice;
- Discuss potential medical errors;
- Utilize communication tools to work effectively with trained interpreters;
- Know more about your LEP patient population;
- Recognize your language skills and potential limitations;
- Utilize available resources at Stanford to communicate with your LEP patients;
- Reflect how to teach, role model, and practice during patient care.

Although the resident and attending modules consisted of the same elements, residents were additionally exposed to a didactic and discussion relating to using their own language skills during LEP clinic visits. This element was specifically requested by the residency program director due to high levels of interaction to LEP patients by the pediatric residents.

Attending Educational Intervention

General pediatrician at LPCH participated in two 60-minute sessions during regular noontime conferences in winter 2011 (December 1st and 15th, 2011). The pediatric attendings module learning objectives were as follows, in order of appearance:

- Be able to explain current language standards and Stanford policy and applications to your practice;
- Discuss potential medical errors;
- Utilize communication tools to work effectively with trained interpreters
- Know more about your LEP patient population;
- Utilize available resources at Stanford to communicate with your LEP patients;
- Reflect how to teach, role model, and practice during patient care.

Workshop Elements

The workshop incorporated lessons learned from prior linguistic competency training programs (Chapter 2) as well as prior experience working with the Stanford Faculty Development Center (SFDC). The SFDC program develops highly interactive literature- or data-based training elements in order to maximize the teaching opportunity for medical providers and faculty. Specific components of the workshop are listed below.

- Introduction to limited English proficiency (LEP) and the growing LEP population in the United States and California. Although there is a large proportion of the population in California who are LEP, a strikingly large number of LEP patients do receive inferior quality and access to care, resulting in health and healthcare disparities. LEP patients experience more barriers when accessing primary care services, and, when they are receiving care, have fewer services offered to them than their English speaking counterparts. Training physicians to work with interpreters can mitigate the effect of these barriers.
- Defining the terms “interpret” (to orally express a message from one language to another) and “translate” (converting written text from one language to another).
- Case study to determine current practices when interacting with an LEP family followed by a debrief. Prompt question “What would you do in your current practice to communication with this patient/family?”
- Discuss specific attributes of language interpretation standards nationally, statewide and at Stanford, as well as the responsibility of healthcare organizations on providing language services, as stated by the CLAS Standards(US DHHS, 2001).
- Discuss medical errors as they occur in the healthcare setting, provide real-life example of clinician ignoring “LEP status” of patient and resulting trauma from this mistake. Open up to group for discussion.

- Share tips on working with interpreters (relevant for in-person and for all modalities). Followed by role-play scenario with a Spanish-speaking mom, where a participant must explain a treatment plan to an actor playing the patient's mom with an interpreter present, another actor. The goal is to utilize the tips presented. Followed by a discussion from the participant, actors and participant observers. Debrief consists of additional tips to remember with in-person interpreters.
- Share tips on working with telephone interpreters. As before, one participant is asked to role-play a discussion on symptoms with a Russian-speaking teenager, with an actor playing the teenager and a real-life telephone interpreter is contacted for the presentation. This is followed by a discussion of tips and skills necessary for interacting with telephone interpreters.
- Share tips on utilizing own non-English language skills. The final role-play incorporates a Spanish-speaking patient and requires a Spanish-speaking participant volunteer to discuss dietary changes and nutrition concepts to the family. The debrief incorporates additional tips on how to self-assess language abilities (for all languages, although the example was in Spanish) and utilize interpreters even when speaking in the patient's language.
- Relay the interpreter's role on the healthcare team, ranging from "message converter" to "message clarifier" to "cultural clarifier" and finally, to "patient advocate" (California Endowment, 2007).
- Share needs assessment research project results and lessons learned to emphasize relevance of the workshop on their LEP patient population and direct patient care.
- Share resources at Stanford Hospital and Clinics as well as Lucille Packard Children's Hospital. Describe the functions of each and specific setting.
- Final assessment, rate retrospective (before workshop) and post (after).

In summary, the workshop included components identified from the needs assessment in an interactive format geared towards high acceptance within a limited time frame for the participants. The learning objectives included: recognize and apply language standards, utilize tools to work effectively with trained interpreters (in-person, telephone, own language skills), discuss medical errors as a result of not following Stanford policy on using interpreters during language discordant encounters, discuss problems with using untrained interpreters, review characteristics of LEP patient population, and employ available resources at Stanford to communicate effectively during language discordant encounters.

Methods

Research Design

The project is single group training program on linguistic competency knowledge- and skill-building implemented to pediatric residents and attendings during regular training meeting times. The components of the training are dually influenced by utilizing positive components as the systematic review of current literature and by incorporating the needs of LEP patients and the providers who serve them. Therefore,

data from the prior needs assessment survey was vital to understand LEP patients' experiences with language services and providers as well as providers' confidence and abilities to effectively communicate with this population.

Data Analysis and Management

All survey data was anonymous and all paper forms were kept in a locked filing cabinet after data entry according to Stanford University data security practices. In addition, data was entered into a password-protected spreadsheet located on a password-protected server in preparation for export into a statistical analysis program.

Along with reporting demographic results, tests of association between the knowledge of language laws and interpreter utilization was performed, including Fisher's exact test where necessary for cells less than ten counts. Tests of association (student's *t*-test, nonparametric) were performed to determine if there were any knowledge and attitudinal changes attributed to the linguistic competency intervention, retrospective and post. StataSE 10.1 was used for all statistical calculations.

Human Subjects Research

The Stanford University School of Medicine Institutional Review Board (IRB) approved this data research project. The project qualified for exempt status because the research was conducted in an educational environment and collected anonymous patient and provider surveys (Exemptions #1 and #2); therefore, full committee review was unnecessary. The Stanford University School of Medicine IRB Panel 3 approved this exempt human subjects application on April 28th, 2011.

At the University of California, Berkeley, the project did not meet the threshold definition of "human subjects" research. The data analysis for the dissertation used anonymous data, where the researcher could not identify the participants. Therefore, the study did not require Committee for Protection of Human Subjects Institutional Review Board approval for the project (Appendix 6).

Chapter 5: Evaluating the Intervention

This chapter presents information on how the linguistic competency training was evaluated as well as a discussion on relevance and future studies. The evaluation of the training attempts to test the following hypothesis: *Does participation in the data-driven educational intervention result in increased provider linguistic competency?*

Study Procedures

The intervention curriculum relied heavily on role-plays to allow residents and attendings to practice their skills in a training environment on to more effectively interact with LEP patients and interpreters. In addition to skill building, the curriculum incorporated the needs assessment elements that were collected four to six months prior to the training. The combined baseline data informed the linguistic competency training components, including knowledge of current language laws and policies, knowledge of patients' perspectives on language service needs, and skill practice working with interpreters, in particular, telephone interpreters.

Following the training, residents responded to survey questions by self-assessing their knowledge, skills, confidence related to the module and overall value of the presentation (Appendix 4). The questions were matched to the curricular content and learning objectives.

Retrospective Pre

In order to determine the effectiveness directly on the physician participants, the program was evaluated using post-training surveys, including knowledge and attitude components. In addition to the post-intervention assessment, participants responded to "retrospective pre" self-assessments. The "retrospective pre" assessment asked participants after the training to answer the survey questions *as they were before the training*, or, in other words, reflecting on what they knew before the training in the context of what they now know after the training. The "retrospective pre" method has been widely used in medical education because it provides a more sensitive measure of their experience due to the linguistic competency training than traditional pre- and post-test self-assessments (Skeff et al., 1992). All questions, excepting the overall value of the course question, collected both retrospective pre perspectives from prior to the training as well as the traditional post-workshop self-assessment of knowledge, skills and confidence levels.

Based on the needs assessment and systematic review, a comprehensive linguistic competency training program was developed for pediatric residents and attendings. The survey results provided important information about the potential for engaging health care providers through training in order to improve their ability to care for their LEP patients. The development of the data-driven workshop on working effectively with interpreters incorporated learning objectives, didactics and skill

exercises directly related to areas where a gap in knowledge or skill was perceived, by either patients or clinicians.

Participant Demographics

A total of 18 pediatricians participated in the workshops, with the majority being female (72 percent), non-Hispanic (89 percent) White (83 percent). Considering that two separate learner groups were targeted (residents versus attendings), there was a good distribution of participants by clinical level: junior resident (22 percent), senior resident (33 percent), pediatric fellow (17 percent) and pediatric attendings (28 percent). Consistent with the learner level, there was a wide distribution of participants' graduation year from medical school (range 1972 to 2010, mean = 2005).

Ten pediatric residents participated in the upper-level resident workshop. The demographic composition participants in the resident workshop were as follows: primarily female (80 percent), non-Hispanic (80 percent) White (80 percent). All residents self-assessed rating their level of understanding a language other than English (100 percent) and speaking another language (70 percent). Finally, the majority felt that they could converse specifically in Spanish casually and in a standard medical interview, 80 and 50 percent, respectively. One resident self-assessed to being able to converse in Spanish during a serious medical discussion (10 percent), not shown in table.

Eight pediatric attendings participated in the linguistic competency workshops. The majority of the pediatric attendings were female (75 percent) and self-identified as non-Hispanic White (88 percent) and graduated from medical school on average 11 years prior to the training (range from three to 39 years). There were two career levels, pediatric attendings (63 percent) and pediatric fellows (38 percent). Participant demographic data is listed in Table 12.

Table 12. Workshop Participant Demographics

	Residents Workshop N = 10	Attendings Workshop N = 8	Total N = 18
Gender			
Female	7 (70%)	6 (75%)	13 (72%)
Race			
American-Indian/Alaska Native		1 (13%)	1 (6%)
Asian	2 (20%)		2 (11%)
White/Caucasian	8 (80%)	7 (88%)	15 (83%)
Ethnicity			
Hispanic	1 (10%)	1 (13%)	2 (11%)
Clinical Level			
2nd year resident (junior)	4 (40%)		4 (22%)
3rd year resident (senior)	6 (60%)		6 (33%)
Fellow		3 (38%)	3 (17%)
Attending		5 (63%)	5 (28%)
Graduation year from medical school			
2010	4 (40%)		4 (22%)
2009	6 (60%)		6 (33%)
2008		2 (25%)	2 (11%)
2006		1 (13%)	1 (6%)
2005		2 (25%)	2 (11%)
2001		1 (13%)	1 (6%)
1993		1 (13%)	1 (6%)
1972		1 (13%)	1 (6%)

Evaluation

The learning objectives (see prior section) greatly informed the development of the assessment survey. The survey asked participants to rate themselves on their knowledge, skills and confidence in their abilities related to linguistic competency attributes from the workshop. Participants rated themselves as they were prior to the workshop, retrospective assessment as previously described (Skeff et al., 1992), and how they rate themselves immediately after the workshop. The retrospective-post assessment occurred for all items, except the "overall value" item. There were a total of 12 assessment items for the resident workshop and 10 for the attending workshop, based additional learning objectives for the residents (see Chapter 3). Each item was rated on a 5-point Likert scale (one is low, five is high), and evaluated using a mean-comparison test of paired data. The assessment took approximately five minutes to complete and was embedded into the workshops' timeframe and agenda in order to accommodate to participants' availability. All participants in the one resident workshop and two attending workshops completed the assessment (100 percent response rate).

Participants in both workshops, for residents and attendings, rated the overall value of the presentation highly (4.6 out of 5). The ratings were significantly higher than expected even with a conservative hypothesized mean of four, determined by a one-sample *t*-test (p-value < 0.001). In addition to the overall value item, all of the remaining items were significantly higher from the retrospective to the post ratings, based on the mean-comparison test of paired data *t*-test.

One of the main learning objectives of the workshops was to enhance clinicians' knowledge base regarding language laws and policies. The level of participants' knowledge regarding language laws and policies showed significant improvement from before to after the workshop. The mean scores improved by over one point for Stanford policy to provide an interpreter and nearly two points for Title VI right to an interpreter (p-value < 0.001 for both) after rating themselves average or below average on this item prior to the workshop.

The bulk of the workshop session was devoted to sharing and opportunity to role-play on skills to work effectively with interpreters. Both residents and attendings were provided skills on working effectively with telephone interpreters and participate or watch during a role-play with a real-life telephone interpreter. This population is naturally exposed to telephone interpreters in their work environment due to high rates of telephones in the various clinics and across the hospitals, and participants rated themselves highly retrospectively on this item (mean 3.72). However, the workshop provided an opportunity to practice working with telephone interpreters and significantly improved the ratings on this skill set (mean 4.44, p-value < 0.001). The residents were provided an additional skill set, working with in-person interpreters, which also significantly improved due to the workshop (p-value = 0.037); although residents rated themselves highly retrospectively (mean 4.1), there was still a skill level increase after the workshop (mean 4.5).

The knowledge base of medical errors, impact of using untrained interpreters, results from the needs assessment (LEP patient population), and language access resources all significantly increased. Although participants rated themselves average or above average retrospectively, more participants rated their knowledge level higher after the workshop. Knowledge about medical errors increased by nearly one point (p-value < 0.001), knowledge on the impact of using untrained interpreters increased by one point (p-value = 0.004), with the LEP patient population and language access services scores increasing by just over a half point (p-value 0.002 and p-value (0.004, respectively).

The final items related to participants rating their confidence levels interacting with interpreter services. These items were related to clinician self-efficacy in working with interpreters and communicating with LEP patients. In addition to providing an opportunity to work with interpreters (skill practice), the content of the course was intended to enhance self-efficacy concepts, such as their confidence (Figure 3). The same questions from needs assessment were used for the training evaluation surveys. Although clinicians rated themselves highly in these categories during the needs assessments, fewer participants rated themselves highly both retrospectively and after the workshop than in the needs assessment. Participants' confidence in recognizing the need for interpreter services improved after the workshop as did their confidence in working effectively with trained medical interpreters (p-value < 0.001 each). The item which was rated lower during the needs assessment, confidence scheduling interpreter services, also significantly improved after the workshop (p-value = 0.042); however, was the lowest mean score for the post workshop (mean 4.0).

Table 13 shows all educational intervention retrospective and post scores, along with paired *t*-test significance values.

Evaluation Summary

Developing a focused data-driven linguistic competency educational intervention is feasible within the work environment framework, such as currently existing time for workshops. In the needs assessment of this research study, patients and clinicians were surveyed on their perceived language access needs and communication abilities. The intervention design utilized data from the needs assessment to develop a focused educational intervention based on the gaps in knowledge, skills and confidence previously measured. Each assessment item scored significantly higher after the workshop, suggesting a valuable tool in developing a linguistically competent healthcare practitioner. Developing an educational intervention based on data is an effective way to enhance linguistic competency training to enhance communication with LEP patients.

Table 13. Educational Intervention Retro-Post

Questions (N=18) *How would you rate your:*	Retro Mean (SD)	Post Mean (SD)	*t*-test p-value
Knowledge about Stanford policy on working with interpreters	3.22 (0.65)	4.39 (0.50)	<0.001
Knowledge about Title VI statute	2.12 (0.93)	4.0 (0.87)	<0.001
Skill to work effectively with telephone interpreters	3.72 (0.67)	4.44 (0.51)	<0.001
Skill to work effectively with in-person interpreters *	4.1 (0.57)	4.5 (0.53)	0.037
Knowledge about medical errors resulting from language discordance	3.44 (0.78)	4.39 (0.50)	<0.001
Knowledge about the impact on patient care using untrained interpreters *	3.5 (0.97)	4.5 (0.71)	0.004
Knowledge about your LEP patient population at Stanford (ACC)	3.6 (0.92)	4.33 (0.59)	0.002
Knowledge about language access and interpreter services resources at Stanford	4.0 (0.59)	4.56 (0.51)	0.004
Confidence recognizing the need for interpreter services	3.61 (0.70)	4.28 (0.67)	<0.001
Confidence scheduling interpreter services	3.78 (0.73)	4.0 (0.69)	0.042
Confidence working effectively with trained medical interpreters	3.78 (0.55)	4.61 (0.50)	<0.001
Please rate the overall value of this presentation †		4.56 (0.51)	<0.001

* Two items Included in the Resident Workshop only (n=10)

† Conservative comparison to hypothesized mean of 4 on a 5-point Likert scale, one-sample *t*-test

Discussion

The language diversity in the US population necessitates a linguistically competent healthcare workforce. This research suggests that a data-driven training program can be effective in enhancing clinicians' self-efficacy in interacting with LEP patients and medical interpreters. Few research studies exist on linguistic competency training for healthcare professionals, as demonstrated by the systematic review. An opportunity to strengthen scholarship on linguistic competency as well as develop a novel training program was apparent based on the systematic review findings.

Subsequent needs assessment survey results demonstrated potential knowledge, skill and confidence gaps in the language services offered and utilized for

communication purposes with LEP patients. For example, although clinicians demonstrated themselves confident in determining how well a patient understands them and creating rapport with patients, they rated themselves not confident answering patient questions. It is remarkable that while clinicians felt that they could create rapport with their language discordant patients, they could not answer their questions, as answering questions may be inherently considered when evaluating ability to create rapport with patients. In addition, clinicians often regretted not using interpreters during language discordant encounters and rated themselves lower in their abilities to schedule and work with interpreters, suggesting vital tools needed. The educational intervention was designed to incorporate these important skills. Patient surveys, on the other hand, reported that they were satisfied with language services, although only about half considered themselves very satisfied with these services, suggesting room for improvement. Patients and clinicians had approximately the same level of knowing about current language laws and policies, although these ranged from half to three-quarters, respectively. Awareness of these concepts not only would suggest higher rates of interpreter use, but also is important for clinicians to follow interpreter usage policies in their work environment.

The educational intervention incorporated results from the systematic review and the needs assessment in order to enhance clinicians' self-efficacy and subsequent behavior change. The training program provided important opportunities for clinicians to practice specific skills to work effectively with interpreters as well as provide specific information to enhance communication with LEP patients. Participants highly valued the session as well as the opportunity to interact in a safe training environment with interpreters. Based on the intervention evaluation, the clinicians in this study showed enhanced self-efficacy, based on confidence and skill ratings (Figure 3).

Limitations

It is important to place the study findings within the context of limitations with the study design and additional study factors. The educational intervention was based on a literature search as well as perspectives from one patient population and one pediatric residency program. The study was designed to determine current knowledge base of linguistic competency training (systematic review) and the needs of the patient population and healthcare providers in a pediatric clinic to identify key topics for an educational intervention.

The systematic review limitations were discussed elsewhere. However, in summary, the search criteria may be too limited to published literature and English-language journals. Although experts in the field of linguistic competency training for healthcare professionals were contacted for external review of found articles, no new articles or research projects were uncovered for consideration to be included in the systematic review. Considering the nature of the study inquiry, linguistic competency training for healthcare professionals, limiting the search to English language journals was necessary for the reviewers' comprehension of the articles.

In collecting the data to develop an educational intervention, patients and physicians responded to a needs assessment survey. The survey was only offered to Spanish-speaking LEP parents or guardians of pediatric patients. The respondents also self-selected to respond to survey questions as they were exiting the clinic after an appointment. Similarly, residents and attendings in one specialty (pediatrics) self-selected to respond to the survey. Consequently, the patient and clinician needs assessment survey findings cannot be generalized to other LEP patient populations, languages or healthcare settings. Replications of the needs assessment in other languages and healthcare settings would address generalizability and external validity of findings from this study.

The needs assessment instruments were developed to determine the needs of the local population (patients, clinicians) with every attempt made to be consistent measuring the following latent constructs: knowledge of language laws and policies, utilization (and type) of interpreter services, satisfaction with interpreters services, and assessment of clinician language skills (clinicians only). Every effort was made to measure these constructs by incorporating questions from prior published surveys (Brugge et al., 2009; Grubbs et al., 2006; Karliner et al., 2008). The surveys were piloted for legibility and construct validity with multiple versions, including the translated patient surveys. During this process, minor changes in the survey were made. For example, the original patient survey questions asked respondents to respond to a satisfaction questions with the following options: not, a little, moderately and very satisfied. Upon discussion with the translators and a patient pilot, the Spanish survey responses were modified to the following as they translate to English: not *at all*, a little, *pretty much*, and very satisfied (the italicized highlight the differences), where "moderately" was not a big enough distinction from "very" in the Spanish language and "not" was expanded to "not at all" in terms of patient satisfaction. These and other minor changes were incorporated to assure construct validity in the surveys.

The educational intervention was developed in response to prior linguistic competency education research (systematic review) and results from the needs assessment surveys. While the training did address elements where a need was identified, it is unknown if participants from the training had previously responded to the needs assessment surveys. Although there was a significant time period between the needs assessment and educational intervention surveys (four to six months), participants may have been primed to the specific elements in the training. There was potential testing threat to validity inherent in the study design, although the nature of a fast-paced environment and a multitude of other trainings in various settings, suggesting limited recall to the survey. Lastly, one team member delivered the needs assessment surveys while another researcher implemented the training, thereby limiting recall to the specific topics even further.

Implementing the training during regularly scheduled meetings mitigated participant selection bias. The pediatric resident training occurred during a mandatory session for junior and senior residents, second and third year, respectively. It was assumed that these residents would have had more experience with LEP patients and

more direct patient care, so it was expected that this training focused on their needs would be best received. The attendings' training occurred during two noontime seminars scheduled weekly. Although none of the trainings were previously advertised, an educational component was generally expected, as this is the primary mode for direct educational experience for both groups.

Of note, identifying information was not collected for any surveys; therefore there is a possibility that there is participant overlap in the two surveys. Considering the amount of time between the needs assessment data collection and training implementation and evaluation (between four to six months), there was low likelihood of testing effects by the participants.

Although there were numerous limitations to this study, the successful integration of needs assessment data with implementing a novel linguistic competency workshop suggests expanding the training to other settings and healthcare professionals in order to address threats to external validity.

Future Research

Preliminary study findings suggest that a data-driven linguistic competency training is an effective tool for enhancing clinician self-efficacy and outcomes expectations (Bandura, 1982; Bandura, 2001). Future studies should focus on determining new goals to work effectively with interpreters and subsequent behavior change on utilizing interpreters more often.

In addition to considering downstream changes for future research, the training program must be expanded to other specialties and institutions in order to determine the generalizability of the findings to other settings. The workshop was heavily based on the results from pediatric patients and clinicians and developed for the specific needs in the healthcare environment of pediatric residents and attendings at Stanford University. Patients in other clinics, including adult patients or specialized pediatric patients, should be surveyed on their experiences with language services at Stanford. The new patient population may have different language service needs than the ones reported by pediatric LEP patients. In addition, the knowledge, confidence and skill level of clinicians in other specialties, such as internal medicine or surgery, may differ significantly from the pediatric attendings. Since there may be even more variation of assessing these populations at other healthcare institutions, additional research to address generalizability should be performed in these other settings.

Lastly, future training programs would be enhanced by individual-specific needs assessment and training opportunities. One prior study from the systematic review (Wu et al., 2006) used residents as their own controls with pre- and post-intervention patient satisfaction surveys. A similar study may be performed to develop more individualized training for clinicians, which may be more readily adopted, as the results would specifically pertain to that clinician's performance. As part of the training, future research programs would not only collect evaluation intervention ratings as well as patient satisfaction scores immediately after the training, but would also perform

subsequent delayed post-intervention evaluation testing at a later time point, suggested three to six months, to identify any remaining behavior changes. Lastly, future research would also collect interpreter usage data, pre- and post-intervention, in order to determine behavior change by increasing utilization of interpreters. These strategies would enhance the generalizability of the training as well as determine changes in self-efficacy by clinicians.

Significance of Findings

The primary new contribution of this research is the lessons learned and recommendations for future linguistic competency training programs. The results provide important information about the potential for engaging health care providers through training in order to improve their ability to care for their LEP patients

The systematic review addressed the different approaches to linguistic competency education, such as language immersion or training to work effectively with interpreters, and the effect on LEP patients and health care systems, and provider competence, heretofore unknown. In addition, this research is one step towards understanding how patients and clinicians perceive language regulations and utilize interpreter services. Better understanding of clinician and patient experiences may point to future opportunities for system-wide improvement of language services through educational interventions.

Conclusion

The language LEP patients speak should not influence their communication with providers and, ultimately, the quality of healthcare they receive. The United States has a large linguistically diverse patient population, and healthcare providers must be prepared to interact effectively with LEP patients. Linguistically competent providers may enhance the communication between patient and provider, increase patient understanding of their illness, increase medication and treatment plan adherence, and ultimately lead to better overall patient outcomes. The current climate is primed to incorporating linguistic competency education in the field of medicine as represented by recent legislation and regulations (AAMC, 2012; ACGME, 2009; *CALAP*, 2003; *HITECH*, 2009; *PPACA*, 2010; US DHHS 2001). Linguistic competency training is but one mechanism to ensure enhanced communication with LEP patients. Although additional research is needed to more accurately determine the value added by training healthcare professionals, this research suggests that linguistic competency educational interventions are appropriate and successful to enhance linguistic competency in the healthcare environment.

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Appendix 1. Patient Needs Assessment Survey (English)

Language Needs Assessment
Patient Survey (Pediatrics)

Thank you for taking the time to complete this survey. We are looking to examine clinician knowledge and practice surrounding the use of interpreter services at Stanford Hospital in Palo Alto, California. This initiative will be paired with a concurrent survey of providers' experiences with and perceptions of language service accessibility. All of your responses will ***be anonymous and confidential****. You may skip questions or stop completely at any time if you are uncomfortable or do not want to answer the questions.*

For the following questions, please place a check next to the correct answer:

1. Is this the first time you have visited this clinic?
   - ☐ No
   - ☐ Yes

2. Did you come in today for:
   - ☐ Sick child visit
   - ☐ Well child physical exam

3. What is your relationship to the patient?
   - ☐ Self
   - ☐ Parent
   - ☐ Other family member
   - ☐ Friend
   - ☐ Other _____

4. After being seated in the patient room, how long did you wait today to see your provider? _____ *minutes*

5. What is your primary language (the language you speak at home)?
   _____

6. For the medical visit you were just in, did you need an interpreter present to assist your communication with your physician?
   - ☐ No
   - ☐ Yes

7. For the medical visit you were just in, who interpreted for you?

- ☐ Did not use one, did not request or was not asked for one
- ☐ Did not use one, requested but doctor did not call for one
- ☐ Physician spoke your primary language
- ☐ A nurse, clerk, or receptionist from the medical office
- ☐ A professional interpreter, in person
- ☐ A professional interpreter, over the telephone
- ☐ A professional interpreter, video medical
- ☐ Your friend or family member
- ☐ Other _____

8. If you have used a **telephone interpreter**, how satisfied are you with this service?
   - ☐ Not at all satisfied
   - ☐ A little satisfied
   - ☐ Pretty much satisfied
   - ☐ Very satisfied
   - ☐ Never used telephone interpreter

9. How well do you **understand Spanish**?
   - ☐ Do not at all understand
   - ☐ Do not understand well
   - ☐ Understand well
   - ☐ Understand very well

10. How well do you **speak Spanish**?
    - ☐ Do not at all understand
    - ☐ Do not understand well
    - ☐ Understand well
    - ☐ Understand very well

11. How well do you **understand English**?
    - ☐ Do not at all understand
    - ☐ Do not understand well
    - ☐ Understand well
    - ☐ Understand very well

12. How well do you **speak English**?
    - ☐ Do not at all understand
    - ☐ Do not understand well
    - ☐ Understand well
    - ☐ Understand very well

13. From your perspective, during your last visit, how satisfied were you that **your physician** understood what **you** were trying to say?

- ☐ Not at all satisfied
- ☐ A little satisfied
- ☐ Pretty much satisfied
- ☐ Very satisfied

14. From your perspective, during your last visit, how satisfied were you that **you** understood what **your physician** was trying to say?
    - ☐ Not at all satisfied
    - ☐ A little satisfied
    - ☐ Pretty much satisfied
    - ☐ Very satisfied

15. If your physician spoke Spanish during your last visit, how satisfied were you with **your physician's** level of Spanish?
    - ☐ Not at all satisfied
    - ☐ A little satisfied
    - ☐ Pretty much satisfied
    - ☐ Very satisfied
    - ☐ Physician did not speak any Spanish

16. How **satisfied** were you with your ability to communicate with your physician?
    - ☐ Not at all satisfied
    - ☐ A little satisfied
    - ☐ Moderately satisfied
    - ☐ Extremely satisfied

17. How likely are you to return to this clinic for medical care?
    - ☐ Not at all likely
    - ☐ Somewhat likely
    - ☐ Moderately likely
    - ☐ Extremely likely
    - ☐ Does not apply

18. Have you heard of the federal law (Title VI of the Civil Rights Act of 1964) that gives limited English proficient patients right to access to an interpreter when they seek health care?
    - ☐ No
    - ☐ Yes

19. Stanford Hospital has a policy that gives limited English proficient patients access to a trained medical interpreter when they seek health care. Were you aware of this policy?
    - ☐ No

☐ Yes

20. What is your gender?
    - ☐ Male
    - ☐ Female

21. What is your ethnicity?
    - ☐ Hispanic, Latino or Spanish origin
    - ☐ Not of Hispanic, Latino or Spanish origin

22. What is your race? *(please check all that apply)*
    - ☐ American-Indian/Alaska Native
    - ☐ Asian
    - ☐ Black/African American
    - ☐ Native Hawaiian/Other Pacific Islander
    - ☐ White
    - ☐ Some Other Race _____
    - ☐ Decline to state
    - ☐ Unavailable/Unknown

23. What is the highest level of education you completed:
    - ☐ Less than high school
    - ☐ High school, GED
    - ☐ College degree
    - ☐ Graduate degree
    - ☐ Post-graduate degree
    - ☐ Decline to state
    - ☐ Unavailable/Unknown

24. How many total years have you lived in the United States?
    - ☐ Less than 1 year
    - ☐ 1-5 years
    - ☐ 6-10 years
    - ☐ 10-15 years
    - ☐ 16-20 years
    - ☐ More than 20 years
    - ☐ Decline to state
    - ☐ Unavailable/Unknown

Appendix 2. Patient Needs Assessment Survey (Spanish)

Language Needs Assessment
Patient Survey

Gracias por tomarse el tiempo para completar esta encuesta. Estamos tratando de revisar el conocimiento y la práctica por parte de los proveedores de salud en las clínicas respecto al uso de los servicios de Intérpretes en el Hospital de Stanford en Palo Alto, California. Esta iniciativa se realizará en forma simultánea con una encuesta sobre la experiencia de los proveedores de salud que tienen acceso al servicio de idiomas. Todas sus respuestas se mantendrán en forma ***anónima y confidencial****. Puede saltar preguntas o dejar de contestarlas, en cualquier momento, si se siente incómodo o si no desea responder las preguntas.*

Para las siguientes preguntas, por favor marque la respuesta correcta:

1. ¿Es la primera vez que viene a esta clínica?
    a. No
    b. Sí

2. ¿Para qué vino hoy día?
    a. Una cita de un niño enfermo
    b. Un examen físico de un niño sano

3. ¿Cuál es su relación con el paciente
    a. Yo soy el paciente
    b. Padre/Madre
    c. Otro familiar
    d. Amigo
    e. Otro _____

4. ¿Después de pasar a una habitación para pacientes, cuánto tiempo esperó para ver al proveedor de salud? _____ *minutos*

5. ¿Cuál es su lengua materna? (el idioma que habla en su casa)?
    _____

6. ¿En la cita médica que acaba de tener, necesitó que un intérprete estuviera presente para ayudarle en su comunicación con el médico?
    a. No
    b. Sí

7. ¿Quién le interpretó en esta última cita médica?
    a. No tuve intérprete, no pedí uno, o no me preguntaron si necesitaba uno.
    b. No tuve intérprete, pedí uno, pero el doctor no lo llamó.
    c. El médico habló en mi lengua materna
    d. Una enfermera, un empleado o la recepcionista del consultorio médico
    e. Un intérprete profesional, en persona
    f. Un intérprete professional, por teléfono
    g. Un intérprete profesional por Video (Interpretación médica por video))
    h. Mi amigo o familiar
    i. Otro _____

8. Si usó un **intérprete por teléfono**, ¿qué tan satisfecho está con el servicio?
    a. Para nada satisfecho
    b. Un poco satisfecho
    c. Bastante satisfecho
    d. Muy satisfecho
    e. Nunca usé un intérprete por teléfono

9. ¿Qué tan bien **entiende español**?
    a. No entiendo nada
    b. No entiendo bien
    c. Entiendo bien
    d. Entiendo muy bien

10. ¿Qué tan bien **habla español**?
    a. No hablo nada
    b. No hablo bien
    c. Hablo bien
    d. Hablo muy bien

11. ¿Qué tan bien **entiende inglés**?
    a. No entiendo nada
    b. No entiendo bien
    c. Entiendo bien
    d. Entiendo muy bien

12. ¿Qué tan bien **habla inglés**?
    a. No hablo nada
    b. No hablo bien
    c. Hablo bien
    d. Hablo muy bien

13. Desde su punto de vista, durante su última cita, ¿qué tan seguro estuvo usted de que **su médico** entendió lo que **usted** trataba de decirle?
    a. Para nada seguro
    b. Un poco seguro
    c. Bastante seguro
    d. Muy seguro

14. Desde su punto de vista, durante su última cita, ¿qué tan seguro estuvo de que **usted** entendió lo que **su médico** trataba de decirle?
    a. Para nada seguro
    b. Un poco seguro
    c. Bastante seguro
    d. Muy seguro

15. Desde su punto de vista, durante su última cita, ¿qué tan satisfecho estuvo usted con el nivel de español de su **médico**?
    a. Para nada satisfecho
    b. Un poco satisfecho
    c. Bastante satisfecho
    d. Muy satisfecho
    e. Mi médico no hablaba nada de español

16. ¿Qué tan **satisfecho** estuvo usted con su capacidad de comunicarse con el médico?
    a. Para nada satisfecho
    b. Un poco satisfecho
    c. Moderadamente satisfecho
    d. Extremadamente satisfecho

17. ¿Qué tan posible es que usted regrese a esta clínica para su atención médica?
    a. Imposible
    b. Un poco posible
    c. Moderadamente posible
    d. Extremadamente posible
    e. No corresponde

18. ¿Ha escuchado hablar sobre la ley federal (Título VI de la Ley de los Derechos Civiles de 1964) que les da el derecho a los pacientes que tienen conocimiento limitado de inglés a tener acceso a un intérprete médico profesional cuando solicitan atención médica?
    a. No
    b. Sí

19. El Hospital de Stanford tiene la política de proporcionar acceso a un intérprete médico profesional a los pacientes que tienen conocimiento limitado de inglés cuando solicitan atención médica. ¿Sabía que tenemos esta política?
    - ☐ No
    - ☐ Sí

20. ¿Cuál es su género?
    - ☐ Hombre
    - ☐ Mujer

21. ¿Cuál es su orígen étnico?
    - ☐ Hispano, latino o de orígen español
    - ☐ No de orígen hispano, latino o español

22. ¿Cuál es su raza? *(por favor marque todos los que correspondan)*
    - ☐ Indígena nativo americano/Indígena nativo de Alaska
    - ☐ Asiático
    - ☐ Negro/Afro americano
    - ☐ Hawaiano nativo /Otra isla del Pacífico
    - ☐ Blanco
    - ☐ Otra raza _____
    - ☐ Se niega a declarar
    - ☐ Sin comentario/Desconoce

23. ¿Cuál es el nivel más alto de educación que ha terminado?
    - ☐ Menos de preparatoria
    - ☐ Preparatoria
    - ☐ Título universitario
    - ☐ Maestría
    - ☐ Doctorado
    - ☐ Se niega a declarar
    - ☐ Sin comentario/Desconoce

24. ¿Cuántos años ha vivido en los Estados Unidos, en total?
    a. Menos de 1 año
    b. 1-5 años
    c. 6-10 años
    d. 11-15 años
    e. 16-20 años
    f. Más de 20 años
    g. Se niega a declarar
    h. Sin comentario/Desconoce

Appendix 3. Provider Survey

Language Services Needs Assessment
Provider Survey

Thank you for taking the time to complete this survey. We are looking to examine clinician knowledge and practice surrounding the use of interpreter services at Stanford Hospital in Palo Alto, California. This initiative will be paired with a concurrent survey of patients' experiences with and perceptions of language service utilization and accessibility. All of your responses will be anonymous and confidential. You may skip questions or stop completely at any time if you are uncomfortable or do not want to answer the questions.

Instructions:
When we use the term "language discordance," we mean that the patient and provider do not speak the same primary language, such as limited English proficient (LEP) patients. For the following section, please only reference patient-provider interactions for which you were the primary or attending provider.

For the following questions, please check the correct answer:

1. Do you **speak** one or more languages other than English?
   - ☐ No
   - ☐ Yes

2. Do you **understand** one or more languages other than English?
   - ☐ No *(if No, please skip to question #5)*
   - ☐ Yes

3. Please answer the following for each language you speak (*please list each language and place a check in the box that applies for that language)*:

In this language, I can:

Language(s)	Converse **Casually**	Conduct a **Standard** Medical Interview	Conduct a **Serious** Medical Discussion (i.e. DNR)
eg. Spanish		√	

4. For languages that you use in a medical setting, where did you learn those language skills? *Please check all that apply*
    - ☐ On the job
    - ☐ Language immersion (i.e. medical mission, rotations in another country)
    - ☐ Medical language training in school (i.e. Medical Spanish course)
    - ☐ General language training (i.e. language course in college)
    - ☐ Exposure to language at a young age
    - ☐ I do not use these languages in a medical setting
    - ☐ Other _____

5. In your opinion, approximately with what percent of your primary care patients are you language discordant?
    - ☐ 0-24%
    - ☐ 25-49%
    - ☐ 50-74%
    - ☐ 75-99%
    - ☐ 100%

6. How frequently are you frustrated by not being able to with communicate with a patient with whom you are language discordant? *Language discordant encounters occur when the patient and provider share little or no common language.*
    - ☐ Never
    - ☐ Rarely
    - ☐ Sometimes
    - ☐ Often
    - ☐ Always

7. Have you received prior training on how to use a medical interpreter during a patient encounter?
    - ☐ No, *if no, please skip to #9*
    - ☐ Yes, *if yes, please continue to #8*
    - ☐ Don't know

8. Where did you receive training on working with interpreters and language laws *(please check all that apply)*:
    - ☐ During medical school
    - ☐ During training at this hospital
    - ☐ During the past year as part of a CME course
    - ☐ Informal training
    - ☐ I have never received this type of training
    - ☐ Other _____

9. How often do you offer a trained medical interpreter to your language discordant patients at the beginning of the visit? *Language discordant encounters occur when the patient and provider share little or no common language.*
    - ☐ Never
    - ☐ Rarely
    - ☐ Sometimes
    - ☐ Often
    - ☐ Always

10. When the patient's language is not your primary language, are you **confident** that you:

	No	Yes	Does not apply
Can determine how well your patient understands you?			
Are able to answer these patients' questions in depth?			
Establish patient rapport during the medical encounter?			

11. In the United States, there is a federal law (Title VI of the Civil Rights Act of 1964) that gives limited English proficient (LEP) patients right to access to an interpreter when they seek health care in most cases. Were you aware of this right?
    - ☐ No
    - ☐ Yes

12. Stanford Hospital has a policy that gives LEP patients access to a trained medical interpreter when they seek health care. Were you aware of this policy?
    - ☐ No
    - ☐ Yes

13. In general, how **confident** do you feel in your ability to do the following *(Please check one box per line)*?

	Not At All	Somewhat	Moderately	Extremely	Does not apply
Recognizing the need for interpreter services?					
Scheduling interpreter services?					
Working effectively with trained medical interpreters?					

14. Thinking back to the last 30 days, how many of your patients were language discordant? *Language discordant encounters occur when the patient and provider share little or no common language.*
    Total #_____

For approximately what percentage (of above) did you:	**%**
Actively request a trained interpreter (in person, over the phone, video medical interpreter)?	
Use an ad hoc interpreter (such as a friend or family member of the patient)?	
Did you not use an interpreter at all (used language skills, other methods)?	
Total	**100%**

15. For the response from Question 14, what are the primary reasons you did not use an interpreter?
    Using an interpreter would: *(please check all that apply)*
    - ☐ Diminish quality of communication
    - ☐ Diminish rapport
    - ☐ Cause a time constraint (arranging for interpreter to present)
    - ☐ Slow medical interview process
    - ☐ Technical issues (such as defective technology)
    - ☐ Other _____

16. Compared to others in your medical practice, would you say that you use interpreters to communicate with your patients…
    - ☐ Much more frequently
    - ☐ More frequently
    - ☐ About the same
    - ☐ Less frequently
    - ☐ Much less frequently
    - ☐ Don't know/Unable to answer

17. When interacting with language discordant patients over the last 30 days, how often did you wish that you had used a trained medical interpreter when interacting with a patient?
    - ☐ Never
    - ☐ Rarely
    - ☐ Sometimes
    - ☐ Often
    - ☐ Always

18. What is your gender?
    - ☐ Male
    - ☐ Female

19. What is your ethnicity?
    - ☐ Hispanic, Latino or Spanish origin
    - ☐ Not Hispanic, Latino or Spanish origin

20. What is your race? *(please check all that apply)*
    - ☐ American-Indian/Alaska Native
    - ☐ Asian
    - ☐ Black/African American
    - ☐ Native Hawaiian/Other Pacific Islander
    - ☐ White
    - ☐ Some Other Race _____
    - ☐ Decline to state
    - ☐ Unavailable/Unknown

21. What year did you graduate from medical school? _____

22. What is your clinical specialty?
    - ☐ Internal Medicine
    - ☐ Family Medicine
    - ☐ Pediatrics
    - ☐ Other Specialty _____

23. What is your clinical level?
    - ☐ Resident PGY1
    - ☐ Resident PGY2
    - ☐ Resident PGY3
    - ☐ Fellow
    - ☐ Attending *(if yes, please answer the following questions)*

If you are an attending, please answer the following questions.

24. Have you ever assessed the Spanish language proficiency of the residents you currently mentor?
    - ☐ No
    - ☐ Yes

If yes, in what way did you make the Spanish assessment? Please describe:

_____

_____

Appendix 4. Pediatric Residents Education Survey

Pediatric Resident Survey

Please circle one answer for each: how you were before the session and you are currently after the session.

How would you rate your:	**Before Session** ***low***				***high***	**After Session** ***low***				***high***
Knowledge about Stanford policy on working with interpreters	1	2	3	4	5	1	2	3	4	5
Knowledge about Title VI statute	1	2	3	4	5	1	2	3	4	5
Skill to work effectively with telephone interpreters	1	2	3	4	5	1	2	3	4	5
Skill to work effectively with in-person interpreters	1	2	3	4	5	1	2	3	4	5
Knowledge about medical errors resulting from language discordance	1	2	3	4	5	1	2	3	4	5
Knowledge about the impact on patient care using untrained interpreters	1	2	3	4	5	1	2	3	4	5
Knowledge about your LEP patient population at Stanford and rotation sites	1	2	3	4	5	1	2	3	4	5
Knowledge about language access and interpreter services resources at Stanford	1	2	3	4	5	1	2	3	4	5
Confidence recognizing the need for interpreter services	1	2	3	4	5	1	2	3	4	5
Confidence scheduling interpreter services	1	2	3	4	5	1	2	3	4	5
Confidence working effectively with trained medical interpreters	1	2	3	4	5	1	2	3	4	5
Knowledge about language access and interpreter services resources at Stanford?	1	2	3	4	5	1	2	3	4	5

Do you **speak** one or more languages other than English?

- ☐ No
- ☐ Yes

Do you **understand** one or more languages other than English?

- ☐ No
- ☐ Yes

Please answer the following for each language you speak (*please list each language and place a check in the box that applies for that language)*:

In this language, I can:

Language(s)	Converse **Casually**	Conduct a **Standard** Medical Interview	Conduct a **Serious** Medical Discussion (i.e. DNR)
eg. Spanish		√	

Demographics

What is your gender?

- ☐ Male
- ☐ Female

What is your ethnicity?

- ☐ Hispanic, Latino or Spanish origin
- ☐ Not Hispanic, Latino or Spanish origin

What is your race? *(please check all that apply)*

- ☐ American-Indian/Alaska Native
- ☐ Asian
- ☐ Black/African American
- ☐ Native Hawaiian/Other Pacific Islander
- ☐ White
- ☐ Some Other Race _____
- ☐ Decline to state
- ☐ Unavailable/Unknown

What year did you graduate from medical school? _____

What is your clinical level?

- ☐ Resident PGY1
- ☐ Resident PGY2
- ☐ Resident PGY3
- ☐ Fellow

Appendix 5. Pediatric Attendings Education Survey

Pediatric Attendings Survey

Please circle one answer for each: how you were before the session and you are currently after the session.

How would you rate your:	**Before Session** ***low*** ***high***	**After Session** ***low*** ***high***
Knowledge about Stanford policy on working with interpreters	1 2 3 4 5	1 2 3 4 5
Knowledge about Title VI statute	1 2 3 4 5	1 2 3 4 5
Skill to work effectively with telephone interpreters	1 2 3 4 5	1 2 3 4 5
Knowledge about medical errors resulting from language discordance	1 2 3 4 5	1 2 3 4 5
Knowledge about your LEP patient population at Stanford (ACC)	1 2 3 4 5	1 2 3 4 5
Knowledge about language access and interpreter services resources at Stanford	1 2 3 4 5	1 2 3 4 5
Confidence recognizing the need for interpreter services	1 2 3 4 5	1 2 3 4 5
Confidence scheduling interpreter services	1 2 3 4 5	1 2 3 4 5
Confidence working effectively with trained medical interpreters	1 2 3 4 5	1 2 3 4 5
Please rate the overall value of this presentation		1 2 3 4 5

Demographics

What is your gender?

- ☐ Male
- ☐ Female

What is your ethnicity?

- ☐ Hispanic, Latino or Spanish origin
- ☐ Not Hispanic, Latino or Spanish origin

What is your race? *(please check all that apply)*

- ☐ American-Indian/Alaska Native
- ☐ Asian
- ☐ Black/African American
- ☐ Native Hawaiian/Other Pacific Islander
- ☐ White
- ☐ Some Other Race _____
- ☐ Decline to state
- ☐ Unavailable/Unknown

What year did you graduate from medical school? _____

What is your clinical level?

- ☐ Resident PGY1
- ☐ Resident PGY2
- ☐ Resident PGY3
- ☐ Fellow
- ☐ Attending

Appendix 6. CPHS letter

Dear Sylvia,

As discussed on the phone and via emails below, your project does not meet the threshold definition of "human subjects" research set forth in Federal Regulations at 45 CFR 46.102(f).

Specifically, you are using existing de-identified data to which you are not able to readily ascertain the identity of subjects. Although you participated in the original collection of these data, you did so as part of your role as a Stanford employee, not as your role as a UC Berkeley student.

Accordingly, your project does not fall within the scope of the Committee's responsibilities, and you are free to proceed with your research without further approval from this office. Information on what constitutes human subjects research can be found on our website: http://cphs.berkeley.edu/.

Best,
Melanie

Melanie Hassel, MS
IRB Coordinator
University of California at Berkeley