What is the relationship between limited language proficiency and health care inequities with the Asian population?

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Capstone

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Abstract

Asian is the one of the fastest growing population. The number of Asian people living in the United States is predicted to double by 2060. In 2012, 46% of Asians were reported speaking English less than very well (U.S. Census Bureau, 2012). Language is the critical components of communication. Each individual must be able to speak and understand the same language in order to verbally interact with each other. Miscommunication and misunderstanding would easily take place when people with limited language proficiency could not fully understand the language. Because most of the Asian countries do not speak English as a primary language, Asian immigrants would likely face a significant barrier to receive quality health care, putting them at risk for facing healthcare disparities.

This capstone article utilized Edward Deci and Richard Ryan's Self-determination theory to examine the importance of appropriate communication for favorable health outcomes (Deci & Ryan, 1980, 2012, 2017,2000). Ten articles were reviewed to identify and examine the problem between health care and Asian immigrants. The goal of this paper is to examine health care disparity in Asian migrants with limited language proficiency and recommend modifications to current practice to alleviate the disparity.

Chapter 1

Background

The population of Asian Americans is growing rapidly in the United States. The United States Census Bureau (2020) note that the race “Asian” is classified as “A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam” (U.S. Census Bureau, 2020, para. 1). Asians are the fastest growing population of the single race group. In 2016, the number of Asian populations in the United States was approximately 18,319,000 (native-born: 6,377,000 and foreign-born: 11,942,000), and it is projected to double by 2060. Also, there is a steady increase in foreign-born Asians, and its number is predicted to increase by 63.5% by 2060 (U.S. Census Bureau, 2018, 2019).

Language. Speaking the same language is vital to communicate and interact with others properly. However, most Asian countries do not speak English as their first language, making it difficult for foreign born Asians to communicate in English after migrating to the United States. The U.S. Census reported almost a half of the Asian population claimed that they speak English less than very well (U.S. Census Bureau, 2012). This linguistic barrier is putting Asian immigrants at risk for miscommunication and misunderstanding, which could result in potential disparities.

Healthcare and limited language proficiency. Language proficiency directly impacts on quality of communication. And lack of communication can cause extremely serious consequences in healthcare which can be life threatening. Minority Americans including Asians are likely to receive less and lower quality of care compared to Caucasians. Although there is no single definitive explanation about this disparity, many adverse events can result due to miscommunication and tend to precipitate serious harm to limited English proficiency (LEP) populations compared to native English speakers. Therefore, LEP is a great contributing factor to healthcare disparity (AHRQ, 2020). Saha et al. measured Asians with LEP are less likely to receive the necessitated medical services compared to English speaking Asians (11% vs 51%) (2007). Asians with LEP are clearly treated unfairly and receive the poor-quality care (Saha et al., 2007). Benkert et al. (2006) measured cultural mistrust and trust between providers and minority patients, and they found a strong correlation between trust and satisfaction with care (Benkert et al., 2006). Trust is critical to establish the ideal relationship between patient and healthcare provider. The mistrust predisposes minority patients to have inadequate health maintenance visits and delay in seeking care, which may lead to poor health outcomes and high medical expenditures. La Veist et al. (2011) estimated reduction of $229.4 billion on healthcare expenditures between 2003 to 2006 if healthcare disparities to minorities were eliminated. Although more than a half of this excess medical expenditures were attributed to African American decedents and Asians only accounted for 5% ($11.4 billion), it is clear healthcare disparities in minorities impact our economy and must be addressed (LaVeist et al., 2011).

From 1877 to the civil rights movements in the 1950s, many southern states implemented laws to enforce racial segregation and to promote white supremacy (Library of Congress, n.d.). In 1948, President Harry S. Truman issued an executive order to abolish segregation in the military of the United States. Later, the title VI of the Civil Rights Acts was proposed by President John F. Kennedy in 1963 to forbid discrimination on the bases of race, color, or national origin in programs and activities receiving Federal financial assistance, and it was signed by the president Lyndon B. Johnson in 1964 (Department of Justice, 2016; University of Southern California, n.d.). Later, President Bill Clinton signed Executive Order 13166 to improve access to Service for person with LEP (Department of Justice, 2016). To comply with those laws, recipients of the Federal Financial Assistance program are required to arrange oral and/or written language services at no cost for persons with LEP to ensure the program and activities are accessible to people with LEP (Office for Civil Rights, 2013; Department of Justice, 2016). Failure to comply with language services constitutes discrimination and will result in termination of the fund and/or lawsuits. The Office for Civil Rights (2013) suggested individualized assessment based on four factors: (1) the number of proportion of LEP persons eligible to be served or likely to be encountered by the program or grantee; (2) the frequency with which LEP individuals come in contact with the program; (3) the nature and importance of the program, activity, or service provided by the program to people's lives; and (4) the resources available to the grantee or recipient and costs (Office for Civil Rights, 2013). This implies that providing LEP service is not always guaranteed, and the lack of service is resulting in miscommunication between healthcare providers and non to poor-English speaking individuals. Generally, translation services are provided by an in-person interpreter employed by the organization, in-person contractor through another agencies, or telephone- or technology-based distant services. The organization needs to be aware and must meet Health Insurance Portability and Accountability Act (HIPAA) regulations when using the interpreter service. Other recourses used in the healthcare setting are family members and staffs who can speak both languages fluently. Using the family member is not recommended because there is a concern of manipulation on sensitive contents, such as sexual health, substance abuse, and terminal illness. Discussion about using staff members who do not qualify as medical interpreters but can speak the same language as the patient fluently also has taken place. The suggestion to ameliorate this is to provide training to participating staff members who can speak multiple languages to provide a high-quality language service (Squires, 2018). Flores (2005) note that individuals who require interpreters but do not receive the service, report poor understanding of diagnosis and treatment plan and have the lowest satisfaction. Although LEP service may not always be necessary, limited communication due to language proficiency is resulting healthcare disparity. The quality and skills of an interpreter impacts health outcomes. Providing medically trained interpreter service positively improved preventive screening rate, the quality of care, and the satisfaction rate. In contrast, LEP people receiving no service or services from non-medically trained interpreters resulted in more tests with higher costs and higher risk of hospitalization (Flores, 2005).

Theoretical Framework. The self-determination theory (SDT), created by Edward Deci and Richard Ryan, is the theory of motivation, development, and well-being. This theory consists of three basic psychological needs; confidence, relatedness, and autonomy, and differentiates two types of motivation: controlled motivation and autonomous motivation (Deci & Ryan, 2012). The controlled motivation often associated with anxiety and negative consequence, whereas the autonomous motivation is often associated with interest, joy, and value that increase a person's engagement. Previous research showed links between autonomous motivation and optimal physical and psychological health (Sheehan et al., 2018). A person's engagement, performance, and wellness increase when he or she is autonomously motivated (Deci & Ryan, 1980, 2012, 2000). In SDT, three basic psychological needs are strongly associated with greater satisfaction and are essential to maintain wellness. People feel empowered to seek out and meet their satisfactions in competence and relatedness when autonomy is supported. Deci and Ryan explained autonomy support as active perspective taking along with support and encouragement on self-expression, initiation, and self-endorsed activities. The support of autonomy enhances both intrinsic motivations and internalized extrinsic motivations, leading to improvement in performance and well-being. The high quality of communication is vital to facilitate these supports, thus the language barrier leads to healthcare disparities in people with LEP (Deci & Ryan, 2017). This theory is suitable when interacting with patients with LEP because they often experience dissatisfaction, mistrust, and anxiety in their healthcare due to the language barrier, hindering them from becoming motivated autonomously. It is critical for the healthcare providers to create an environment where patients feel empowered about having a control over their health.

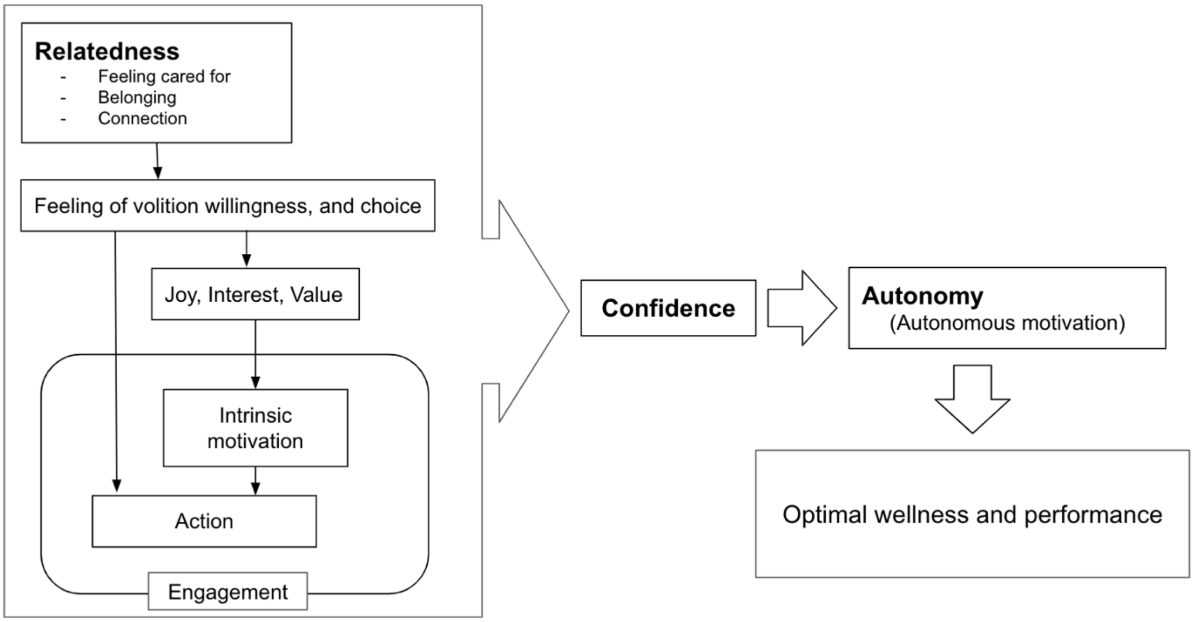

Figure 1. Deci and Ryan's Self-determination theory (Deci & Ryan, 1980)

Chapter 2

Methods

A comprehensive research of literature was performed utilizing the EBSCO and PubMed @ HPU via Hawaii Pacific University's online database. The keywords used for the search were: *"healthcare," "inequity," "disparities," "English,"* and *"proficiency."* The total of 36 articles published within five years was located on the database. Various evidence levels of research articles were selected to investigate the correlation between healthcare inequity and English proficiency. Studies were excluded if they were conducted outside of the United States.

Literature review

Ten studies were reviewed and revealed strong association between limited English proficiency and health care disparity. All ten articles showed level IV evidence. Feinberg et al. (2021) examined social determinants of health (SDOH) among refugee community, particularly African and Southeast Asian, in the Southeastern United States. Their studies focused on LEP, SDOH status, and mental health status. It revealed more than a half (66%) participants' experiencing high level of stress. Additionally, there were correlations between stress and poor health status and stress and financial insecurity. Seventy percent reported they do not know where to get or access community benefits. These findings displayed significant and chronic barriers to meet individual needs, contributing to the exacerbation of other existing poor SDOH affected by language barrier and inequities (Feinberg et al., 2021). Similarly, Jang and Kim (2019) explored the extent of the risk of health service use among Asian Americans with LEP. More than 62% of the samples had LEP status and more than 90% were foreign born. Eleven percent reported poor or fair health status and 15% had no health insurance coverage. The study revealed approximately 2 times more likelihood of not having a usual place for care and 5 times greater rate of having communication problems in healthcare settings in LEP group. Asian Indians reported the highest rate of not having a usual place for care (Jang & Kim, 2019). These two studies highlighted that LEP status affects individual's stress level and health seeking behavior. Many people with LEP do not know resources available to them, although Asian Americans with LEP are highly likely insured.

Fox et al. (2020) explored health care providers' perceptions on interpreter use, safety, and communication with LEP patients, and identified facilitators and barriers to the qualified language service provider (QLSP) use. Their study focused on participants' interactions with LEP clients, experience with QLSP, and their demographic information. Seventy seven percent of participants reported not using interpreters due to time constraints although they demonstrated high level of knowledge with appropriate language service and hospital policies. It also revealed a high level of healthcare providers' knowledge regarding the importance of QLSP use and hospital policy, workflow constraints being the barrier to QLSP use; demand for QLSP exceeding the supply, frustration with variable quality of QLSP interpretation, and gaps in communication between staff and interpretation services. Overall, the study demonstrated participants' high level of knowledge about appropriate language service use and the care of LEP patients. Technical and adaptive challenges are hindering adequate QLSP use and need to be addressed (Fox et al., 2020). Additionally, Suarez et al. (2021) and Taira et al. (2020) studied about health care providers' perceptions about interpreter use. Suarez et al. (2021) explored the perceptions of the health care team about the role of professional interpreters and interpretation modalities during end of life and critical illness discussions with patients and families who have LEP in the intensive care unit (ICU). They noted three roles of interpreters: verbatim interpretation, health literacy guardianship, and cultural brokage. Verbatim interpretation refers to strict linguistic interpretation of the clinician's words. This concept was strong among physicians, whereas some interpreters expressed frustrations about simple verbatim interpretation. Physicians expressed their concern about feeling excluded when tangential conversations occurred between interpreter and patient or family member. Interpreter's role as health literacy guardian was highlighted as important from all respondents. Interpreters are expected to intervene if they suspect misunderstanding, potentially secondary to health literacy issues or cultural or communication barriers. The role as cultural broker is to build a bridge between diverse culture and healthcare professional and/or hospital culture to break through the cultural barriers. This study revealed possible benefit of having an interpreter who can function as cultural or literacy guardian for patients with LEP who require complex care. Improvement on remote interpretation service as well as system are required to ensure the best quality interactions. Suarez et al. (2021) and Taira et al. (2020) conducted studies to understand the knowledge, practice patterns, and preferences of ED providers and staff regarding language assistance for LEP patients. All respondents reported low rates of training on language assistance for LEP people. The most frequently used interpretation method was "other ED staff" (41%), although the preferred method was "hospital interpreter" among all respondents. The ED providers (physicians and nurse practitioners) reported using "Google Translate" most frequently (77%), however they preferred having the bilingual staff or translators to provide interpretation services (57%). Many participants rely on their co-worker or handy devices (Google translate) when they communicate with patients with LEP, although the majority of participants preferred using "hospital interpreter" to communicate with patients. These findings suggest that accessibility of professional hospital interpreter service is a major concern and need improvement to comply with the required language policy (Taira et al., 2020). To reduce the time constrains and make interpreter service widely available, Lee et al. improved the access to the interpreter service by implementing the bedside phone system (2017). The study evaluated the impact of the bedside interpreter phone system during the informed consent of the procedure by employing Spanish, Chinese (Cantonese and Mandarin), and English-speaking samples with similar demographic characteristic, educational, attainment, and English proficiency. A dual-handset telephone that enables 24 hours access to professional interpreter service was placed in every room to assess the impact of a bedside interpreter. The study revealed statistically significant higher understanding in post-intervention group, suggesting rapid access to the bedside interpreter contributed to improvement of quality of the informed consent. These two studies indicated the convenient access to the interpreter use increases the use of the service, hence improves the quality of the care and satisfaction rate. Also, there is no correlation between the tendency in providing the language service and the level of providers' knowledge in healthcare disparity with LEP people (Lee et al., 2017). These studies revealed health care providers likely to understand the need and prefer to utilize professional interpreter services. However, the education and resources are not necessarily accessible at the organization level. Efforts must be made to provide equal health care services to people with LEP.

Cardinal et al. investigated education in a medical program accredited by the Accreditation Council for Graduate Medical Education about cultural competency and disparity (2016). More than a half of the respondents answered that residents in their program have adequate resources to help patients with LEP, and more than 70% of them agreed that the resident was trained for cultural competency and recognizing health care disparity. However, less than a half of the respondents reported adequate training on assessment and addressing the problem of LEP patients. The study also revealed the internal problem of the education system, such as lacking competent faculty to train residents (64.6%) and poor education opportunity for faculty members (52.7%). This study revealed the problem in current medical education program in cultural competency and disparity and suggested that faculty development will be a keystone to ameliorate and improve the quality of education in terms of healthcare disparity (Cardinal et al., 2016).

Kirby et al. (2021) reviewed 136,836 samples via 2014 to 2017 medical expenditure panel survey (MEPS) and analyzed racial/ethnic differences in perception of healthcare provider communication among Chinese, Asian Indians, Filipinos, Japanese, Korean, and Vietnamese groups. They reported conflicting findings in communication satisfaction score despite of the correlation between LEP and health care inequity. The overall scores of provider communication scale were only slightly lower in Asian than Whites (83.4 vs. 85.3). On the other hand, the perception varied significantly across the Asian subgroups. The mean score of Chinese and Vietnamese subgroups were significantly lower than Whites. In contrast, Filipino subgroup reported slightly higher satisfaction score than any other subgroups including Whites. This result suggests that having LEP may be not only the contributing factor of patients' satisfaction, but rather requires comprehensive approach including cultural competency. This study demonstrated critical limitations. The sample was collected from 2014 to 2017 Medical Expenditure Panel Survey, and they extracted the data from the participants claiming their ethnicity as Chinese, Asian Indian, Filipinos, Japanese, Korean, and Vietnamese. The further analysis revealed there were only 14% of people with LEP participated in the study. Additionally, the sample size was too small, and the number of each subgroup varied, limiting the reliability, validity, and generalization of this result. These limitations may explain the inconsistent result of satisfaction rate in LEP population than other literature reviewed. This study also suggested that categorizing all Asians into a single group is likely controversial. Further studies should be carried out with a larger number of participants with different backgrounds such as culture, history, and religion to examine the healthcare disparity of people with LEP (Kirby et al., 2021).

Both Mendu et al. (2013) and Patel et al. (2020) examined the association between LEP and health status. Mendu et al. (2013) investigated the association between primary language spoken and all-cause mortality in critically ill patients. The study revealed LEP status was a significant predictor of all-cause mortality. Interestingly, however, non-English speaking patient's survival rate significantly improved after receiving critical care. The researcher developed three hypotheses; the immigrant paradox phenomenon; a protective health benefits of social ties; and physician's lower threshold to admit non-English patients to the hospital due to the language barrier to explain the finding. This observed benefit is the only health care advantage found in reviewing literature on people with LEP. The reason for this finding is yet unexplained and further investigation is needed (Mendu et al., 2013). In contrast, Patel et al. (2020) revealed health care disadvantages in people with LEP. They compared the length of stay (LOS) of families with LEP versus English speaking families seen at the pediatric urgent center. The mean LOS was 7.9 minutes longer during the visit for LEP groups after adjustment of contributing factors, especially during the discharge (8.1 minutes difference). Both groups had longer LOS for urgent encounters compared to nonurgent visits (60 minutes longer). There were no significant differences in number of radiologic studies, laboratory tests, suction treatments, or administered medications during the stay. However, patients with LEP were 10% more likely to be sent home with at least 1 prescription (87.5% vs 77.5%). This study revealed greater LOS and more frequent prescription rates in LEP group. Having difficulty in communication is the threat to receiving quality and safe care in people with LEP. Timely effective language service is needed to eliminate this disparity (Patel et al., 2020). These two studies revealed disadvantages and disparities in healthcare for people with LEP.

In reviewing the previous literature, a few potential barriers were noted. All ten articles emphasized the importance of qualified professional interpreter use to mitigate disparity of the healthcare in LEP populations. Providing adequate language service has shown to improve the quality of informed consent and access to the resources, which improves overall healthcare outcomes (Feinberg et al., 2021; Jang & Kim, 2019; Lee et al., 2017). Lee (2017), Fox (2020), Suarez (2021), and Taira (2020) discussed the access and use of available professional interpreter. Fox et al. reported 77.6% of the participating healthcare providers claimed not using the interpreter service due to workflow constrains (2020). However, the use of language service only improved by 10% when the bedside interpreter phone system was made available in Lee's study (Fox et al., 2020; Lee et al., 2017). This highlighted the discrepancies between these studies, suggesting there may be other probable causes for limiting the use of qualified professional interpreters. One of the presumable causes is lack of education about the healthcare disparity with the LEP population. Cardinal et al. reported a high prevalence of cultural competency and health care disparity education among medical school programs (2016). Fox et al. also reported high level of knowledge of healthcare providers about appropriate language service and hospital policies (2020). In contrast to lack of qualified professional interpreter use, many healthcare providers appear to demonstrate sufficient knowledge about cultural competency and need for the professional language service. Cardinal et al. discussed concerns about critical issues in the medical education system (2016). Despite the effort of training on cultural competency and recognizing healthcare disparity, many schools fail to train students to assess and address the problem. They also highlighted internal issues, such as lacking competency and inadequate education opportunity for faculty members to obtain knowledge about healthcare disparity in LEP patients (Cardinal et al., 2016). Among the studies reviewed, it became clear that educational reform and having accessible resources are needed to remedy the healthcare disparity in LEP populations. Also, two studies conducted by Mendu et al. (2013) and Patel et al. (2020) revealed contrasting findings about health care benefits with the LEP populations (Mendu et al., 2013; Patel et al., 2020). The reason for these conflicting findings is unclear and need further investigations.

Chapter 3

Recommendation

In depth exploration of how LEP status impacts health care visits in a specific population and exploring ways to ameliorate the disparities are recommended for future research. While there were significant correlations among LEP status and health care inequities with the Asian immigrants from the study collected, this review of literature revealed language proficiency may not be the single reason for health care disparities and mistrust. The deeper understanding of specific historical, cultural, and religious backgrounds affecting health beliefs are needed to address the problem.

Conclusion

The language barrier can have a significant impact on immigrants with LEP. Despite the increase of non-native English-speaking populations in the United States and implementation of the title VI of the Civil Rights Acts of 1964, healthcare disparities and inequity for people with LEP still exists and needs to be addressed to allow for equal care.

Nurse practitioners' interventions can facilitate a solution to health care disparity in LEP people. The scope of the nurse practitioner includes assessment, ordering and interpreting tests, making diagnosis, initiating and managing treatment, coordinating care, counseling, and educating patients and their families (American Association of Nurse Practitioners, n.d.). Utilizing these skills enables nurse practitioners to communicate with people with LEP effectively and contributes to improve health care disparity. To achieve this, it is critical to assess patients' language proficiency and utilize language services when appropriate. Additionally, nurse practitioners must advocate for patients and families to ensure that patient-centered care is provided. Current efforts of education about cultural competency and recognizing healthcare disparities to provide quality care for the LEP population has been highly effective when including properly trained medical interpreters. However, this review of the literature has revealed a lack of interpreter service use in healthcare settings regardless of healthcare provider's high cultural competency and recognition of healthcare disparity due to language barrier. Educational reform is needed to help address the current disparities in the health care. Additionally, most studies were done at hospitals and a very limited number of studies were conducted to explore the healthcare disparity in people with LEP in the outpatient setting. It is also extremely important to reduce health care disparities in the outpatient setting, particularly in primary care. The Healthy People 2030 focus on attaining healthy well-being, health disparities elimination, health promotion in all life stages, and free of preventable disease, disability, injury, and premature death (HHS, n.d.). Primary care provides preventive care, which is vital to reduce overall morbidities and mortalities. Moreover, promoting preventive care would contribute to reduce health care expenditure.

In summary, language barrier has been negatively impacting the quality of care in LEP populations. In addition to existing training on cultural competency and improving the recognition of healthcare disparities, learning and practicing to apply culture specific knowledge would make a vast impact to abolish the health care inequity to people with LEP. Ultimately, this would improve the outcome and financial burden of overall healthcare. Further research is recommended to explore health care disparities in primary care as it is an entangled, complex issue in the United States.

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Appendix

Literature Matrix

(1)

Author, date, title of study, journal	Lee, J.S., Perez-Stable, E.J., Gregorich, S.E., Crawford, M.H., Green, A., Livaudais-Toman, J., & Karliner L.S. (2017). Increased access to professional interpreters in the hospital improves informed consent for patients with limited English proficiency. *Journal of General Internal Medicine*
Level of evidence	Level IV
Article question of purpose	Evaluate the impact of the bedside interpreter phone system during the informed consent.
Design	Case series.
Sample	64 (34 pre-intervention and 30 post-intervention) Spanish, 88 (50 pre-intervention and 38 post-intervention) Chinese (Cantonese and Mandarin), and 86 English speaking patients were participated. The inclusion criteria were hospitalized, LEP, and age 40 and older undergoing invasive procedure. Patients with cognitive impairment was excluded from this study.
Data collection instrument/reliability and validity	For all participants, patient's demographic, self-reported health, and English proficiency were obtained using structured interviews. A dual-handset telephone that enables 24 hours access to professional interpreter service was placed in every room to assess the impact of a bedside interpreter. The feedback of the informed consent was also collected from both pre- and post-intervention groups. Health literacy was assessed using a previously validated screening tool. All participant's chart was reviewed to collect information about procedure type, procedure status at the time of interview, and recruitment floor.
Results/findings	The mean age was 66.6 and both pre- and post-intervention groups were similar with demographic characteristic, educational attainment, and English proficiency. Use of professional interpreter use is increased from 29.8% to 39.7%. there was no significant change in the use of ad-hoc interpreter. Initially, 15.5% of cases received no interpreter services. It was slightly improved to 13.2% after the intervention. The feedback was available from 151 (99%) participants. It was consisted with four elements: (1) Adequately informed consent; (2) understood reasons very well; (3) understood risks very well; and (4) had all questions answered. Each element revealed statistically significant higher understanding in post-intervention group compare to pre-intervention group, which suggests rapid access to the bedside interpreter contributed to improvement of informed consent. The data was also collected from 86 English-speaking participants utilizing the same method. They reported higher understanding to risks and reasons for the procedure compare to the post-intervention group. The post-intervention group patient with LEP had 62% lower odds of adequately informed consent compare to English-speaking patients.
limitations	The sample size was small, and the study was non-randomized. The data was observational and subject to potential confounding. The trend in discussing informed consent may also affected the results. The author did not employ objective measurement of professional interpreter use and relied on subjective data. Patients' perception may affected the data, and may not correlate with objective measures if used.

Applicability	Provided the evidence of healthcare disparity in informed consent between LEP and English-speaking patients. The study showed the overall improvement when bedside access to the professional interpreter was provided. However, the feedback of patients with LEP did not reach to the equivalent level of English-speaking patients even with the professional interpreter use.

(2)

Author, date, title of study, journal	Kirby, J.B., Berdal, T.A., & Torres Stone, R.A. (2021). Perceptions of patient-provider communication across the six largest Asian subgroups in the USA. *Journal of General Internal Medicine*
Level of evidence	Level IV
Article question of purpose	Investigate racial/ethnic differences in perception of healthcare provider communication among six Asian subgroups.
Design	Case series.
Sample	136,836 sample was subtracted from the 2014 – 2017 medical expenditure panel survey (MEPS). The data of the sample identified as Chinese (n=2,571), Asian Indians (n=2,371), Filipinos (n=2,036), Japanese (n=757), Korean (n=800), and Vietnamese (n=945) was included and analyzed. There were no exclusion criteria identified in the article.
Data collection instrument/reliability and validity	The perceptions of communication with healthcare provider during the past 12 months was measured utilizing version 4.0 of the CAHPS Health Plan questionnaire developed by AHRQ. The author created the scale using linear mean scoring ranging from 0 to 100 with 100 indicating most positive. The reliability of the scale was 0.88. Participants' English proficiency, immigration status, socioeconomic status, and health status were also collected. The author assessed the means of the scale for each racial/ethnic group. Then, the collected data was compared to that of Whites.
Results/findings	Overall scores of provider communication scale were slightly lower in Asian than Whites (83.4 vs. 85.3). The perception varied significantly across the Asian subgroups. The mean score of Chinese and Vietnamese subgroups were significantly lower than Whites. In contrast, Filipino subgroup reported slightly higher score than Whites. This result indicates that categorizing all Asian into a single group can be controversial. The author suggested possible preference and expectation of health care practice of Chinese and Vietnamese participants, such as traditional Chinese medicine use, may have contributed lowering the satisfaction score.
limitations	The sample size of Japanese, Korean, and Vietnamese subgroups was small, lacking the statistical power to detect differences. Possible important components to assess the satisfaction regarding communication, such as health plan characteristic, cultural preferences related to health care, and availability of translation services were absent in this study. The response style among all subgroups may have differed. Previous studies found that Asians are less likely to use the highest response when answering the survey. This may had contributed having lower score compared to that of Whites.
Applicability	Highlighted putting all Asian into a single category can be controversial. The article implicates importance of cultural competence of healthcare providers when caring LEP patients.

(3)

Author, date, title of study, journal	Feinberg, I., O'Connor M.H., Owen-Smith, A., and Dube, S.R. (2021) Public health crisis in the refugee community: little change in social determinants of health preserve health disparities. *Health Education Research.*
Level of evidence	Level VI
Article question of purpose	Investigate social determinants of health (SDOH) among refugee community, particularly African and Southeast Asian, in the Southeastern United States.
Design	Case series.
Sample	The total of 264 people enrolled in the study. The sample was recruited via phone call, web-based link, health care clinics, and refugee agencies. Data was collected twice in Spring 2019 (n=136) and Spring 2020 (n=128). Interpreter was made available to assist informed consent and survey administration process. Inclusion factor was age 18 and older who resides in the Clarkston area who self-reported as refugees or asylees. No exclusion factor was mentioned in the article.
Data collection instrument/reliability and validity	Two cross sectional surveys were created. Both surveys focused on LEP, SDOH status, and mental health status. LEP and mental health status was measured through self-reported answer ranging from poor to very good. SDOH was measured by assessing financial security and household size. The response was collected utilizing direct observation via orally face-to-face. Online (in English) and telephone (in variety languages) data collection was also employed to obtain second response due to COVID-19 restrictions to limit in-person interaction. The length of in-person interviews were approximately 30 min long and phone interviews were approximately 20 min long. Interpreter was utilized as needed for face-to-face and phone interviews. Univariate and bivariate descriptive analyses were conducted using SPSS V25 including means, frequency, and Pearson correlations. Reliability and validity of instruments was not assessed in the article.
Results/findings	Spring 2019 result showed marginal reading, writing, and speaking skill of English. 82% claimed high level of financial insecurity. Both 2019 and 2020 results revealed more than a half participant experiencing high level of stress (66%). There were correlations between stress and poor health status and stress and financial insecurity. 70% reported they do not know where to get or access community benefits. These findings display significant and chronic barrier to meet individual needs, contributing to exacerbate other existing poor SDOH affected by health inequities. Language skill is a key factor to improve access to health, healthcare, understanding rights regarding housing and unemployment, accessing community resources, and helping children navigate through school and beyond. Structural inequities in the healthcare system such as lack of health insurance and access to technology impacts healthcare outcomes directly. Limited support to help refugees such as lack of adult education, language classes, or skill trainings keeping them remain in low-wage jobs without health insurance. With limited English proficiency, a large proportion of refugees are unable to escape from the cycle pf poverty.
limitations	Self-report response and not using professional interpreters may resulted in response bias. Two surveys did not include the exact questions, limiting the available data and generalization.
Applicability	Identified language proficiency is a crucial component to get out from the poverty. Limited language proficiency negatively affects access to health, healthcare, and access to resources.

(4)

Author, date, title of study, journal	Cardinal, L.J., Maldonado, M., and Dried, E.D. (2016). A national survey to evaluate graduate medical education in disparities and limited English proficiency: a report from the AAIM diversity and inclusion committee.

	The American Journal of Medicine.
Level of evidence	Level IV
Article question of purpose	Investigation of cultural competency and disparity education at the medical education program.
Design	Case series.
Sample	The confidential survey was distributed to 391 internal medicine residency program directors via email. All programs are accredited by the Accreditation Council for Graduate Medical Education and participation of the survey was voluntary. No inclusion or exclusion criteria were specified.
Data collection instrument/reliability and validity	The survey was developed by members of the Academic Internal Medicine Diversity and Inclusion Committee and emailed to internal medicine residency program directors. The survey was focused on education in relation to care of patients with LEP. The method of data collection was not specified as well as reliability and validity of the survey in the article.
Results/findings	The response rate of this survey was 45% (n=177), which was adequate to represent the university-based medical education program. More than a half respondent answered that resident in their program have adequate resources to help patients with LEP, and more than 70% agreed that the residents were trained for cultural competency and recognizing health care disparity. However, less than a half respondent reported adequate training on assessment and addressing the problem of LEP patients. The study also revealed the internal problem of the education system, such as lacking competent facility member to train residents (64.6%) and poor education opportunity for faculty members (52.7%). Hence, faculty development will be a keystone to ameliorate to improve the quality of education in terms of healthcare disparity.
limitations	The survey was relied on the report of program directors predisposing limitations due to selection bias. The program with a low investment on education in disparity issue are less likely to respond to the survey. Also, the survey was obtained only from program directors of internal medicine residency programs. Application of findings to other program except for the internal medicine may not be warranted.
Applicability	Academic institutional level of investment is essential to ameliorate disparity in healthcare on people with LEP.

(5)

Author, date, title of study, journal	Fox, M.T., Godage, S.K., Kim, J.M., Bossano, C., Munoz-Blanco, S., Reinhardt, E., Wu, L., Karais, S, and DeCamp, L.R. (2020). Moving from knowledge to action: improving safety and quality of care for patients with limited English proficiency. *Clinical Pediatrics.*
Level of evidence	Level IV
Article question of purpose	Explore health care provider's perception on interpreter use, safety, and communication with LEP patients, and identify facilitator and barriers to the qualified language service provider (QLSP) use.
Design	Case series.
Sample	Participants (N=68) were recruited from the staff in pediatric and obstetrics/gynecology inpatient unit, emergency room, and ambulatory unit of the medical center. The eligibility to participate to this study was to be physicians, advanced practice providers, nurses, medical assistants, social workers, and registration staff. 28 participants identified themselves as physician, nurse practitioner, or physician assistant. 33 answered as nurse, 6 as other, and 1 did not responded to the question of job title. The unit where the study was conducted had racially and ethnically diverse patients from both immigrant and nonimmigrant status.
Data collection instrument/reliability and validity	The participant was recruited by email, and they were given one month to complete the survey. Up to three reminders were sent during the period. The survey asked about participants' interactions with LEP clients, experience with QLSP, and their

	demographic information. It also included safety culture questions form the Agency for Healthcare Research and Quality LEP Patient Safety module and select questions on language services from the Communication Climate Assessment. Seven focus group were created, and the meeting was held utilizing the Patient Language Process Map from the Agency for Healthcare Research and Quality as a guide. The discussion was recorded and transcribed verbatim using a commercial transcription service. The completion of the electronic survey was regarded as consent of participation. The written consent was also obtained prior to the focus group meeting. The electronic survey was assessed using means and percentages, and Stata/SE Version 15 was used to conduct statistical analysis. Data analysis was completed using Dedoose, an online analytic program. Transcription of the discussion was reviewed to identify preliminary themes. Based on these themes, the coding team developed a codebook and used an iterative consensus process to determine clear definition of codes and consistent application by all coders.
Results/findings	68 people completed the electronic survey (27.4% respond rate) and 47 people participated in the focus group meeting. Nearly all participants were female (98.5%), 79.7% identified as white, and 85.1% were born in the United States. 77.6% reported not using interpreter due to time constrains although they demonstrated high level of knowledge with appropriate language service and hospital policies. 25% participants reported frequent miscommunication between staffs and LEP patients, resulting gaps in safety. Participants also reported using non-English language to communicate with LEP patients (35.5%) feel confident forming therapeutic relationship with those patients than those who does not. Five primary themes were revealed from focused group discussions: (1) high level of knowledge regarding the importance of QLSP use and hospital policy, (2) workflow constraints are both a barrier to QLSP use and affect how QLSP are used, (3) demand for QLSP exceeds the supply, (4) frustration with variable quality of QLSP interpretation, and (5) gaps in communication between staff and interpretation services. Overall, the study demonstrated participants' high level of knowledge about appropriate language service use and the care of LEP. Technical and adaptive challenges are hindering adequate QLSP use and need to be addressed.
limitations	Nonresponse bias may have affected the result due to low response rate. Participants may have experienced negative encounter with LEP patients using QLSP service or they might have higher interest for caring LEP patients than overall healthcare populations. Also, the study did not include LEP patients/family, interpreters, and learners, which may limit generalizability.
Applicability	Majority of healthcare providers obtained high level of education regarding proper QLSP use. Technical and adaptive challenges still need to be addressed to improve QLSP use.

(6)

Author, date, title of study, journal	Suarez, N. R. E., Urtecho, M., Jubran, S., Yeow, M. E., Wilson, M. E., Boehmer, K. R., & Barwise, A. K. (2021). The roles of medical interpreters in intensive care unit communication: A qualitative study. *Patient Education and Counseling*
Level of evidence	Level IV
Article question of purpose	To understand healthcare team perceptions of the role of professional interpreters and interpretation modalities during end of life and critical illness discussions with patients and families who have LEP in the intensive care unit (ICU).
Design	Case study.

Sample	The researcher distributed the email to invite participants (113 physicians, 195 nurses, and 65 interpreters) utilizing purposive sampling. The 40 people (16 physicians, 12 nurses, and 12 interpreters) responded and enrolled to the study.
Data collection instrument/reliability and validity	The interview guide was developed by a multidisciplinary ream and tested by a qualitative researcher who was not directly involved with the study. One-in-one, in-person, semi-structed interviews were conducted. The interview was audio recorded, transcribed, and anonymized. The author utilized line by line descriptive coding for the first cycle of coding to identify the interpreter's roles description. For the second cycle of coding, the author conducted secondary axial coding called hypothesis coding for further understand the interpreter role and interpretation modalities by linking categories and subcategories. Two study team members examined the tendency and patterns utilizing memory cards and mapping analysis, and they developed overarching themes and selected representative quotes. Two other researchers revied the themes to ensure reliability and credibility. NVivo software Version 11 (QSR Intl Inc; Burlington, MA) was utilized for data analysis.
Results/findings	Authors noted three roles of interpreters: Verbatim interpretation, health literacy guardianship, and cultural brokage. Verbatim interpretation refers to strict linguistic interpretation of the clinician's words. This concept was strong among physicians, whereas some interpreters expressed frustrations about simple verbatim interpretation. Physicians expressed their concern about feeling excluded when tangential conversations occurred between interpreter and patient or family member. Interpreter's role as health literacy guardian was highlighted as important from all respondents. Interpreters are expected to intervene if they suspect misunderstanding, potentially secondary to health literacy issues or cultural or communication barriers. The role as cultural broker is to build a bridge between diverse culture and healthcare professional and/or hospital culture to break through the cultural barriers. Two subthemes, advantages and disadvantages, were presented. Participants declared in-person interpreter resolved doubts and uncertainty and foster understanding. The disadvantages are limited availability, technological difficulties if done virtually, and lack of contextualization and the difficulties in building rapport via remote services.
limitations	The language spoken by LEP patients in the ICU was primarily in Arabic and Spanish. Interpretation may differ in different cultural background; hence the generalizability of this study may be limited. The number of participants was small and there was a possible selection bias due to the recruitment method. However, several measures were employed to ensure trustworthiness of the study. The author did not include patient and family in the study, predisposing limited understanding in patients and family's perception about interpreter use.
Applicability	This study revealed possible benefit of having an interpreter who can function as cultural or literacy guardian for patients with LEP who requires complex care. Improvement on remote interpretation service as well as system are required to ensure the best quality interactions.

(7)

Author, date, title of study, journal	Mendu, M. L., Zager, S., Moromizato, T., McKane, C. K., Gibbons, F. K., & Christopher, K. B. (2013). The association between primary language spoken and all-cause mortality in critically ill patients. *Journal of Critical Care*
Level of evidence	Level IV
Article question of purpose	To investigate the association between primary language spoken and all-cause mortality in critically ill patients
Design	Case series.

Sample	The author extracted data via the electric record from two teaching hospitals where fully staffed with interpreter and telephone interpreter services. The 54,392 patients 18 years old or older are assigned the current procedural terminology (CPT) code 99291 and a total of 4,8581 patients were included in this study. The exclusion criteria were clearly described as; 1. patients received care only in the emergency department were not admitted to the hospital (2,372 patients); 2. patients with subsequent admission to the hospital involving critical care within 30 days of discharge (1,169 patients); missing data (321 patients); and no documentation on the primary language (1,744 patients).
Data collection instrument/reliability and validity	Data collection method was clearly described. The primary language was determined during the first registration process during the admission utilizing series of standardized questions answered by patient and family. Language preference is documented if patients indicated they do not speak or understand English and require an interpreter. If the patient reported that she/he do speak and understand English and declined interpreter service, they were recorded as an English speaker. The data was recorded electronically and stored the electronic medical record. Patient type is defined as medical or surgical, and chronic illness was assessed utilizing ICD-9 coding algorithms for the Deyo-Charlson index. Poverty rate was determined by linking patient's address to Public Health Disparities Geocoding Project Monograph data. The CPT code was analyzed to assess procedures during the first 7 days after critical care initiation. The blinded investigator was involved to assess the accuracy of language spoken assessment at registration. Random 100 cohort patient were chosen for blind investigation for data analysis and validation. Categorial covariates were described by frequency distribution and compared using contingency tables and $\chi2$ testing. Continuous covariates were examined graphically and compared across exposure groups using 1-way analysis of variance. The outcome was estimated by contingency tables, $\chi2$ testing, and bivariable logistic regression analysis. Adjusted odds ratios (ORs) were estimated by multivariable logistic regression models with inclusion of covariate terms thought to plausibly interact with both primary language spoken and mortality. The specification of covariate was adjudicated by the empiric association with the primary outcome using Akaike Information Criterion; overall model fit was assessed using the Hosmer-Lemeshow test.
Results/findings	The 81% of participants were white and the mean age was 61.8 years. Thirty-day all-cause mortality was 14%. The most common non-English spoken language was Spanish (3.0%) and Asian linguistic population involved in this study were Cambodian (0.2%), Vietnamese (0.2%), and Mandarin (0.1%). The study revealed primary language spoken was a significant predictor of all-cause mortality after adjustment for age, race, sex, Deyo-Charlson index, patient type (medical vs surgical), sepsis, creatinine, hematocrit, white blood count, and number of organs with failure. Non-English speaking patient's survival rate significantly improved after receiving critical cares. No significance was found based on white or non-white race. The neighborhood poverty rate did not add any significance to mortality rate to English speaking or non-English speaking patients. The researcher developed three hypotheses; the immigrant paradox phenomenon; a protective health benefits of social ties; and physician's lower threshold to admit non-English patients to the hospital due to the language barrier to explain this finding.
limitations	The study was observational, and causality cannot be inferred. There may be a limitation on generalizability to all hospitals across the United States because the study was conducted at the limited location in the Northeast. Participants' citizenship, immigration status as well as length of residency in the United States were not identified. Therefore, it was inappropriate to conclude that findings were related to health outcomes of immigrant populations. Despite adjustment for multiple potential confounders, there may be

	residual confounding variables leading to observed differences in outcomes. The author did not employ objective measurement of professional interpreter use and relied on subjective data. Patients' perception may have affected the data and may not correlate with objective measures if used.
Applicability	This study revealed significantly improved surviving rate in critically ill non-English speaking patients when they received critical cares. This observed benefit is the only health care advantage found in reviewing literatures of people with LEP. The reason for this finding is yet unexplained and further investigation is needed.

(8)

Author, date, title of study, journal	Patel, A. T., Lee, B. R., Donegan, R., & Humiston, S. G. (2020). Length of stay for patients with limited English proficiency in pediatric urgent care. *Clinical Pediatrics, 59(4–5), 421–428.*
Level of evidence	Level IV
Article question of purpose	To compare the length of stay (LOS) of families with LEP versus English speaking families seen at the pediatric urgent center.
Design	Case series.
Sample	The caregiver was asked about preferred language during registration period, and they were assigned as LEP encounter when they answered preferred language as non-English. A commercial phone or video interpreter service was provided. The caregiver was also given an option to decline interpreter service. The inclusion factor was patients from 2 months through 17 years of age who had a primary International Classification of Disease, 10th Revision, discharge diagnosis of strep throat, viral pharyngitis, acute otitis media, asthma, or bronchiolitis. The exclusion factor was encounters that ended with transfer or hospital admission, or if the patient left before being seen by a physician or nurse practitioner. The author randomly selected 3 English-speaking encounters within the same diagnosis class for each LEP encounter. From 88,286 encounters, 184 visits meet the criteria were extracted. A total of 552 randomly selected English-speaking encounters were also included for comparison. The majority of LEP encounter was in Spanish (78.8%). Other language used were Somali (5.4%), Arabic (4.9%), Vietnamese (2.2), American Sign Language (1.6%), and other (7.1%).
Data collection instrument/reliability and validity	The author hypothesized there would be a statistically significant greater LOS in LEP patients. The They calculated the study would require a total of 1,398 patients assuming the LOS is approximately normally distributed. They performed a 2-stage randomized block selection by randomly selected frequency matching 3 English encounters for each LEP encounter. The distribution of English-proficiency status was compared by clinical covariates. Differences in proportions were determined using Pearson's $\chi 2$ test. Differences for continuous variables were determined using 2-sample *t* tests. General linear mixed-effects models were used to compare differences in LOS by English-proficiency status to adjust clinical characteristics. To estimate correlation structure and restricted maximum likelihood, compound-symmetry was utilized. All analyses were per- formed using Stata (Stata Statistical Software: Release 14; StataCorp LP, College Station, TX)
Results/findings	The most frequently diagnosed condition was acute otitis media followed by strep throat and asthma in both LEP and English-speaking groups. Patients with LEP are more likely to have Medicaid than English-speaking groups (82.6% vs 45.6%). The mean LOS was 7.9 minutes longer during the visit for LEP groups after adjustment of contributing factors, especially during the discharge (8.1 minutes difference). Both groups had longer LOS for urgent encounters compared to nonurgent one (60 minutes longer).

	There were no significant differences in number of radiologic studies, laboratory tests, suction treatments, or administered medications during the stay. However, patients with LEP were 10% more likely to be sent home with at least 1 prescription (87.5% vs 77.5%). The author mentioned about majority of medical care is information management between health care team and patient/family, concluding language barrier is the threat to quality of health care and patient safety.
limitations	Although there were three facilities included in this study, all three facilities were under the same institution. This may affect the external validity of the results. Secondly, the prevalence of LEP group was only 1% of the cohort interest and there were only five diagnoses included in this study. This may limit applicability to other pediatric urgent center visits.
Applicability	This study revealed greater LOS and more frequent prescription rates in LEP group. Having difficulty in communication is the threat to receiving quality and safe care in people with LEP, and timely effective language service is needed to eliminate this disparity.

(9)

Author, date, title of study, journal	Jang, Y., & Kim, M. T. (2019). Limited English proficiency and health service use in Asian Americans. *Journal of Immigrant and Minority Health.*
Level of evidence	Level IV
Article question of purpose	To explore the extent of the risk of health service use among Asian Americans with LEP.
Design	Case series.
Sample	A total of 2,614 people participated to the study. The sample consisted of 626 Chinese (24.5%), 557 Asian Indians (21.8%), 469 Koreans (18.4%), 502 Vietnamese (19.7%), 257 Filipinos (10.1%), and 142 individuals from other Asian groups (5.6%), with other Asian group being Nepalese, Pakistani, Cambodian, and Japanese. Over 90% of participants reported as foreign-born and 62% reported LEP status. The author did not identify inclusion factors.
Data collection instrument/reliability and validity	The sample data were extracted from the 2015 Asian American Quality of Life survey. Self-identified Asian American participated to this study and 10-page survey written in several major Asian languages was conducted. The translated survey was reviewed by at least two bilingual volunteers to ensure accuracy. Each survey was pilot tested by several community members who represented and spoke the language of the target group. Each participants completed the survey written in their preferred languages. Approximately 20 minutes were spent to complete the survey and each participants received $10 in USD. The 48.5% participants used the survey written in language other than English. The data of self-reported language proficiency was missing in more than 30% of survey, resulting a total 2,594 of the final simple. English proficiency was assessed by self-reported question and scored by 4-point response from not at all to very well. Participants answered their English proficiency less than "very well" were assigned as LEP group. The participants were asked four questions regarding health service use and a separate logistic regression model was tested to explore the risk posed by people with LEP. The background variable was controlled for analysis. IBM SPSS statistics 24 was used to analyze the data.
Results/findings	More than 62% of respondents were LEP status and more than 90% were foreign born. The 11% reported poor or fair health status and 15% had no health insurance coverage. The participants answered four questions regarding health service use as followed; 1. have no usual place for care (38.1%); 2. no regular check-up (32.4%); 3. unmet needs for medical care (11.5%); and 4. communication problems in healthcare settings (28.8%).

	The old age, female sex, married, and less education was prevalent in LEP group, and considerably high proportion of LEP population reported foreign-born, fair to poor health status, and not having health insurance. The study revealed approximately 2 times more likelihood of not having usual place for care and 5 times greater rate of having communication problems in healthcare settings in LEP group. Asian Indians reported the highest rate of not having a usual place for care. The odd of unmet need for medical care was significantly high in Vietnamese populations.
limitations	The study had several limitations. First, examined Asian American representation type was limited, suggesting selection bias. There is a limitation on applicability to the larger Asian American populations. Second, the culture and linguistically appropriate service may contribute personal experience on their healthcare encounters. Lastly, the 10-page questionnaire was relatively long, resulted in missing data (n=15).
Applicability	People with LEP are less likely to seek for health care regularly and reports relatively poor health. Also, there was a high prevalence of uninsured rate in people with LEP.

(10)

Author, date, title of study, journal	Taira, B. R., Torres, J., Nguyen, A., Guo, R., & Samra, S. (2020). Language assistance for the care of limited English proficiency (LEP) patients in the emergency department: A Survey of providers and staff. *Journal of Immigrant and Minority Health.*
Level of evidence	Level IV
Article question of purpose	To characterize the knowledge, practice patterns, and preferences of ED providers and staff regarding language assistance for LEP patients.
Design	Case study.
Sample	The study was conducted at the urban Emergency Department where approximately 60,000 people visits per year. The 261-hospital employee were asked to participate and 259 agreed. Participations were physicians or nurse practitioners (37%), registered nurse (34%), and other emergency department staff (29%).
Data collection instrument/reliability and validity	A cross-sectional, anonymous questionnaire was created, and survey was conducted to ED providers and staffs. The survey took 5 to 10 minutes to complete. The researcher identified three themes; provider and staff us of non-English language, awareness/training about language access, and resource availability, and they developed a draft survey. The draft survey was tested on participants and ammoniated to the final survey. The participant was asked about the training on how to work with an interpreter, then they were asked what method (interpretation vs translation) was used most frequently and preferred using if all options were equally available. Free response section was also made available for participants to share any comment on what prompted their answers. Bi-or multi-lingual participants were also asked about their non-English language training and use. They were asked whether they hold bilingual certification from the hospital system and their comfort level on using those languages in a variety of clinical scenarios for themselves or to interpret for a provider. Study data were entered and managed using REDCap electronic data capture tools hosted at University of California Los Angeles. Data were analyzed using SAS. Descriptive statistics were used for analysis. Continuous variables were summarized as medians with interquartile ranges (IQRs). Chi Squared and Fisher's exact, and Kruskal Wallis tests were used where appropriate to compare between groups. Kappa scores were used to compare most frequently used language modalities to preferred language modalities. Descriptive statistics were used for the self- reported comfort level of each of the clinical scenarios and a comparison made between comfort level by provider type

	(MD, RN or another employee). Further a cumulative score was compiled for the sum total comfort level across clinical contexts. Reliability and validity of the instrument used was not discussed in the article.
Results/findings	All respondents reported low rates of training on language assistance for LEP people. There were only 15 participants reported receiving the training from the hospital system and the average time spent on the training was 2 hours. The 67% of respondents reported "I don't know" when asked whether the hospital have the policy on language assistance. The 13% of participants reported that they read the hospital policy on language assistance and 14% know where it was located on the intranet for reference. The most frequently used method was "other ED staff" (41%) but the preferred method of interpretation was "hospital interpreter" among all respondents. The ED providers (physicians and nurse practitioners) reported using "Google Translate" most frequently (77%), however they preferred having the bilingual staff or translators to provide interpretation services (57%). Additionally, the free response section revealed preference for a live person for interpreting services. The native language of respondents was English (62%), Spanish (19%), Tagalog (8.9%), and Armenian (5.4%). More than 90% responded speaking non-English language with patients frequently, although only 21% reported to have a bilingual certification through the hospital system. The majority of them reported speaking Spanish with patients (83.4%), however, only 56.6% reported they feel comfortable doing. Additionally, holding the institutional certificate did not significantly associated with total comfort score for used of non-English language in clinical settings.
limitations	The data was collected from self-reported response and actual practice may differ than the answer provided. Also, the study was conducted at a single institution. The institution is located in the area with rich linguistic diversity, and there was a high proportion of hospital staffs with non-English language skills. These facts may limit generalizability of the study findings.
Applicability	This study strictly studied about the perceptions of hospital staff. Many participants rely on their co-worker or handy devices (Google translate). On the other hand, the majority of participants responded their preferred language service as "hospital interpreter." Also, there were only 56.6% of respondents reported feeling comfortable in speaking non-English language at the clinical setting regardless of their institutional certification. These findings suggests that accessibility of professional hospital interpreter service is a major concern and need improvement to comply required language policy.