

Health Savings from Translation Services: A Systematic Review

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Executive Summary

Refugee Community Partnership (RCP) is a grassroots 501(c)(3) nonprofit and resource hub founded in 2011 dedicated to supporting refugee and migrant communities in the Triangle area of North Carolina. One of their primary programs, Language Navigators, provides language interpretation to support immigrant and refugees accessing healthcare services. **RCP is interested in quantifying how language accessibility increases efficiency and cost savings in healthcare systems to support their language advocacy efforts in North Carolina.** To address this need, the team conducted a systematic review of existing research on health cost savings from language services. Articles had to include empirical data, language services in a United States health department setting, report robust economic outcomes, and be published between 2004 and 2026 in English.

The team determined that there is limited data regarding cost savings from translation services in healthcare systems. Out of 4,476 articles across three large databases, two were included in the final synthesis. **This systematic review highlights the need for more research on cost-savings estimates rendered from language services in healthcare systems.** Future projects that seek to find these estimates should work within value-based, health financing, and social justice frameworks, as outlined in the discussion. Greater collaboration between community organizations such as RCP and healthcare institutions can generate more accurate data on health departments' cost savings, helping to justify expanded language services that promote higher-value, sustainable, and equitable care.



Research Question

Refugee Community Partnership (RCP) originally defined its policy question as: what is the cost saving experienced by health systems due to language justice policies? This estimate would quantify the financial impact of RCP's ongoing healthcare justice work. Specifically, it would measure the health-system savings generated by language justice policies through reduced missed appointments, emergency department (ED) diversions, medical malpractice, and the number of readmissions for post-ED visits. RCP sought a defined cost-savings estimate to support its advocacy goals of encouraging North Carolina health systems and the state legislature to adopt and promote more robust translation services.

RCP lacks access to the health-systems data necessary to complete an econometric regression analysis yielding a distinct cost-savings estimate. Such data is difficult to access due to strict privacy regulations, fragmented data collection, and high costs and administrative barriers.¹ Following discussion with RCP, the team recognized that without a dataset to complete an analysis, it would not be feasible to derive a savings estimate. In partnership with RCP, the team refined our policy question to the following:



What cost-savings trends have been identified for healthcare systems in published research regarding the provision of translation services of Limited English Proficiency (LEP) patients?

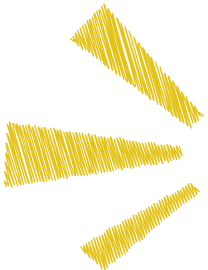
The findings associated with this refined research question will allow RCP to reference cost-savings research that supports the provision of translation services aligned with language justice while they justify their efforts to secure original data for a cost-savings analysis of North Carolina health systems.



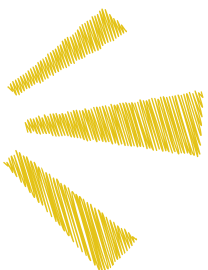
Policy Background

Legal Requirements for Language Services

Federal law requires that limited English proficiency (LEP) individuals—those who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English— be provided with the tools to effectively communicate with healthcare providers. Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, or national origin in programs that receive federal financial assistance, which the Supreme Court has interpreted to include discrimination based on language in the *Lau v. Nichols* decision in 1974.² The Department of Health and Human Services has also used Title VI provisions to require healthcare institutions to provide language services, specifying that a lack of funding or financial resources cannot be used as a defense for failing to provide these services.³



Title VI of the Civil Rights Act of 1964



“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 financial assistance.”

In 2000, nearly forty years after Title VI, President Clinton signed the first explicit federal requirement for language accessibility. Executive Order (EO) 13166, “Improving Access to Services for Persons with Limited English Proficiency,” clarified and refined the language service requirements in government-funded departments. The EO **required that federal agencies provide LEP individuals with “meaningful assistance” in all federally conducted programs and activities.**⁴ Federal agencies were tasked with drafting Title VI guidance consistent with the LEP Guidance issued by the Department of Justice, and LEP persons and stakeholders could provide input before the agency-specific guidance was established.

Section 1557 of the Affordable Care Act of 2010 upholds Title VI by prohibiting discrimination in health programs that receive federal funds and establishing that a qualified interpreter must be granted to an LEP patient free of charge.⁵

Minors and unqualified adults can serve as temporary interpreters while finding a qualified interpreter.⁶ The Department of Health and Human Services issued a final ruling in 2024 stating that all health entities subject to Section 1557 must provide health programs participants an annual notice of free language services that must be displayed in prominent locations physically and online.⁷



President Obama signing the Affordable
Care Act on March 23, 2010

In March of 2025, President Trump revoked President Clinton’s EO by signing Executive Order 14224, designating English as the national language of the United States.⁸ Under this order, federal agencies must prioritize providing services in English; for residents with low or no English proficiency, English-language education would be provided to increase language assimilation and reduce spending on multilingual resources. President Trump’s executive order directs the Attorney General to review and potentially withdraw policy guidance documents from federal agencies, including the Department of Health and Human Services, that were issued under President Clinton’s EO 13166.⁹ While the Department of Justice has begun revising its LEP guidance, agency-specific guidance developed in response to Clinton’s EO is not automatically rescinded and may be retained or modified at the agency’s discretion. **Despite the revocation of President Clinton’s EO 13166, language access is still mandated in healthcare programs that receive federal funding under Title VI and Section 1557 of the Affordable Care Act.**¹⁰

Quality of Healthcare Compliance with Language Services Provision

Despite federal laws and regulations mandating language services to LEP persons, compliance and the quality of services among healthcare institutions varies. Healthcare organizations that receive federal assistance do not receive funding to support the provision of mandated language services.¹¹ Health literacy experts note that Title VI's application as an unfunded mandate to federal grant recipients means "there are no teeth behind it except that they say you have to."¹² **Compliance is difficult to enforce and there are perceived high-cost pressures of providing language services. As a result, in 2025 56% of primary healthcare practices in the United States failed to always provide language services.**¹³

The efficacy of language services deteriorates in high-stress environments like EDs. This is important because LEP individuals utilize emergency care more often than routine or non-urgent care for several reasons: emergency patients can't be denied care regardless of insurance or immigration status, and the complicated American system often leads to LEP patients without a primary care provider.¹⁴ **This trend is due to limited access to primary care services, difficulty navigating multiple health departments, and 24/7 access when health issues do arise.**¹⁵ Telecommunication services may also facilitate miscommunication between health professionals and patients, especially when there are technical difficulties, or when doctors cannot hear remote interpreters.¹⁶ A medical scribe at the UNC Medical Center noted that "in an emergency department, it can be really hard to hear. The iPad can be really difficult to use because even though [the interpreters] speak the language, they can't understand what [the patients are] saying because they can't hear them."¹⁷

Inconsistent screening or record-keeping of language services compounds these challenges, leading to incomplete information about the language needs of patients. According to a research study by the American College of Physicians, 64% of healthcare institutions failed to record an LEP patient's primary language in their records.¹⁸ Due to administrative burdens and lack of information on financial benefits, hospitals deprioritize robust language resources. With fewer resources, federal noncompliance becomes more common, widening health disparities between LEP patients and their English proficient counterparts.¹⁹



Language Support Services Mitigate Adverse Health Outcomes

The American Medical Association's Journal of Ethics recognizes LEP status as an independent driver of health disparities and an exacerbating factor for other health determinants.²⁰ A 2020 study of refugees from nine countries living in Clarkston, Georgia found a statistically significant correlation between patients' health literacy (the ability to find, understand, and use health information and services) and English proficiency.²¹ LEP refugees with inadequate health literacy were 5.08 times more likely to report poor/fair health outcomes compared to the study population that was not LEP and had high health literacy.²² LEP individuals are three times less likely to be insured than those with English proficiency, furthering health disparities for this population.²³

Practices like providing professional interpreters have been shown to decrease these disparities. **LEP patients with access to trained interpretation experience improved patient comprehension, reduced medical errors, and higher levels of patient and clinician satisfaction than those receiving ad hoc services by someone who is not trained in interpretation.**²⁴

LEP Patient Support Improves Hospital Efficiencies

LEP patient support is linked to how hospitals deliver care. Language barriers affect clinical processes such as taking medical history, diagnosis, medication management, and discharge planning. Ineffective communication results in delays and misdiagnoses, which can result in unnecessary testing, prolonged hospital stays, and patient harm.²⁵

Communication failures also degrade hospital operations. **A growing number of studies links LEP status to higher rates of hospital admission and 30-day re-admission, particularly following ED visits.**²⁶ While evidence on length of stay (LOS) is mixed across clinical settings, several studies report significantly longer LOS for LEP patients in areas such as palliative care, trauma, and surgical admissions. Studies of interpreter use for LEP patient visits across the United States, Australia, and Switzerland show that professional interpretation at critical moments can reduce hospital crowding and delays in care delivery.²⁷



North Carolina would benefit from strengthened support for LEP patients, given the growing size of its LEP population and the resulting demands for healthcare and public service systems. State language access planning (LAP) documents identify 451,823 residents with limited English proficiency, many of whom rely on hospital care as a primary point of contact with the healthcare system.²⁸ Recent investments in statewide language access recognize that improved communication supports effective service delivery.²⁹ In the Research Triangle, the presence of formal LEP policies in major health systems at Duke and UNC indicates that North Carolina has the institutional foundation to facilitate smoother care processes.³⁰



Language Support and Emerging Care Frameworks

The fee-for-service model has been used as the traditional healthcare payment system where providers are compensated based on the quantity of services they provide their patients.³¹ This can lead to fragmented, unnecessary, and costly care that does not focus on the quality of treatment.³² To combat the fee-for-service model, health policy experts and professionals within the healthcare system have proposed alternative frameworks that prioritize whole-person, coordinated care that increases quality and decreases costs of treatments.³³ This includes value-based care (VBC) frameworks, health equity frameworks, and other emerging approaches.³⁴ While these models hold great potential in creating greater efficiency and health outcomes, they are often unevenly implemented and overshadowed by the fee-for-service model.



Early evidence suggests that the provision of language services could enhance these alternative healthcare frameworks by improving care quality and reducing costs through better communication.³⁵ However, language services are often not discussed in the context of each of these frameworks despite potentially being a core component of creating quality care and cost savings.

Research on Cost Savings for Language Access

There is significant research about costs associated with insufficient language access in healthcare, but there is limited data on the cost savings that robust language services likely offer.

A review of existing literature on the cost and cost-effectiveness of medical interpreters underscores the need for more studies on the long-term impacts of interpreters on healthcare systems.³⁶ Research on the use of professional interpreters in healthcare settings consistently finds fewer emergency room and doctor visits, along with lower rates of readmission.³⁷ However, the financial benefits of these health efficiency improvements may not be immediately apparent to hospital systems, while the provision of robust translation services represents a clear additional overhead cost for medical providers. Healthcare systems may therefore only provide the minimal services required for legal compliance. Understanding the net cost of providing robust language services will therefore serve as important quantitative support for the expansion of community-driven language programs.



Methods and Analysis

Identifying Articles

The team utilized systematic review methods to capture empirical results on whether language accessibility interventions in healthcare settings are associated with reduced utilization, lower expenditures, or other indicators of cost savings for health systems. Unlike a traditional literature review, a systematic review is a reproducible methodology which utilizes prespecified eligibility criteria to identify and review all high-quality research related to a specific question or topic. The procedures for a systemic review were initially originated by the Cochrane Collaboration in 1993, and systemic reviews “are often placed at the top of the evidence hierarchy...ordered by the design and risk of bias of included studies.”³⁸

This systematic review is based on results pulled from three databases: Scopus, the Proquest Healthcare Administration Medical Database, and EconLit. These databases collectively capture interdisciplinary literature at the intersection of health services research, health economics, and public policy.

Scopus provides broad coverage of peer-reviewed health and social science journals; the ProQuest Healthcare Administration Medical Database focuses on health system management, policy, and delivery outcomes; and EconLit indexes economic evaluations and cost analyses relevant to health system efficiency.



EconLit



Scopus[®]
by Elsevier



Search Terms

The search terms were developed to capture language accessibility, health system contexts, and economic outcomes. Draft search strings were initially developed in consultation with our supervisor and first implemented in Scopus. These strings were then iteratively refined with assistance from the free version of ChatGPT (OpenAI), which was used to support terminology refinement (e.g., replacing “low English” with “limited English”), expansion of healthcare system terms (e.g., primary care, emergency medicine, pediatric care, mental health, and ambulatory and outpatient settings), and inclusion of additional language access concepts (e.g., interpreter services). A list of initial search terms and the ChatGPT prompt used to refine them can be found in Appendix A.

The search strategy was then adapted to the syntax and indexing conventions of the Healthcare Administration Medical Database and EconLit to ensure consistency across databases. All search strings were reviewed and finalized by the team to ensure conceptual accuracy, database compatibility, and an appropriate balance between sensitivity and specificity. Searches were limited to peer-reviewed journal articles published in English and studies conducted in the United States. The final list of search terms can be found in Appendix B.

Initial Review Process

Inclusion and Exclusion Criteria

Studies were included in the review if they met all of the following criteria:

1. Present empirical data (either from original research or meta-analysis)
2. Examine language accessibility interventions in healthcare settings
3. Report economic outcomes such as cost savings, reduced healthcare utilization, cost-effectiveness, or related measures
4. Published in English;
5. Focus on healthcare systems in the United States
6. Published between 2004 and 2026

2004 was set as the beginning of this timeframe because this was the year the National Code of Ethics for Interpreters in Healthcare Systems was established, resulting in an increased number of articles. Theoretical papers, editorials, commentaries, reviews, or studies without economic or cost-related outcomes were excluded from the final synthesis. Incorrect article metadata coding in the databases yielded several older articles (pre-2004), abstracts, and/or theoretical papers. These were filtered out manually in the review process.

Preliminary Screening and Study Selection Process

The search syntax was applied separately to each database, and all resulting records were exported for screening. This systematic review followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines, an internationally recognized reporting standard designed to enhance the transparency, completeness, and reproducibility of systematic reviews.³⁹ The screening task was divided among the four members of the research team by letter as illustrated in the PRISMA guidelines process funnel below (Figure 1). Using the research review form, the initial stage of the review collected preliminary information about the study, including the name of the reviewer, database source, article title, published date, and relevancy criteria.

Final Screening

Articles marked for in-scope determination were read fully to complete the remainder of the form with relevant findings and data. Economic outcomes were then compared across studies to identify common patterns in cost savings, healthcare utilization, and efficiency gains associated with language accessibility interventions.

Framework Analysis

Following the completion of the article screening process, relevant frameworks to promote future research and application to address service gaps in LEP language access were considered. Value-based care, health financing, and social justice were identified as frameworks which could be used complementarily to support future research, and the application of future research to political advocacy.

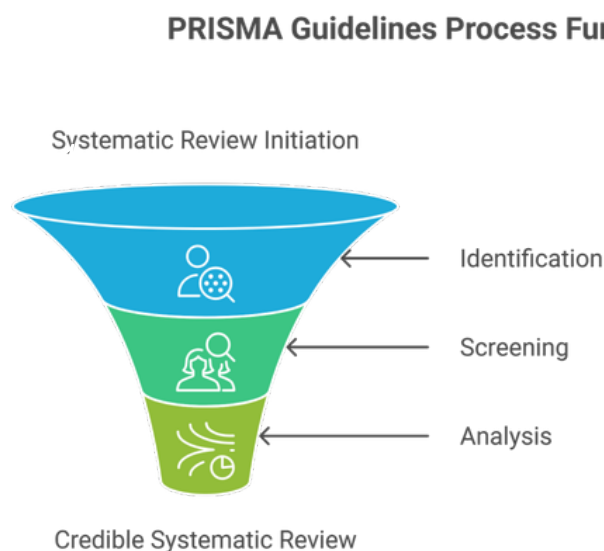
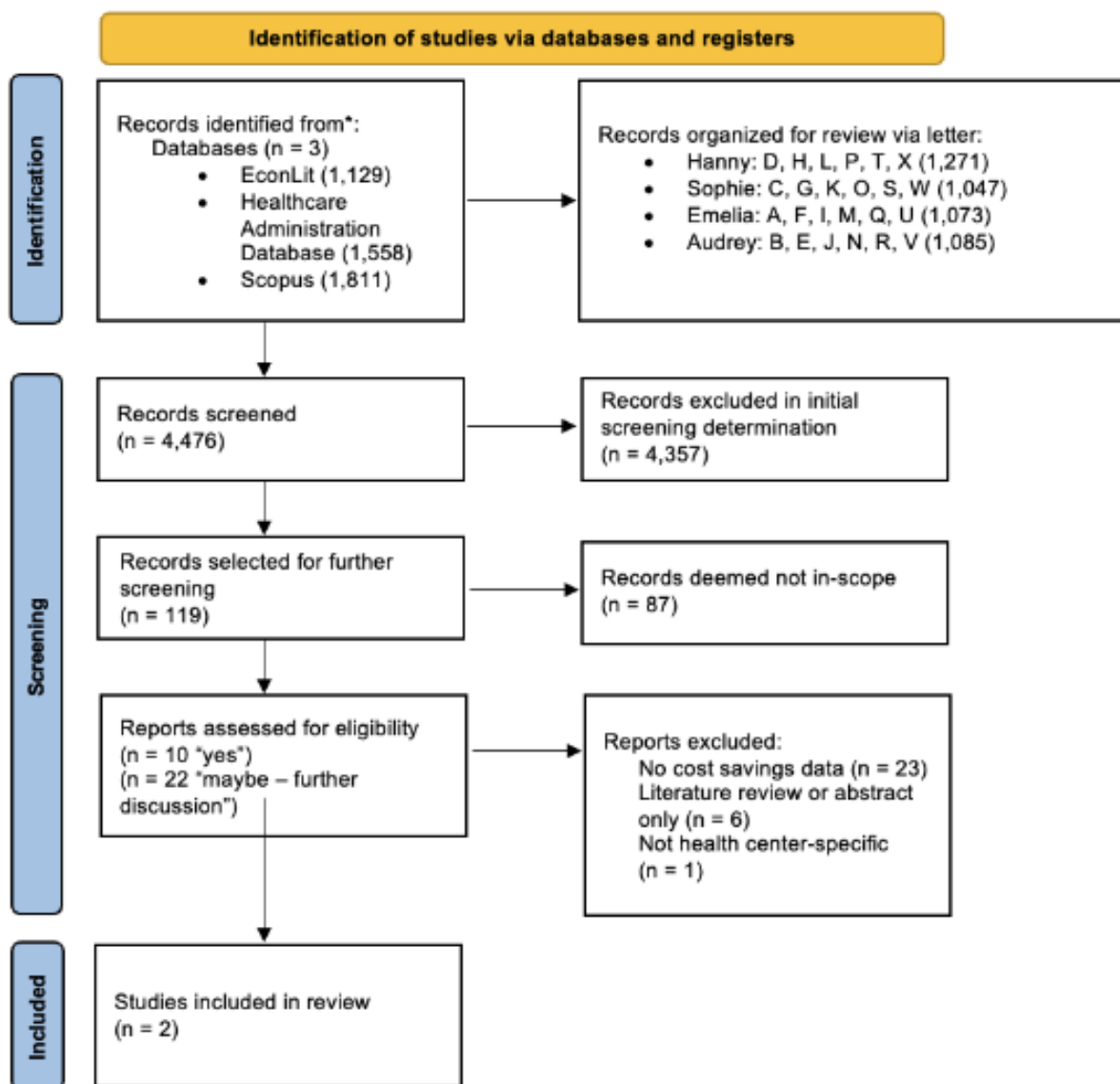


Figure 1. PRISMA Guidelines Process Funnel
Source: [PRISMA Statement](#)

Results

Figure 2. PRISMA Flow Diagram

PRISMA 2020 flow diagram for new systematic reviews



Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

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Systematic Review Results

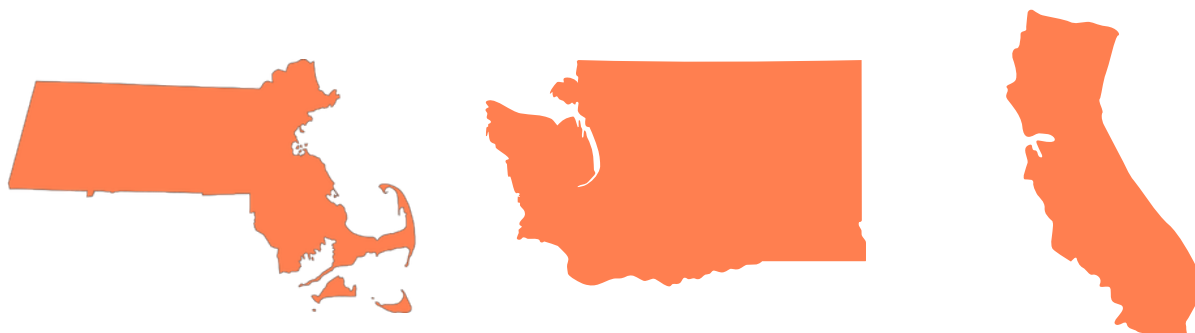
The team reviewed 4,476 articles across EconLit, Scopus, and the Healthcare Administration Medical Database. Theoretical papers, editorials, commentaries, reviews, or studies without LEP or cost-related outcomes in a healthcare setting were excluded from the initial screening. There were leaving 119 articles marked for additional review. All items that moved to the next review were read and analyzed for data on cost-savings measures from LEP services.

Out of the 119 articles, 109 involved language services in a healthcare setting, and 113 were relevant to health departments or public healthcare systems specifically (some articles met both criteria). **Overall, articles lacked information about cost, economic outcomes, utilization, and budget-related outcomes.** Out of the 119 articles, only 20 mentioned healthcare costs or budgeting estimates directly. Nine articles briefly mentioned costs as barriers to LEP resources or added costs for LEP patients but lacked cost savings to healthcare providers and were therefore excluded from review. Out of the initial 119, lack of cost data or budgeting narrative removed 87 articles from our in-scope determination. Ten articles were marked “Yes” as being in-scope after initial review, and an additional 22 were marked as “Maybe” for a full team review. **The full systematic review is illustrated in the Figure 1 PRISMA diagram.**

Out of the 32 articles that moved on to the next stage of the review, the team determined that 19 out of the 32 articles did not have sufficient cost-estimate data or lacked sufficient relevancy for LEP patients specifically. One article, “Hospital Language Service Programs: A Closer Look at Translation Practices,” was a qualitative descriptive study using semi-structured telephone interviews with hospital staff overseeing translation services.⁴⁰ The study showcases examples of hospitals with unusually robust translation service programs despite limited external funding. While concrete numbers in the study were lacking, its findings were determined to be relevant for future reference.

With the final articles that were marked as “Yes” in the in-scope determination, the study designs varied significantly. One study used a randomized control trial, two used quasi-experimental studies, two used mixed-method approaches, one used a cohort study, one used a natural experiment, one used a qualitative description of cost savings without a quantified value, one used a retrospective observational study, and one a cognitive analysis framework.

Many of these studies were conducted in states with large healthcare systems and generally robust healthcare funding, including two from Cambridge, Massachusetts, two from the Washington Medical Center in Seattle, and two from Sacramento, California. One study used 35 geographically diverse hospitals located in urban areas with large immigrant and LEP populations, and one study used a meta-analysis from eight other studies conducted in the United States. The type of healthcare department also varied considerably, including two local health departments, one state health department, two community health centers, one primary care clinic, one ED, one public hospital, one collection of teaching hospitals, and one health center as part of a larger health maintenance organization (HMO). Many articles studied multiple methods of language services. Eight studies incorporated in-person professional interpreters, and six incorporated telephone interpretation services. Video interpretation (mentioned in three studies), bilingual interpretation via non-professional interpreters (mentioned in three studies), and translated written materials (mentioned in three studies) were also common. AI or digital translation services were mentioned in only one paper.

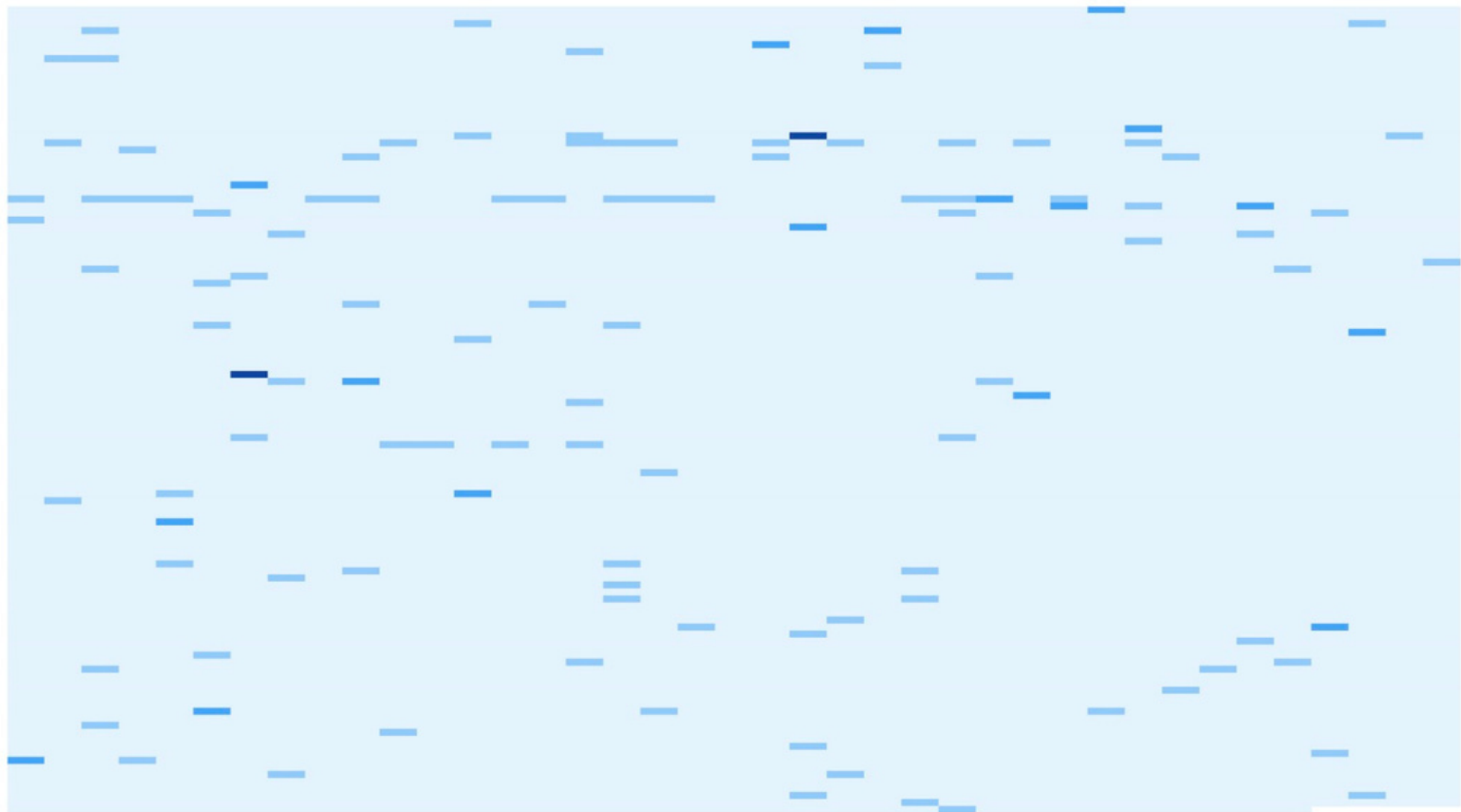


Four articles cited the cost of program implementation as a barrier to providing LEP services, three mentioned direct healthcare costs, and three mentioned utilization costs of departments. Five articles out of the 13 identified cost savings in some capacity, but the bulk of each paper focused on costs to the hospital system. Proposed cost savings from three of the five papers were mentioned only briefly and without empirical data. Only two articles had empirical findings and sufficient quantitative data for further review and were included in the final synthesis.

The systematic review was consistent with rigorous peer-reviewed academic systematic reviews. It included a large sample of articles, followed PRISMA guidelines, and drew on three academic databases.⁴¹ Even so, selection bias is difficult to eliminate, and there may be studies from outside the US that may lend insights into cost savings from language services. Of 4,357 peer-reviewed articles published since 2004, only 113 covered language access in the healthcare system and 13 covered cost-related estimates of LEP services in the healthcare system, focusing on the costs to implement services. Only two attempted to quantify any cost savings to providing LEP services in the US healthcare system.

Figure 3. Systematic Review Heat Map

Each cell represents a study included in the systematic analysis sample, with a color scale from light to dark representing least to most relevant to health system interpretation cost savings based on when the article was identified as being as irrelevant, with 0 reflecting an immediately rejected article and 3 representing an article which was deemed relevant at each screening stage.



Final Articles

The two articles we include in our final synthesis are summarized in the table below:

Table 1: Study Review and Synopsis of Findings

Title	“Convenient Access to Professional Interpreters in the Hospital Decreases Readmission Rates and Estimated Hospital Expenditures for Patients with Limited English Proficiency”	“Overcoming Language Barriers in Health Care: Costs and Benefits of Interpreter Services”
Study Design	Natural experiment on a medicine floor of an academic hospital	Two-year retrospective cohort study
Study Period	Jan 15, 2007, through Jan 15, 2010 (3 years)	June 1, 1995, through May 31, 1997 (2 years)
Sample Size	1,963 LEP patients over 50 years old	4,380 adults continuously enrolled in a staff model health maintenance organization for the two years of the study (interpreter service group [ISG]; N = 327)
Languages	Chinese (50.3%), Russian (16.2%), Spanish (13.6%), Other Asian (13.4%), other (6.6%)	Portuguese (i=70) Spanish (i=257)

Study Setting	Medicine floor of an academic hospital in Massachusetts	A large HMO in New England (Harvard Pilgrim Healthcare)
Data Collection Methods	Two interpreter databases: 1) a database kept by Translator Interpreter Services (TSI) to record in-person staff interpreter encounters, date, language, hospital floor and time of the interpretation and 2) a billing database for telephonic interpreter encounters from the vendor providing these services	HMO automated medical record system including demographic information, clinical service use, prescription use, and preventive service delivery. The demographic characteristics included age, gender, date of enrollment, median income for the ZIP code of residence, and use of Spanish and Portuguese interpreter services.
LEP-related Outcomes	After accounting for interpreter services costs, the estimated 119 readmissions averted during the intervention period were associated with estimated monthly hospital expenditure savings of \$161,404.	LEP patients who used interpreter services received more recommended preventive services, made more office visits, and had more prescriptions written. and filled. The estimated cost of providing interpreter services was \$279 per person per year.
Authors	Leah S. Karliner, MD, MAS, University of San Francisco et al	Elizabeth A Jacobs, MD, MPP, assistant professor of medicine at Rush University Medical Center et al

Limitations	No formal cost study; no interpreter data for individual patients	Limited sample size; framed as costs to the HMO rather than cost savings
Database	https://pmc.ncbi.nlm.nih.gov/articles/PMC5309198/#ref-list1	https://pmc.ncbi.nlm.nih.gov/articles/PMC1448350/#r21

The first of two articles in the synthesis, “Convenient Access to Professional Interpreters in the Hospital Decreases Readmission Rates and Estimated Hospital Expenditures for Patients with Limited English Proficiency,” by Karliner et al., provides a cost savings estimate from reduced readmissions by implementing telephone interpreters for LEP patients over 50 years of age.⁴² The authors find that providing easy access to professional interpreters using dual-handset telephones at the bedside in an acute-care hospital was associated with decreased 30-day readmission rates for patients with a language barrier.⁴³ If readmission rates for the LEP group had stayed steady at the pre-intervention rate (17.8%) rather than falling (to 13.4%) during the high intensity intervention period, the paper estimates there would have been an additional 119 readmissions during the high intervention period. Subtracting the cost of the interpreted calls, the estimated net savings related to the bedside interpreter intervention over this 8-month period equaled \$1,291,233, for an estimated monthly healthcare expenditure savings of \$161,404.⁴⁴

This paper is the only one from our analysis that attempted to quantify cost savings by estimating the cost of readmissions and missed appointments and multiplying the anticipated number at the pre-intervention level. Using this formula, the study generates a plausible number of cost savings that could be replicable given administrative data. Given the setting of a large academic hospital, this study could be relevant to other large hospitals connected to academic institutions in the Triangle, such as Duke Hospital.



The second article from 2004, “Overcoming Language Barriers in Health Care: Costs and Benefits of Interpreter Services,” by Jacobs et al. reviews the impact of implementing a new interpreter service program on the cost and utilization of health care services among patients with limited English proficiency (Spanish and Portuguese-speakers) in a Massachusetts health maintenance organization (HMO).⁴⁵ Cost data included both the direct costs of providing interpreter services and the costs of net changes in health care utilization that occurred one year after the new services were implemented. **The cost of providing interpreter services for Spanish- and Portuguese-speaking patients was \$245,363, with an average cost of \$79 per documented interpretation.**⁴⁶

While not necessarily cost “savings,” the article mentions directly that the lack of LEP practices could be due to “the paucity of data documenting the full costs and benefits of interpreter services.”⁴⁷ The data was collected from Harvard Pilgrim Health Care’s staff model health centers, which have fully automated medical and pharmacy record data files. The medical record files contain all demographic data and clinical data, including documented completion of recommended preventive services and counseling on drug, LEP status, alcohol, and tobacco use, and hospital, emergency room, urgent care, health center, and phone service.

Despite this, there were still data collection problems: the study uses a smaller sample of LEP patients (327) and follows the LEP cohort for only a year, and the limited language scope reduces generalizability, particularly for North Carolina’s more diverse LEP populations. In addition, the cost-related findings in the paper themselves are still framed around costs rather than savings. The paper acknowledges this as room for more research and study, noting that the “statistically significant increase in receipt of preventive services also suggests that improving language access for patients who have limited English proficiency may lower the cost of care in the long run.”⁴⁸



Framework Findings

Our systematic review identified two studies that directly measured the cost savings or cost benefits for health systems when health systems provide interpreter services. This highlights the need for future research on the cost savings of providing interpreter services. When physicians report that the perceived cost of interpreter services reduce their ability or willingness to provide robust language support, it is vital to ensure that the net cost savings benefits of language support is understood to improve decision-making within healthcare systems.⁴⁹ Considering the significant negative outcomes experienced by LEP patients lacking support, failing to provide robust language services introduces the risk that healthcare systems incorrectly estimate the true net cost and benefit of language services.

The lack of existing research limits our direct recommendations on cost savings estimates from LEP services. However, the research gap highlights the need for future research, considering most of the current literature is meaningfully talking about costs but not the actual quantitative measures of providing interpretation services. We therefore recommend that future research should explore the cost-benefit analysis of interpretation services grounded in the following frameworks, detailed below:

-  Value-based Care
-  Health Financing
-  Social Justice

Value-based Framework

As discussed earlier in this report, value-based care (VBC) challenges the traditional fee-for-service model in which healthcare providers are paid for the quantity of services they provide. This model incentivizes high-volume services that lead to fragmented care, unnecessary interventions, and high costs. Coined in 2006 by scholars Michael Porter and Elizabeth Olmsted Teisberg in “Redefining Health Care,” VBC centers around the quality of health outcomes coordinated between healthcare systems, insurers, and providers.⁵⁰

VBC aligns improved health outcomes with higher financial returns, therefore incentivizing healthcare providers to consider the net cost-benefit of high-quality healthcare services rather than upfront operational and patient costs. Studies of these programs suggest that quality of care is improved, and costs are reduced through collaboration across care teams.⁵¹

VBC also aims to improve health equity, emphasizing the need for historically marginalized groups, including LEP patients, to receive high quality care. These groups often have poorer health outcomes due to fragmented care, poor communication, and lower health literacy. Section 1557 of the Affordable Care Act prioritizes reducing health disparities across different populations, emphasizing the need for value-based care as a framework to overcome these issues.⁵²

A VBC framework is well-suited for supporting language services because it aligns financial incentives with outcomes that depend on effective communications. In models that are promoted by organizations like the Centers for Medicare and Medicaid Services, providers are rewarded for improving quality, patient experience, and health outcomes rather than increasing service volume.⁵³ Language access is critical to achieving these goals, so LEP patients can clearly understand their diagnoses, treatment plans, and health maintenance. With clearer communication, LEP patients are more likely to adhere to care, avoid health complications, and reduce preventable hospitalizations.⁵⁴ This directly improves health quality and lowers cost, which are key goals in value-based care.



Health Financing Framework

In 2010, the World Health Organization (WHO) introduced a health financing framework as an essential component towards universal healthcare. This framework organizes health financing into three core sub-functions: revenue raising, pooling of funds, and purchasing of services. Revenue raising considers the sources of funds, including government budgets, compulsory or voluntary prepaid insurance schemes, direct out-of-pocket payments by users, and external aid).⁵⁵ The pooling of funds refers to the accumulation of prepaid funds on behalf of some or all of the population.⁵⁶ Purchasing of services considers the payment or allocation of resources to health service providers.⁵⁷

While the WHO health financing framework does not prescribe specific policy solutions, its value lies in providing a structured analytical lens that current research on interpretation services largely lacks. Most existing studies look at language access by measuring a single outcome like readmission rates or length of stay without connecting those findings to the financing mechanisms that determine how interpretation services get funded.

Both studies in our final synthesis acknowledged the challenge of inadequate reimbursement for interpreter services, but neither examined how the financing mechanism itself influenced health system decision-making around language access. By applying the health financing framework, future researchers would be prompted to treat these structures, such as whether a hospital receives Medicaid reimbursement for interpretation, absorbs costs through its operating budget, or relies on grant funding, as independent variables in their study design rather than leaving them unexamined. This could reveal whether health systems in reimbursing states invest more in language access and whether that investment correlates with better outcomes for LEP patients.

This framework is especially well-suited to examining the costs associated with interpretation services for several reasons. First, the revenue raising function highlights a significant funding gap in existing law. While Title VI of the Civil Rights Act mandates that federally funded health care providers supply language access services, government financing remains inadequate.

The purchasing function considers how health systems distribute pooled resources to service providers. Choosing to fund interpretation services is a vital purchasing decision. By investing in language access, health systems acquire a service that has a direct impact on the quality and success of clinical interactions with LEP patients. While several articles in our in-scope determination mentioned the importance of language access as an equity concern, many failed to mention the factors involved in deciding to fund robust language services and how these resources should be distributed to create the highest quality of care.

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The pooling framework may clarify how underfunding interpretation services shifts costs onto healthcare providers themselves. When hospitals neglect to invest in language access, communication failures lead to costs that the hospital bears directly. These include avoidable ED revisits that consume provider resources, longer stays that reduce bed availability and throughput, and diagnostic over-testing that increases operating expenses. A comprehensive cost-benefit framework would allow health systems to quantify these provider-side savings and make a data-driven case for sustained funding of interpreter services.

Future research structured around the WHO health financing framework could measure costs along the dimensions identified in the existing literature: missed appointments, ED diversions, readmissions for post-ED visits, medical malpractice, and length of stay. This approach would produce the quantitative evidence that RCP needs to advocate for expanded language access funding in North Carolina.



Social Justice Framework

While the economic case for interpretation services is essential for grant applications and legislative advocacy, it must also be situated in a broader social justice framework. This section is grounded in John Rawls' theory of justice as fairness, which holds that a just society structures its institutions so that inequalities are only permissible if they benefit the least advantaged members. Rawls' difference principle and his emphasis on what he calls the "basic structure" of society, meaning the institutions that shape life outcomes, provide a compelling theoretical foundation for understanding why language access is a matter of justice and not merely operational efficiency. Although Rawls did not originally include health in his theory, Perihan Elif Ekmekci and Berna Arda (2015) extended this framework to cover health and social determinants of health, arguing that access to the conditions that shape health outcomes should be considered a matter of distributive justice.⁵⁸ When applied to health care, a Rawlsian framework demands that health systems be organized to ensure fair access for those who face the greatest structural barriers. This includes individuals with limited English proficiency, who are routinely excluded from meaningful participation in their own care due to language barriers that the system itself fails to address. This framework supports the two supporting arguments outlined below:

Language as a social determinant of health

Limited English proficiency is an independent contributor to health disparities, amplifying the impact of other social determinants like income, education, and immigration status.⁵⁹ Approximately 25.7 million people in the U.S. have limited English proficiency, and this population experiences measurably worse outcomes across nearly every dimension of care.⁶⁰ By framing language access as a social determinant of health, future cost-benefit research can capture not only the direct health system savings from interpretation services, but also the broader public health value of addressing a structural barrier to equitable care. This framing is particularly compelling for grant applications because it connects the economic analysis to the health equity priorities of major funders.

Distributive and relational justice

Following the framework articulated by Jason Espinoza and Sabrina Derrington (2021) on language barriers and health inequity, LEP patients experience two distinct forms of injustice in health care settings: distributive and relational injustice.⁶¹ Distributive injustice manifests as measurably poorer health outcomes resulting from decreased access to effective care. Relational injustice involves the devaluation of patients' identities and the "othering" of individuals who do not speak English. Both forms of injustice carry financial costs to health systems and human costs to patients and communities.

Bridging the Frameworks for Research

The three frameworks outlined above are not competing alternatives. When applied together, they can produce a more actionable research agenda than any one of them could on its own. Value-based care asks whether interpretation services improve outcomes and reduce costs. Health financing asks how those services get paid for and whether the funding structure itself shapes the level of investment. Social justice asks why these services are owed in the first place and who bears the burden when they are absent. Each framework answers a question that the others leave open.

To illustrate how these frameworks might work together in practice, consider a hypothetical scenario:

A mid-sized hospital in a North Carolina county experiences a recent influx of LEP patients, primarily Spanish- and Burmese-speaking refugees. They begin to see rising 30-day readmission rates and increased ED utilization among this population. The hospital does not employ professional interpreters and relies on bilingual staff and family for communication.

A researcher studying this hospital using only one framework would capture part of the picture but miss the rest. A value-based care study alone might document the readmission spike and calculate the cost of those readmissions, then recommend translation services to improve quality metrics. But it would not ask where the money to fund interpreters should come from, or whether the hospital's current reimbursement environment makes sustained investment realistic. A health financing study alone might identify that North Carolina does not reimburse Medicaid providers for spoken language interpretation and that the hospital absorbs these costs as overhead, but it would stop short of connecting that financing gap to the clinical outcomes data. A social justice study alone might establish that the LEP patients are experiencing both distributive and relational injustice, but without the economic data, it would lack the quantitative evidence that policymakers and hospital administrators need to act.

Now consider a study that applies all three. The research team would measure the clinical and financial outcomes of introducing professional interpreter services, including readmission rates, ED revisits, length of stay, and patient satisfaction, grounding the analysis in value-based care metrics. They would simultaneously document the hospital's financing structure for language access, examining whether the cost is absorbed internally, whether the state's lack of Medicaid reimbursement discourages investment, and whether alternative funding models from other states could be adopted, applying the health financing framework. And they would situate the entire analysis within a Rawlsian social justice framework, arguing that the current arrangement violates the difference principle by allowing the least advantaged patients to bear the worst outcomes of a system that fails to accommodate their language needs.

This combined approach links the moral case of providing translation services to the economic case to the policy mechanism. For RCP, this integrated framing would strengthen grant applications by demonstrating that the proposed research addresses clinical outcomes, financing structures, and equity goals simultaneously.

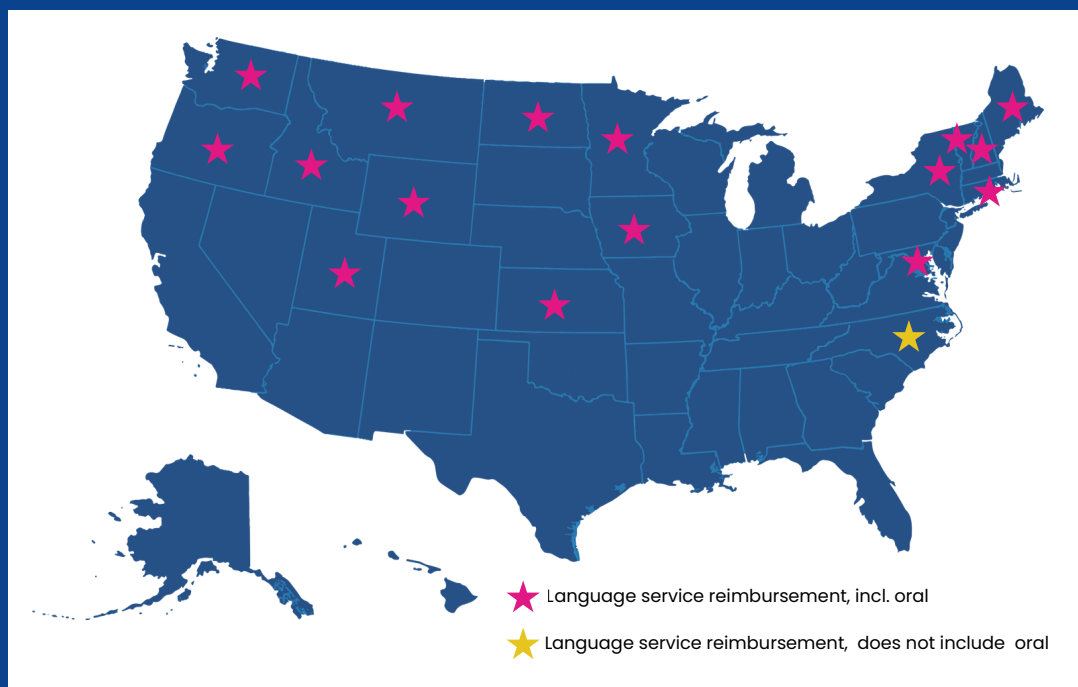
Bridging the Frameworks for Advocacy

Cost-savings research which integrates the frameworks of value-based care, health financing, and social justice could serve as a strong basis for organizations like RCP to advocate in favor of more robust LEP language service provision and reimbursement.

Research driven by the frameworks could support state-level advocacy around Medicaid reimbursement:

As shown in Figure 4, in 2024 only 18 states provided Medicaid reimbursement to providers for interpretation services of any kind, and Medicare offered no such reimbursement.⁶²

Figure 4. States with Medicaid Reimbursement for Language Services



These states permit Medicaid billing as either a direct medical or as an administrative expense. For example, states like Iowa and Washington reimburse interpretation as a covered medical service, allowing providers to bill Medicaid directly using HCPCS code T1013.⁶³ States like the District of Columbia and New Hampshire instead claim reimbursement as an administrative expense.⁶⁴

These states also differ in interpreter qualification requirements. New York requires interpreters to be listed on a state-maintained roster to qualify for Medicaid reimbursement, while Minnesota and Oregon maintain formal registries with training standards.⁶⁵

Among the 18 states, North Carolina is notable because it does not reimburse Medicaid providers for spoken language interpretation services, but has reimbursed providers for Deaf, Hard of Hearing, and DeafBlind communication access services since January 2021.⁶⁶ As a result, North Carolina's health systems bear the full cost of spoken language interpretation as an unfunded operational expense.

The presence of Medicaid billing systems for American Sign Language (ASL) interpretation in North Carolina could make Medicaid billing an effective area for future advocacy using cost-savings data in North Carolina. Existing reimbursement systems for Deaf, Hard of Hearing, and DeafBlind communication would reduce the administrative burden of developing billing systems for services benefiting LEP patients. Future cost-benefit data showing that interpretation services save hospitals money could provide strong evidence for North Carolina to expand their Medicaid reimbursement mechanisms and begin funding spoken language interpretation rather than leaving providers to absorb the cost on their own.

Conclusion

With only 2 studies of a sample of 4,476 evaluating cost savings from language services in healthcare systems, there is a clear and significant gap regarding the cost-savings rendered by healthcare systems when robust language services are implemented in their operations and care coordination. This systematic review represents the urgent need for increased investment in research that quantifies the full economic impact in healthcare systems when addressing the language needs of LEP patients. Future studies should be grounded in value-based care, health financing, and social justice frameworks to more comprehensively capture both the financial and equity-driven benefits of language access. Advancing this line of research is critical to inform policy and reimbursement structures, as well as promoting equitable and patient-centered healthcare systems.



Appendix

Appendix A. AI Prompt for Search Strings

"Hi Chat. We are conducting a literature search on whether providing language access services (e.g., interpreter services) in U.S. healthcare systems generates cost savings or economic benefits. Please help construct database search strings for Scopus, Healthcare Administration Databases, and EconLit. The search should include:

1. Language access concepts (e.g., interpreter services, limited English proficiency),
2. Healthcare system settings (e.g., hospitals, clinics, primary care), and
3. Economic outcomes (e.g., cost savings, cost-effectiveness, utilization, readmissions, length of stay).

Limit results to peer-reviewed journal articles in English and U.S.-based studies. Please provide syntax tailored to each database. Can you please help modify those terms to my existing syntax for me to narrow down the results:

```
ALL( ( "language justice" OR ( LANGUAGE AND interpret* ) OR ( LANGUAGE AND equity ) OR "low English" OR ( LANGUAGE AND access* ) ) AND ( healthcare OR "health system*" OR "health care" OR hospital* OR "emergency department*" OR "emergency room*" ) AND ( cost* OR price* OR expendit* AND (saving*) ) ) AND ( LIMIT-TO ( SRCTYPE,"j" ) ) AND ( LIMIT-TO ( AFFILCOUNTRY,"United States" ) ) AND ( LIMIT-TO ( PUBSTAGE,"final" ) ) AND ( LIMIT-TO ( DOCTYPE,"ar" ) ) AND ( LIMIT-TO ( LANGUAGE,"English" ) ) )"
```

Appendix B. Final Search Terms

B.1 Scopus

```
ALL ( ( "language access" OR "language assistance" OR "language services" OR "language justice" OR interpreter* OR "medical interpreter*" OR "professional interpreter*" OR "limited English proficiency" OR LEP ) AND ( healthcare OR "health care" OR "health system*" OR hospital* OR clinic* OR "emergency department*" OR "emergency medicine" OR "primary care" OR "mental health" OR ambulatory OR inpatient OR outpatient ) AND ( "cost saving*" OR "cost-effectiveness" OR "cost benefit" OR "economic evaluation" OR "return on investment" OR ROI OR "health care cost*" OR expenditure* OR utilization OR "avoidable cost*" OR "preventable cost*" OR readmission* OR "length of stay" ) ) AND ( LIMIT-TO ( SRCTYPE , "j" ) ) AND ( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( AFFILCOUNTRY , "United States" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) )
```

B.2 Healthcare Administration Medical Database

ALL (("language access" OR "language assistance" OR "language services" OR "language justice" OR interpreter* OR "medical interpreter*" OR "professional interpreter*" OR "limited English proficiency" OR LEP) AND (healthcare OR "health care" OR "health system*" OR hospital* OR clinic* OR "emergency department*" OR "emergency medicine" OR "primary care" OR "mental health" OR ambulatory OR inpatient OR outpatient) AND ("cost saving*" OR "cost-effectiveness" OR "cost benefit" OR "economic evaluation" OR "return on investment" OR ROI OR "health care cost*" OR expenditure* OR utilization OR "avoidable cost*" OR "preventable cost*" OR readmission* OR "length of stay"))

Checked boxes: Peer-reviewed, Date: After January 2004, Language: English, Document Type: Article

B.3 EconLit

Field 1: ALL(("language justice" OR "language access" OR interpreter* OR (LANGUAGE AND interpret*)

Field 2: OR(LANGUAGE AND equity) OR "limited English" OR (LANGUAGE AND access*)

Field 3: AND((healthcare OR "health system*" OR "health care" OR hospital* OR "emergency department*" OR "emergency room*" OR "primary care" OR "emergency medicine" OR "pediatric medicine" OR pediatrician* OR "mental health" OR ambulatory OR specialized OR "in-patient" OR "out-patient" OR clinic*)

Field 4: AND(LIMIT-TO (SRCTYPE,"j")) AND (LIMIT-TO (AFFILCOUNTRY,"United States")) AND (LIMIT-TO (PUBSTAGE,"final")) AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English"))

Field 5: (cost* OR price* OR expendit*) OR (cost* AND savings*)

Checked boxes: Peer-reviewed, Date Range 1/2004 to 2/2026

End Notes

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AI Statement:

Sophie Gilson: AI was used to refine search syntax in the research process, and to provide color suggestions for the heatmap, but otherwise not used for original writing or research.

Audrey Meigs: AI was used to refine search syntax in the research process, and to provide color suggestions for the heatmap, but otherwise not used for original writing or research.

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