A Framework to Identify the Costs of Providing Language Interpretation Services

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Abstract: The availability of language services for patients with limited English proficiency has become a standard of care in the United States. Finding the resources to pay for language programs is challenging for providers, payers, and policymakers. There is no federal payment policy and states are developing policies using different methodologies for determining costs and reimbursement rates. This paper establishes a conceptual framework that identifies program costs, can be used across health care entities, and can be understood by administrators, researchers, and policymakers to guide research and analysis and establish a common ground for informed strategic discussion of payment and reimbursement policy. Using case study methods, a framework was established to identify costs and included determining the perspective of the cost analysis as well as distinguishing between the financial accounting costs (direct, indirect, and overheard costs) and the economic opportunity and subsequent utilization costs.

Key words: Interpreters, language services, cost effectiveness, costs.

The availability of language services to patients with limited English proficiency (LEP) has become a standard of adequate care throughout much of the United States. The federal government mandates health care providers who receive federal funding to provide language interpretation services (LIS) to their LEP patients.[1] Despite the documented benefits of receiving LIS, finding the resources in an already financially constrained operating budget to pay for language programs can be challenging for providers.[2]

Payers and policymakers are also challenged to find ways to pay for LIS. Important questions concern who should pay for services and how, and whether LIS should be paid for directly. Third party payers often look to the guidelines of government programs when determining their own payment policy but to date there is no federal payment

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policy relating to LIS. Many states are developing payment policies for LIS but these policies use different methodologies to determine costs and payment rates and differ significantly across states.[3]

Understanding the types and range of costs incurred when providing LIS is necessary for informed and strategic discussion regarding payment policy, especially in light of limited health care resources and an increasing LEP patient population in many areas. Identifying the potential financial savings that result after patients receive LIS may also be valuable to payment policy discussions. Research studies focused on the cost of LIS are scarce, and a close look at these studies reveals that a variety of methods and measures are being used to value services and identify costs.[4–7] Without a consistent approach and methodology for identifying costs, the costs being presented in the public policy arena and payment debates can be misinterpreted. As illustrated in a recent series of articles dedicated to the challenge of health care pricing, costs can be defined in several different ways and from different and combined perspectives, making it difficult to compare services in a systematic way.[8–11] Approaches to measuring LIS costs have included identifying the salaries or fees of interpreters providing services as well as identifying the value of cost savings that result from receiving LIS; they have valued costs from both the provider's and the payer's perspectives.[12] Combining these two perspectives' estimates of costs and reporting total costs could result in mixed and incorrect conclusions, and lead to misguided public policies.

In response to the current state of cost assessment for LIS services, the objective of this paper is to construct a framework to identify the costs of providing interpreter services to LEP patients that is useful to those positioned to conduct future research that informs policymakers—both those who make decisions about providing the services and those who determine payment and reimbursement policies. Establishing a conceptual framework that identifies the types of costs to be included in an analysis, that can be applied to a variety of health care entities, and that can be understood by financial administrators, researchers, clinicians, and policymakers is needed to guide research and analysis and to establish a common ground for discussion of payment policy and reimbursement. Development of this framework includes identifying cost perspectives and clearly distinguishing between direct costs of providing services (micro-pricing methodology) and the financial effect of patients' subsequent utilization patterns as a result of receiving these services (macro-pricing methodology), an important distinction when using costs in analyses that could lead to payment policy reform.

Methods

A team developed a conceptual framework to identify the costs of providing LIS while conducting a case study of the cost effectiveness of providing LIS to diabetic LEP patients receiving care in the health centers of a Massachusetts integrated public health system.[13] The conceptual framework examines the various perspectives that can be taken when assessing costs and the various types of costs and cost components associated with providing LIS. The specific perspective used and the types of costs incurred to provide LIS are discussed as the framework is applied.

Methods to develop the framework and conduct the case study included interviews, meetings, and discussions with the public health system's hospital administrators, including the Director of the Multilingual Services Department, LIS educators, and financial staff. The objective of these qualitative procedures was to learn how LIS are delivered and to understand the financial reporting and clinical structures, and the affiliation of hospitals and health centers in the system. Financial data were provided by accounting staff through the Director of Multilingual Services. The hospital systems' Diabetes Registry and LIS registry were used to identify and classify interpreter-assisted visits by location delivered and mode of LIS. Health center interpreter-assisted visits were used to scale costs, yielding a cost per visit.

The cost centers and financial accounting records were reviewed to identify any and all costs possibly associated with LIS. This approach, similar to a micro-pricing approach, ensured that all costs were considered for inclusion in the cost estimate irrespective of how or where they were reported in the hospital financial statement. Once costs were identified as LIS costs, they were allocated to hospital and health center language services programs in order to calculate total costs incurred in each setting. Costs were scaled by interpreter-assisted visits. This approach accounts for downtime of interpreters and allocates downtime costs to each visit rather than calculating the time-cost of each visit.

Results

Conceptual framework. The conceptual framework initially requires the perspective of the cost analysis to be determined. The financial accounting costs are then identified and valued. In addition, examination of potential opportunity costs and subsequent utilization savings is encouraged to supplement the larger analysis providing more insight to the payment policy discussions. The unit of analysis (visit) and the timing (annual) of the cost analysis must also be determined.

Perspectives. An important issue to clarify before attempting to identify costs is to understand the question being asked and the perspective of the analysis. What and whose cost is being evaluated or examined? The cost to a health care provider is different from the cost to a payer, and from the cost to a patient. The cost to society, different again, may include a net of all the cost perspectives plus intangible and opportunity costs. Researchers sometimes mix perspectives and conclude a study with a cost determination that actually includes costs from more than one perspective.

- The patient perspective is the cost to the patient and includes fees, paid or owed, to (health care) providers for services rendered and premiums paid to third-party payers. Most patients do not pay interpreters for services directly; providers generally hire and pay interpreters.
- The payer perspective is the cost to the payer (most often the insurer, unless the patient is uninsured and/or able to pay for services out of pocket.) Insurers can be private insurance companies, self-insured corporations, or state and federal government insurance programs such as Medicaid and Medicare. The cost from the payer's perspective is the amount paid to the (health care) provider for claims

processed and services provided. The payer's cost is the provider's *net* revenue, which may or may not cover the provider's costs.

- The health care provider perspective reflects the costs incurred by the provider to provide services. The financial accounting cost to produce and deliver services is akin to the cost of goods sold in another sector of the economy. The provider costs include all the costs to produce a health care service, both direct and indirect. In addition, in order to calculate the full cost of a service, overhead and other institutional expenses should be allocated to the cost of the health care service. Specific types of costs are discussed below in the application of the framework to the case study.
- The societal perspective is an economic view of the total net costs to provide services and includes financial accounting costs as well as economic costs such as transfers between stakeholders (i.e., payers, providers, patients), and opportunity costs when there are more than one option for the use of resources.

Figure 1 illustrates the financial relationships between the payer, provider, and the patient. The net of cost and revenue for the three perspectives shown is the societal perspective.

Costs. Financial accounting costs are the actual total costs (direct, indirect, and overhead) tangible and incurred by an entity/provider to provide services. Financial accounting costs are reported in the provider's financial statements to stakeholders and reflect the results of operations. Direct costs to provide LIS are the costs directly associated with having interpreter services available and include the salaries and fringe benefits of the interpreters on staff, fees for contracting with external interpreters to provide services, and salaries and benefits of other key staff of the language services program. Other direct costs include the costs required to provide the LIS such as supplies, training costs, use of specific equipment such as speaker phones and video

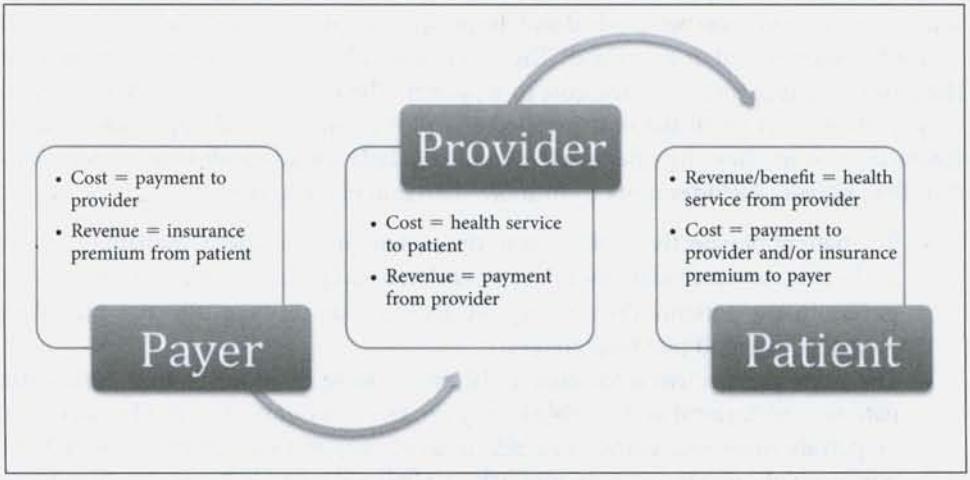

Figure 1.

conferencing equipment, computer workstations, fees paid for written translations and signing services, and other similar costs.

Indirect costs and overhead costs benefit more than one unit of service (indirect), or more than one service or cost center (overhead), and must be allocated across the volume of units or all the provider's cost centers. Indirect costs, generally incurred at the department level, are associated with providing services and include costs of department management salaries or shared department computers. Overhead costs, incurred at the organization or institutional level, benefit many cost centers and may include the cost of an information technology department and its infrastructure, the costs of a human resource department, or the costs of space, utilities, and other items that benefit all departments but may not be easily identified and traced to a service. Institutions generally have an overhead rate that can reasonably be used to estimate the overhead costs and can be applied to the total cost. Most hospitals also have a financial reporting system that includes a cost accounting system that allocates indirect and overhead costs to each output based on predetermined rates. A thorough review of the components and allocation rates should be conducted if relying on predetermined rates or internal costs accounting systems. To ensure that all individual financial accounting costs are captured, the general ledger, trial balance. or lists of accounts that are reported by the LIS cost center(s) should be reviewed. All costs that would be incurred if LIS were provided independently of the hospital or provider should be included in cost determination.

Opportunity costs are sometimes added to financial accounting costs when estimating the total economic cost of a service. Unlike financial accounting costs that are reported in financial records, opportunity costs require estimation and represent the forgone benefits of using resources for a different task. Providers using an interpreter during an outpatient visit may spend more time with a patient, which could reduce the volume of patients seen in a session and reduce the revenue that is billed. The reduction in revenue is the opportunity cost of using an interpreter. In health services research, provider opportunity costs may be characterized as time spent with patients, forgone opportunities to bill for services, use of resources for an investment that does not yield revenue in the current period, and other similar costs. If opportunity costs are identified and used in a cost analysis, it is best to disclose both the financial accounting cost and the opportunity cost each separately and from a common perspective. Opportunity costs of the payer or the patient would be assessed only if the analysis is from either of those perspectives. The current policy debate argues who should pay for, and how to pay for LIS provided to LEP patients by providers requiring the provider perspective be the primary perspective of the analysis

Another type of economic cost or savings often considered and modeled in analyses of health care interventions is the cost and/or savings that result from a change in the patient's subsequent utilization of services. However, there are many confounding factors that make it difficult to conclude definitively that changes in utilization of services are associated with the provision of LIS. The subjectivity inherent in these estimates and the need to control for confounding factors must be considered when using costs or savings associated with subsequent utilization to assess the cost of delivering a service. Researchers sometimes use a macro-cost technique or regression analysis that estimates

total costs per case as a function of a set of predictor variables. Most important to remember is that the cost or savings estimated must be valued from the same perspective of the original analysis. The length of time between an intervention or service and the subsequent utilization being measured should also be factored into an analysis.

Timing and unit of analysis. Both the unit and the timing of the analysis must be determined. The unit of analysis can be patient, case, procedure, or visit-based. Costs and savings are often discussed annually but also can be framed as a unit of analysis for a time period: annually, monthly or per minute. The length of time from receipt of LIS (intervention) to the subsequent utilization of services affects a cost analysis. The subsequent cost or savings that are calculated and attributed to an intervention should be disclosed separately from the total financial cost determination.

Application of conceptual framework to a case study. The Cambridge Health Alliance (CHA), an integrated public health system in Massachusetts with three hospitals and over 20 community-based primary care sites delivers care to a diverse and largely immigrant population. Approximately 32% speak a language other than English as their primary language and most of these patients are recent immigrants.[14] To support this diverse population, there is a Multilingual Services Department at CHA that provides over 13,000 monthly multilingual interpreter sessions, in more than 60 languages. It employs 40 staff interpreters and 120 *per-diem* employees with language capacity in 75 languages, and the department's administrative staff includes an administrative assistant, a dispatcher, and an educator who assist, monitor, educate, and assign all interpreter visits. Interpreters deliver face-to-face interpretation, telephonic interpretation (one-to-one and three-way interpretation), and, at some sites, videoconference interpretation. Cambridge Health Alliance provides training to standardize the delivery of LIS across the organization.

Cambridge Health Alliance patients identified as LEP through a preregistration process are asked if they need an interpreter and an interpreter request is added to the schedule. Nearly all (95%) interpreter visits are in one of seven languages (Portuguese, Spanish, Haitian Creole, Hindi, Bangalhi, Chinese, Russian) and the remaining 5% are provided through CHA's contractual arrangements with vendors of language services.

In order to examine the cost effectiveness of providing LIS to CHA's diabetic LEP patients receiving care in CHA's health clinics, the cost of providing these LIS had to first be determined. This framework was used to identify the incremental cost, or additional cost, to provide LIS to LEP patients in comparison with not providing LIS.

Perspective. The responsibility to provide LIS to LEP patients rests with CHA, the provider of health care services. As a result, the hospital's perspective is the perspective of this analysis. The analysis identified all LIS costs and allocated costs across the hospitals and health centers based on staffing and actual interpreter-assisted visits.

Costs. The financial accounting direct and indirect costs to provide LIS are incurred at the hospital level but were allocated to the health centers proportionally to the number of interpreters that provide services at the health center relative to all interpreters of the hospital system and by the volume of interpreter-assisted visits at the health center relative to all interpreter-assisted visits.

The financial accounting costs are reported in a series of interpreter-coded cost centers

in the financial accounting reporting system of the hospital organization. The majority of LIS program costs (Table 1) consists of the salaries and benefits of the interpreters and department staff including department managers, educators, schedulers/dispatchers, and administrative assistants. Salaries and benefits represent approximately 86% of all LIS direct costs and 69.5% of all LIS program costs. Other direct program costs include purchased services for face-to-face LIS (when demand exceeds staff capacity or language), phone interpreter services, written translation services, and sign language services. These additional program costs represent approximately 14% of the total direct program costs. Supplies and miscellaneous office expenses incurred directly by the multilingual services department are included in the other direct program costs. Institutional overhead at 24.7% is applied to direct program costs to estimate the total incremental costs associated with providing LIS. Application of this overhead rate accounts for infrastructure costs that benefit the Multilingual Services Department. Infrastructure costs include information technology systems that include use of telephone lines and vendor direct lines as well as data reporting and support of interpreter registry, human resources, facilities, space management, and minor equipment, and travel costs for the interpreters throughout the hospital system and health centers *via* the hospital system shuttle service.

Table 1.

ANNUAL INCREMENTAL HEALTH CENTER COSTS ASSOCIATED WITH INTERPRETER ASSISTED PRIMARY CARE VISITS

	Health Center: % of Total Cost	% of Direct Cost	% of Other Direct
Salary and benefits			
Interpreters on site	65.3		
Other staff[a]	4.2		
Total salaries and benefits	69.5	86	
Other direct costs			
Purchased services (face to face)	4.3		40
Phone and video services	3.6		34
Written translations	1.8		17
Other	1.0		9
Total other direct costs	10.7	14	100
Total direct costs	80.2	100	
Institution overhead rate[b] 24.7%	19.8		
Total costs	100		

[a]Staff includes dispatcher, scheduler, educator, administrative staff and management.
[b]Allocates institutional costs incurred for health center such as IT infrastructure, human resources, travel, depreciation, space and facilities among others.
Source: Authors' calculations.

In addition to the financial accounting costs to provide LIS, opportunity costs and subsequent utilization costs were also examined *via* discussion with providers and staff. It was agreed that there was a minimal net effect on the time and throughput of patients at the health center when an interpreter was present and as a result, opportunity costs were not formally estimated or proposed for inclusion as a supplement in the cost analysis. A patient who receives LIS is thought to have less subsequent avoidable utilization than a patient who does not have access to an interpreter. The immediate effect of using an interpreter however, is thought to initially increase utilization as a result of improved communication and compliance with advice and instructions. Studies have shown that patients receiving LIS have increased outpatient and preventive care visits, had more prescriptions filled, and had fewer return emergency department visits.[5,12,15] The costs and potential savings due to short and long-term changes in utilization were not examined in this case study. However, a macro-pricing model, or regression analysis, could predict the subsequent cost savings associated with receiving LIS and would include estimating disease burden and other risk factors as well as controlling for variables that may impact a patient's interaction with the health system. Due to the estimation involved, results from such a model should be considered with caution. A cost or cost-savings estimate that results from this process is not a financial accounting estimate but an additional piece of information to put forth in the policy debate.

Discussion

Although the conceptual framework was applied to a case study focused very narrowly on the interpreter-assisted diabetic patient visits in the health centers associated with a large urban public hospital network, the types of costs to be considered and included in a cost analysis of LIS are relatively standard and would be considered in any analysis of LIS costs. Identifying the perspective of the analysis and maintaining that perspective when considering opportunity and other costs in addition to the financial accounting costs is also imperative. This case study identifies the costs to provide LIS and as a resulti identifying the provider's accounting costs to provide LIS is key to a cost analysis as these costs are the ones that decision-makers will focus on The accounting costs reflect the actual expense incurred to provide services while opportunity costs and subsequent utilization costs may or may not be a result of the service but an effect of the service. Drilling down to a cost per visit from a total of all reported financial accounting costs is a more accurate and inclusive assessment of costs than independently identifying potential cost categories and building up a cost per visit. Including an allocation of costs to reflect the infrastructure that exists in the provider system that may not be directly traceable to a service should also be included in a cost analysis to ensure its accuracy. The cost per visit to provide LIS, if transparently calculated, can be used to guide reimbursement policy discussions and can also be used as a benchmark for providers who are considering how best to financially provide LIS. Although this case study uses the framework to identify the provider's costs, understanding the framework and most importantly the need to identify perspective allows costs to be identified for providers, payers, and society.

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Notes

1. Jacobs EA, Chen AH, Karliner LS, et al. The need for more research on language barriers in health care: a proposed research agenda. Milbank Q. 2006;84(1):111–33.
2. Flores G. The impact of medical interpreter services on the quality of health care: a systematic review. Med Care Res Rev. 2005 Jun;62(3):255–99.
3. Bagchi A, Youdelman M. Policy brief: state approaches to covering medical interpreter approaches in Medicaid and SCHIP programs. New Britain, CT: Connecticut Health Foundation, 2007.
4. Jacobs EA, Shepard DS, Suaya JA, et al. Overcoming language barriers in health care: costs and benefits of interpreter services. Am J Public Health. 2004 May; 94(5):866–9.
5. Bernstein J, Bernstein E, Dave A, et al. Trained medical interpreters in the emergency department: effects on services, subsequent charges, and follow-up. J Immigr Health. 2002 Oct;4(4):171–6.
6. Hampers LC, Cha S, Gutlass DJ, et al. Language barriers and resource utilization in a pediatric emergency department. Pediatrics. 1999 Jun;103(6 Pt 1):1253–6.
7. Jacobs E, Sadowski L, Rathouz PJ. The impact of an enhanced interpreter service intervention on hospital costs and patient satisfaction. J Gen Intern Med. 2007 Nov;22 Suppl 2:306–11.
8. Lipscomb J, Yabroff KR, Brown ML, et al. Health care costing: data, methods, current applications. Med Care. 2009 Jul;47(7 Suppl 1):S1–6.
9. Hoerger TJ. Using costs in cost-effectiveness models for chronic diseases. Med Care. 2009 Jul;47(7 Suppl 1):S21–7.
10. Neumann PJ. Costing and perspective in published cost-effectiveness analysis. Med Care. 2009 Jul;47(7 Suppl 1):S28–32.
11. Barnett PG. An improved set of standards for finding cost for cost-effectiveness analysis. Med Care. 2009;47(7 Suppl 1):S82–8.
12. Jacobs E, Lauderdale DS, Meltzer D, et. al. Impact of interpreter services on delivery of health care to limited-English-proficient patients. J Gen Intern Med. 2001 Jul;16(7): 468–74.
13. Hacker K, Choi SY, Friedman E, et al. Exploring the impact of language services on clinical outcomes for diabetic patients. Under review.
14. Cambridge Health Alliance. Multilingual Services Department report. Cambridge, MA: Cambridge Health Alliance, 2008.
15. Ku L, Flores G. Pay now or pay later: providing interpreter services in health care. Health Affairs. 2005;24(2):435–44.