

Appendix B-5

The Costs and Benefits of Overcoming Language Barriers in Health Care (Jacobs)

**THE COSTS AND BENEFITS OF OVERCOMING LANGUAGE
BARRIERS IN HEALTH CARE:
AN ANALYTICAL BRIEF**

By

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**ASSESSING THE IMPACT OF PHYSICIAN-PATIENT COMMUNICATION
BARRIERS ON HEALTH CARE COSTS AND QUALITY**

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We clinicians are better educated and more scientific than ever before, but we have a great failing: we sometimes do not communicate effectively with our patients or with their families [1].

The conversation between physician and patient has long been recognized to be of diagnostic import and therapeutic benefit. Unfortunately, many patients in the United States cannot benefit from this fundamental interaction because of language barriers. According to Census 2000 more than 46 million people in the United States do not speak English as their primary language and more than 21 million speak English less than “very well” [2]. Many of these residents do not receive needed health care or the standard of care because most health care organizations provide no or inadequate interpreter services [3-9]. Many health care providers do not provide adequate interpretation because of the financial burden of providing them [10, 11]. They do not take into account the cost of the consequences of not providing them or the potential benefits of improving communication with their patients. This is due in part to the paucity of data documenting the costs and benefits of interpreter services.

The purpose of this analytic report is to outline what is known about measuring the costs and benefits of providing these services and to provide a framework and agenda for pursuing needed research in this area. Many questions about the costs and benefits of these services remain unanswered most likely because conducting this type of research is not easy. An additional goal of this report is to summarize some of those difficulties and suggest approaches to overcoming them. Finally, while this research important, it has important limitations that may not “make the case” for providing these services. These limitations need to be taken into account when presenting this type of research.

A. What are Linguistically Appropriate Services?

A broad definition of linguistically appropriate services in the health care context is services that allow patients who do not speak English to access the health care system in a language that they do speak. This encompasses speaking with the clerk, physician, pharmacist, radiology technician etc, and being able to read insurance and health related materials in their language. The focus of this paper, however, is on linguistic appropriate services that allow patients and health care providers to communicate with one another, primarily bilingual physicians and interpreter services.

B. What Does the Literature Tell Us?

There have been 9 published research articles that have a stated goal of measuring the costs of providing or not providing linguistic appropriate services. The author is also aware of 2 additional articles that are under review for publication. Three of these 11 articles estimated or measured the cost of not providing these services [12-14]. Two measured the impact of providing interpreter services on the cost of care delivered [15, 16]. Four estimated or measured the costs of providing linguistic appropriate services [17-20]. Only one attempted to measure the balance of the costs and benefits of providing these services [21]. The final article described the estimated cost of enrolling persons with limited English proficiency (LEP) in research studies and will not be discussed in this review [22]. In addition there is large body of literature that indicates that there are many indirect and potential costs of not providing these services and that providing them has a positive impact on the health of patients and care delivery.

I. The Measured Cost of Not Providing Services

Of the 3 articles that have estimated or measured the cost of not providing these services, 2 have measured the opportunity costs using bilingual staff rather than dedicated interpreters to communicate with LEP patients [12, 14]. The goal of the first study was to document the interpreter utilization at a South African mental hospital over a two-month period. The investigators examined the types of interpreter used and the cost of those services and calculated the cost of lost staff productivity from fulfilling interpreting needs and found this cost to be twice the amount needed to employ staff interpreters [12]. The second study was conducted to determine the need for, existing practices, and the opportunity costs of interpreting in the outpatient clinics of a San Diego medical center. The author of this study estimated the opportunity cost, as measured by salary and time, of using a bilingual nurse to perform interpreting and contrasts this with the cost of hiring additional staff interpreters [14].

The final article in this group was conducted in Chicago to determine if language barriers between families and their physician are associated with differences in diagnostic testing and length of stay in a pediatric emergency department [13]. Encounters were classified as involving a language barrier (LB) if the family did not speak English and the physician did not speak the family's language. Interpreters were present in many of these encounters, but they were ad hoc interpreters, untrained bilingual staff, family, friends and sometimes even other patients in the waiting room. After controlling for measures of acuity and demographic characteristics, patients with a LB were significantly more likely to receive intravenous fluids and to be admitted to the hospital. The length of stay in the emergency room was also significantly longer by an average of 28 minutes. While there was not a difference in the number of diagnostic tests performed, patients with a LB had

significantly higher mean test charges (\$145 vs. \$104). The cost of the increased length of stay and use of IV fluids was not reported.

II. The Impact of Services on the Costs of Care

In a follow-up to the previous study, the investigators measured the relationship between the presence of a bilingual physician or professional interpreter on admission to the hospital, use of intravenous hydration, the length of stay and the incidence and costs of diagnostic testing [16]. They studied 4 groups of visits: 1) those conducted in English without a problem 2) those conducted in language other than English by the physician 3) those conducted in a language other than English through an interpreter and 4) those conducted in English without an interpreter (or only with a lay interpreter) even though the patient was not fluent in English. In multivariate analyses, non-English-speaking patients with bilingual physicians had similar rates of resource utilization and testing costs compared to those conducted in English. Encounters in which an interpreter was present showed no difference in test costs, were significantly less likely to have had tests ordered, more likely to be admitted to the hospital and had significantly longer visit times compared visits conducted in English. Patients seen when a barrier was present and a professional interpreter was unavailable had a significantly higher incidence and cost of testing and were most likely to be admitted to the hospital and to receive intravenous fluids. There was no difference in visit times. Again the cost of increased visit time, IV use and hospitalization were not measured nor were the potential cost savings of preventing utilization of these services.

A similar study was conducted at Boston Medical Center [15]. It measured the impact of language barriers and interpreter intervention on the intensity of Emergency

Department and 30 day follow-up utilization and charges. Only trained interpreters were used in this study. They found that patients who did not speak English and did not have the benefit of an interpreter had the shortest ED stay and fewest tests, IVs and medications, while English-speaking patients had the most ED services, longest stay (3 hours longer), and the most charges. Patients who did not speak English and had the benefit of an interpreter received more primary care and specialty clinic referrals after being seen in the emergency department than did non-English speaking patients without interpreters and English-speaking patients. They were also the more likely to follow-up clinic in clinic and less likely to return to the emergency department compared to non-English speaking patients without interpreters. Finally, non-English speaking patients without interpreters had the lowest mean total charges for a 30 day follow-up period (\$5303) compared to interpreted patients (\$7584) and English-speaking patients (\$8724). The costs and costs-savings of differences in ED utilization were not calculated in the study.

III. The Cost of Providing Services

Two of the 4 articles in this group described the cost and effects of providing Spanish language training to Emergency Department physicians [18, 19]. One article described a 3-hour a week, 15 week class provided to residents with the goal of allowing them to become proficient in routine patient interactions, to understand their limitations, and to be able to identify when an interpreter should be called [19]. Both the professor and students agreed that their proficiency improved. Students also reported no clinical errors resulted from incorrect interpretation, however there was no objective measure of communication errors. The cost of the course was reported to be \$1500 in 1988 dollars,

not including the cost of the physician time. The goal of the second study was to determine whether a course of instruction in medical Spanish for pediatric emergency department residents could increase patient satisfaction for Spanish-speaking-only families [18]. Nine residents completed the 10-week, 2-hour weekly medical Spanish course. After the intervention, families were significantly more likely to strongly agree that the doctor was concerned about their child, was respectful, listened to what they said, and made them feel comfortable. After the intervention, physicians were also significantly less likely to use a professional interpreter. The total cost of the course was \$2000, not including the cost of physician time. While the authors view the result of reduced interpreter use as allowing “a limited resource to be more efficiently allocated,” it is possible that care was compromised by physicians using limited Spanish language skills rather than utilizing a fluent interpreter.

A study by Kravitz and colleagues calculated the cost of caring for patients with the aid of an interpreter [17]. The primary goal of their study was to measure the effect of limited English proficiency on the duration of clinical visits in 3 adult primary care clinics serving English, Russian and Spanish speakers. Interpreters were used in each non-English speaking encounter and were a mix of ad hoc and professional interpreters. Non-English speaking patients required significantly more physician time, especially when a professional interpreter was used in the visit. The authors then went on to calculate the incremental physician costs to be between 15.5 and 25.5% higher for interpreted encounters based on the incremental time requirements. It should be noted, however, that in multivariate analyses the significant increase in time was limited to follow-up visits with resident physicians. This is in keeping with other research that has

shown that there is no difference physician visit time in a general medicine clinic when only encounters with experienced physicians were studied [23].

The final article in this group estimated what the cost would have been in fiscal year 2000 to the Massachusetts publicly funded MassHealth program of providing interpretation services for primary care users [20]. The authors estimated the number of persons in this program who required interpretation to be 261,000 and the cost of meeting that need to be \$32.15 per visit for a total of \$9.9 million a year. While this is large total amount, averaged over all MassHealth enrollees the cost was \$0.50 per enrollee per month and represented only 0.03% of \$3 billion that Medicaid spent for medical services in the same year. This is in keeping with the Federal Office of Management and Budget's recent estimation that the provision of linguistic access services to represent less than 0.5% of total health care costs.

IV. The Balance of the Cost and Benefits

Only one study to date has compared the costs and benefits of providing linguistic appropriate services [21]. It measured the impact of the implementation of adequate interpreter services on the cost and utilization of health care services among Spanish and Portuguese-speaking patients in a large Health Maintenance Organization (HMO). Clinical service use was measured before and after the implementation of interpreter services in two groups, the interpreter service group and an English speaking group. This second group served as a control for secular trends in health care utilization within the HMO. The investigators also calculated the cost of providing services during the study period. They found that patients in the interpreter services group received significantly more primary and preventive care at an average cost of \$279 per person per year in the

interpreter service group (\$234 for cost of providing the interpreter services plus \$45 for the increased cost of care). Averaged over the total number of HMO enrollees at the time of the study, the cost was \$2.40 per HMO member per year. However this cost is most likely an overestimate due to the fact that the cost per interpretation reported in this study (\$79/per encounter) was 2 to 5 times higher than that of most organizations with similar interpreter services (\$15-35/hour).

V. The Benefits of Providing Interpreter Services

While the objective in instituting interpreter services is to reduce language barriers to access to care and potentially improve care, there have been surprisingly few studies of their effectiveness. In addition to the research already reviewed there have been studies suggesting that communicating to patients in their own language improves patient-doctor communication, patient compliance and understanding of their disease [24, 25], patient self-reported well-being and functioning [26], access to primary care and preventive services [27], and that the quality of interpretation correlates with patient understanding and satisfaction with the encounter [6, 24].

VI. Potential Costs of Not Providing Services

In contrast to the research on the benefits of linguistic access services there are abundant data demonstrating that patients who cannot speak English well receive less than optimal health care. These studies have shown that people whose main spoken language is not English are less likely to be insured [28], receive preventive care [29, 30], to have a regular source of primary care [31, 32] or to receive timely eye, dental, and physical examinations [31]. Other studies have found patients have fewer physician visits [33] and are less likely to return for follow-up visits after being seen in the Emergency

Department when compared to patients with better English proficiency [34]. LEP patients are more likely to be admitted to the hospital [35], to receive insufficient anesthesia when admitted to the hospital [36, 37], and asthmatic children with LEP families are more likely to be intubated [38]. Patients whose primary language is not English may also be at increased risk of experiencing medical errors [39, 40]. They are also less satisfied with their health care which may make them less likely to return for follow-up or adhere to care. Latinos who speak Spanish have been shown to be less satisfied with their communication with health care providers [41, 42], the care they receive [42], and more likely to report overall problems with care than are English speakers [42].

These issues may be due to the fact that the person enlisted to help patients with limited English proficiency communicate with health care providers is often not a trained interpreter, but rather another patient, family member (including small children), friend, untrained non-clinical employee or non-fluent health care professional [7-9]. Use of these ad hoc services appears to have many negative clinical consequences including reduced trust in physicians [9], lower patient satisfaction [24], breach of patient confidentiality [43], inaccurate communication [44, 45], reduced quality of care [29], misdiagnosis [46] and inadequate or inaccurate treatment [47].

This lack of access to quality care has many potential direct and indirect costs for LEP patients (e.g. lost wages due to sick time), their health care providers (e.g. costlier care for diabetic complications), and society (e.g. lost productivity). Poor communication between provider and patient that result from language barriers may also contribute to costly medical errors. This is potentially fruitful line of inquiry that has been suggested by experts in the field [48], but little research has been done in this area. This

may be because much of the literature on medical errors has focussed on systems errors and errors in communication between members of a provider team, such as a nurse and physician, rather than those problems that arise in communication between doctor and patient.

This is a potentially fruitful area for cost-benefit research on linguistic access services because several other investigators have already developed methods for assigning costs to medical errors, including the costs of preventable hospitalizations, prolonged hospitalizations, and medical malpractice claims [49-53]. There have also been several articles that suggest methods for measuring medical errors in this context. Several qualitative research articles have analyzed the text of interpreted encounters and documented the ways in which inadequate interpretation can potentially lead to clinical consequences such as misdiagnosis and inadequate or inaccurate treatment [40, 44, 45]. However none of them have directly measured medical errors. One study has directly measured the link between language barriers and adverse drug reactions and found that patient-reported drug complications in the outpatient setting were significantly correlated failure to have side effects explained before treatment and a primary language other than English or Spanish [39]. Another study has explored the relationship between communication in English-only doctor-patient encounters and drug errors and found a pattern of increased error with decreased levels of communication [54].

C. What the Literature Doesn't Tell Us.

As evidenced by this review, there are a number of gaps in the literature measuring the costs and benefits of providing linguistically appropriate services. One of the largest holes is in the measurement of the benefits of providing services. There is abundant

evidence that not providing these services is detrimental to the care received by patients with LEP but few investigators have attempted to measure the positive impact of delivering linguistically accessible care. An easy solution to this problem would be to design investigations that would measure the impact of delivering linguistically accessible care on those areas that have been shown to be negatively impacted by language barriers, e.g. delivery of preventive services.

Another large gap in the literature is in measuring the direct and indirect costs of either not providing or providing linguistically appropriate services. These gaps are equally large and there is much room for conducting research in this area, especially in comparing the costs and benefits of providing these services. Surprisingly only one study has attempted to do so. In addition the investigations that have been done are limited in the costs that they measure which in turn potentially limits the impact of their findings. For example, they measure the test ordering cost-savings of providing adequate interpreter services, but not the potentially large savings of preventing hospitalizations. In addition most of the studies have been conducted in urban, academic medical centers. The costs and benefits of services probably vary widely depending on the size and geographical location of a health care delivery site.

There are also several design problems that occur frequently in investigations in this area and limit the conclusions that can be drawn from study findings. The first is that the investigators are not clear about what they are studying. Investigators often study a mix of ad hoc interpreters and trained interpreters, not one or the other. In some cases the type of interpreters used are not defined in the paper at all. This makes it hard to interpret the results. For example a study involving a mix of different types of interpretation may

have a limited positive impact on care, leaving the reader to wonder if the impact would have been the same or greater if only trained interpreters were used. Investigators also often do not clearly define how they determined whether or not a language barrier was present in an encounter or if a patient had limited English proficiency. This can also impact a study's results. For example, studying the impact of a linguistic access intervention on a group of patients that is not truly limited English proficient could lead an investigator to draw the incorrect conclusion that an effective intervention has little impact on language barriers. Finally many of these studies are conducted with small sample sizes, limiting the likelihood that a study will have significant findings, and over a short period of time. Most studies focus on short-term outcomes, not the often costlier long-term outcomes. This latter problem could be addressed if health care organizations and large survey, federal and other longitudinal research databases collected information about language proficiency and access to linguistically appropriate services.

D. Final Thoughts

While many advocates, health care providers and administrators are pleading for more research on the costs and benefits of providing linguistically appropriate services, it is important to raise the question, "Why?" A medical error, as defined by the Chief Medical Officer for England, is "an actual or potential serious lapse in the standard of care provided to a patient, or harm caused to a patient through the performance of a health service or health care professional [55]." Given that communication is fundamental to the provision of medical care, is it not a "serious lapse in the standard of care provided to a patient" to not communicate with a patient in a language that they can understand or through an interpreter with the skills to help them understand? Do we also

need to prove that this lapse in the standard of care is costly or that the costs of providing linguistically appropriate services are outweighed by the benefits they provide? What happens, as in the paper by Jacobs and colleagues, when the provision of adequate linguistic services is shown to increase the cost of care delivered to patients with LEP without saving money? Does this mean that they should not be provided?

These are important questions that need to be considered when conducting and interpreting this type of research. All medical care costs money, the question is if the money is well spent. Research alone may not answer this question and it may provide misleading answers. The difficulty in measuring the impact of providing linguistically appropriate services is that they potentially impact a broad spectrum of care. Investigators usually choose to measure one aspect of care, for example test ordering, which provides a very limited view of the benefits of providing these services and consequently may not demonstrate the value of linguistically appropriate care. Future researchers in this area need to design their research to investigate a broad spectrum of potential benefits and interpret their findings carefully. Not demonstrating cost-effectiveness does not mean that these services are not important to delivering quality, equitable care to patients with limited English Proficiency.

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