

### III. CATEGORY B: LANGUAGE ASSISTANCE

## Language Barriers, Bilingual Services and Oral Interpretation, and Translated Written Materials

A large literature documents the negative impact of language barriers and positive effects of interpreter services on patient comprehension, satisfaction, service utilization.

### Descriptive

Several studies described gathering data to plan for interpreter services programs (Hornberger, Itakura, and Wilson, 1997; Leman, 1997; Meyers, 1992; Roger, Code, and Sheard, 2000), described the programs themselves (Eytan, Bischoff, and Loutan, 1999), or described the status of interpreter services generally (James, 1998; Woloshin et al., 1995).

### Patient Comprehension

Spanish-speaking patients tended to have poorer comprehension than English speakers. Crane (1997) found that Spanish-speaking patients had poorer understanding of diagnoses and prescribed medication than English-speaking ones. David and Rhee (1998) found that Spanish speakers reported that side effects of medication were not explained, which was correlated with lower adherence rates.

Baker and colleagues (1996) demonstrated that not having an interpreter when one was needed has an effect on a patient's perceived understanding of diagnosis and treatment. Those who needed an interpreter and had one provided rated their understanding of treatment and diagnosis slightly lower than those who did not need an interpreter, but much higher than those who needed an interpreter and did not receive one. It is important to note that responses in the Baker study were affected by the fact that few of the interpreters used had any formal training in interpretation.

Cooke and colleagues (2000) described the difficulty of using basic medical terms such as "unconscious" with both English and non-English-speaking populations. They pointed out that ethnicity and primary language have an impact on understanding such terms that may affect clinical diagnosis.

### Patient Satisfaction/Perceptions of Care

Of the studies comparing satisfaction between English-speaking patients and non-English speaking patients, language barriers consistently have a negative impact on patient satisfaction with health-care encounters. Carrasquillo and colleagues (1999) noted that non-English-speaking patients who visit the emergency (ED) reported more overall problems with care, communication, and testing. Kirkman-Liff and Mondragon (1991) found that language of interview had a significant impact on satisfaction for Hispanic children, although not for adults. Morales and Cunningham (1999) found that Latino Spanish-speaking patients were significantly more dissatisfied with provider communication than Latino English-speaking and white patients. Hu and Covell (1986) found that patients whose primary language was English were more satisfied with care than Spanish-speaking patients. Baker, Hayes, and Fortier (1998) found that patients who needed and did not receive interpreter services were less satisfied with the patient-provider relationship.

Xuo and Fagan (1999) examined varying levels of satisfaction of medical residents and Spanish-speaking patients with various methods of interpretation, and found that both patients and residents were happiest with professional interpreters; patients were more satisfied than residents using family members and friends,

although both groups agreed that accuracy, accessibility and confidentiality were important characteristics of professional interpreters.

### **Utilization of Health Services and Costs**

Several researchers looked at the impact of language barriers on utilization of services. In general, they found that when language barriers existed, patients received fewer services. Woloshin and colleagues (1997) found that French-speaking women in Canada received fewer preventive health services. Derosé and Baker (2000) found that Latinos with fair-to-poor English had fewer physician visits, although the likelihood of having a visit was unrelated to English proficiency. In contrast, Hu and Covell (1986) found that use of health services correlated to a higher degree of English proficiency. Schur and Albers (1996) found that Spanish-speakers were less likely than English-speaking Hispanics to have a usual source of care. Carrasquillo and colleagues (1999) found that non-English speaking patients were significantly less likely to return to the same emergency department (ED), although Enguidanos and Rosen (1997) found language not to have an effect on keeping ED follow-up appointments.

Researchers have also studied the impact of interpreter use on utilization of services, with reviews of the literature suggesting that interpreters increase access (Dias and O'Neill, 1998). In two studies led by Jacobs (Jacobs, Lauderdale, and Meltzer, 2001; Jacobs et al., 2001), and in Lee and Pope's study (2001), researchers found that the introduction of interpreters led to greater usage of preventive and primary care services. Bernstein and colleagues (2000) found that patients without interpreters who needed one received fewer services than those with an interpreter or those who did not need one. Lee and Rosenberg (1998) found that the risk of admission from the ED was greater for those without interpreters and decreased for those who had one. Sarver and Baker (2000) found patients with language barriers were less likely to receive follow-up appointments from the ED than English speakers, regardless of whether or not an interpreter was present.

Tocher and Larson (1999), Kravitz and colleagues (2000), Drennan (1996), and Hampers and associates (Hampers and McNulty, 2002; Hampers and colleagues 1999) looked at the impact of interpreter use on clinical processes, which has implications on cost. Tocher and Larson (1999) found that having an interpreter did not increase the length of the visit, while Kravitz and colleagues found the exact opposite. Drennan calculated the opportunity costs of using nursing and cleaning staff as interpreters, and found the financial costs small but the impact on working conditions and patient care considerable. Drennan also found that interviews involving a professional interpreter were longer than those utilizing ad hoc interpreters.

Two studies by Hampers found that more diagnostic tests were used on patients with language barriers who did not have an interpreter than English-speaking patients, resulting in higher charges. When interpreter services were provided to patients with language barriers, they were no more likely to under diagnostic tests, resulting in a 15 percent reduction in mean costs for diagnostic testing. However, these patients had longer stays in the ED than English-speaking patients. In contrast, Bernstein and colleagues (2000) found that patients who do not receive interpreter services received fewer tests and had shorter ED stays than patients who received interpreter services or spoke English.

### **Health Outcomes**

One study examined the effect of providing professional interpreters to non-English-speaking patients with Type 2 diabetes. Although the literature would predict worse outcomes for non-English-speaking patients as compared to English-speaking patients, Tocher and Larson (1998) found that outcomes for non-English-speaking patients, including standardized glycohemoglobin and other laboratory results as well as complication rates, were as good or better as outcomes for English-speaking patients.

## **Patient-Provider Communication**

Rivadeneira and colleagues (2000) found that Spanish-speaking patients using an interpreter made fewer comments to providers in medical encounters, and the ones that did comment were more likely to be ignored by providers than English-speaking patients.

Erzinger (1991), using ethnographic and conversational analysis methods to investigate the impact of family practice residents with a range of Spanish-language skills, found that conversational style (active listener v. persistent explainer or abrupt interrupter) had as much impact on the communication as did Spanish language proficiency.

Wardin (1996) found that compared to English-speaking patients, providers understood the needs of limited-English-proficiency clients less well, and that better understanding of needs was associated with higher levels of English proficiency.

## **Quality of Interpretation**

Flores and colleagues' study (2003) showed errors in medical interpretation are common, and those committed by ad hoc interpreters are significantly more likely to have potential clinical consequences than those committed by hospital interpreters. Xuo and Fagan's study (1999) comparing the use of professional and family interpreters has implications for quality based on perceived satisfaction, but is limited by the caveats mentioned regarding the relationship between satisfaction and quality. Marcos' analysis (1979) of interpreter-mediated psychiatric interviews suggested that clinically relevant interpreter-related distortions could lead to inaccurate evaluations of a patient's mental status, but noted that pre- and post-interview meetings of clinicians and interpreters can minimize these distortions. Although few studies compared the impact of using different modes of interpretation, Hornberger and colleagues (1996) documented improvements in the number of physician-patient utterances, quality of interpretation and satisfaction when remote-simultaneous interpretation is used compared to proximate (on-site) consecutive interpretation.

## **Bilingual Providers**

Two studies examined the impact of bilingual providers on mental health treatment rates. Manson (1988) found that Spanish-speaking patients who saw Spanish-speaking physicians were less likely to omit medication, less likely to miss office appointment, and were slightly less likely to make an emergency room visit than Spanish-speaking patients who saw English-speaking physicians. Flaskerud and Liu (1991), found that while client-therapist language match significantly increased the number of client sessions with the primary therapist, it did not effect on dropout rate or improve health status. A third study (Hampers and McNulty, 2002) found that emergency department resource utilization for Spanish-speaking patients treated by bilingual physicians was the same as for English-speaking patients. Other Spanish-speaking patients who did not receive interpreter services had higher resource utilization, while other Spanish-speaking patients who did receive interpreter services had comparable resource utilization except they had longer stays in the emergency room.

## **Second-Language Acquisition by Providers**

Both Binder and colleagues (1988) and Mazor and colleagues (2002) found that physicians receiving Spanish language instruction made gains in their ability to communicate with patients. Mazor found that physicians were more likely to obtain key elements of the patient's history without the use of an interpreter in mock scenarios; that they were less likely to use interpreters; and families felt that physicians were concerned about their children, made them feel comfortable, were respectful, and listened to what they said.

## Translation

*Note: A formal literature search for was not undertaken for this topic.*

Jackson and colleagues's study (1997) of Khmer words for liver disease suggest the difficulty and complexity of attempting to render Western medical concepts into other languages and cultural contexts. Twinn (1997) examined the influence of translation on the reliability and validity of qualitative research involving Cantonese-speaking subjects. Analysis of English transcripts produced by two different translators and one Chinese transcript produced no significant differences in major categories generated, but minor differences were identified in the themes.

## Research Considerations

Because there is no universal definition of interpreter qualifications at this time, simply applying the term interpreter to anyone who provides interpretation services can be a confounding variable on the impact of other outcomes being studied. Professional interpreters are in the process of developing training and certification standards for medical interpreters. However, their work is experientially and not research based. Significantly more research needs to be done on comparing the quality and effect of using different modes of interpretation, and the effect of different methods and levels of intensity of interpreter training. Work is especially needed on quality with respect to the multidimensional communication process involved in mental health encounters.

To further research in this area, reliable and valid tools for measuring satisfaction for non-English speakers are necessary. Hayes and Baker (1998) found that the Spanish translation of a satisfaction instrument performed more poorly than the English version. In conducting research on the effect of language assistance on satisfaction, questions involving whether patient satisfaction is a valid indicator of quality will emerge. Most non-English speakers, as well as clinicians, are unable to discern whether important medical information is being accurately communicated to or from the provider when nonprofessional interpreters are used. The consequences of inaccuracy in interpretation are more severe than a lower level of satisfaction. The inability of providers and patients to determine the accuracy and adequacy of communication also has implications for evaluating the success of second-language acquisition as a strategy to serve LEP individuals. Research questions that arise from the literature include:

- What is the relationship between satisfaction and the use of trained, professional interpreters vs. untrained staff or family member interpreters?
- Does satisfaction increase when patients are provided with a pre-encounter explanation of the professional interpreter's training, method of interpreting, and ethical standards, and/or when interpreters physically place themselves in the encounter in such a way that providers and patients can look at each other directly during the encounter?
- Do some institutions behave in a more cautious manner when language barriers are present, ordering more tests and admissions to compensate for not being able to communicate adequately?
- Do other institutions behave in a more dismissive manner, assuming that patients will return if the problem gets worse, or won't bother to sue if adequate care is not rendered?
- What length and intensity of training is necessary to produce second-language-speaking clinicians who use that language to establish rapport vs. being able to conduct complicated medical encounters?
- Does translated signage improve patient movement through health care facilities?

- Do translated written pre-op instructions lead to fewer reschedulings for procedures because of inappropriate patient preparation?
- Does translated prescription information/instructions lead to fewer patient medication errors/better compliance?
- Are verbal (interpreted) instructions more effective than translated written materials for certain patient groups (by age, ethnicity, or education)?
- Do verbatim translated consent forms vs. summarized consent forms lead to different choices about undertaking high risk procedures?
- Do translated health insurance member materials lead to more appropriate patient utilization of services (i.e., fewer emergency room visits for non-urgent conditions)?

Descriptive			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Eytan A, Bischoff A, Loutan L (1999)	To describe the employment of interpreters in psychiatric services in Switzerland	<ul style="list-style-type: none"> <li>◆ 94% acknowledged difficulties in communicating with patients who did not speak or spoke poorly the local language.</li> <li>◆ 6.5% never used interpreters, 40% used interpreters rarely, and 50% used interpreters often.</li> <li>◆ 85% used health care staff and/or patients' relatives or friends as interpreters.</li> <li>◆ 72% used non-medical staff as interpreters, 49% used outside volunteers, and 59% used trained and paid interpreters.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Psychiatric hospitals and psychiatric services in Switzerland</p>
Hornberger J, Itakura H, Wilson SR (1997)	To determine the kinds of methods employed by physicians to bridge language and cultural barriers with patients, and the physician's perceptions of the availability and quality of these methods.	<p>Physicians reported:</p> <ul style="list-style-type: none"> <li>◆ 21% of visits were with non-English speaking patients.</li> <li>◆ In less than 6% of these encounters trained medical interpreters or the ATT were used.</li> <li>◆ No interpreters were used 11% of the time.</li> <li>◆ In 27% of the encounters, the physician could speak the patient's language.</li> <li>◆ 20% of the interpretation was performed by staff members.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Primary care physicians</p>
James CE (1998)	To explore the challenges for social service agencies currently offering language assistance services to meet the needs of all their limited English proficient clients.	<ul style="list-style-type: none"> <li>◆ Examines the ethical and problematic issues faced by institutions that provide interpreter services, particularly when limited English proficiency and cultural differences are viewed as systematic problems or barriers. Institutionalizing change is suggested.</li> </ul>	<p>Descriptive</p> <p><u>Target Population:</u> Social service agencies</p>
Leman P (1997)	To determine the extent of communication problems that arose from emergency department (ED) patients whose primary language was not English.	<ul style="list-style-type: none"> <li>◆ 17% of patients did not speak English as primary language.</li> <li>◆ 9.1% had an English ability rated as other than "good."</li> <li>◆ 29% of consultations could have improved by the use of interpreters.</li> <li>◆ 4.6% used an interpreter, usually a family member.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Adult emergency department patients</p>

Descriptive			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Meyers C (1992)	To determine the impact of families' cultural beliefs as they affect the design of assessment procedures and practices, to include the most effective way of utilizing interpreter services.	<ul style="list-style-type: none"> <li>Use of interpreters in a most setting was the most beneficial means of assessing the special needs of children in the Hmong population. interpreters.</li> </ul>	Observational assessment  <u>Study Participants:</u> Hmong families who had children with development disabilities
Roger P, Code C, Sheard C (2000)	To look at the assessment and treatment practices adopted by speech-language pathologists when working with individuals with aphasia from non-English speaking backgrounds.	Areas of concern: <ul style="list-style-type: none"> <li>Need for a range of appropriate assessment and treatment materials;</li> <li>Need for improvement between speech pathologist and interpreter collaboration;</li> <li>Need for professional skills development and education particularly when working with patients from diverse language and cultural backgrounds.</li> </ul>	Survey  <u>Study Participants:</u> Speech language pathologists
Woloshin S, Bickell NA, Schwartz L, Gany F, Welch H (1995)	To examine barriers to health care and the state of laws regarding serving patients with limited English proficiency (LEP).	<ul style="list-style-type: none"> <li>Reviews the status of interpreter services in the U.S. health care system in 1995, the clinical impact of inadequate interpretation, and the legislative responses to the language needs of LEP patients.</li> </ul>	Descriptive  <u>Target Population:</u> LEP patients
Patient Comprehension			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Baker DW, Parker RM, Williams MV, Coates WC, Pitkin K (1996)	To determine the frequency of interpreter use for Spanish-speaking patients, patient's perceived need for an interpreter, and the impact of interpreter use on patient's knowledge of their diagnosis and treatment.	<ul style="list-style-type: none"> <li>For Spanish-speaking patients: 26% utilized an interpreter; 52% felt they did not need an interpreter; 22% needed an interpreter but did not have one provided.</li> <li>Patients who said an interpreter was not necessary rated their understanding of their disease as good to excellent 67% of the time, compared with 57% of those who used an interpreter and 38% of those who thought an interpreter should have been used.</li> <li>For understanding of treatment, the figures were 86%, 82%, and 58%, respectively.</li> <li>Objective measures of knowledge indicated very small differences between groups, generally not statistically significant.</li> </ul>	Survey  <u>Study Participants:</u> Spanish-speaking patients

<b>Patient Comprehension</b>			
<b>Author(s)</b>	<b>Research Question(s)</b>	<b>Findings</b>	<b>Study Design/Methodology</b>
Crane JA (1997)	To assess Spanish-speakers' understanding of diagnoses, prescribed medication, and additional instructions.	<ul style="list-style-type: none"> <li>◆ When compared to English-speaking group, Spanish-speakers scored significantly lower on all questions.</li> <li>◆ Physicians identified as the source of most information.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> English- and Spanish-speaking patients</p>
David RA, Rhee M (1998)	To determine the impact of language barriers on effective health care.	<ul style="list-style-type: none"> <li>◆ Both patients who reported using an interpreter or having poor English skills, and patients who reported not using an interpreter and having good English skills, responded that they had enough time to communicate with their doctors.</li> </ul> <p>Language barriers were negatively correlated with:</p> <ul style="list-style-type: none"> <li>◆ Patient satisfaction.</li> <li>◆ Side effects being explained.</li> <li>◆ Fewer preventive tests</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Hispanic patients at ambulatory site of a teaching hospital</p>
<b>Patient Satisfaction/Perceptions of Care</b>			
<b>Author(s)</b>	<b>Research Question(s)</b>	<b>Findings</b>	<b>Study Design/Methodology</b>
Baker DW, Hayes R, Fortier JP (1998)	To evaluate the effect of interpreting practices on Spanish-speaking patients' satisfaction with the patient- provider relationship.	<ul style="list-style-type: none"> <li>◆ Compared to patients who did not need interpreter services, patients who needed and got interpreter services rated their provider less friendly, less respectful, less concerned and less likely to make the patient comfortable.</li> <li>◆ Patients who needed and did not get interpreter services had the lowest satisfaction ratings.</li> <li>◆ Compared to patients who needed and got interpreter services, those who needed but did not get interpreter services were less satisfied.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Spanish-speaking patients</p>
Carrasquillo O, Orav EJ, Brennan TA, Burstin HR (1999)	To examine non-English speaking patient satisfaction and willingness to return to an emergency department (ED).	<p>When compared to English-speaking patients, non-English-speaking patients were significantly:</p> <ul style="list-style-type: none"> <li>◆ Less likely to return to same ED.</li> <li>◆ Less likely to be satisfied.</li> <li>◆ More likely to report overall problems with care, communication and testing.</li> </ul>	<p>Survey and follow-up interviews</p> <p><u>Study Participants:</u> English- and non-English speaking patients</p>

Patient Satisfaction/Perceptions of Care			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Hu DJ, Covell RM (1986)	To determine health care usage as a function of primary language.	<ul style="list-style-type: none"> <li>◆ Use of health services correlated to higher degree of English proficiency.</li> <li>◆ Individuals whose primary language was English were more satisfied with care and had a more positive view of health status.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Spanish-speaking only patients, bilingual patients, and patients whose primary language was English</p>
Kirkman-Liff B, Mondragon D (1991)	To determine the association between language of interview, and satisfaction, utilization and outcomes.	<ul style="list-style-type: none"> <li>◆ Language of interview was a more significant variable for Hispanic children than ethnicity in determining health status, access, satisfaction with care, and barriers to care.</li> <li>◆ Neither language of interview nor ethnicity was a significant variable for Hispanic adults.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Hispanic adults and children</p>
Morales LS, Cunningham, WE (1999)	To examine the association of patient ratings of provider communication with patient language and ethnicity.	<ul style="list-style-type: none"> <li>◆ Latinos responding in Spanish were significantly more dissatisfied compared with Latinos responding in English, or whites responding in English when asked whether medical staff listened to what they say, answered their questions explanations about prescribed medications, explanations about medical procedures and test results, and reassurances and support from their doctors and office staff.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Patients receiving medical care</p>
Xuo D, Fagan MJ (1999)	To describe the utilization of various methods of language interpretation by Spanish-speaking patients and to determine patients' and physicians' satisfaction with these methods.	<ul style="list-style-type: none"> <li>◆ Patients and providers had the highest satisfaction with professional interpreters.</li> <li>◆ Patients were significantly more satisfied than physicians when using family members/friends as interpreters.</li> <li>◆ Patients and providers agreed that accuracy, accessibility, and respect for confidentiality were highly important characteristics of interpreters.</li> <li>◆ Patients were more concerned than providers about the ability of the interpreter to assist them after the visit.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Medical residents and Spanish-speaking patients</p>

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Bernstein J, Bernstein E, Dave A, Hardt E, James T, Linden J, Mitchell P, Oishi T, Safi C (2000)	To determine the effect of trained interpreters on emergency department (ED) services and subsequent hospital/clinic visits and charges.	<p>Compared to English-speaking patients and patients who received interpreter services, patients who did not receive interpreter services:</p> <ul style="list-style-type: none"> <li>◆ Stayed in ED the shortest time.</li> <li>◆ Received the fewest tests and prescriptions.</li> <li>◆ Had more frequent returns to ED and lower subsequent clinic utilization.</li> </ul> <p>Patients who received interpreter services had the lowest return visit ED charges and total 30-day charges.</p>	<p>Analysis of medical records</p> <p><u>Study Participants:</u> Emergency Department patients</p>
Carrasquillo O, Orav EJ, Brennan TA, Burstin HR (1999)	To examine non-English speaking patient satisfaction and willingness to return to an emergency department (ED).	<p>When compared to English-speaking patients, non-English-speaking patients were significantly:</p> <ul style="list-style-type: none"> <li>◆ Less likely to return to same ED.</li> <li>◆ Less likely to be satisfied.</li> <li>◆ More likely to report overall problems with care, communication and testing.</li> </ul>	<p>Survey and follow-up interviews</p> <p><u>Study Participants:</u> English- and non-English speaking patients</p>
Cooke MW, Wilson S, Cox P, Roalfe A (2000)	To determine the general public's understanding of the term "unconscious."	<ul style="list-style-type: none"> <li>◆ Understanding of the term "unconscious" is poor and worse in those for whom English is not a first language.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Adults who could speak sufficient English to give a history to a nurse</p>
Derose KP, Baker DW (2000)	To determine the effect of limited English proficiency on Latinos' use of physician services.	<ul style="list-style-type: none"> <li>◆ Likelihood of a physician visit was not related to English proficiency.</li> <li>◆ Latinos with fair and poor English proficiency reported 22% fewer physician visits than non-Latinos whose native language was English.</li> <li>◆ The magnitude of the association between limited English proficiency and having poor health, no health insurance, or no regular source of care was similar to that for number of physician visits.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Spanish-speaking Latinos and English speakers of various ethnicities</p>

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Dias MR, O'Neill EO (1998)	To determine whether skilled interpreters help in overcoming language barriers.	<ul style="list-style-type: none"> <li>♦ High correlation between patient access and the availability of interpreters.</li> <li>♦ Providers perceived their efficacy in providing care improved significantly with the use of interpreters.</li> </ul>	Literature review
Drennan G (1996)	To determine the number of patients requiring an interpreter, availability of interpreter services and interview duration.	<ul style="list-style-type: none"> <li>♦ Interpreter services were available immediately in 69% of cases.</li> <li>♦ Nursing staff provided 67% of the interpretation.</li> <li>♦ Cleaning staff provided 10% of the interpretation.</li> <li>♦ 93.5 documented hours of interpreting.</li> <li>♦ Professional interpreter had longer interviews on average than ad hoc interpreters.</li> </ul>	Survey  <u>Study Participants:</u> Patients presenting to a South African mental hospital emergency psychiatric service
Enguidanos ER, Rosen P (1997)	To determine if language is associated with emergency department (ED) visit follow-up compliance.	<ul style="list-style-type: none"> <li>♦ Language was not found to be a significant variable influencing follow-up compliance.</li> <li>♦ Having a primary medical doctor and medical insurance were significantly correlated with follow-up compliance.</li> </ul>	Survey  <u>Study Participants:</u> English- and Spanish- speaking patients
Hampers LC, Cha S, Gutglass D, Binns H, Krug S (1999)	To determine if a language barrier (LB) between families and emergency department (ED) physicians was associated with a difference in diagnostic testing and length of ED stay.	In cases in which a LB existed: <ul style="list-style-type: none"> <li>♦ Charges were significantly higher.</li> <li>♦ ED visit times were significantly longer.</li> </ul>	Analysis of program data  <u>Study Participants:</u> Patients presenting to a pediatric emergency department.

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Hampers LC, McNulty JE (2002)	To determine the impact of professional interpreters on emergency department (ED) resource utilization.	<p>Compared to the English-speaking group, language barrier group (LB) without an interpreter:</p> <ul style="list-style-type: none"> <li>◆ Had higher mean costs;</li> <li>◆ More likely to have a tests performed;</li> <li>◆ More likely to be admitted;</li> <li>◆ More likely to receive IV fluids;</li> <li>◆ Had comparable ED lengths of stay.</li> </ul> <p>Compared to the English-speaking group, LB group with an interpreter:</p> <ul style="list-style-type: none"> <li>◆ Showed no difference in costs for tests.</li> <li>◆ Were less likely to be tested.</li> <li>◆ No more likely to be admitted.</li> <li>◆ No more likely to receive IV fluids.</li> <li>◆ Had significantly longer lengths of ED stay.</li> <li>◆ Compared with the English-speaking group, non-English-speaking patients with bilingual physicians had similar rates of resource utilization.</li> <li>◆ A comparison of both LB groups demonstrated that the presence of an interpreter was associated with a 15% reduction in means costs for diagnostic testing.</li> </ul>	<p>Analysis of program data with comparison group</p> <p><u>Study Participants:</u> Families of ED patients age 2 months to 10 years of age</p>
Hu DJ, Covell RMM (1986)	To determine health care usage as a function of primary language.	<ul style="list-style-type: none"> <li>◆ Use of health services correlated to higher degree of English proficiency.</li> <li>◆ Individuals whose primary language was English were more satisfied with care and had a more positive view of health status.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Spanish-speaking only patients, bilingual patients, and patients whose primary language was English</p>

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Jacobs EA, Lauderdale DS, Meltzer D, Shorey JM, Levinson W, Thisted RA (2001)	To determine whether professional interpreter services increase the delivery of health care to limited-English-proficient patients.	<p>Enrollees who used a new interpreter services program were compared to those who did not.</p> <ul style="list-style-type: none"> <li>◆ Clinical and preventive service use, office visits, prescriptions written, and prescriptions filled increased significantly in the interpreter services group.</li> <li>◆ Rectal examinations increased significantly more in the interpreter services group.</li> <li>◆ Disparities in rates of fecal occult blood testing, rectal exams, and flu immunization between groups were significantly reduced.</li> </ul>	<p>Pre-/post-review of medical records, with comparison group</p> <p><u>Study Participants:</u> Enrollees at an HMO</p>
Jacobs EA, Suaya J, Stone EL, Shepard DS (2001)	To assess the impact of an interpreter service program on the utilization and cost of health care services at a staff model HMO.	<p>Patients who used a new interpreter services program were compared to those who did not.</p> <ul style="list-style-type: none"> <li>◆ Utilization of primary health care increased significantly in both groups after implementation of interpreter services (utilization of office visits, prescriptions filled and prescriptions written).</li> <li>◆ Utilization of hospital-based services remained the same, except for a reduction in emergency department (ED) use by the interpreter services group.</li> <li>◆ The change in rate of ED use was not significant when compared to the comparison group.</li> <li>◆ The net cost of providing interpreter services in 1997 prices was \$79/per interpretation x 2.95 visits per person/ per year.</li> <li>◆ The net induced cost of increased care delivered to the interpreter services group was \$22.00 greater than the comparison group.</li> <li>◆ The overall cost impact was an increase of \$256.00 per person per year in the interpreter services group, or \$2.41 per HMO member year.</li> </ul>	<p>Analysis of program data, with comparison group</p> <p><u>Study Participants:</u> Ambulatory patients at an HMO</p>

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Kravitz RL, Helms LJ, Azari R, Antonius D, Melnikow J (2000)	To estimate the effects of limited English proficiency on physician time and resource use.	<p>Compared with English-speaking patients:</p> <ul style="list-style-type: none"> <li>◆ After multivariate adjustment, Spanish and Russian speakers averaged 9.1 and 5.6 additional minutes of physician time.</li> <li>◆ Russian speakers had more referrals.</li> <li>◆ Spanish speakers were less likely to follow-up with recommended laboratory studies.</li> </ul>	<p>Analysis of medical records and observation data and surveys</p> <p><u>Study Participants:</u> English-, Spanish-, and Russian-speaking Medicaid patients at general medicine and family practice clinics</p>
Lee ED, Rosenberg CR (1998)	To determine whether a difference in the preferred language of communication was associated with greater probability of admission to the hospital.	<p>Comparison of patients whose preferred language was different from that of their primary ED physician, (language disparate) with those whose preferred language was the same (language matched).</p> <ul style="list-style-type: none"> <li>◆ Disparate language adults were 70% more likely to be admitted to the hospital compared with matched language adults.</li> <li>◆ Risk of adult admission was decreased in the presence of an ad hoc interpreter (e.g. family, emergency medical technicians, hospital staff).</li> <li>◆ No differences were found in the pediatric group.</li> </ul>	<p>Survey of convenience sample</p> <p><u>Study Participants:</u> Adult and pediatric emergency department patients and their physicians</p>

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Lee SM, Pope CR (2001)	To determine the effects of interpreter services on utilization of health care by limited-English-proficient (LEP) patients.	<p>Compared to before implementation of interpreter services, LEP enrollees after implementation experienced:</p> <ul style="list-style-type: none"> <li>◆ Significant increase in use of health care for all groups, as measured by mean health visits before and after.</li> <li>◆ Larger significant increased health care use by the elderly, poor, and LEP patients with lower-than-average health care use prior to interpreter services.</li> <li>◆ Significant increase in cancellations of appointments.</li> <li>◆ Contrary to hypothesis, significant increases in use of emergency and urgent care facilities were also observed.</li> <li>◆ Significant decrease in the number of "other" complaint codes.</li> <li>◆ Contrary to hypothesis, significant increase in length of stay in emergency facilities.</li> <li>◆ Important sub-group variations by language of patient were observed, underlining diversity of the LEP sample.</li> </ul>	<p>Pre-/post analysis of program data.</p> <p><u>Study Participants:</u> LEP enrollees of an HMO</p>
Sarver J, Baker DW (2000)	To determine whether patients who encountered language barriers (LB) during an emergency department (ED) visit were less likely to be referred for a follow-up appointment and less likely to complete a recommended appointment.	<ul style="list-style-type: none"> <li>◆ LB may decrease the likelihood that a patient is given a follow-up appointment after an ED visit: 83% of those without LB received a follow-up appointment; 75% of those who utilized an interpreter; 76% of those who said an interpreter should be used but was not.</li> <li>◆ Study found that patients who experienced LB were equally likely to comply with follow-up appointments.</li> </ul>	<p>Analysis of medical records</p> <p><u>Study Participants:</u> English-and Spanish-speaking patients presenting with non-emergent medical problems</p>

Utilization of Health Services and Costs			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Schur CL, Albers LA (1996)	To examine the role of spoken language in access to health care for Hispanic adults.	<ul style="list-style-type: none"> <li>Spanish-speakers were less likely than English-speaking Hispanics to have a usual source of care.</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Hispanic adults</p>
Tocher TM, Larson EB (1999)	To determine whether physicians at a general internal medicine clinic spend more time with non-English-speaking patients.	<ul style="list-style-type: none"> <li>Non-English and English-speaking patients did not differ on any time-motion variables including physician time spent on visit.</li> <li>A significant number of physicians believed that they spent more time with non-English speaking patients (85.7%) and needed more time to address issues (90.4%).</li> <li>Physicians did not perceive differences in the amount they accomplished during a visit with non-English-speaking patients.</li> </ul>	<p>Time-motion, observational comparison</p> <p><u>Study Participants:</u> English- and non-English speaking patients, third year resident physicians, attending physicians</p>
Woloshin S, Schwartz LM, Katz SJ, Welch HG (1997)	To isolate the effect of language spoken from financial barriers to care by examining the relationship of language to preventive health services utilization in a system with universal access.	<p>Compared with English-speaking Canadians:</p> <ul style="list-style-type: none"> <li>French-speaking women were significantly less likely to receive breast exams or mammography.</li> <li>Other language-speakers were less like to receive Pap testing).</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Household population of women residing in Ontario, Canada</p>
Health Outcomes			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Tocher TM, Larson E (1998)	To determine the quality of care provided to non-English-speaking patients with non-insulin-dependent (type 2) diabetes mellitus compared with English-speaking patients	<ul style="list-style-type: none"> <li>Significantly more non-English-speaking patients received care that met the American Diabetes Association guidelines of 2 or more glycohemoglobin tests per year and 2 or more clinic visits per year.</li> <li>More non-English-speaking patients had 1 or more dietary consultations</li> <li>No other significant differences were found in routine laboratory test use, number of ophthalmologic examinations, standardized glycohemoglobin and other laboratory results, complication rates, use of health services, and total charges.</li> </ul>	<p>Analysis of medical records and program data</p> <p><u>Study Participants:</u> Non-English-speaking and English-speaking patients</p>

Patient-Provider Communication			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Erzinger S (1991)	To examine the interaction of language and culture in medical encounters between Spanish-speaking Latino patients and providers with a broad range of Spanish language ability.	<ul style="list-style-type: none"> <li>Spanish language proficiency was not correlated with effective communication.</li> </ul>	Ethnographic research and analysis of audiotaped encounters  <u>Study Participants:</u> Family practice residents and Spanish-speaking patients
Rivadeneira R, Elderkin-Thompson V, Silver RC, Waitzkin H (2000)	To examine physicians' use of the patient-centered approach with patients who required the assistance of an interpreter.	<ul style="list-style-type: none"> <li>English-speaking patients offered significantly more information than Spanish-speaking patients.</li> <li>English-speaking patients usually received an answer or acknowledgement to their questions even if the physicians did not encourage further discussion on the topic.</li> <li>Spanish-speaking patients were less likely to receive facilitation from physicians.</li> <li>Spanish-speaking patients were more likely to have their comments ignored.</li> </ul>	Analysis of videotaped sessions  <u>Study Participants:</u> Spanish-speaking patients matched with English-speaking patients presenting to a primary care clinic
Wardin K (1996)	To determine differences in verbal evaluation of clients with limited English proficiency (LEP).	Compared to English-speaking patients: <ul style="list-style-type: none"> <li>Providers took 11.5 minutes more to verbally evaluate LEP clients.</li> <li>Understood patient needs less well.</li> <li>A better understanding of needs was associated with higher levels of English proficiency.</li> </ul>	Survey  <u>Study Participants:</u> Occupational Therapists

Quality of Interpretation			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Flores G, Laws MB, Mayo SJ, Zuckerman B, Abreu M, Medina L, Hardt EJ (2003)	To examine interpreter errors and their clinical consequences.	<ul style="list-style-type: none"> <li>◆ Errors in medical interpretation are common.</li> <li>◆ Omissions are the most frequent type.</li> <li>◆ Most errors have potential clinical consequences.</li> <li>◆ Errors committed by ad hoc interpreters are significantly more likely to have potential clinical consequences than those committed by professional interpreters.</li> </ul>	<p>Analysis of audiotapes and transcriptions of encounters</p> <p><u>Study Participants:</u> Spanish-speaking patients at hospital outpatient clinic</p>
Hornberger JC, Gibson CD Jr, Wood W, Dequeldre C, Corso I, Palla B, Bloch DA (1996)	To assess in a randomized protocol the quality of communication, interpretation, and level of patient, interpreter, and physician satisfaction with "remote-simultaneous interpretation" compared to "proximate-consecutive interpretation."	<ul style="list-style-type: none"> <li>◆ The remote-simultaneous interpreter service resulted in more physician and patient utterances, and fewer inaccuracies of physician and patient utterances.</li> <li>◆ Patients and physicians significantly preferred the remote-simultaneous interpretation service.</li> <li>◆ Interpreters stated that they thought patients and physicians better understood each other using the remote-simultaneous service, although the interpreters preferred to work with the proximate-consecutive service.</li> </ul>	<p>Random controlled trial</p> <p><u>Study Participants:</u> Non-English-speaking mothers</p>
Marcos LR (1979)	To determine the effects of interpreters on the evaluation of psychopathology in non-English-speaking patients.	<ul style="list-style-type: none"> <li>◆ Results suggest that clinically relevant interpreter-related distortions could lead to misevaluation of patient's mental status.</li> <li>◆ Pre- and post-interview meetings of clinicians and interpreters may minimize distortions.</li> </ul>	<p>Content analysis of audiotaped interpreter-mediated psychiatric interviews</p> <p><u>Study Participants:</u> Interpreters and providers</p>

Quality of Interpretation			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Xuo D, Fagan MJ (1999)	To describe the utilization of various methods of language interpretation by Spanish-speaking patients and to determine patients' and physicians' satisfaction with these methods.	<ul style="list-style-type: none"> <li>◆ Patients and providers had the highest satisfaction with professional interpreters.</li> <li>◆ Patients were significantly more satisfied than physicians to use family members/friends as interpreters.</li> <li>◆ Patients and providers agreed that accuracy, accessibility, and respect for confidentiality were highly important characteristics of interpreters.</li> <li>◆ Patients were more concerned than providers about the ability of the interpreter to assist them after the visit.</li> </ul>	Survey  <u>Study Participants:</u> Medical residents and Spanish-speaking patients
Bilingual Providers			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Flaskerud JH, Liu PY (1991)	To examine the relationship of Asian client-therapist ethnicity, language and gender match on mental health services utilization and outcomes.	<ul style="list-style-type: none"> <li>◆ Both client-therapist language and ethnicity match had a significant impact on the number of client sessions.</li> <li>◆ Ethnic match had a significant effect on drop-out rate. Language match had no effect.</li> <li>◆ Outcomes (admission-discharge scores) were not impacted.</li> <li>◆ Gender match had no consistent effect.</li> </ul>	Analysis of program data  <u>Study Participants:</u> Asian consumers of mental health services

Bilingual Providers			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Hampers LC, McNulty JE (2002)	To determine the impact of professional interpreters on emergency department (ED) resource utilization.	<p>Compared to the English-speaking group, language barrier group (LB) without an interpreter:</p> <ul style="list-style-type: none"> <li>◆ Had higher mean costs.</li> <li>◆ More likely to have a tests performed.</li> <li>◆ More likely to be admitted.</li> <li>◆ More likely to receive IV fluids.</li> <li>◆ Had comparable ED lengths of stay.</li> </ul> <p>Compared to the English-speaking group, LB group with an interpreter:</p> <ul style="list-style-type: none"> <li>◆ Showed no difference in costs for tests.</li> <li>◆ Were less likely to be tested.</li> <li>◆ No more likely to be admitted.</li> <li>◆ No more likely to receive IV fluids.</li> <li>◆ Had significantly longer lengths of ED stay.</li> <li>◆ Compared with the English-speaking group, non-English-speaking patients with bilingual physicians had similar rates of resource utilization.</li> <li>◆ A comparison of both LB groups demonstrated that the presence of an interpreter was associated with a 15% reduction in means costs for diagnostic testing.</li> </ul>	<p>Analysis of program data</p> <p><u>Study Participants:</u> Families of ED patients age 2 months to 10 years of age</p>

<b>Bilingual Providers</b>			
<b>Author(s)</b>	<b>Research Question(s)</b>	<b>Findings</b>	<b>Study Design/Methodology</b>
Manson A (1988)	To test the hypothesis that the ability of physicians to speak the same language as asthmatic patients promotes patient compliance and the use of scheduled office appointments in preference to emergency services.	<ul style="list-style-type: none"> <li>◆ Compared with patients with language concordant physicians, patients with language discordant physicians were only slightly more likely to omit medication, to miss office appointments, and to make at least one emergency room visit.</li> <li>◆ With extended follow-up, patients cared for by a language discordant physician were more likely to omit medication, more likely to miss office appointments, and were slightly more likely to make an emergency room visit than patients with language concordant physicians.</li> </ul>	<p>Analysis of medical records</p> <p><u>Study Participants:</u> Patients of Spanish-speaking bilingual physicians and patients of non-Spanish speaking physicians</p>
<b>Second-Language Acquisition by Providers</b>			
<b>Author(s)</b>	<b>Research Question(s)</b>	<b>Findings</b>	<b>Study Design/Methodology</b>
Binder L, Nelson B, Smith D, Glass B, Haynes J, Wainscott M. (1988)	To provide emergency medical residents with a medical Spanish curriculum that would provide them with sufficient language capabilities.	<ul style="list-style-type: none"> <li>◆ Course goals were to achieve enough vocabulary for basic information exchange, obtaining uncomplicated medical histories, conducting unassisted physical examinations and giving patient discharge instructions.</li> <li>◆ Feedback obtained from post-course interviews and instructor assessment indicated that the curriculum resulted in the attainment of the above goals for fully participating physicians.</li> </ul>	<p>Descriptive</p> <p><u>Study Participants:</u> Medical residents</p>
Mazor SS, Hampers LC, Chande VT, Krug SE (2002)	To determine the effect of medical Spanish classes for pediatric emergency department (ED) physicians on data gathering skills, interpreter use and patient satisfaction.	<p>In the post-intervention period:</p> <ul style="list-style-type: none"> <li>◆ Physicians were less likely to use an interpreter.</li> <li>◆ Families were more likely to strongly agree that the physician "was concerned about my child," "made me feel comfortable," "was respectful," and "listened to what I said."</li> </ul>	<p>Survey</p> <p><u>Study Participants:</u> Pediatric ED physicians and Spanish-speaking-only families.</p>

Translation			
Author(s)	Research Question(s)	Findings	Study Design/Methodology
Jackson JC, Rhodes LA, Inui T, Buchwald D (1997)	To examine differences in medical terminology translation and concepts of illness into Khmer.	<ul style="list-style-type: none"> <li>◆ Interpretations of Hepatitis B into Khmer were problematic and the distinctions and variations need to be made in order to reduce confusion.</li> <li>◆ Theoretical framework for studying language use in health care and across cultural boundaries is presented.</li> </ul>	<p>Interviews</p> <p><u>Study Participants:</u> Khmer community members who were immune to Hepatitis B, chronic carriers of the virus, and people with symptoms of chronic liver disease</p>
Twinn S (1997)	To examine the influence of translation on the reliability and validity of the findings of a qualitative research design to explore perceptions of factors influencing utilization of Pap smear testing.	<ul style="list-style-type: none"> <li>◆ No significant differences were generated from the Chinese and English data, some minor themes were identified.</li> <li>◆ Managing data is more complex when no equivalent word exists in the target language.</li> <li>◆ Grammatical style influences content analysis, demonstrating the importance of using a single translator.</li> </ul>	<p>Content analysis of multiple translations</p> <p><u>Study Participants:</u> Cantonese women</p>