

Assessing the Impact of Provider-Patient Language Barriers on Health Care Costs and Quality

FINAL REPORT

Prepared for the

U.S. Department of Health and Human Services
Office of Minority Health
1101 Wootton Parkway, Suite 600
Rockville, MD 20852

April 2006

**Assessing the Impact of Provider-Patient Language Barriers
on Health Care Costs and Quality**

Final Report

April 2006

Submitted by:

**COSMOS Corporation
3 Bethesda Metro Center, Suite 400
Bethesda, Maryland 20814**

Submitted to:

**U.S. Department of Health and Human Services
Office of Minority Health
1101 Wootton Parkway, Suite 600
Rockville, MD 20852
Task Order No. 11-001
Contract No. 282-98-0027**

Acknowledgments

The Office of Minority Health (OMH) wishes to thank the following individuals for their support and contributions during this project: members of the Project Expert Panel- Anne Beal, MD, MPH, Joseph R. Betancourt, MD, MPH, Dawn Bishop, MS, Denice Cora-Bramble, MD, FAAP, Shelby Dunster, Jorge Ferrer, MD, MBA, Glenn Flores, MD, FAAP, M. Chris Gibbons, MD, MPH, Louis Hampers, MD, MBA, FAAP, Elizabeth A. Jacobs, MD, MPP, Lisa A. Lang, MPP, Sharon M. Lee, PhD, Michael Pepper, MA, MBA, Robert Phillips, Jr., MD, MSPH, Kelvin P. Quan, JD, MPH, Maria Ivonne Rivera, MPH, Marilyn Rosenthal, PhD, Joanna Siegel, ScD, Ken Simon, MD, MBA, Daniel Stryer, MD, and Mary Wakefield, PhD, RN.

In addition, OMH extends appreciation to its contractor COSMOS Corporation, especially the Project Director, Angela Ware, PhD and the COSMOS team comprising Oscar Espinosa, MA, Katherine Page, MSSc, Robert Johnson, Cynthia Carter, and R. James Schmidt, ABD, who assisted in the completion of the project and this final report.

OMH project staff included Task Order/Project Officer, Betty Lee Hawks, MA; OMH Evaluation Officer, Valerie Welsh, MPH; and Joan Jacobs, MPH (former Project Officer).

EXECUTIVE SUMMARY

This report represents the final report for the project entitled “Assessing the Impact of Provider-Patient Language Barriers on Health Care Costs and Quality,” sponsored by the Office of Minority Health (OMH), U.S. Department of Health and Human Services (HHS). The project was conceptualized in the spirit of promoting an appreciation not only for different types of language barriers and how they may impact quality of care when not adequately addressed, but also for promoting the notion that *understanding and being understood is a critical component of health care quality*. For patients who have limited English proficiency (LEP), this standard of quality may be compromised due to language barriers that prevent effective communication and understanding between parties.

Background

Linguistically appropriate services address language barriers. Linguistically appropriate services (LAS) can improve health care quality, because they help clients gain trust and confidence in accessing health care services. Studies suggest that communicating to patients in their own language improves patients’ compliance and understanding of their diseases;¹ patient self-reported well-being and functioning;² and access to primary care and preventive services.³ In addition, LAS can aid health care providers by increasing their ability to understand and improve the accuracy of diagnoses and selection of appropriate treatment.⁴ Studies suggest that accurate communication between patient and provider decreases unnecessary diagnostic testing and increases proper diagnosis, patient compliance, and the retention and use of appropriate services.⁵ Also, clear communication has the potential to improve health outcomes by increasing the efficiency of clinical and

¹ Manson, A., “Language Concordance as a Determinant of Patient Compliance and Emergency Room Use in Patients with Asthma,” *Medical Care*, 1988, 26(12):1119-1128.

² Perez-Stable, E.J., A. Napoles-Springer, and J.M. Miramontes, “The Effects of Ethnicity and Language on Medical Outcomes of Patients with Hypertension or Diabetes,” *Medical Care*, 1997, 35:1212-1219.

³ Jacobs, E.A., D.S. Lauderdale, D. Meltzer, J.M. Shorey, W. Levinson, and R.A. Thisted, “Impact of Interpreter Services on Delivery of Health Care to Limited-English-Proficient Patients,” *Journal of General Internal Medicine*, 2001, 16:468-474.

⁴ Becker, M.H., and L.A. Maiman, “Strategies for Enhancing Patient Compliance,” *Journal of Community Health*, 1980, 6(2):113-135.

⁵ David, R.A., and M. Rhee, “The Impact of Language as a Barrier to Effective Health Care in an Underserved Urban Hispanic Community,” *Mt. Sinai Journal of Medicine*, 1998, 65(5/6):393-397. Queseda, G.M., “Language and Communication Barriers for Health Delivery to a Minority Group,” *Social Science Medicine*, June 1976, 10(6). Weiss, Barry D., *Health Literacy: A Manual for Clinicians*, American Medical Association Foundation and American Medical Association, Chicago, Illinois, 2003.

support staff, which studies have shown results in greater client satisfaction with services,⁶ leading to increased patient compliance with treatment.⁷

Federal regulations and guidance for providing LAS. Title VI of the Civil Rights Act prohibits recipients of federal funding from discrimination on the basis of national origin and affirms the rights of persons with LEP to receive meaningful access to federally supported programs. In August 2000, the HHS Office for Civil Rights (OCR) issued a policy guidance specific to HHS programs and services to assist their federal fund recipients in complying with Title VI. This was a response to Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, which required each federal agency to issue such a guidance and develop plans to improve access to its own programs and activities.

While many public comments were supportive of the guidance, others from medical and dental organizations, including the American Medical Association (AMA), interpreted the guidance as a “well-intended but unfunded federal mandate” which would impose undue financial burden on health care providers and, thus, discourage treatment of patients who may be most in need of care. In response to such public comments and to additional requests by the Department of Justice, HHS republished its guidance in February 2002, further revised the guidance for consistency and uniformity with other agencies, and reissued the guidance in August 2003.

In 2001, OMH released its *National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health Care: Final Report*. The recommended CLAS standards were developed to help health care providers, advocates, and policymakers serve their LEP clientele with greater quality and efficiency. The 14 standards cover different service delivery and quality issues including: diverse and culturally competent staff, consumer and community input, bilingual/interpreter services, translated written materials, and quality monitoring and improvement (QMI) data collection and performance evaluation. Each standard includes discussion of its relation to existing laws and policies, and makes recommendations for implementation.

Project Purpose

In 2002, OMH set out to begin a project that would attempt to respond to some of the concerns raised by health plans, physicians, and provider groups regarding the costs of providing LAS. The office wanted to explore the nature and extent of costs associated with

⁶ Beenstock, J., J. Broadbent, and J. Castro-Frasier, “Patient Information: In the Clear,” *Health Services Journal*, February 12, 1998, 108(5591):32.

⁷ Brach, C., and I. Fraser, “Can Cultural Competency Reduce Racial and Ethnic Disparities? A Review and Conceptual Model,” *Medical Care Research and Review*, 2000, 57(Supplement 1):181-217.

not providing LAS, based on the theory that not adequately addressing language barriers in the health care setting has its own associated costs and, indeed, may actually result in *higher costs*—both economic and non-economic.

This project was prompted, in part, by concerns about the costs of providing LAS raised by health care professionals and provider groups mentioned above as well as by the need to weigh such concerns against possible costs and other impacts of not providing LAS within the context of health care. The effort was initiated to generate insight into costs and quality of health care provision, and how costs and quality are impacted when physician-patient communication barriers persist. Such information would enable health plans, providers, and other decision-makers to better weigh the pros and cons of providing LAS within the context of health care. The project had three initial goals: 1) to develop a taxonomy of medical errors that result from physician-patient communication barriers; 2) to develop a cost assessment model that illustrates the linkages between a) costs associated with b) medical errors that result from c) physician-patient communication barriers; and 3) to develop a model implementation plan for conducting an actual cost-benefit study.

Because little was known at the time about the impacts of communication barriers on health care costs and quality, this was somewhat of a trailblazing endeavor. As such, the first year of the project focused on gathering information and guidance from a group of experts representing four main areas of study: 1) communication/language barriers and cultural competency; 2) medical errors and patient safety; 3) health care quality and health disparities; and 4) health economics and cost-effectiveness in health care. Panel members were convened for two, two-day meetings at critical points of the project (in May and October 2003) to provide review and comment on draft project documents and to offer recommendations for moving forward.

Project Results and Recommendations

Four Analytic Briefs. Once the expert panel was established, OMH invited four of the panel members (each member representing one focus area) to author an analytic brief that summarized current knowledge, recent literature and studies, and gaps in understanding in their particular fields. These papers were commissioned to begin the project with an overview of the literature in each area of expertise, so that all panel members, OMH staff, and the project team would have an initial understanding of what is “known and unknown” in each area, as well as their interconnectedness at the outset of the project, since no member had experience in all four areas.

The analytic brief written by Sharon M. Lee, Ph.D., *A Review of Language and Other Communication Barriers in Health Care*, described various types of communication barriers that occur between providers and patients, including barriers related to differences in race/ethnicity, gender, socioeconomic status, and physician interaction style. The paper

written by M. Chris Gibbons, M.D., M.P.H., *Quality, Communication and Health Disparities*, provided a review of current research that establishes a link between quality health care provision and patient outcomes. The paper, *Medical Errors and Patient Safety*, written by Marilynn M. Rosenthal, Ph.D., offered recent literature that identified different types of medical errors resulting from communication barriers, and also identified many gaps in knowledge and research related to medical errors—gaps that would later result in changing some project parameters. Elizabeth A. Jacobs, M.D., M.P.P. authored the paper, *The Costs and Benefits of Overcoming Language Barriers in Health Care*, which described the very few published studies that have been conducted to examine costs related to language barriers or health care quality for persons with LEP. This paper also identified key issues related to *measuring costs and benefits* of providing LAS.

Collectively, the four papers provided an understanding of the landscape of current thought and research related to the project, and informed subsequent deliberations and recommendations related to project parameters. Following the development of the analytic briefs, face-to-face meetings were held with the Project Expert Panel to develop the project's second product, a conceptual model for assessing the impact of provider-patient language barriers on health care costs and quality.

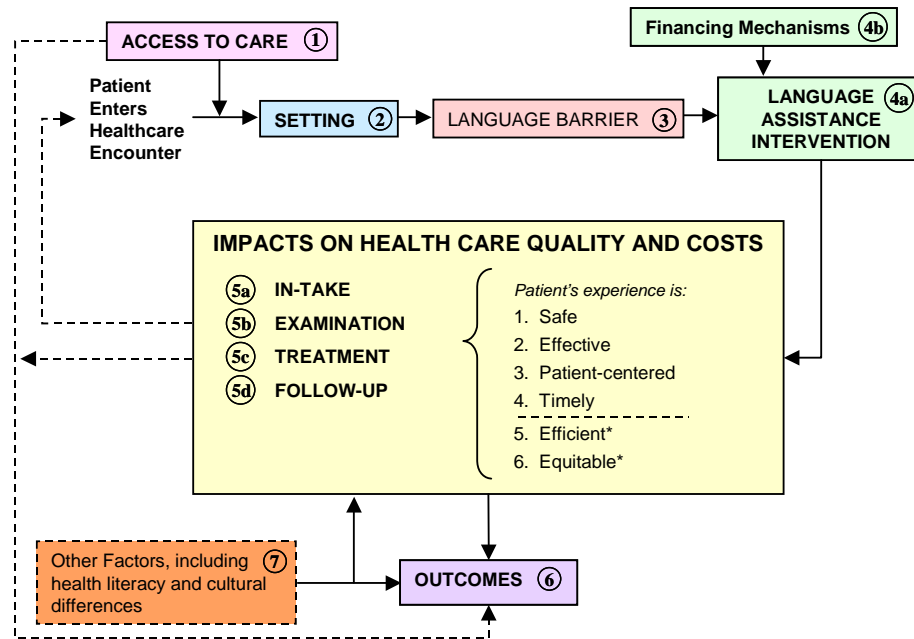
Conceptual Model. The purpose of the model is to serve as a conceptual framework for researchers as they pursue and conduct studies that examine the impacts of provider-patient language barriers on health care costs and quality. The model is designed to be a useful tool for researchers in their efforts to cost out health care quality across the health care continuum, specifically for patients with LEP. Ultimately, the model will be used to understand the impacts on costs and quality that may result when language barriers in the context of health care are inadequately addressed.

The model provides a conceptual framework for studies (with different research questions, methodologies, and measures) to assess the impact of language barriers on health care costs and quality. Model components to be utilized in the design of such studies include: *access; setting; language barrier; intervention; impacts on health care costs and quality; and patient outcomes* (see Figure 1).

Access to Care. Access refers to the patient's ability to obtain health care. Factors often associated with access include one's health insurance status; whether or not there is a usual source of care; level of difficulty when scheduling doctor's appointments; or level of difficulty obtaining referrals. A person's access to care significantly impacts his/her overall ability to prevent, treat, or manage conditions or diseases. The ability of an individual to access health care services, and the time and effort used to access care, are important factors to be included in studies that employ this model.

Figure 1

CONCEPTUAL MODEL FOR ASSESSING THE IMPACTS OF PROVIDER-PATIENT LANGUAGE BARRIERS ON HEALTH CARE COSTS AND QUALITY



*Efficiency and equity are cross-cutting and applicable to the entire model.

Setting. Persons with LEP utilize health care services that are delivered in many settings, e.g., a hospital emergency room, a community health center, or a physician's office. During model implementation, researchers will define study parameters by selecting a health care setting that is appropriate for the particular study's scope. Several factors may influence the design decision, including: the research question may specify setting; data are available or data collection is more feasible in a certain setting; the population of interest utilizes a certain setting more frequently, etc.

Language Barrier. The initial focus of this model was on *verbal* language barriers between providers and patients. More specifically, the model illustrates instances in which the two parties involved speak different primary languages (i.e., language dissonance). Upon completion, however, the breadth of the framework allows for studies that examine effects of other (non-verbal) language barriers, e.g., written translated materials or services for individuals who are hearing impaired. Variations within this model component also will be determined by a particular study's research questions. Possible ideas for research studies include: comparing the health care costs and quality experiences of LEP and non-

LEP patients, LEP patients who speak different languages, and LEP patients with varying degrees of English proficiency, etc.

Intervention. Communication barriers associated with provider-patient language dissonance can be addressed with linguistically appropriate interventions. Such interventions include, for example: on-site interpreters, telephonic interpreters, and videoconference interpretation. Another “intervention” is to systematically address and eliminate language barriers by hiring bilingual clinical and non-clinical staff. In addition to various types and modalities of LAS interventions, the model includes factors related to the intervention’s financing mechanisms (e.g., the cost is prepaid or reimbursed to providers, paid to the individual practice association (IPA), paid directly to interpreters, etc.). Rather than examining the costs of linguistically appropriate interventions alone, this model assumes that the *absence of LAS* (which would not need a financing mechanism) is a kind of intervention which, in and of itself, may have an impact on the quality and costs of health care.

Impacts on Health Care Quality and Costs. Impacts on health care quality, utilization, and associated costs (that result from provider-patient language dissonance) are related to all key points of service delivery, including in-take, examination, treatment, and follow-up. Measures of impacts on health care quality, utilization, and costs during *In-take, Examination, Treatment, and Follow-up* encounters (boxes 5a, 5b, 5c, and 5d) are framed within the six quality improvement areas suggested by the Institute of Medicine.⁸ These quality improvement areas include health care delivery that is:

1. **Safe:** avoiding injuries to patients from the care that is intended to help them;
2. **Effective:** providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
3. **Patient-centered:** providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions;
4. **Timely:** reducing waits and sometimes harmful delays for both those who receive and those who give care;
5. **Efficient:** avoiding waste, including waste of equipment, supplies, ideas, and energy; and
6. **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, race, age, ethnicity, income,

⁸ For an extended description of the six areas of quality improvement, see the Committee on Quality Health Care in America, *Crossing the Quality Chasm: A New Health System for the 21st Century*, Institute of Medicine, National Academy Press, Washington, D.C., 2001.

education, disability, sexual orientation, geographic location of residence, or primary language spoken.

Efficiency and equity (quality improvement areas 5 and 6) are cross-cutting and applicable to the entire model. By definition, every study that utilizes the conceptual model will be concerned with efficiency related to costs and inequities related to quality and patient outcomes across the continuum of care for LEP individuals. Researchers are encouraged to draw from established and published measures of health care quality, such as those offered in the Agency for Healthcare Research and Quality's (AHRQ) 2003 *National Healthcare Quality Report* and *National Healthcare Disparities Report*.

Follow-up activities (or lack of) represent short-term outcomes for the patient. The patient often leaves the treatment phase with instructions related to medication, disease management, and/or subsequent clinical appointments. Once the appointment is made, the model then illustrates the dotted line path back to the patient's (re)-entry into the appropriate setting. In a longitudinal assessment, the patient would be followed over time, and new and separate data would be collected for the patient across the model for each subsequent encounter.

Outcomes. Outcomes are the results of the patient's health care delivery and overall experience. Clinical outcomes and utilization outcomes—and costs associated with both types of outcomes—are necessarily study-specific in that they are determined by the hypothesis of the particular study. Examples of clinical outcomes to be assessed by studies that use the model include: patient condition/disease management and patient health/disease status. Utilization outcomes are system-related, and include: length of stay, adequate and appropriate diagnostic procedures, etc.

Other factors. Many factors other than language dissonance (more broadly, communication barriers) influence quality of care and patient outcomes. Language dissonance is only one type of language barrier. Other types of language barriers include low level of health literacy and lack of language clarity. Similarly, language barriers are only one type of communication barrier. Cultural differences between provider and patient (including racial, ethnic, gender, socioeconomic, etc.) also influence the patient's health care experience. Although the model does not encompass the various types of communication barriers, these other influential factors are acknowledged.

In sum, the conceptual model is to be utilized by research studies that examine how language barriers impact health care costs and quality. The model includes seven components that relate to: various health care settings and patient populations; a range of linguistically appropriate interventions and their funding mechanisms; impacts on health care quality, utilization (including medical errors), and costs; and outcomes that may be associated with quality of care.

Follow-on Study. Following the development of the conceptual model, OMH commissioned a follow-on research study which utilized the model as its framework. The study was led by Elizabeth A. Jacobs, M.D., M.P.P., and was conducted at the John H. Stroger, Jr. Hospital of Cook County in Chicago, Illinois.

The purpose of the study was twofold: 1) to gather data on the costs and other impacts of *not* providing adequate interpreter services to Spanish-speaking hospitalized patients; and 2) to measure the costs and cost-benefits of an interpreter service intervention to improve the care of Spanish-speaking hospitalized patients.

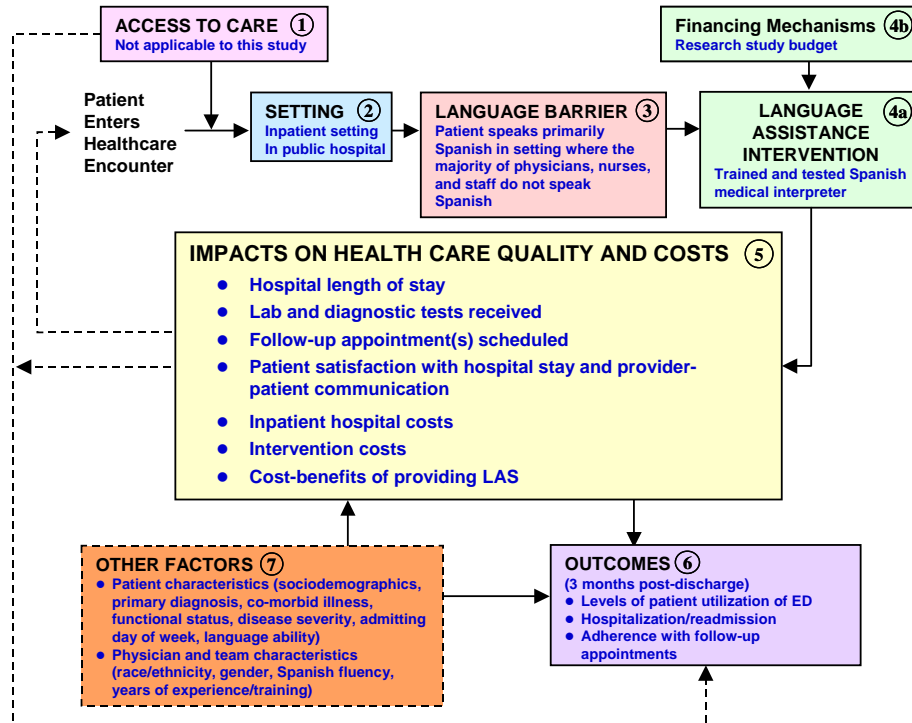
Over six months, three groups of adult patients were followed: Spanish-speaking patients with adequate linguistic access (experimental group); Spanish-speaking patients with inadequate linguistic access (control group 1); and English-speaking patients (control group 2).⁹ All patients admitted were assigned to one of three teams of doctors called Firms. These Firms were organized in order to provide efficient high quality care by making a smaller group of physicians responsible for an assigned group of inpatients. Each Firm comprises four groups of doctors who work together during a month-long rotation. Each group is on call every fourth night so that they get new patients assigned to them every fourth day, and then they are responsible for them for the remainder of their hospital stay. Patients are assigned to each Firm at random so that the patient mix, over time, is very similar across Firms. This Firm system allowed for a “quasi-experimental” design in which patients’ Firm and physician assignment occurred randomly. This organization of the inpatient system allowed the assignment of an interpreter intervention to one Firm and examine what happened on that Firm compared to another Firm that did not receive the intervention. In this study, Firm C received the intervention, and Firm B was the comparison Firm. Firm A was not involved in the study at all. The final study sample included 323 participants (124 Spanish-speaking intervention patients; 99 Spanish-speaking “usual care” patients; and 100 English-speaking patients).

Figure 2 illustrates the data that were collected for this study using the model as the conceptual framework. The overall hypothesis was that *hospitalized Spanish-speaking patients who do not receive the language assistance intervention will generate higher*

⁹ *Adequate linguistic access* was defined as receiving the interpreter service intervention. *Inadequate linguistic access* was defined as patients receiving “usual care” where, for example, family, friends, non-fluent (and sometimes fluent bilingual) staff or physicians, were used to assist with provider-patient communication with Spanish-speaking patients during their hospital stay. The interpreter service intervention consisted of a trained and tested Spanish-speaking medical interpreter who was assigned to work with the patients and their physicians and nurses throughout the hospital stay. An interpreter was available during the hospital’s busiest time period, from 7:30 a.m. to 3:30 p.m. daily, seven days a week during the study period. However, the interpreter service intervention was not available for all encounters between hospital staff and study participants because either the interpreters were not called or because they were not available 24 hours a day. No interpreter intervention was necessary for the English-speaking group because of language concordance or consonance.

Figure 2

STUDY-SPECIFIC COMPONENTS WITHIN THE CONCEPTUAL MODEL



inpatient costs compared to hospitalized Spanish-speaking patients who do receive the intervention. Secondary hypotheses included: 1) Spanish-speaking patients who cannot adequately communicate with their physicians will be less satisfied with the hospital stay and with doctor-patient communication than the adequate communication group; and 2) they also will have higher rates of post-discharge emergency department utilization and hospitalization, as well as poorer adherence with scheduled outpatient visits than the adequate communication group.

The study's primary findings are as follows:

- The conceptual model developed during the first phase of this project was useful in successfully implementing a study that examines the impacts of provider-patient language barriers on health care costs and quality.

- The one significant difference found between the Spanish-speaking “usual care” group (SS-U) and the Spanish-speaking intervention group (SS-I), was in length of stay. The SS-U group stayed in the hospital significantly longer than the SS-I group. However, similar (but not significant) differences in length of stay were found between Firms for the English-speaking group, suggesting that the difference between SS-I and SS-U groups could be due to Firm effects rather than the intervention. The direct cause of group difference is unknown.
- If the difference in length of stay between the SS-U and SS-I groups was due to the interpreter service intervention, by providing the intervention to LEP patients, the hospital would save \$1,894 per person.
- There were no differences between the SS-U and SS-I groups in satisfaction, hospital care utilization; or post-discharge Emergency Room visits and hospitalization.

There are a number of reasons why the follow-on study did not show a clear impact of language barriers or the interpreter intervention on the cost and quality of hospital care. First, the Firm effects may be masking the effect of language barriers and interpreter intervention. While the exact cause could not be determined, it is likely due to differences in attending practice across the two Firms. Second, there were a number of attending physicians and residents who speak Spanish. The intervention would likely have a more profound effect in a setting where there are fewer language concordant physicians than were involved in this study. Third, the interpreter service intervention may not have been strong enough. Interpreters were only available eight hours for each day, and their use depended on nurses, physicians, and other staff to voluntarily call upon them for their services.

Despite these limitations, the importance of this study is twofold. First, it demonstrates the applicability and utility of the conceptual model developed by the Project Expert Panel in 2003-04. This complex and controlled study was designed and successfully implemented using the model as its framework. Second, the study findings highlight the extremely low cost of providing inpatient hospital interpreter services (\$240) relative to the total cost of hospital stay (\$2,200 per person per day)—when hospital stay *may* be lengthened for patients who do not receive interpreter services. This finding begins to address the original questions of this project related to the costs of *not* providing LAS and not adequately addressing provider-patient language barriers. Although the findings are inconclusive about the reasons for difference in length of stay between the SS-U and SS-I groups, if indeed the difference can be attributed to the intervention, the cost of *not* providing LAS for this hospital would be \$1,894 per LEP person per day.

Based on lessons learned during the conduct of this follow-on study, three recommendations were offered upon its completion:

- Future studies should measure the impact of language barriers in a setting in which there are very few LAS, including language concordant physicians and staff. While the vast majority of physicians who cared for the study's participating patients did not speak Spanish, there may have been sufficient Spanish-speaking physicians to reduce language barriers.
- Researchers conducting future studies of this kind should consider using a randomized control trial in which physicians as well as patients are randomized to avoid the physician practice effects that appeared to be driving the differences in Firms found in the follow-on study.
- Future studies of interpreter services should institute an intervention that covers most of patients' waking hours in the hospital so as to maximize the impact of the intervention.

Recommendations. Thirty-eight specific recommendations emerged throughout this project via the analytic briefs, deliberations and suggestions from the expert panelists during both (May and October 2003) meetings, and the specific recommendations that came out of the project's follow-on study. The types of recommendations offered included those related to: 1) the project's scope; 2) the conceptual model and its components, 3) the support of an initial study that tests the model in a research setting; 4) the utility of the model and further research relative to, or informed by, the follow-on study that was commissioned; 5) the need for further research on the impacts of language barriers on health care costs and quality; and 6) the need for other (non-research-related) actions that promote health care quality. The 38 recommendations that emerged throughout this project are presented below in terms of these six recommendation types.

Recommendations Related To The Project Scope:

1) *The project scope should include provider-patient language barriers, and not be limited to physician-patient communications.* Because the clinical encounter also involves interaction between the patient and clinical staff *other than the physician* (e.g., triage staff, nurse practitioners, pharmacists, etc.), it is important for the model to include language barriers experienced during interactions with varied staff (i.e., the full range of providers in the clinical setting).

2) *The project scope should not be limited to experiences during the clinical encounter.* An attempt should be made to include LEP persons' experiences related to the

impacts of language barriers on *access* to clinical services. Many LEP patients never make it to the clinical encounter due, in part, to language barriers. To the extent possible, the *entire continuum of care* should be acknowledged by this project and in its primary product, the conceptual model.

Recommendations Related To The Conceptual Model:

3) *The “medical errors” box within the model should be expanded to include all impacts on health care quality, of which medical errors represent only one type.* The original “impacts on quality” box within the model shell represented only medical errors that resulted from language barriers. However, panel members agreed that to examine only the costs associated with medical errors would be too limited and quite difficult considering the emerging nature of the literature on the subject. Rather, the taxonomy to be developed within this particular model box should include *all measurable impacts on health care quality and utilization* that may result from language barriers—which includes, but is not limited to, medical errors.

4) *The model should include costs associated with impacts and costs associated with clinical and non-clinical outcomes.* Panelists recommended that relevant costs are not limited to the (former) “costs” box within the model. Rather, costs are associated with impacts on quality, as well as (clinical and non-clinical) outcomes. In other words, the “costs” component of this model should not be segmented out as its own box. Instead, a new box that represents “outcomes” should replace the (former) “costs” box, and the “costs” component of this model should be illustrated as relevant *throughout the model*.

Panel members emphasized the importance of non-economic impacts on health and quality of life, and suggested these impacts might be illustrated in terms other than dollar amounts, such as years of life saved or quality-adjusted years of life saved. In recognition that the economic argument for providing LAS is not always the best one, some panelists suggested the need to include in the model less tangible and less frequently cited benefits of providing LAS, e.g., how LAS may contribute to the well-being of society, and the moral obligation to provide high-quality health care to all patients, regardless of primary language.

5) *The model should include costs associated with different types of language assistance interventions that may be utilized to address provider-patient language barriers.* According to panel members, an important model component would be the inclusion of an “intervention” box (and its associated costs) that may be used in health care settings to address existing provider-patient language barriers. Many types of interpreter services (or interventions) are available and utilized in health care settings, e.g., language (telephone) lines; bilingual physicians; face-to-face interpreters; and video conference interpretation. For researchers who eventually implement this project’s model in their

studies, this component will be imperative. Studies could be generated that, for example, compare the cost-effectiveness of different intervention modalities, or compare the cost-effectiveness of a particular intervention modality among different non-English languages.

6) *The model should identify financing mechanisms for implementation costs related to the different interventions.* Similar to the fifth recommendation above, panel members suggested the model include information on financing mechanisms (e.g., prepaid or reimbursed to providers; paid to the IPA; paid directly to interpreters; etc.) associated with the implementation of specific interventions. Although this recommendation was agreed upon during the first (May) meeting, OMH and project staff, as well as some panelists, requested more information on this topic. As such, Kelvin Quan, J.D., M.P.H., then Chief Financial Officer for Alameda Alliance for Health (Alameda), who introduced the idea to the group, was asked to prepare a presentation for the second meeting, held in October 2003.

7) *The model should acknowledge factors other than language dissonance that may impact health care quality, costs, and outcomes.* Because the scope of this project and its model is limited to language dissonance and the resulting impacts on health care quality and costs, panelists pointed to the importance of recognizing and illustrating other factors (e.g., other communication barriers, cultural differences, systemic variability, etc.) that also may influence those outcomes.

8) *The model should include a component which illustrates the health care setting in which the language barrier is experienced.* One element (that was not incorporated during the May 2003 meetings) is the model component which identifies the particular setting of the patient experience. The language barrier and resulting impacts on quality and costs could occur in a variety of settings which may prove important for comparison studies. Examples of various health care settings that are applicable to this model include: doctor's office; hospital inpatient; hospital emergency room; and community health center.

9) *The model component illustrating "impacts on quality" should be framed using the six dimensions of quality identified by the Institutes of Medicine.* These six quality areas include health care access and provision that is: safe, effective, patient-centered, timely, efficient, and equitable. Panelists agreed that instead of developing an extensive listing or taxonomy of quality measures within the "impacts" box of the model, these existing "quality dimensions" would prove more useful. Panel members began to envision the model differently at the October 2003 meeting. The idea of including a detailed taxonomy or classification scheme of quality measures came to be viewed as unnecessary and undesirable. Instead, the model components should remain as general guidelines for researchers to identify their own quality measures (see below) and the IOM's six dimensions of quality represent a more general and cross-cutting schematic that would appropriately replace the more detailed taxonomy within the "impacts" box of the model.

10) The conceptual model should be a framework for individual researchers to utilize in their own studies and areas of expertise. During the October 2003 meeting, an overarching consensus emerged regarding the overall purpose and usefulness of the conceptual model: *the model should be a guiding tool for researchers and should not attempt to answer specific questions.* Researchers within the Expert Panel advised that access to and provision of cost data associated with health services and impacts would not present a formidable barrier to research at the local level. Thus, the general consensus of the Panel was to modify the original scope and approach to the project. It was recommended that OMH avoid planning and undertaking the broader, more complex effort to identify national cost averages of medical errors and other health care impacts associated with language barriers (for the purpose of de-linking cost-related results from, presumably, proprietary data in specific cost-benefit analyses and comparisons). Rather, the recommendation was to pursue a simpler and less problematic approach involving the use of the model as a framework for localized studies of the costs (and other impacts) of language barriers on health care, and obtain cost data through such studies.

Recommendations Related To The Support Of An Initial Study To Test The Model:

11) Support localized research studies that could utilize and “test” the model. In light of the revisions to the project’s scope (based on previous recommendations from the expert panel members), the final product of this project should involve commissioning an actual study that attempts to gather cost data and generate findings while testing the applicability and usefulness of the conceptual model as a framework for such an assessment. Panel members emphasized the sense of urgency to collect appropriate data for addressing some of the project’s initial concerns. In response to this recommendation, OMH sought further guidance from the panelists on exactly what types of studies would be most appropriate and desirable for an initial study, should one be commissioned. Panel members offered a variety of research ideas that would be appropriate for the first study that utilizes the model. These suggestions were offered in the form of appropriate research questions and study topics, and are provided below.

PANELISTS’ SUGGESTIONS FOR RESEARCH QUESTIONS THAT ARE APPLICABLE TO THE MODEL:

- What are the costs and quality issues associated with LAS?
- What are the differential impacts and costs of the provision or lack of LAS in terms of specific diseases?
- What are the impacts on quality which result from language barriers across the continuum of care (e.g., with triage staff, office staff, and other health care providers)?

- Does the impact of providing (or not providing) LAS vary by health care setting?
- How do the costs of providing LAS vary geographically? What does it cost on a national level to provide LAS?
- What are the missed opportunity costs associated with the provision (or lack) of LAS, e.g., bilingual staff who provide interpretation services to physicians by taking time from their required duties?
- Does the prevalence of LAS vary among financial models (e.g., capitation, fee for service, or risk sharing)?
- Do patients prefer certain LAS modalities? What are the costs of the preferred modalities?
- Does it matter (in relation to impacts on quality) who is providing LAS (e.g., hired interpreter, physician, clinical staff, non-clinical staff, etc.)?
- Are there various degrees of language dissonance that impact health care quality (and subsequent costs) differently?
- How is an interpreter's competence and certification best defined (e.g., training, native speakers)? Does interpreter level of competence/ certification have differential impacts on costs and quality?
- What are the perceived challenges faced by LEP populations in accessing LAS (e.g., immigration status, missing work, etc.)?

PANELISTS' SUGGESTIONS FOR RESEARCH TOPICS THAT ARE APPROPRIATE FOR THE MODEL:

- Examine the differential impacts on costs associated with LAS provision and *lack of LAS*, based on specific diseases.
- Assess differential impacts of language barriers on costs and quality *across the continuum of care*, and in *various health care settings*.
- National cost averages of providing (different types of) LAS.
- Compare the prevalence of LAS among different financing mechanisms.
- Examine differential impacts based on *types* of LAS provided (e.g., trained face-to-face interpreters; telephone language lines; bilingual health care staff).
- Conduct case studies in a local setting that explore and document the experiences of individual LEP patients throughout the continuum of care.
- Utilize state and national databases on adverse events to explore how patient safety may be impacted by provider-patient language barriers.

- Compare cost and quality impacts among LEP and non-LEP patient groups with similar diagnoses.

Recommendations Related To The Utility of the Model and Follow-on Study Findings:

The follow-on study for this project showed that the conceptual model can be utilized to successfully conduct research that answers important questions related to costs and language barriers in health care settings. In addition to serving as an example of a study successfully implemented with the model as its framework, three primary recommendations were offered at the conclusion of the follow-on study.

- 12) Future studies should measure the impact of language barriers in a setting in which there are very few LAS, including language concordant physicians and staff.*** While the vast majority of physicians who cared for the study's participating patients did not speak Spanish, there may have been sufficient Spanish-speaking physicians to reduce language barriers.
- 13) Researchers conducting future studies of this kind should consider using a randomized control trial in which physicians as well as patients are randomized to avoid the physician practice effects that appeared to be driving the differences in Firms found in the follow-on study.***
- 14) Future studies of interpreter services should institute an intervention that covers most of patients' waking hours in the hospital so as to maximize the impact of the intervention.***

Recommendations Related To Further Research:

As described earlier, many recommendations for future research emerged as this project unfolded. The four analytic briefs, the presentations of the invited speakers, and the discussions among panel members revealed enormous gaps in knowledge related to this project's subject matter. In an effort to address these significant gaps in understanding, the following recommendations were offered related to furthering research (and thereby increasing knowledge) in these areas:

- 15) Direct links between language and cultural barriers in physician-patient communication and specific health outcomes.***
- 16) Interventions to reduce barriers within the physician-patient encounter, such as health literacy, race/ethnicity, gender, and socioeconomic status, and physician interaction style.***

- 17) *Different kinds of language assistance interventions, their costs and impacts.*
- 18) *Various cultural groups, including, but not limited to Hispanics.*
- 19) *Particular communication barriers and their consequences.*
- 20) *Consensus development on terminology and categorization of medical errors and distinctions between those errors that do/do not harm the patient.*
- 21) *The distinguishing factors of those communication barriers that do/do not result in medical errors.*
- 22) *Communication barriers and medical mistakes between providers and minority patients.*
- 23) *The relationship between LAS and positive patient outcomes, such as patient satisfaction and patient adherence.*
- 24) *Costs related to LAS, including measuring the benefits of providing linguistic access and measuring the direct and indirect costs of providing these services.*
- 25) *More methodologically sound studies that define, identify, and measure certain essential components for any study involving LAS or persons with LEP, such as clear definitions of LEP or the nature and extent of interpreters used and larger sample sizes from which to generalize findings.*
- 26) *Longer-term impacts and outcomes of LAS interventions.*
- 27) *How to measure costs associated with medical errors.*
- 28) *How systems issues can facilitate or prevent medical errors.*
- 29) *Short- and long-term impacts and outcomes, including but not limited to, costs of not providing LAS interventions when language barriers exist.*
- 30) *Short- and long-term impacts of lack of LAS not only on costs, but also on health outcomes.*

- 31) *Costs and benefits of various practices for addressing (or not addressing) language barriers in health care, such as use of family and/or friends for interpretation, use of telephonic or audiovisual equipment to facilitate access to interpreter services, impacts of providing LAS on facility and equipment needs and costs as well as on time and effort required for clinical encounters, impacts of treating patients by relying on diagnostic procedures independent of communication barriers, etc.*
- 32) *The nature and extent of “clear and effective” communication between doctors and patients when language barriers are not an issue.*

Recommendations For Non-Research-Related Actions:

Several recommendations were offered regarding further actions that are not research-related, but that are nevertheless significant for policymakers, health plan administrators, medical and other health professional groups, and others. These recommendations include:

- 33) *Increase education and training of medical residents to understand the patient (including cultural backgrounds), and to more effectively deal with language barriers as well as the ever-present degree of uncertainty in their profession.*
- 34) *Identify and address costs of providing LAS and improve financing mechanisms for covering such costs.*
- 35) *Implement health system and service improvements to increase awareness and knowledge of providers about patient language needs prior to appointments, as well as available financial incentives and financing mechanisms within and outside of health plans for covering LAS.*
- 36) *Educate and train physicians and other health care providers about what is known regarding the lack of LAS and poor health outcomes as well as how to effectively use interpreters.*
- 37) *Aggressively disseminate results of relevant new research to physicians, other health care providers, and the public at large.*
- 38) *Frame concerns about the costs of providing LAS as a health care quality issue, as a way of ensuring that other “costs” do not manifest themselves*

as poorer health outcomes for LEP patients because physicians and other health care providers were unable to understand and be understood by their patients, and that this “understanding disparity” may contribute to racial/ethnic/linguistic disparities in health care.

Conclusions

Although this project began with a certain set of objectives, the expert panel members’ review and deliberations resulted in a scope that allowed achievement of the *intent* of the original project objectives through a greatly simplified, more expedient, and cost-effective approach. The original plan to develop a taxonomy of medical errors was replaced by the conceptual model itself as a framework for researchers who are studying the impacts of language barriers on the costs and quality of health care.

In addition to the conceptual model, this project produced several other significant results, including four analytic briefs to be disseminated for public use; a follow-on study that showed the utility and applicability of the conceptual model in designing and implementing a successful study that examines cost and quality impacts of language barriers; and 38 specific recommendations for further actions in this field—both research-related actions and non-research-related actions. High priority should be placed on initiating additional (varied) studies that utilize this project’s conceptual model. The types of studies generated may show further evidence of negative impacts on quality of care caused by provider-patient language barriers. Like this project’s follow-on study, future studies will likely produce findings that will build support for the notion that *understanding and being understood is a critical component of health care quality*—regardless of primary language spoken or LEP status. Improving quality of care by providing the necessary resources for clear communication is an important dimension in the overall effort to eliminate health disparities.

Contents

	Page
Executive Summary	ii
Chapters	
1. Introduction	1-1
1.1 Background	1-1
1.2 Project Purpose	1-5
1.2.1 Initial Project Parameters	1-5
1.2.2 Revised Project Parameters	1-8
2. Project Approach and Activities	2-1
2.1 Establish a Project Expert Panel	2-1
2.2 Identify Authors and Commission Four Analytic Briefs	2-1
2.3 Hold Face-to-Face Meetings	2-2
2.3.1 Meeting One: May 8-9, 2003	2-3
2.3.1.1 Presentation of Project Scope and Draft Model Shell	2-3
2.3.1.2 Initial Considerations Raised by Panel Members	2-9
2.3.1.3 Presentation and Discussion of Four Analytic Briefs	2-10
2.3.1.4 Panelists' Initial Recommendations to OMH and Project Staff (May 2003)	2-17
2.3.2 Meeting Two: October 16-17, 2003	2-21
2.3.2.1 Presentations on LAS Financing Mechanisms and AHRQ's <i>NHQR</i> and <i>NHDR</i>	2-21
2.3.2.2 Second Set of Recommendations from the Project Expert Panel (October 2003)	2-25
3. Project Results, Recommendations, and Conclusions	3-1
3.1 Four Analytic Briefs	3-1
3.2 Conceptual Model	3-1
3.2.1 Overview of Conceptual Model	3-1
3.2.2 Illustrative Exhibits of Four Patient Cases	3-5
3.3 Overview of Follow-on Study	3-12
3.4 Recommendations for Further Actions	3-16
3.5 Conclusions	3-24
References	R-1

Figures

2-1	Draft Preliminary Model Shell	2-3
2-2a	Language Barriers: Broad Scope	2-4
2-2b	Language Barriers: More Focused Scope	2-5
2-3a	Medical Errors: Event Categories	2-6
2-3b	Medical Errors: Process and Knowledge/Skills Categories	2-7
2-3c	Medical Errors: Communication Category	2-7
2-4a	Costs: Level of Scope (1)	2-8
2-4b	Costs: Level of Scope (2)	2-8
2-4c	Costs: Level of Scope (3)	2-9
2-5	Recommendations for Model Development: Include All Impacts on Quality . .	2-18
2-6	Recommendations for Model Development: Include Costs Associated with Impacts and Outcomes	2-18
2-7	Recommendations for Model Development: Include Interventions (and Their Costs) that Address Barriers	2-19
2-8	Recommendations for Model Development: Include Funding Sources of Interventions	2-20
2-9	Recommendations for Model Development: Include Other Influential Factors	2-20
2-10	Recommendations for Model Development: Include Health Care Setting	2-26
3-1	Conceptual Model for Assessing the Impacts of Provider-Patient Language Barriers on Health Care Costs and Quality	3-2
3-2	LEP Patient Referred to the Emergency Room for a Non-Emergency Condition	3-6
3-3	Patient Experiencing an Adverse Drug Experience Resulting from a Medical Error	3-8
3-4	Patient in Nursing Home Experiences Delay in Admittance to the Emergency Room	3-9
3-5	Delayed Diagnosis of Diabetic LEP Patient	3-11
3-6	Study-Specific Components Within the Conceptual Model	3-14

Appendices

- A. Official Membership List of the Project Expert Panel
- B. Analytic Briefs
 - B-1 Guiding Questions for Authors
 - B-2 *A Review of Language and Other Communication Barriers in Health Care* (Lee)
 - B-3 *Medical Errors and Patient Safety* (Rosenthal)
 - B-4 *Quality, Communication and Health Disparities* (Gibbons)
 - B-5 *The Costs and Benefits of Overcoming Language Barriers in Health Care* (Jacobs)
- C. Presentation of Project Scope and Draft Model Shell

- D. Follow-On Study Final Report
 - Attachment A: Hospital CAHPS
 - Attachment B: Charlson Index
 - Attachment C: Medical Communication Diary
 - Attachment D: Spanish Language Proficiency Assessment

Chapter 1

Introduction

CHAPTER 1: INTRODUCTION

This report represents the final report for the project entitled “Assessing the Impact of Provider-Patient Language Barriers on Health Care Costs and Quality,” sponsored by the Office of Minority Health (OMH), U.S. Department of Health and Human Services (HHS). The project was conceptualized in the spirit of promoting an appreciation not only for different types of language barriers and how they may impact quality of care when not adequately addressed, but also for promoting the notion that *understanding and being understood is a critical component of health care quality*. For patients who have limited English proficiency (LEP), this standard of quality may be compromised due to language barriers that prevent effective communication and understanding between parties (David and Rhee 1998, Flores 2005, Kravitz 2000, Ku and Waidman 2003).

Chapter 1 of the report presents relevant history and information that led to the project’s development and scope. Chapter 2 describes the project methodology and activities over the course of the first year, including establishing a project expert panel (PEP); identifying and commissioning authors to write analytic briefs in each of the project’s four primary conceptual areas; and holding face-to-face meetings with the panel members to develop and refine the project’s parameters and its final products. Chapter 3 presents the results of the project, including the four analytic briefs; the conceptual model; a summary of the follow-on study which was initiated in the project’s second year; and an overview of the numerous recommendations that emerged throughout this project.

1.1 BACKGROUND

Persistent disparities in health status and health care provision. More than 20 years ago, the 1983 annual issue of *Health, United States* (the report card on the health status of the American people) documented progress in the overall health of the nation. However, the report also reinforced the fact that there were continuing disparities in the burden of death and illness experienced by racial and ethnic minority Americans compared to the U.S. population as a whole—a disparity that has existed since accurate federal record keeping began. In response to the report findings, a Task Force was established to investigate the health problems of racial and ethnic minority Americans by the then Secretary of HHS. The *Report of the Secretary’s Task Force on Black and Minority Health* (Heckler 1985) was presented to the Secretary in August 1985 and subsequently led to the establishment of OMH in 1986 within the Office of the Assistant Secretary for Health (now the Office of Public Health and Science). Specifically, the mission of OMH is to: a) improve and protect the health of racial and ethnic minority populations; b) close the gap in health status between racial and ethnic minority groups and majority populations; and c) coordinate across HHS the development and implementation of policies, programs, and

practices that will address health disparities placing a greater burden of disease and premature death upon racial and ethnic minority populations.

Although the overall health of the nation has improved, studies conducted in the last decade confirm that racial and ethnic minorities continue to experience many health disparities (HHS 1991; HRSA 2000). Between 1997 and 1999, the infant mortality rate for African Americans was more than twice that of Whites (Cohen and Goode 1999). Also, in 1999, age-adjusted death rates for the African American population exceeded those for the White population by 38 percent for stroke, 28 percent for heart disease, and 27 percent for cancer (Pastor et al. 2002). In addition, rates for all cancer types were higher for African Americans than for Whites (HHS 1991). In 1999, HIV disease was still the leading cause of death for African American men aged 25 to 44 and the third leading cause of death for Hispanic men aged 25 to 44, and HIV deaths remained much higher for African American and Hispanic men than for non-Hispanic White men in this age group (Pastor et al. 2002). The rate of diabetes for Native Americans is 2.2 times higher than that of Whites (CDC 2003). In addition, more recent studies show that the suicide rate for Native Americans is 1.5 times the national average, with 64 percent of suicides being males aged 15 to 24 (CDC 2004). Also incidence of tuberculosis is higher in Asian and Pacific Islanders than in other populations (HHS 1999), as are lactose intolerance and hepatitis B (Jin et al. 2002).

In response to similar data, Congress commissioned (through OMH) a study from the National Academies' Institute of Medicine (IOM) to: 1) assess the extent of disparities in the types and quality of health services received by U.S. racial and ethnic minorities and non-minorities; 2) explore factors that may contribute to inequities in care; and 3) recommend policies and practices to eliminate these inequities. The study produced a report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Smedley et al. 2002), which found that a consistent body of research demonstrates that racial and ethnic disparities remain even when controlling for insurance status, income, age, and severity of medical conditions.

The research indicates that racial and ethnic minority Americans are less likely to receive even routine medical procedures and experience a lower quality of health services. The report shows that racial and ethnic minorities are less likely than Whites to receive needed services, including clinically necessary procedures. These disparities exist for a number of diseases, including cancer, heart disease, HIV/AIDS, diabetes, and mental illness. Moreover, evidence suggests racial disparities in care and treatment for cancer and cardiovascular disease are associated with higher mortality rates among racial and ethnic minorities (Bach et al. 1999; Peterson et al. 1997). Communication barriers resulting from linguistic differences are increasingly being recognized as contributors to these and other health disparities (Brach and Fraser 2000; Collins et al. 2002; Denboba et al. 1998).

An inordinate amount of evidence has demonstrated that racial and ethnic disparities in health status and health care persist. These disparities are particularly troubling and

challenging given the ever-increasing racial, ethnic, cultural, and linguistic diversity of the U.S. population.

Increasing racial, ethnic, and linguistic diversity in the U.S. Over the last several decades, the United States has experienced high levels of immigration which have dramatically increased the cultural and linguistic makeup of the population. The 2000 Census reported that there are over 31 million foreign-born residents, and more than 10.5 million people who reported they speak little or no English—up from 6.6 million in 1990. Census data also show that more than 300 languages are spoken in the U.S., with 18 percent of the population speaking a language other than English at home—up almost 14 percent from the previous Census (U.S. Bureau of the Census 1994, 2000). Among those who reported speaking another language at home, 30 percent of Spanish speakers identify themselves as speaking no English or speaking some English. A total of 23 percent of those who reported speaking an Asian language identified their capability to speak English as not knowing English at all, or knowing very little English (U.S. Census Bureau 2002). These population changes have resulted in hundreds of languages being spoken in both urban and rural areas throughout the U.S. As such, these changes have caused an increase in the proportion of individuals who have LEP, or who cannot speak, read, write, or understand the English language at a level that permits them to interact effectively with health care providers and social service agencies.¹

In addition, estimates indicate that by 2010, the U.S. racial and ethnic minority population will have increased by 60 percent (U.S. Bureau of the Census 2001). Moreover, as the nation's population becomes increasingly diverse, racial and ethnic minorities continue to experience significant health disparities.

Language barriers influence health care quality. Clear communication and mutual understanding between physician and patient are fundamental to the effective delivery of quality health care services. That is, *to understand and be understood is an essential component of health care quality*. The exchange of important health information between physicians and their patients takes place in a setting where communication is, at best, strained—given that patients are in distress, scared, and often in pain. When barriers resulting from language dissonance (i.e., two parties who speak different languages) are added to an already stressful situation, critical health information is not properly conveyed and can severely compromise the quality of care patients receive.

¹ The definition of an individual with LEP is taken from the HHS August 2000 and February 2002 Guidance. HHS revised the definition in August 2003 by including language that allows the recipient to make a final determination on the client's LEP status and eligibility for language assistance. Among the major changes to the definition include a change from "individuals who *cannot* speak, read, write, or understand the English language," to "individuals who *do not* speak English as their primary language and who have a limited ability to read, write, speak, or understand English." Also, the new definition includes the provision that the client *may* have LEP, and *may* be entitled to language assistance.

Studies have documented how patients who have LEP often receive less than optimal health care. These studies show that LEP individuals are less likely to receive timely eye, dental, and physical examinations (Kirkman-Liff and Mondragon 1991). Other studies have found LEP patients have fewer physician visits (Pitkin Derosé and Baker 2000), and are less likely to return for follow-up visits after being seen in the emergency room, when compared to patients with English proficiency (Todd et al. 1993). In addition, some studies have shown that misunderstanding between clients and health care providers often leads to significant delays in treatment, an increased likelihood of misdiagnosis, and clients experiencing a recurrence of illness due to their lack of adherence to treatment. This occurs when physicians are unable to understand their clients' description of symptoms or do not obtain an accurate medical history (Woloshin et al. 1995), when clients require multiple return visits to their providers (Kravitz 2000) or receive incorrect diagnoses (David and Rhee 1998), and when the attending physician orders unnecessary and expensive medical tests (Villarruel 1999).

In addition, studies have suggested that quality health care may be impacted if communications between LEP patients and their health care providers are compromised due to language barriers (Flores 2005, Ku and Waidman 2003, Smedley et al. 2002). LEP patients rely on family members, friends, or strangers who are not trained in the use of medical terminology to provide translation. This often results in miscommunication, as 25 to 50 percent of words and phrases are incorrectly relayed in *ad hoc* interpretations (Interpreter Standards Advisory Committee 1998).

Linguistically appropriate services address language barriers. Linguistically appropriate services (LAS) can improve health care quality, because they help clients gain trust and confidence in accessing health care services. Studies suggest that communicating to patients in their own language improves patients' compliance and understanding of their diseases (Manson 1988); patient self-reported well-being and functioning (Perez-Stable et al. 1997); and access to primary care and preventive services (Jacobs et al. 2001). In addition, LAS can aid health care providers by increasing their ability to understand and improve the accuracy of diagnoses and selection of appropriate treatment (Becker 1980). Studies suggest that accurate communication between patient and provider decreases unnecessary diagnostic testing and increases proper diagnosis, patient compliance, and the retention and use of appropriate services (Davis and Rhee 1998, Queseda 1976, Weiss 2003). Also, clear communication has the potential to improve health outcomes by increasing the efficiency of clinical and support staff, which studies have shown results in greater client satisfaction with services (Beenstock et al. 1998), leading to increased patient compliance with treatment (Brach and Fraser 2000).

Federal regulations and guidance for providing LAS. Title VI of the Civil Rights Act prohibits recipients of federal funding from discrimination on the basis of national origin and affirms the rights of persons with LEP to receive meaningful access to federally supported programs. In August 2000, the HHS Office for Civil Rights (OCR) issued a

policy guidance specific to HHS programs and services to assist their federal fund recipients in complying with Title VI. This was a response to Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, which required each federal agency to issue such a guidance and develop plans to improve access to its own programs and activities.

While many public comments were supportive of the guidance, others from medical and dental organizations, including the American Medical Association (AMA), interpreted the guidance as a “well-intended but unfunded federal mandate” which would impose undue financial burden on health care providers and, thus, discourage treatment of patients who may be most in need of care. In response to such public comments and to additional requests by the Department of Justice, HHS republished its guidance in February 2002, further revised the guidance for consistency and uniformity with other agencies, and reissued the guidance in August 2003 (*Federal Register* 2002).

In 2001, OMH released its *National Standards for Culturally and Linguistically Appropriate Services in Health Care: Final Report*. The recommended culturally and linguistically appropriate services (CLAS) standards were developed to help health care providers, advocates, and policymakers serve their LEP clientele with greater quality and efficiency. The 14 standards cover different service delivery and quality issues including: diverse and culturally competent staff, consumer and community input, bilingual/interpreter services, translated written materials, and quality monitoring and improvement (QMI) data collection and performance evaluation. Each standard includes discussion of its relation to existing laws and policies, and makes recommendations for implementation.

1.2 PROJECT PURPOSE

1.2.1 Initial Project Parameters

In 2002, OMH set out to begin a project that would attempt to respond to some of the concerns raised by health plans, physicians, and provider groups regarding the costs of providing LAS. As mentioned above, in the last several years, OCR had developed and disseminated policy guidance for federally funded health care entities on the importance of providing LAS, and offered examples of flexibility for meeting those obligations. Although these releases were not issued as federal mandates, the AMA and other physician groups responded by arguing, in part, that LAS provision for smaller practices or individual providers, in particular, may be too costly.

OMH wanted to explore the nature and extent of costs associated with *not* providing LAS, based on the theory that not adequately addressing language barriers in the health care setting has its own associated costs and, indeed, may actually result in *higher*

costs—both economic and non-economic. The notion that a higher proportion of (costly) mistakes would occur when clear physician-patient communication does not exist, compared to when clear communication does exist, is quite reasonable. Using a simple example, when language barriers are present, the patient's symptoms may be initially misunderstood, leading to inappropriate diagnostic testing (with unnecessary tests ordered, or tests not ordered when appropriate), missed or delayed diagnosis, inappropriate treatment options, and ultimately, more long-term care (even hospitalization) needed for the patient due to the series of misunderstandings. Moreover, if a patient leaves the health care encounter without a thorough understanding of the physician's instructions, it could result in the patient cycling back through the system and process unnecessarily, perhaps with an even more severe health status—resulting in unnecessary and inordinate costs to the health system, the patient, and society as a whole.

In any interaction between patient and his/her health care provider and/or system, *the ability of each party to understand and be understood is critical* to appropriate and timely access and utilization of health care services, patient compliance, and positive health outcomes. Also, in order for any system of health care to be truly effective in serving populations whose national origins, languages, and/or cultural backgrounds differ from those employed by the health system, the provision of services that are linguistically appropriate and culturally sensitive is essential. Such services involve efforts to enhance and assure that health care providers and other personnel can both communicate with and clearly understand the concerns and needs of the patient being served, as well as provide instructions, interventions, treatment modalities, and other recommended actions in a manner and context that will optimize patient receptivity and compliance.

This project was prompted, in part, by concerns about the costs of providing LAS raised by health care professionals and provider groups mentioned above as well as by the need to weigh such concerns against possible costs and other impacts of not providing LAS within the context of health care. The effort was initiated to generate insight into costs and quality of health care provision, and how costs and quality are impacted when physician-patient communication barriers persist. Such information would enable health plans, providers, and other decision-makers to better weigh the pros and cons of providing LAS within the context of health care.

Because little was known at the time about the impacts of communication barriers on health care costs and quality, this was somewhat of a trailblazing endeavor. As such, the first year of the project focused on gathering information and guidance from a group of experts representing four main areas of study: 1) communication/language barriers and cultural competency; 2) medical errors and patient safety; 3) health care quality and health disparities; and 4) health economics and cost-effectiveness in health care. The project expert panel, its activities, and contributions to the project are described in detail in Chapter 2.

At its onset, the focus of the project was limited to *verbal* communication barriers during *clinical encounters* between *physicians and patients* who speak *different languages* (i.e., when there is language dissonance).² The project had three initial goals: 1) to develop a taxonomy of medical errors that result from physician-patient communication barriers; 2) to develop a cost assessment model that illustrates the linkages between (a) costs associated with (b) medical errors that result from (c) physician-patient communication barriers; and 3) to develop a model implementation plan for conducting an actual cost-benefit study. Again, all of these efforts would be guided by a project expert panel comprised of select professionals with relevant but varied expertise and experience.

Develop a taxonomy of medical errors that result from physician-patient communication barriers. Because the initial thinking was that excessive costs would be generated from mistakes made during the clinical encounter due to unclear communication between physicians and LEP patients, the first product to be developed would be a taxonomy or classification scheme of medical errors that may result from communication barriers. The taxonomy would include a listing of specific errors that could occur in the clinical setting and be attributed to the fact that the physician and patient speak different primary languages (language dissonance). Examples of medical errors that would comprise the taxonomy include: inaccurate documentation of patient history and current symptoms; chart incompleteness; invalid or questionable patient consent; inappropriate diagnostic tests ordered, or tests *not* ordered when appropriate; wrong, missed, or delayed diagnosis; inappropriate treatment plans offered or medications provided; misunderstood instructions for taking medications; or misunderstood instructions for follow-up procedures/appointments.³ Once the taxonomy of medical errors was developed, it would be placed within a broader conceptual model that would illustrate linkages between communication barriers, the resulting medical errors, and the impacts of the errors on health care costs and quality.

Develop a cost assessment model that illustrates the linkages between (a) costs associated with (b) medical errors that result from (c) physician-patient communication barriers. The model would identify (through the taxonomy) what the impacts on health care quality associated with language barriers were, and would also identify how to collect cost data on such impacts. Assuming this effort was feasible, the final model would inform the development of an implementation plan for, presumably, a national study to gather and determine cost averages. The rationale for cost averaging was to enable individual

²Types of physician-patient communication barriers *other than language dissonance* include: lack of linguistic clarity (where physician and patient speak the same language but, e.g., an unfamiliar or heavy accent impedes understanding); low level of health literacy (where health concepts conveyed by the physician are unfamiliar, unclear, or too complex for patient understanding); or physicians' use of technical language or jargon (where medical terms are used that are unfamiliar to the patient and result in diminished or total lack of understanding).

³Some of these examples are noted in the work of Dovey et al. 2002.

hospitals, health plans, and provider groups to conduct cost-benefit analyses of addressing and not addressing language barriers without having to divulge any cost data that may be proprietary in nature.

Develop a model implementation plan for conducting an actual cost-benefit study.

Once the conceptual model was fully developed, OMH, the project team, and the expert panelists would develop an implementation plan for testing the model in an actual cost-benefit study. The implementation plan would provide a research design (utilizing the model as its framework) for an initial study to gather appropriate data and generate initial cost-benefit analyses that shed light on the costs of not providing LAS. The intention was that such a study would be the first of many to follow, but it would be broad and rigorous enough to show that the economic argument for providing LAS is a sound one. The hope was that the findings from a national study of this kind would provide physicians, health plans, and other provider groups with a better understanding of costs associated with *not* providing LAS in their health care settings. Such an understanding would allow health professionals to make more informed decisions about adequately and effectively addressing communication/language barriers in health care and, as a result, improving the overall quality of care for their patients.

1.2.2 Revised Project Parameters

Over the first year, some of the original project parameters were revised based on the input and deliberations of the expert panelists. These deliberations, recommendations, and project revisions are described in detail in Chapter 2. Briefly, the primary revisions to the project's scope and products included:

- The initial project focus, limited to *physician*-patient language barriers, would be expanded to include language barriers between patients and all *health care providers*.
- Similarly, the initial scope was limited to experiences during the *clinical encounter*, but was expanded to include the *entire health care continuum*.
- The conceptual model originally envisioned would illustrate the linkages between provider-patient language barriers, resulting *medical errors*, and ultimate costs associated with those medical errors. From the first meeting with the expert panelists, there was strong consensus that medical errors represented only one type of impact on quality, and the effort should be expanded to include all *impacts (of language barriers) on health care quality and utilization*, and not limit the model and subsequent studies to costs associated with medical errors only.
- The conceptual model should be developed as a tool for individual researchers, and should not attempt to include a detailed taxonomy of quality impacts

associated with language barriers or related costs. There was general consensus among expert panel members that obtaining cost data from hospitals and other health care settings to conduct specific, localized, cost-benefit studies of addressing and not addressing language barriers— or providing and not providing LAS—would not pose particular problems for researchers. Thus, identifying and developing a means for gathering national average costs of the impacts of language barriers in health care was unnecessary. Instead, expert panel members agreed that a simpler and more expedient approach would be to allow the model to serve as a framework for conducting numerous studies, and enable individual researchers to appropriately identify and define their own model components (e.g., study populations, settings, disease-specific quality measures, applicable cost data, and outcomes) based on their particular research questions and interests.

- Thus, the model would serve as the basis for more localized research efforts. Such a localized study would follow actual LEP patient populations in a given health care setting and generate findings (relatively quickly) that address the project's primary objective, i.e., potentially provide initial data that show the quality and cost implications of *not* providing LAS.

These final two recommendations for project revision spoke to the expert panelists' sense of urgency for getting the model developed, getting into the field, and gathering the appropriate data to determine if, indeed, the economic case could be made for providing LAS in health care. Chapter 2 describes the project activities over the course of the first year, including establishing the project expert panel; commissioning analytic briefs that provide an overview of the literature and research in the project's four areas of study; and holding expert panel meetings to refine the project's scope and develop its final products.

Chapter 2

Project Approach and Activities

CHAPTER 2: PROJECT APPROACH AND ACTIVITIES

This chapter describes the approach utilized to accomplish the project's objectives. The first step was to establish a project expert panel with members that represent varied areas of expertise and diverse personal and professional histories. In order to provide the expert panel members, OMH staff, and the project team with an initial understanding of the current "landscape" of thought and research in each of four focus areas and their interconnectedness, four analytic briefs were commissioned, disseminated, and studied. Finally, panel members were convened for two, two-day meetings at critical points of the project to provide review and comment on draft project documents and to offer recommendations for moving forward.

2.1 ESTABLISH A PROJECT EXPERT PANEL

Because the project's initial scope was a complex and challenging endeavor, it was important to have an expert panel with varied expertise and experience to guide its direction. In order to accomplish the project's objectives, four key areas of expertise were needed on the advisory panel to cover the primary conceptual components of the project:

1. Communication/Language Barriers in Health Care
2. Medical Errors and Patient Safety
3. Health Care Quality and Disparities
4. Cost Studies in Health Care and Health Economics

Panel members were invited to participate on the project based on their professional achievements in their respective areas of expertise. The group comprised both federal and non-federal representatives. Also, members were selected with the intention of including representation of diverse professional backgrounds, e.g., physicians, academic professors, researchers, health policy analysts, and medical directors. An official membership list of the project expert panel is provided in Appendix A.

2.2 IDENTIFY AUTHORS AND COMMISSION FOUR ANALYTIC BRIEFS

Once the expert panel was established, OMH invited four of the panel members (each member representing one focus area) to author an analytic brief that summarized current knowledge, recent literature and studies, and gaps in understanding in their particular fields.¹ These papers were commissioned to provide at the onset a general overview of the literature in each area of expertise, so that all panel members, OMH staff, and the project

¹ The authors were provided a stipend for producing draft and final versions of the analytic briefs.

team would have an initial understanding of what is “known and unknown” in each area and the relevance of each to the overall project before moving forward. OMH provided the authors with guidance on writing the papers, including a set of initial questions to cover in the briefs, but encouraged the authors to use their own discretion (based on their expertise) on what information would be most relevant to the project. The OMH written guidance for the authors and the four analytic briefs are provided in Appendix B.

The analytic brief written by Sharon M. Lee, Ph.D., *A Review of Language and Other Communication Barriers in Health Care*, described various types of communication barriers that occur between providers and patients, including barriers related to differences in race/ethnicity, gender, socioeconomic status, and physician interaction style. The paper written by M. Chris Gibbons, M.D., M.P.H., *Quality, Communication and Health Disparities*, provided a review of current research that establishes a link between quality health care provision and patient outcomes. The paper, *Medical Errors and Patient Safety*, written by Marilyn M. Rosenthal, Ph.D., offered recent literature that identified different types of medical errors resulting from communication barriers, and also identified many gaps in knowledge and research related to medical errors—gaps that would later result in changing some project parameters. Elizabeth A. Jacobs, M.D., M.P.P., authored the paper, *The Costs and Benefits of Overcoming Language Barriers in Health Care*, which described the very few studies that have been conducted to examine costs related to language barriers or health care quality for persons with LEP. This paper also identified key issues related to *measuring costs and benefits* of providing LAS.

Collectively, the four analytic briefs provided an understanding of the landscape of current thought and research related to the project, and informed subsequent deliberations and recommendations related to project parameters. At the first meeting of the project expert panel, each author presented an overview of his/her brief. These presentations and the group discussions that followed are described in Section 2.3.

2.3 HOLD FACE-TO-FACE MEETINGS

The project expert panel was convened twice—May 8-9 and October 16-17, 2003—for two-day meetings in the Washington, D.C. area. M. Chris Gibbons, M.D., M.P.H., effectively served as Chair of both meetings. Prior to the meetings, draft documents and project deliverables were disseminated to panelists for review and comment. Summaries of the goals, activities, and accomplishments for each meeting are provided below.

2.3.1 Meeting One: May 8-9, 2003

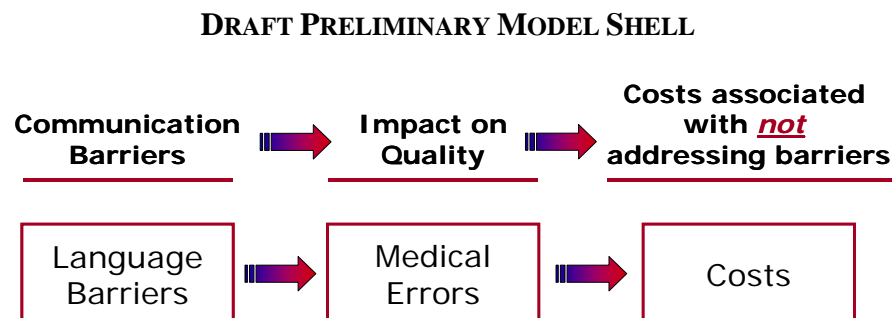
Prior to the May meeting, panelists were provided with the four draft analytic briefs for review. The goals of this first meeting were to: 1) present, discuss, and obtain recommendations for revising/finalizing the analytic briefs; 2) obtain experts' guidance on the development of the taxonomy of medical errors; and 3) discuss the development of an initial draft conceptual model for assessing the impact of language barriers on health care costs and quality.

2.3.1.1 Presentation of Project Scope and Draft Model Shell

At the start of the first meeting, an overview of this project was given by the COSMOS project director. The complete presentation is provided in Appendix C.

Project overview presentation by Angela Ware, Ph.D. In addition to outlining the study's primary goals, timeframe, and products to be developed, Dr. Ware presented an initial draft shell for displaying or conceptualizing a cost assessment model in which a taxonomy of medical errors (that result from language barriers) would be included. The draft shell comprised three main categories: 1) language barriers, 2) medical errors that result from language barriers, and 3) clinical and economic costs associated with not addressing the barriers. As shown in Figure 2-1, the draft preliminary model shell provides the basic layout for beginning a discussion of how the cost assessment model could be developed. The draft model shell represents possible ways to examine the relationships between language barriers and costs associated with those barriers. The model shell was presented in its simplest terms so that panel members could provide input on the appropriateness of the initial model shell and on the direction of its development.

Figure 2-1



Moreover, subcategories of each model shell box were presented as examples of varied options for moving forward in model development. These examples show how each box may be thought of and pursued with different levels of scope as well as different options for categorizing the specific components within each model box.

Figure 2-2a illustrates how the first box of the model shell may be broader in scope, by including all four primary types of language barriers (i.e., language dissonance, lack of language clarity, low level of health literacy, and use of unfamiliar technical terms). Although such a broad scope for this model element was not intended in OMH’s original parameters, during this early stage of the project, it was important to present and discuss with panel members all possibilities regarding potential model components.

Figure 2-2a

LANGUAGE BARRIERS: BROAD SCOPE

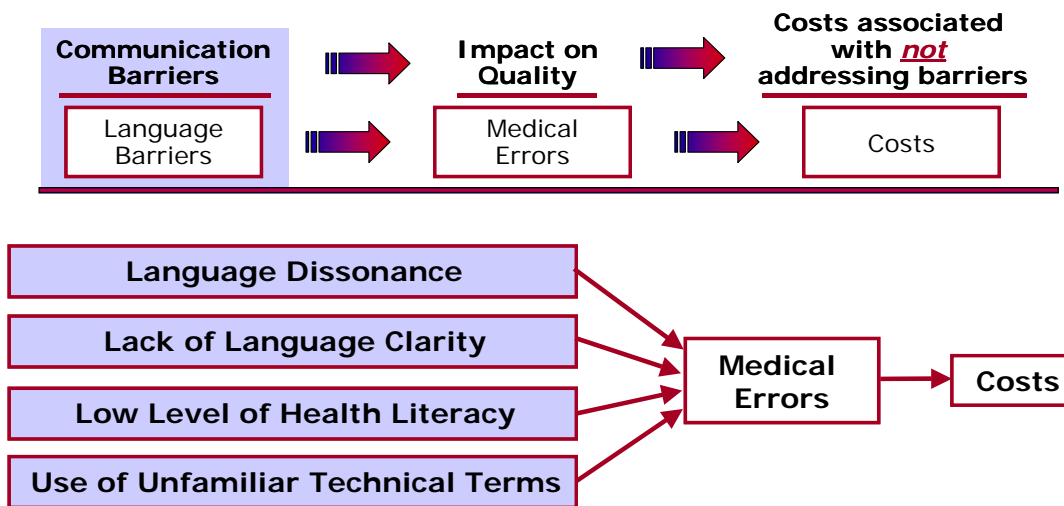
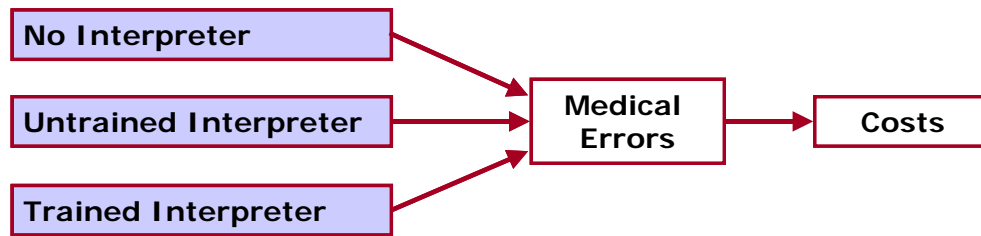


Figure 2-2b illustrates the more focused scope that represents the original thinking for this particular model component. Here, communication barriers would be limited to one type of language barrier, i.e., physician-patient language dissonance. Examples of subcategories that could be used to measure different strategies for addressing (or not addressing) language dissonance were presented: no interpreter; an untrained interpreter; and a trained interpreter. This “subcategory” example shows how a potential research study could begin to surface. Potentially, three groups of patients who speak different primary languages from their physicians could be followed through their health care encounter: 1) those patients who receive no interpreter services; 2) those patients who

Figure 2-2b



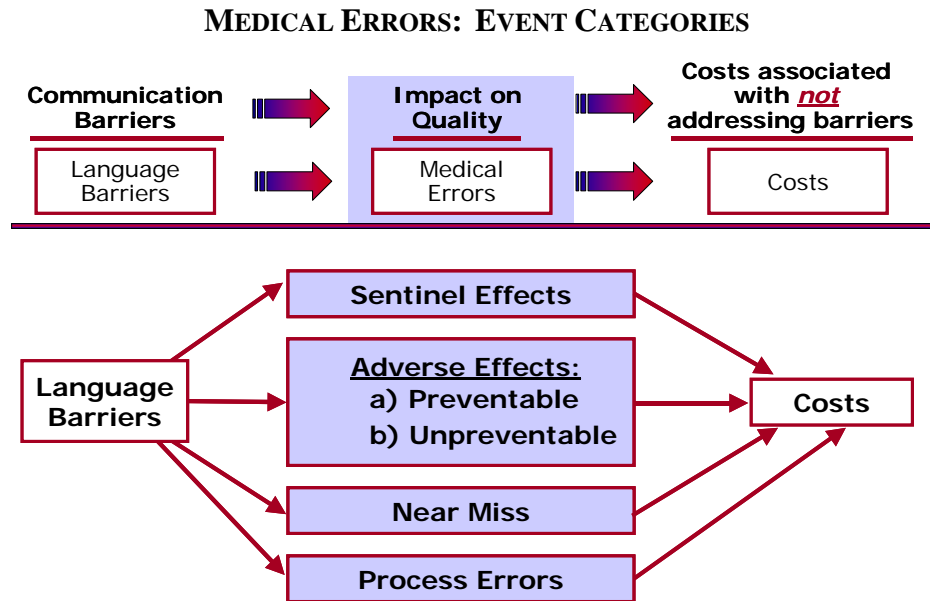
Strategies for Addressing (or not addressing) Language Dissonance:



receive “lesser quality” interpreter services; and 3) those who receive “higher quality” interpreter services using a trained and tested medical interpreter. The idea involves comparing number and types of medical errors and the cost implications of those medical errors for each group of patients. The initial hypothesis would be that those LEP patients who receive “higher quality” interpreter services would have fewer medical errors and lower resulting costs associated with their health care encounter than those patients who did not receive such services.

For the medical errors box, two examples of potential subcategory types were presented: 1) event categories; and 2) knowledge/skills categories. Figure 2-3a illustrates a classification scheme of medical errors by event category. Continuing with the study example described above, the types of medical errors experienced by the three groups of LEP patients could be examined and costed out, identifying particular problematic areas (and their economic costs) that are impacted by physician-patient language dissonance.

Figure 2-3a



Figures 2-3b and 2-3c utilize a draft classification scheme of primary care medical errors developed by Dovey et al. in 2002.² What was most interesting and seemingly applicable to this project (in addition to the provision of a detailed schematic of various types of medical errors) was the subcategory noted in section 1.4.1 of the taxonomy, i.e., *communication with patients* as a type of medical error. It seemed promising that this draft taxonomy of medical errors recognized the relevance and importance of physician-patient communication, and potential errors related to patient consent, in its classification scheme. As such, the hope was to explore with the panel members possibilities for utilizing this taxonomy in the development of the model.

For the “costs” box of the model shell, varied levels of scope were presented to the panelists for discussion. Figure 2-4a illustrates the broadest way of classifying costs by simply breaking down economic and non-economic costs associated with the medical error(s) that resulted from the language barrier. Figure 2-4b shows how the economic and non-economic costs could be further broken down into direct and indirect costs. Finally, as shown in Figure 2-4c, a more focused scope might indicate short-term and long-term (direct and indirect, economic and non-economic) costs. For this component especially, OMH and project staff would rely heavily on the expertise of the panel members. It was unknown at that time if actual cost data existed on any of these levels that might be useful in the model.

² R.L. Phillips, Jr., who was an author of the Dovey et al. 2002 publication, served as a project expert panel member on this OMH project.

Figure 2-3b

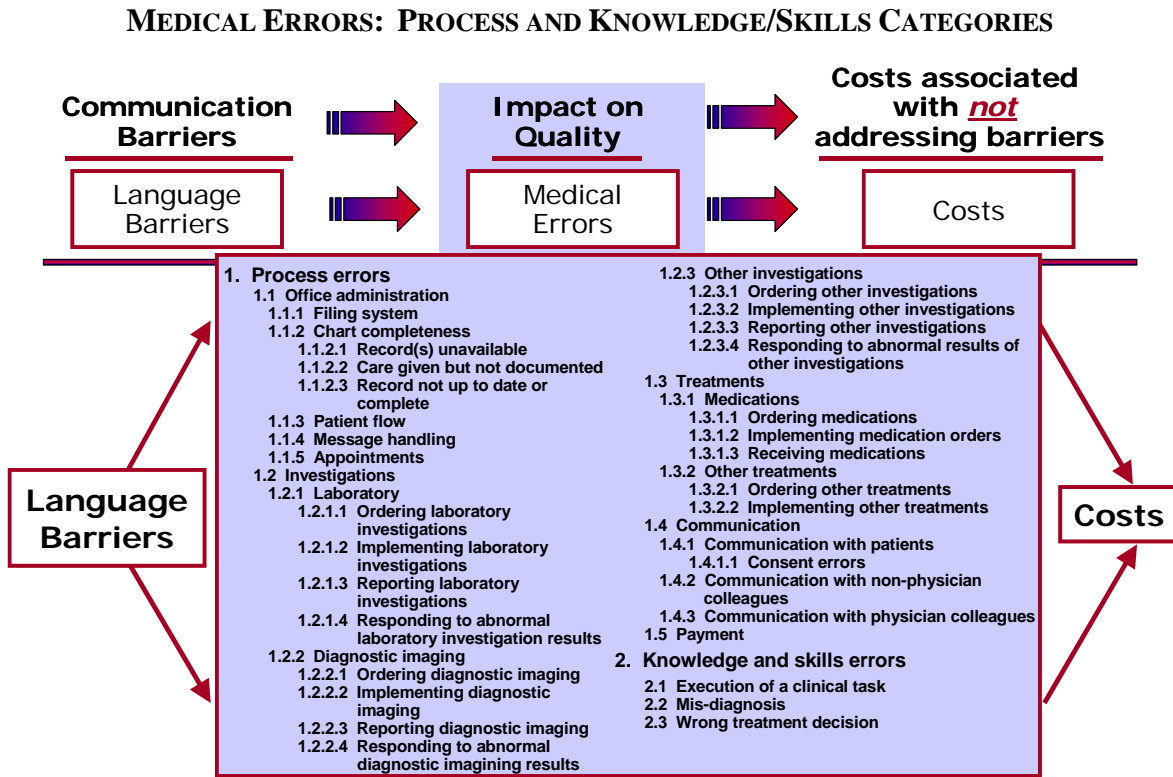


Figure 2-3c

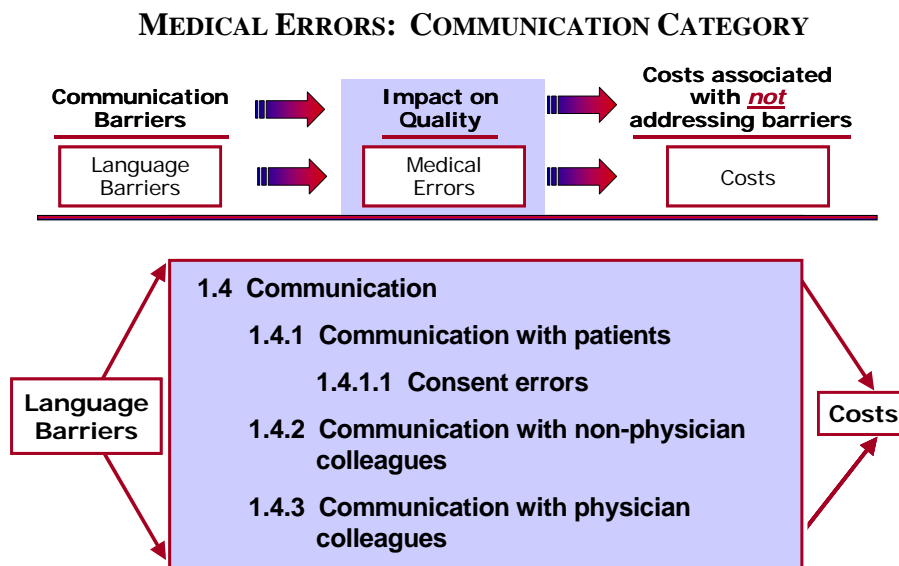


Figure 2-4a

COSTS: LEVEL OF SCOPE (1)



Figure 2-4b

COSTS: LEVEL OF SCOPE (2)

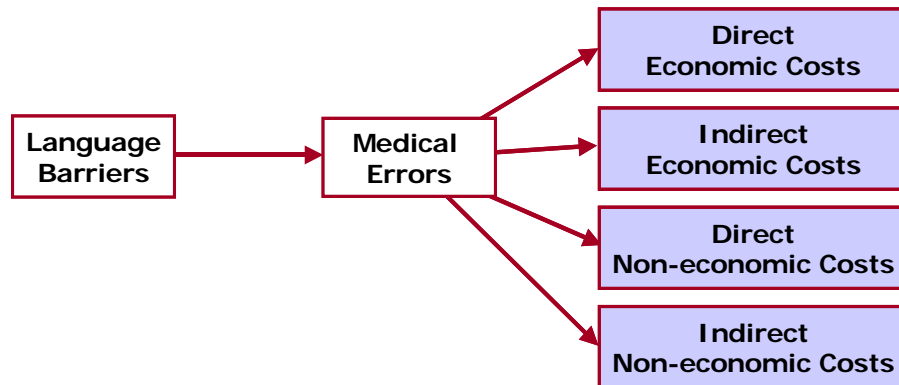
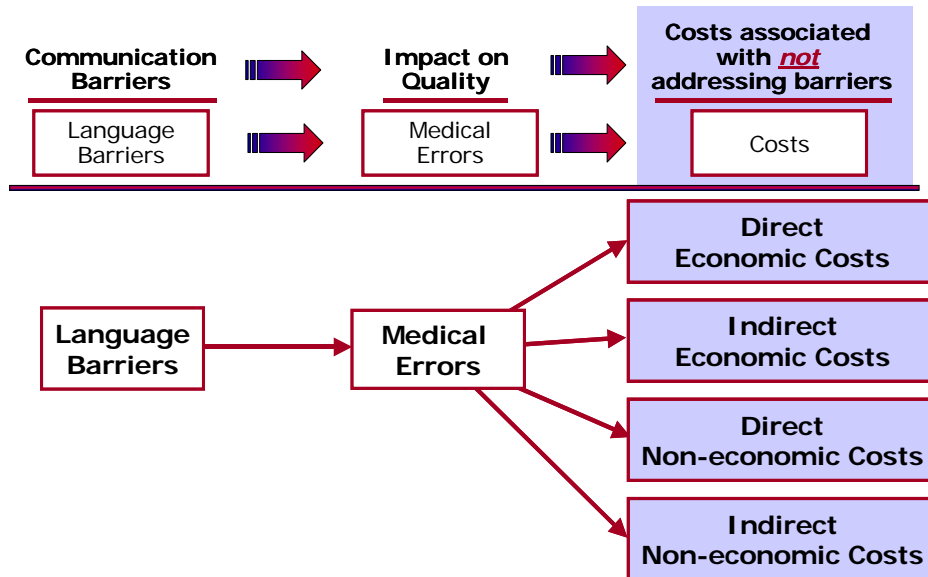
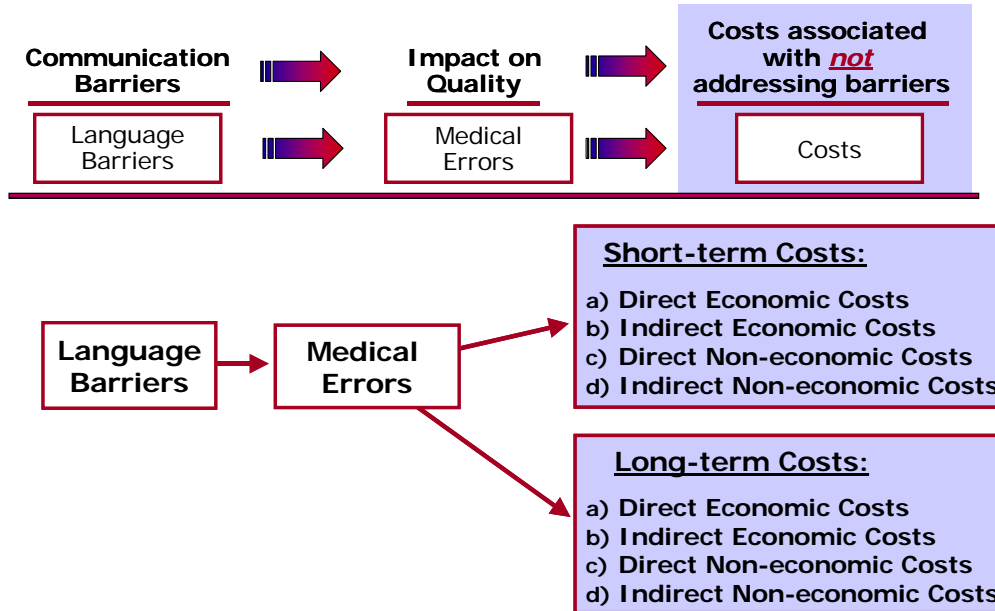


Figure 2-4c

COSTS: LEVEL OF SCOPE (3)



Following this “project overview” presentation, panel members were asked to express any initial thoughts or considerations that should be deliberated before moving forward. At this point, many preliminary ideas had been presented, and it was important to discuss the participants’ initial reactions to these proposed ideas.

2.3.1.2 Initial Considerations Raised by Panel Members

Several conceptual issues were raised during this initial discussion related to the project’s parameters. Certain elements of the ideas presented were identified by panel members as potentially problematic and in need of clarification, or even revision. These discussions continued throughout the two-day sessions, as we revised and re-revised the project’s scope, based on the experts’ input. The initial considerations related to the project’s parameters are summarized below.

Use of the term “communication barriers” in project title and model.

Communication barriers are much more broad and encompassing than language barriers. Communication barriers are not limited to language barriers. Rather, there is overlap among these concepts; language barriers comprise *only one type* of communication barrier. If the project and model are only recognizing *language* barriers (specifically, language dissonance), then that term should be used instead of *communication* barriers.

Limiting “language barriers” to language dissonance. Language dissonance is only one type of language barrier. Panel members cautioned that language barriers outside of language dissonance would be extremely difficult to identify and measure during the model implementation phase. However, if the model is limited to examining language dissonance as the principal type of barrier for gauging costs, the model should acknowledge other types, especially health literacy.

Communication/language barriers are not only experienced between physicians and patients. Communication barriers are not delineated only by the physician-patient encounter, but rather to the entire health care experience of patients.

Factors other than LAS impact health care quality and costs. Although LAS increase the level of effective communication among individuals, such services do not guarantee that health outcomes will be positive. Many other factors are involved in quality care. It will be essential to recognize other factors that impact health care quality and costs in the conceptual model.

The study of medical errors is an emerging field. There is no standard or uniform definition of what a medical error is, or how it should be measured. Similarly, once medical errors are defined, it is difficult to tease out (or make a sound attribution to) a communication/language barrier as the cause. Therefore, panel members emphasized the importance of looking at the systems in which medical errors occur. Moreover, there are many issues related to measuring and attributing costs to medical errors; lack of optimal care is not always associated with an error. This recognition evoked unanimous consensus among panel members to broaden the project/model scope to include *all impacts on quality* (of which medical errors represent only one impact) that may be associated with language barriers.

2.3.1.3 Presentation and Discussion of Four Analytic Briefs

As mentioned earlier, several months prior to the first expert panel meeting, authors prepared draft analytic briefs that would provide OMH, project staff, and the other panel members with a common understanding of the literature in the four pertinent areas of study for this project: 1) communication/language barriers in health care; 2) medical errors and patient safety; 3) health care quality and disparities; and 4) cost studies in health care and health economics. Authors were asked to summarize what is known and unknown (regarding literature and research) in their particular area, as well as existing gaps in knowledge. Each author was provided a set of guiding questions for developing their brief. The guiding questions for all four authors may be found in Appendix B-1.

At the first expert panel meeting, each author presented an overview of his/her brief. Throughout the presentations and group discussions that followed, recommendations emerged that not only pertained to (and influenced) the project’s scope and its tasks, but

also pertained to further actions, especially the need for future research beyond this particular project. These presentations and resulting recommendations are summarized below.

Presentation of Draft Analytic Brief #1: Communication/Language Barriers in Health Care, by Sharon M. Lee, Ph.D. Dr. Lee presented an overview of her paper which reviewed the literature on language and other communication barriers in health care. The focus of her review was on effective communication, which she describes as “at a minimum, that all participants in the communication comprehend and understand the content of the communication” and that it “implies subjective feelings such as trust, empathy, and mutual satisfaction with the communication.”

Her review of the literature on language and cultural barriers led to two primary conclusions: 1) that LEP and culturally different patients are underserved by the U.S. health care system; and 2) that language differences become barriers to health care by making communication between patients and health care providers difficult at various points of contact with the health care system, including scheduling appointments and understanding instructions for follow-up care. Her literature review also revealed that communication-related medical errors occur through mistakes in medical history taking, patients’ lower adherence to treatment because of the inability to understand and follow instructions, and over-treatment of patients. However, Dr. Lee suggested more research is needed on direct links between language and cultural barriers in physician-patient communication and specific health outcomes.

Other barriers she described within the physician-patient encounter included health literacy, race/ethnicity, gender and socioeconomic status, as well as physician interaction style. She reported that there is a serious lack of research on interventions to reduce such barriers, and that research on different kinds of language assistance interventions is scarce.

Dr. Lee offered three primary areas of concern: 1) the important distinction between communication barriers and language barriers; 2) the fact that there is an overlap of language barriers and cultural barriers; and 3) that additional research on cultural groups needs to continue but go beyond Hispanics. Dr. Lee suggested that one way of approaching the research component of this project would be to conduct a panel study, where groups of patients are followed and studied over time. She also emphasized the need for research on particular communication barriers and their consequences.

Following Dr. Lee’s presentation, questions were raised and discussed on the concept of “communication barriers” and how such barriers directly relate to health care. Some of the issues highlighted included the fact that communication barriers are not limited to language barriers, and that they are not only delineated by the physician-patient encounter, but rather to the entire health care experience of the patient, such as calling the doctor’s office to make an appointment. Another factor pointed out by panel members was that

LAS increase the level of clear communication. However, clear communication does not guarantee that health outcomes will be successful because there are many other factors involved in medical care. For instance, many doctors already do not have the appropriate time to be with patients.

Panel members also questioned the efficacy of looking into studies on safety and quality in other sectors of society—such as the airline industry or criminal justice system—to identify comparable situations where language barriers negatively impact a quality standard. Panelists agreed that health care is now seen as a “business,” and that there are market strategies for medical settings to try to improve the level of care. However, members concluded that it is dangerous for quality improvement models to be adopted from other business sectors, because they are not always evidence-based.

Dr. Lee’s final analytic brief may be found in Appendix B-2.

Presentation of Draft Analytic Brief #2: Medical Errors and Patient Safety, by Marilyn M. Rosenthal, Ph.D. Before interjecting communication/language barriers into the context of quality of care, Dr. Rosenthal presented an overview of the research on medical errors. She stated that it will be a “tremendous challenge” for panel members to clearly define where communication barriers relate to patient safety and health outcomes.

She showed that the notion of medical errors dates back to the beginning of medical practice, and that there has been a tendency throughout history (when identifying medical errors) to look at the medical practitioner and his/her knowledge and skills, as well as to focus on the severity of errors. According to Dr. Rosenthal, in order to analyze medical errors, one should understand the context in which they occur, i.e., the culture and nature of medical work, as well as the systems in which they are embedded. She explained that there are overarching themes on how doctors do their work. For instance, they present a shared vulnerability, and they believe only persons within their profession can judge their work.

She also mentioned that currently there are different definitions of medical errors used in research and indicated that there is no consensus on terminology or categorization for these errors. Some examples of medical errors included: omission, system factors, and negligence. She emphasized the importance of recognizing that not all medical errors harm the patient. For instance, if an incorrect dosage or type of medication is given to a patient, it may have no damaging effect on the person’s health, but it could be indicative of an unsafe system.

Dr. Rosenthal’s review of the literature reveals that “the medical practice is an art and craft that increasingly tries to rely on science,” and that it is a “probabilistic enterprise.” She presented classic medical error studies, such as one which describes how medical students are trained to deal with uncertainty. Another study she outlined shows that medical residents learn how to work with the inevitability of errors. Dr. Rosenthal

indicated that medical residents should be taught to understand the patient (including cultural backgrounds), as well as the ever-present degree of uncertainty in their profession, of support, of coordination, and of barriers (such as language barriers).

In reference to an earlier panel discussion, Dr. Rosenthal referenced the IOM report which looks at errors from a systems perspective, and encourages the medical profession to examine other sectors of society, such as the airline industry, to assess errors. However, Dr. Rosenthal suggested it could be wasteful to apply what happens in other industries to health care, and that there needs to be a recognition of the specific needs of the health care sector, which reflects the uncertainty of medicine. She further referenced that there is an extensive literature on doctor-patient communications. However, communication barriers and medical mistakes between providers and minority patients have not been subjects of direct research until recently, and there are only a small number of studies on this specific topic.

Discussions following her presentation included a concern on how to better define medical errors, how to identify when and how one occurs, and how it relates to communication barriers. Panel members agreed that language barriers are only one type of a broad range of communication barriers.

Another issue that emerged was the difficulty of teasing out when exactly a communication barrier results in a medical error. An adverse event, for instance, can be the result of poor patient adherence to medication—even when an interpreter carefully conveyed to the LEP patient how the medication should be taken. Similarly, an adverse event could result from a physician's failed attempt to communicate with the patient for reasons other than a language barrier. Therefore, panel members emphasized the importance of looking at the *systems* in which medical errors occur. Moreover, there are many issues related to measuring and attributing costs to medical errors; lack of optimal care is not always associated with an error and may not be associated with language barriers at all.

Knowing how to measure costs associated with medical errors also was raised as a relevant aspect to the development of the taxonomy, especially because it would be hard to identify if the error was a direct result of a communication barrier.

Dr. Rosenthal's final analytic brief may be found in Appendix B-3.

Presentation of Draft Analytic Brief #3: Health Care Quality and Disparities, by M. Chris Gibbons, M.D., M.P.H. Dr. Gibbons' presentation was based on his review of the literature on health care quality and disparities. He framed his presentation within the historical development of the notion and knowledge of health disparities. He showed that, in the past, researchers were reluctant to relate disparities to social ideas, and that studies on quality and health inequalities were more based on geographic variation.

Dr. Gibbons highlighted significant milestone events and studies that were key in the process of recognizing and addressing health disparities, including the British government's establishment of a welfare state in the early 1900s; *The Black Report* in 1980; *Health, United States* in 1983; and IOM's 2003 report, *Unequal Treatment: Confronting Racial and Ethnic Health Disparities in Health Care*.

During the 1970s, an interest in patient-physician communication became apparent. Although advances have been made in medical technology, communication between physician and patient continues to be the most effective method for positive patient outcomes. Much of the early research on patient-physician communication was conducted in Europe. Results generated by the studies showed that a large amount of variability concerning quality health care could be attributed to providers. More specifically, results showed that 70 percent of variability could be attributed to communication aspects of the visit. More recently, one study that assessed the effect of English fluency on health services utilization across racial and ethnic populations found that Spanish-speaking Hispanics were less likely than English-speaking Hispanics to have had a doctor's visit, mental health visit, or influenza vaccination.

Dr. Gibbons further described how patient satisfaction has been associated with reductions in language barriers, and is often considered an important element of health care quality. Although there is limited literature, he demonstrated how few studies have linked patient adherence to care with the provision of LAS.

This presentation was followed by discussions on factors that contribute to health disparities, such as access to care as well as social, economic, environmental, behavioral, and biological factors. However, the focal point was on how communication barriers may increase disparities in health care.

Dr. Gibbons' final analytic brief may be found in Appendix B-4.

Presentation of Draft Analytic Brief #4: Cost Studies in Health Care and Health Economics, by Elizabeth A. Jacobs, M.D., M.P.P. Dr. Jacobs presented a review of the literature on the costs and benefits of overcoming language barriers in health care. She provided an overview of studies available on costs related to language barriers, including her study of a large health maintenance organization (HMO) which 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. The research also included the costs of providing services during the study period. One of the study's results was that patients in the interpreter services group received significantly more primary and preventive care.

Dr. Jacobs showed that costs related to LAS vary considerably, due to the different provision and implementation methodologies, and that there are several types of relevant

costs, such as direct costs (e.g., bilingual physician) and indirect costs (e.g., management of services). Dr. Jacobs described gaps in the research on costs related to LAS, including measuring the benefits of providing linguistic access and measuring the direct and indirect costs of providing these services. She also described methodological issues that may limit the application of a study's findings and conclusions. Among the few studies that have been conducted, some of them neglect to define, identify, and measure certain essential components for any study that involves LAS or persons with LEP. For example, some studies note the use of an interpreter but do not define or distinguish the type of interpreter used. Other studies fail to clearly define "LEP" which may lead to erroneous conclusions in terms of intervention effectiveness. Lastly, small sample sizes make it difficult to generalize findings. Many related studies conducted to date have focused on short-term outcomes rather than long-term outcomes. Again, this inhibits an investigator's ability to determine the long-term impact of a LAS intervention.

Some of the discussions following her presentation were related to costs associated with LAS, and the importance of including them in this project's framework. Panel members gave examples of patients' experiences in health settings that lacked language services and demonstrated how the outcomes can be damaging to one's health and can often increase health care costs.

Panel members concluded that—when researching LAS—several costs and health outcomes should be taken into consideration, e.g., the costs of providing the language services; the costs of not providing those services; as well as clinical outcomes when those services are provided, or not.

Dr. Jacobs' final analytic brief may be found in Appendix B-5.

Recommendations that emerged from the analytic brief presentations and discussions. As mentioned earlier, in addition to providing the project participants with an initial understanding of what is known in the literature about each subject matter, the papers also were to highlight relevant gaps in research and knowledge. Several important recommendations for future research emerged from this effort. As reflected in the analytic briefs and the panelists' subsequent discussions, more research is needed on:

- Direct links between language and cultural barriers in physician-patient communication and specific health outcomes;
- Interventions to reduce barriers within the physician-patient encounter, such as health literacy, race/ethnicity, gender, and socioeconomic status, and physician interaction style;
- Different kinds of language assistance interventions, their costs and impacts;

- Various cultural groups, including, but not limited to Hispanics;
- Particular communication barriers and their consequences;
- Consensus development on terminology and categorization of medical errors and distinctions between those errors that do/do not harm the patient;
- The distinguishing factors of those communication barriers that do/do not result in medical errors;
- Communication barriers and medical mistakes between providers and minority patients;
- The relationship between LAS and positive patient outcomes, such as patient satisfaction and patient adherence;
- Costs related to LAS, including measuring the benefits of providing linguistic access and measuring the direct and indirect costs of providing these services;
- More methodologically sound studies that define, identify, and measure certain essential components for any study involving LAS or persons with LEP, such as clear definitions of LEP or the nature and extent of interpreters used and larger sample sizes from which to generalize findings;
- Longer-term impacts and outcomes of LAS interventions;
- How to measure costs associated with medical errors;
- How systems issues can facilitate or prevent medical errors; and
- Short- and long-term impacts and outcomes, including but not limited to, costs of not providing LAS interventions when language barriers exist.

In addition, a non-research-related action that was recommended was to educate and train medical residents to understand the patient (including cultural backgrounds), and to more effectively deal with language barriers as well as the ever-present degree of uncertainty in their profession.

2.3.1.4 Panelists' Initial Recommendations to OMH and Project Staff (May 2003)

The deliberations described in the previous sections led to seven primary recommendations by the panel members at the conclusion of the May 2003 meeting, and are described below.³ Among these initial recommendations, the first two are related to the project scope, while the remaining five deal with the conceptual model and its components.

Recommendations Related to Project Scope:

Recommendation 1: The project scope should include provider-patient language barriers, and not be limited to physician-patient communications. Because the clinical encounter also involves interaction between the patient and clinical staff *other than the physician* (e.g., triage staff, nurse practitioners, pharmacists, etc.), it is important for the model to include language barriers experienced during interactions with varied staff (i.e., the full range of providers in the clinical setting).

Recommendation 2: The project scope should not be limited to experiences during the clinical encounter. An attempt should be made to include LEP persons' experiences related to the impacts of language barriers on *access* to clinical services. Many LEP patients never make it to the clinical encounter due, in part, to language barriers. To the extent possible, the *entire continuum of care* should be acknowledged by this project and in its primary product, the conceptual model.

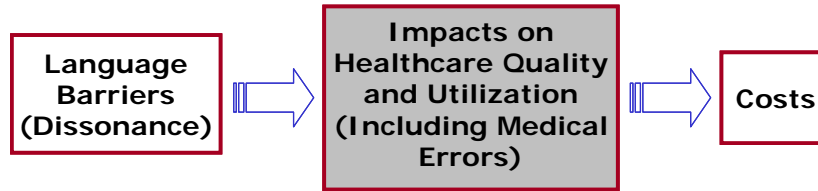
Recommendations Related to Conceptual Model:

Recommendation 3: The “medical errors” box within the model should be expanded to include all impacts on health care quality, of which medical errors represent only one type. As mentioned above, the original “impacts on quality” box within the model shell represented only medical errors that resulted from language barriers. However, panel members agreed that to examine only the costs associated with medical errors would be too limited and quite difficult considering the emerging nature of the literature on the subject. Rather, the taxonomy to be developed within this particular model box should include *all measurable impacts on health care quality and utilization* that may result from language barriers—which includes, but is not limited to, medical errors. Figure 2-5 illustrates the revised version of this model component (shaded portion), as recommended by the panelists.

³Additional recommendations were offered by panelists at the end of the second meeting in October 2003, and are presented below in Section 2.3.2.2.

Figure 2-5

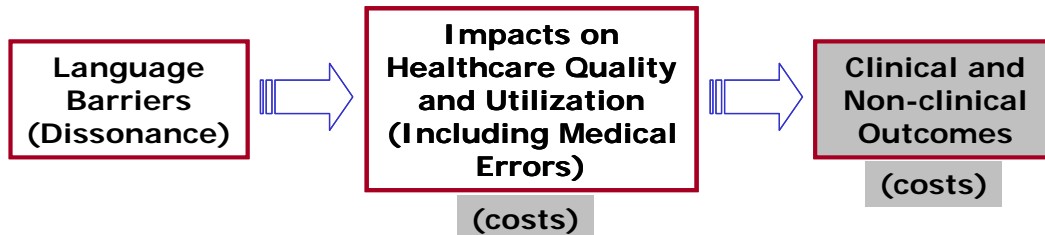
RECOMMENDATIONS FOR MODEL DEVELOPMENT: INCLUDE ALL IMPACTS ON QUALITY



Recommendation 4: *The model should include costs associated with impacts and costs associated with clinical and non-clinical outcomes.* As shown in Figure 2-6, panelists recommended that relevant costs are not limited to the (former) “costs” box within the model. Rather, costs are associated with impacts on quality, as well as (clinical and non-clinical) outcomes. In other words, the “costs” component of this model should not be segmented out as its own box. Instead, a new box that represents “outcomes” should replace the (former) “costs” box, and the “costs” component of this model should be illustrated as relevant *throughout the model* (again, see shaded portions of Figure 2-6).

Figure 2-6

RECOMMENDATIONS FOR MODEL DEVELOPMENT: INCLUDE COSTS ASSOCIATED WITH IMPACTS AND OUTCOMES

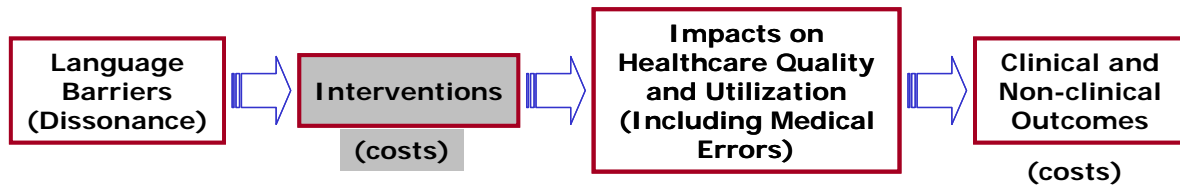


Panel members emphasized the importance of non-economic impacts on health and quality of life, and suggested these impacts might be illustrated in terms other than dollar amounts, such as years of life saved or quality-adjusted years of life saved. In recognition that the economic argument for providing LAS is not always the best one, some panelists suggested the need to include in the model less tangible and less frequently cited benefits of providing LAS, e.g., how LAS may contribute to the well-being of society, and the moral obligation to provide high-quality health care to all patients, regardless of language spoken.

Recommendation 5: The model should include costs associated with different types of language assistance interventions that may be utilized to address provider-patient language barriers. According to panel members, an important model component would be the inclusion of an “intervention” box (and its associated costs) that may be used in health care settings to address existing provider-patient language barriers (see Figure 2-7). Many types of interpreter services (or interventions) are available and utilized in health care settings, e.g., language (telephone) lines; bilingual physicians; face-to-face interpreters; and video conference interpretation. For researchers who eventually implement this project’s model in their studies, this component will be imperative. Studies could be generated that, for example, compare the cost-effectiveness of different intervention modalities, or compare the cost-effectiveness of a particular intervention modality among different non-English languages.

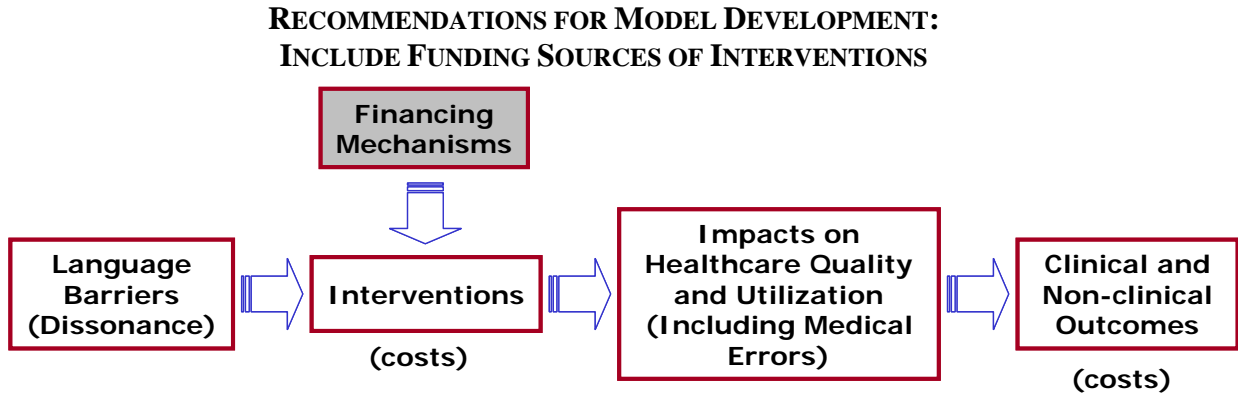
Figure 2-7

**RECOMMENDATIONS FOR MODEL DEVELOPMENT: INCLUDE INTERVENTIONS
(AND THEIR COSTS) THAT ADDRESS BARRIERS**



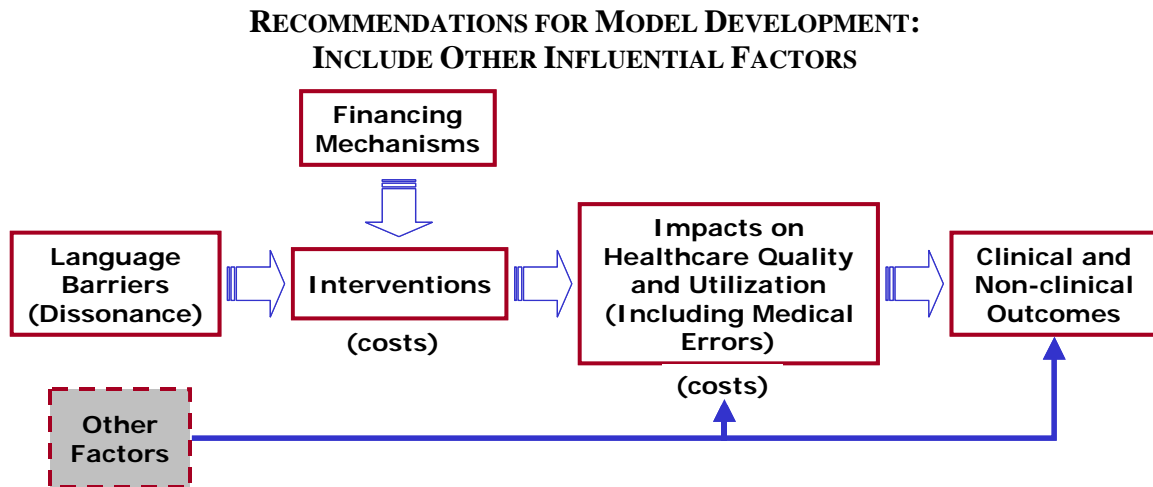
Recommendation 6: The model should identify financing mechanisms for implementation costs related to the different interventions. Similar to the fifth recommendation above, panel members suggested the model include information on financing mechanisms (e.g., prepaid or reimbursed to providers; paid to the individual practice association (IPA); paid directly to interpreters; etc.) associated with the implementation of specific interventions (see Figure 2-8). Although this recommendation was agreed upon during the first (May) meeting, OMH and project staff, as well as some panelists, requested more information on this topic. As such, Kelvin Quan, J.D., M.P.H., then Chief Financial Officer for Alameda Alliance for Health (Alameda), who introduced the idea to the group, was asked to prepare a presentation for the second meeting, held in October 2003. His presentation is summarized in section 2.3.2.1 below.

Figure 2-8



Recommendation 7: The model should acknowledge factors other than language dissonance that may impact health care quality, costs, and outcomes. Because the scope of this project and its model is limited to language dissonance and the resulting impacts on health care quality and costs, panelists pointed to the importance of recognizing and illustrating other factors (e.g., other communication barriers, cultural differences, systemic variability, etc.) that also may influence those outcomes (see Figure 2-9).

Figure 2-9



Following the May 2003 expert panel meeting, the authors finalized the four analytic briefs, and the project team developed the draft conceptual model based on revisions to the project's scope and parameters that emerged during the meeting.

2.3.2 Meeting Two: October 16-17, 2003

The goals of the second meeting were to: 1) present and discuss the importance of financing mechanisms related to LAS provision; 2) present and discuss information on the Agency for Healthcare Research and Quality (AHRQ) *National Healthcare Quality Report (NHQR)* and *National Healthcare Disparities Report (NHDR)*; 3) obtain feedback and direction on the initial draft conceptual model, its components, and applicability; and 4) obtain from panelists suggestions for actual research questions and studies that might utilize the model in one or more follow-on studies.

2.3.2.1 Presentations on LAS Financing Mechanisms and AHRQ's *NHQR* and *NHDR*

Presentation of Financing Models' Effect on the Use of Medical Interpreters, by Kelvin Quan, J.D., M.P.H. Expert panel member Kelvin Quan made a presentation on financing mechanisms for LAS. Alameda is an open-staff model managed care plan with 95,000 members which primarily serves Medicaid and the State Children's Health Insurance Program (SCHIP) beneficiaries in Northern California. Mr. Quan stated that 45 percent of Alameda's membership have LEP. The majority (60 percent) of Alameda's contracts and relationships with physicians are direct contracts; 30 percent are through IPAs or large community clinic networks similar to IPA; and 10 percent are subcontracted to Kaiser Permanente.

Mr. Quan described his observations of physicians' reactions to providing LAS at Alameda. He highlighted the relevance of the 2001 American Medical Association (AMA) letter expressing concern by physicians and dental organizations over the costliness of using interpreters as suggested in the OCR 2000 guidance. He reviewed various examples of how organizations and physicians approach the provision of LAS. For instance, some organizations refuse to acknowledge LAS as a separate expenditure, arguing that it should be factored into overhead expenses. Yet other providers do not view LAS as a medical necessity. Examples illustrated how some physicians and organizations seek coverage for LAS, e.g., through Current Procedural Technology (CPT) codes, Health Insurance Portability and Accountability Act (HIPAA) compliant procedure codes, and payment and reimbursement methods of providers.

At Alameda, the organization handles all aspects of LAS provision. Once it has determined the need for LAS, Alameda notifies the provider of the need, arranges for an interpreter to attend the appointment, and pays the interpreter service directly. Since the use of interpreters increases the time physicians spend with patients, Alameda reimburses the attending physician an additional \$30 if LAS were used during the clinical visit. In 2003, Alameda spent \$180,000 on LAS, which is equivalent to 14 cents per member, per month. For (written) translation services, it spent approximately \$300,000.

Mr. Quan noted that in spite of these systemic and financial accommodations, some physicians still refuse to use LAS arranged through Alameda. Some providers feel it would not be fair to English-speaking patients if only LEP patients received additional services. For providers to fully utilize available LAS, he believes there must be more than financial incentives for providers, such as risk sharing and performance incentives, which prompt physicians to improve quality of care. Mr. Quan identified particular challenges to providing LAS from the providers' perspectives including: 1) financial challenges (e.g., payers do not cover the full cost of the LAS and/or payers do not reimburse for the physician's extra time required to treat a LEP client); 2) challenges related to awareness and knowledge (e.g., providers do not know the patients' language needs prior to the appointment, are not aware of Alameda's payments, or may not know how to use interpreters; and providers may not realize that lack of LAS may result in poor outcomes); and 3) attitudinal challenges (e.g., some providers believe it is easier for the patient to assume the burden of interpreter and language needs, or believe that a disease can be adequately diagnosed without direct communication or that their language skills are adequate, and some providers resent payments received by interpreters that exceed their own payments).

In addition, some providers believe that using family and/or friends for interpretation is an appropriate and effective strategy. Other providers think that obtaining more information from the patient increases the level of effort and time required to treat a patient, and some even believe patients should know English if they live in the U.S., and that current practices (non-provision of LAS) still result in adequate care. Mr. Quan also covered operational issues that are raised by providers as arguments for not providing LAS, e.g., lack of qualified interpreters and an insufficient number of rooms with telephones or speaker phones to accommodate all interpreter engagements.

During the question and answer session which followed Mr. Quan's presentation, a panel member inquired about consistency in the use of interpreters at the systems level. Mr. Quan stated that, although providers and patients continue to use interpreters and believe them to be a benefit, many do not understand their true value. Some discussion focused on the cost-effectiveness and benefits of providing those services. For example, some providers may not be aware of studies that document an increased number of cervical cancer screenings due to the provision of LAS, or that LAS could have a protective effect for physicians, possibly resulting in fewer law suits.

Some panel members recommended that LAS provision be placed in the context of cost, however, recognizing that it may not prove to be financially beneficial to some parties, such as physicians. In other words, studies designed with the aid of the model may show that LAS provision (examined alone, without considering health impacts and other offsetting long-term outcomes) may be found to increase costs for providers, health plans, etc. Nevertheless, LAS may prevent negative health outcomes and reduce or control disease rates, which should be put in financial terms.

Meeting participants discussed how some doctors believe patients can be adequately diagnosed and treated without direct communication, only through patients' histories, tests, and medical examinations. There are also physicians who—instead of using the combination of communication and physical diagnosis—rely on technology, and they perceive an effective diagnosis to be independent from communication barriers. However, panel members recognized that even when there are no language barriers between a doctor and a patient, clear and effective communication cannot be assumed.

In sum, the issues and challenges raised in Mr. Quan's presentation and in the group discussions that followed identified several recommendations for policymakers, health plan administrators, and others. These recommendations include:

- Identify and address costs of providing LAS and improve financing mechanisms for covering such costs;
- Implement health system and service improvements to increase awareness and knowledge of providers about patient language needs prior to appointments, as well as available financial incentives and financing mechanisms within and outside of health plans for covering LAS;
- Educate and train physicians and other health care providers about what is known regarding the lack of LAS and poor health outcomes as well as how to effectively use interpreters;
- Promote research on the impacts of *lack of* LAS not only on costs, but also on health outcomes;
- Aggressively disseminate results of such research to physicians, other health care providers, and the public at large;
- Promote research that assesses costs and benefits of various practices for addressing (or not addressing) language barriers in health care, such as use of family and/or friends for interpretation, use of telephonic or audiovisual equipment to facilitate access to interpreter services, impacts of providing LAS on facility and equipment needs and costs as well as on time and effort required for clinical encounters, impacts of treating patients by relying on diagnostic procedures independent of communication barriers, etc.;
- Frame concerns about the costs of providing LAS as a health care quality issue, as a way of ensuring that other "costs" don't manifest themselves as poorer health outcomes for LEP patients because

physicians and other health care providers were unable to understand and be understood by their patients, and that this “understanding disparity” may contribute to racial/ethnic/linguistic disparities in health care; and

- Promote research on the nature and extent of “clear and effective” communication between doctors and patients when language barriers are not an issue.

Presentation on AHRQ’s NHQR and NHDR: Developing a Picture of American Healthcare, by Daniel Stryer, M.D. At the outset of this project, the AHRQ was in the process of completing development of its first (2003) set of annual reports to Congress on disparities in the quality, outcomes, cost, or use of health care services. These reports were mandated by the Minority Health and Health Disparities Research and Education Act of 2000, Public Law 106-525. Thus, another Expert Panel member, Daniel Stryer, M.D., then Acting Director of AHRQ’s Center for Quality Improvement and Patient Safety, made a presentation on his agency’s efforts to develop the reports and the extent to which they might illuminate OMH’s particular project.

Dr. Stryer stated that the reports will provide the most comprehensive picture of health care quality and disparities to date. As envisioned, the reports would be structured around the six specific aims for improvement in health care quality outlined in the Institute of Medicine Report *Crossing the Quality Chasm*, i.e., safe, effective, patient-centered, timely, efficient, equitable. They also would identify a set of quality and access measures that would be useful to conduct assessments on language barriers and their impacts on cost and quality. The *NHQR* presents national data across components of quality and priority conditions, and the *NHDR* examines quality and access for priority populations, including racial/ethnic minorities. The reports also developed health status and health care needs categories which include: staying healthy, getting better, living with illness or disability, and coping with the end of life. The measures in the report were adopted based on broad consensus and nationally representative data acquired from the Centers for Disease Control and Prevention (CDC) and other HHS agencies.

Dr. Stryer stated that the *NHQR* includes sections on cancer, diabetes, and heart disease, as well as patient safety. Its priority areas were defined by national experts convened by the IOM and were purposefully aligned with HHS’s existing priorities. *NHQR*’s objectives are to summarize quality information at the national level from numerous sources; facilitate alignment of many quality improvement efforts at the national and state levels; and reduce measurement burden.

As noted by Dr. Stryer, the disparities report is divided into *quality of care* and *access to care*, which are delineated by entry barriers, structural barriers, cultural barriers, use, and costs. The *NHDR* will track disparities at the national level and give policymakers,

researchers, and providers information to reduce disparities. Its chapters include quality of care, access, receipt of health care, and priority populations. The *NHDR* aims to highlight the existence of health care disparities; provide the most detailed national overview of disparities in health care related to racial, ethnic, or socioeconomic characteristics and other factors; and emphasize areas where data are too limited to provide an accurate assessment.

Panel members discussed some of the data sources included in the reports that might be relevant to the *patient centeredness* or *access* components of this project's conceptual model. A few members emphasized how a major challenge to conducting national-level studies would be the lack of data on minority populations.

Because the "impacts" box of the conceptual model had been expanded to include all impacts on health care quality and utilization, these two AHRQ reports (and the measures used) became quite relevant to the discussions. If the task of developing a taxonomy of all quality measures was retained, it would be important to utilize a set of measures that was already identified as appropriate at the national level. As discussed in the following section, however, panel members ultimately recommended that the model *not* include such a taxonomy. Based on Dr. Stryer's presentation, the panel members recommended that the broader categories of health care quality identified in the IOM report and used as the framework for the AHRQ reports be incorporated into the "impacts" segment of the model.

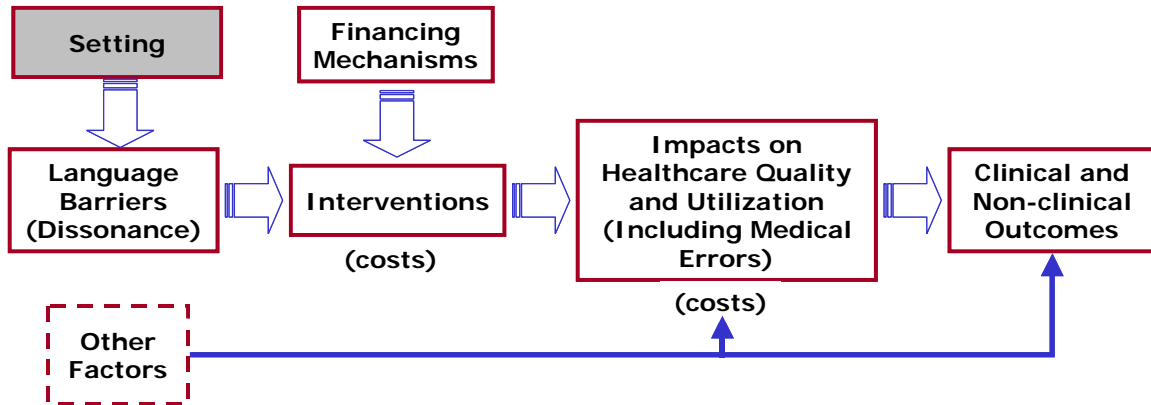
2.3.2.2 Second Set of Recommendations from the Project Expert Panel (October 2003)

Following the presentations by Mr. Quan and Dr. Stryer, the meeting participants held additional discussions on issues to be addressed before finalizing the conceptual model. In addition to the five recommendations concerning revisions to the conceptual model made by the expert panel members at the end of the meeting in May 2003, four additional recommendations were offered (at the end of the October 2003 meeting) to revise the model prior to its finalization, and to utilize or test the model. These four recommendations are presented below.

Recommendation 1: The model should include a component which illustrates the health care setting in which the language barrier is experienced. One element (that was not incorporated during the May 2003 meetings) is the model component which identifies the particular setting of the patient experience. The language barrier and resulting impacts on quality and costs could occur in a variety of settings which may prove important for comparison studies. Examples of various health care settings that are applicable to this model include: doctor's office; hospital inpatient; hospital emergency room; and community health center. Figure 2-10 illustrates this added component.

Figure 2-10

RECOMMENDATIONS FOR MODEL DEVELOPMENT: INCLUDE HEALTH CARE SETTING



Recommendation 2: The model component illustrating “impacts on quality” should be framed using the six dimensions of quality identified by the Institutes of Medicine.

These six quality areas include health care access and provision that is: safe, effective, patient-centered, timely, efficient, and equitable. Panelists agreed that instead of developing an extensive listing or taxonomy of quality measures within the “impacts” box of the model, these existing “quality dimensions” would prove more useful. As described in the third recommendation below, panel members began to envision the model differently at the October 2003 meeting. The idea of including a detailed taxonomy or classification scheme of quality measures came to be viewed as unnecessary and undesirable. Instead, the model components should remain as general guidelines for researchers to identify their own quality measures (see below) and the IOM’s six dimensions of quality represent a more general and cross-cutting schematic that would appropriately replace the more detailed taxonomy within the “impacts” box of the model.

Recommendation 3: The conceptual model should be a framework for individual researchers to utilize in their own studies and areas of expertise. During the October 2003 meeting, an overarching consensus emerged regarding the overall purpose and usefulness of the conceptual model: *the model should be a guiding tool for researchers and should not attempt to answer specific questions.* Researchers within the Expert Panel advised that access to and provision of cost data associated with health services and impacts would not present a formidable barrier to research at the local level. Thus, the general consensus of the Panel was to modify the original scope and approach to the project. It was recommended that OMH avoid planning and undertaking the broader, more complex effort to identify national cost averages of medical errors and other health care impacts associated with language barriers (for the purpose of de-linking cost-related results from, presumably, proprietary data in specific cost-benefit analyses and comparisons). Rather, the recommendation was to pursue a simpler and less problematic approach

involving the use of the model as a framework for localized studies of the costs (and other impacts) of language barriers on health care, and obtain cost data through such studies.

As such, the model was to remain quite broad, conceptually. It would not provide a detailed taxonomy of quality impacts or a framework for identifying cost data, as originally envisioned. Rather, it would provide the general components to be included in any study that examines the impact of language barriers on health care costs and quality. It would allow researchers who employ the model to identify their own study populations, health care settings, specific language barriers, interventions, disease-specific quality measures, and long-term outcomes, based on their specific research questions and interests. This way, the model will be applicable to studies using varied methodologies (quantitative or qualitative), and may be implemented at the national or local level. These recommendations led to a more simplified and cost-effective approach that would result in the model being utilized (or tested) in an actual study sooner than anticipated.

Finally, the draft conceptual model included a series of hypothetical patient cases that were developed to illustrate how the model could be used to follow and document the real experiences of patients in an actual study. Upon review of these hypothetical cases, the expert panelists suggested that, although the patient stories did indeed add clarity to the model and its accompanying text, the attached section may be improved by substituting (where feasible) real patient cases for the hypothetical ones. As such, following the October meeting, a few expert panel members submitted patients' real-life stories to be modified and used in the model's hypothetical cases. Refinements of the patient cases were made where possible to reflect stories more similar to real-life patient experiences (see Section 3.2.2).

Recommendation 4: Support localized research studies that could utilize and “test” the model. In light of the revisions to the project's scope (based on previous recommendations from the expert panel members), the final product of this project should involve commissioning an actual study that attempts to gather cost data and generate findings while testing the applicability and usefulness of the conceptual model as a framework for such an assessment. Similar to the third recommendation above, panel members emphasized the sense of urgency to collect appropriate data for addressing some of the project's initial concerns. In response to this final recommendation, OMH sought further guidance from the panelists on exactly what types of studies would be most appropriate and desirable for an initial study, should one be commissioned. Panel members offered a variety of research ideas that would be appropriate for the first study that utilizes the model. These suggestions were offered in the form of appropriate research questions and study topics, and are provided below.

Panelists' Suggestions for Research Questions that are Applicable to the Model:

- 1) What are the costs and quality issues associated with LAS?
- 2) What are the differential impacts and costs of the provision or lack of LAS in terms of specific diseases?
- 3) What are the impacts on quality which result from language barriers across the continuum of care (e.g., with triage staff, office staff, and other health care providers)?
- 4) Does the impact of providing (or not providing) LAS vary by health care setting?
- 5) How do the costs of providing LAS vary geographically? What does it cost on a national level to provide LAS?
- 6) What are the missed opportunity costs associated with the provision (or lack) of LAS, e.g., bilingual staff who provide interpretation services to physicians by taking time from their required duties?
- 7) Does the prevalence of LAS vary among financial models (e.g., capitation, fee for service, or risk sharing)?
- 8) Do patients prefer certain LAS modalities? What are the costs of the preferred modalities?
- 9) Does it matter (in relation to impacts on quality) who is providing LAS (e.g., hired interpreter, physician, clinical staff, non-clinical staff, etc.)?
- 10) Are there various degrees of language dissonance that impact health care quality (and subsequent costs) differently?
- 11) How is an interpreter's competence and certification best defined (e.g., training, native speakers)? Does interpreter level of competence/ certification have differential impacts on costs and quality?
- 12) What are the perceived challenges faced by LEP populations in accessing LAS (e.g., immigration status, missing work, etc.)?

Panelists' Suggestions for Research Topics that are Appropriate for the Model:

- 1) Examine the differential impacts on costs associated with LAS provision and *lack of LAS*, based on specific diseases.
- 2) Assess differential impacts of language barriers on costs and quality *across the continuum of care*, and in *various health care settings*.
- 3) Identify the national cost averages of providing (different types of) LAS.
- 4) Compare the prevalence of LAS among different financing mechanisms.

- 5) Examine differential impacts based on *types* of LAS provided (e.g., trained face-to-face interpreters; telephone language lines; bilingual health care staff).
- 6) Conduct case studies in a local setting that explore and document the experiences of individual LEP patients throughout the continuum of care.
- 7) Utilize state and national databases on adverse events to explore how patient safety may be impacted by provider-patient language barriers.
- 8) Compare cost and quality impacts among LEP and non-LEP patient groups with similar diagnoses.

Based on the expert panelists' recommendations at this second meeting, the project team finalized the conceptual model and, with OMH, pursued plans to support at least one follow-on study to test the model within a modified scope for the project. The final model and an overview of the actual follow-on study that was conducted are presented in the next chapter.

Chapter 3

Project Results, Recommendations, and Conclusions

CHAPTER 3: PROJECT RESULTS, RECOMMENDATIONS, AND CONCLUSIONS

This chapter presents the project's results, recommendations, and conclusions. At its end, the project culminated with several results or products to be shared with a broader audience. These results include: the four analytic briefs authored by panel members (Section 3.1); the conceptual model developed during Phase I of the project (Section 3.2); findings from the project's follow-on study commissioned by OMH (Section 3.3); and the recommendations that emerged throughout the project, including the follow-on study (Section 3.4). Finally, Section 3.5 offers conclusions.

3.1 FOUR ANALYTIC BRIEFS

The four analytic briefs written for this project are provided in Appendix B. As discussed earlier, four papers that were developed provided all the panel members, OMH staff, and the project team with an initial understanding of the current landscape of thought and research in each of the four areas of study. OMH is committed to broadly disseminating these papers in an effort to share useful information with researchers and policymakers alike. In addition to the analytic briefs, the presentations of the invited speakers, expert panelists Kelvin Quan (Alameda) and Daniel Stryer (Agency for Healthcare Research and Quality), also informed group deliberations and several of the project's final recommendations.

3.2 CONCEPTUAL MODEL

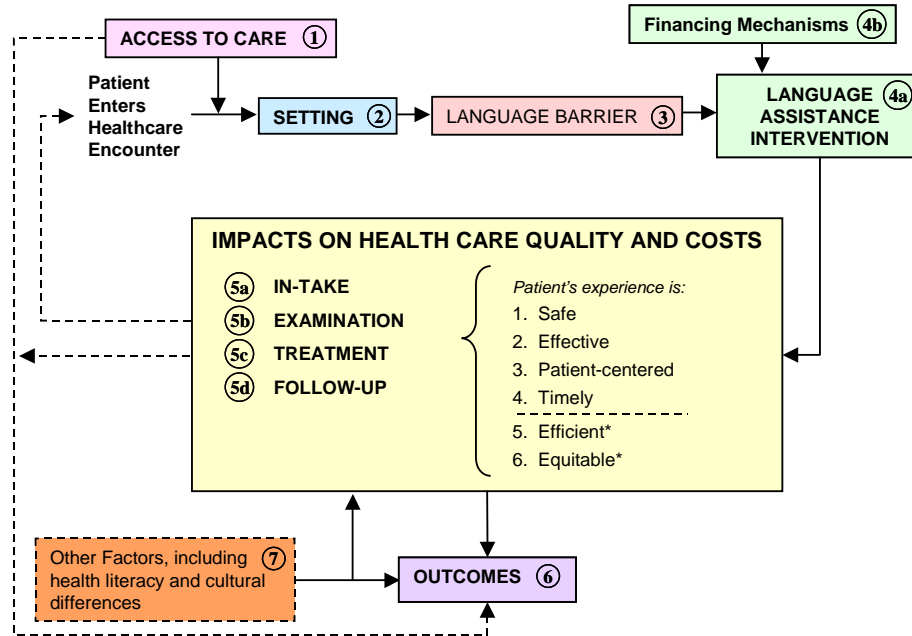
3.2.1 Overview of Conceptual Model

The purpose of the model is to serve as a conceptual framework for researchers as they pursue and conduct studies that examine the impacts of provider-patient language barriers on health care costs and quality. The model is designed to be a useful tool for researchers in their efforts to cost out health care quality across the health care continuum, specifically for patients with LEP. Ultimately, the model will be used to understand the impacts on costs and quality that may result when language barriers in the context of health care are inadequately or not addressed.

The model provides a conceptual framework for studies (with different research questions, methodologies, and measures) to assess the impact of language barriers on health care costs and quality. Model components to be utilized in the design of such studies include: *access; setting; language barrier; intervention; impacts on health care costs and quality; and patient outcomes* (see Figure 3-1).

Figure 3-1

CONCEPTUAL MODEL FOR ASSESSING THE IMPACTS OF PROVIDER-PATIENT LANGUAGE BARRIERS ON HEALTH CARE COSTS AND QUALITY



*Efficiency and equity are cross-cutting and applicable to the entire model.

Access to Care. Access refers to the patient's ability to obtain health care. Factors often associated with access include one's health insurance status; whether or not there is a usual source of care; level of difficulty when scheduling doctor's appointments; or level of difficulty obtaining referrals. A person's access to care significantly impacts his/her overall ability to prevent, treat, or manage conditions or diseases. The ability of an individual to access health care services, and the time and effort used to access care, are important factors to be included in studies that employ this model.

Setting. Persons with LEP utilize health care services that are delivered in many settings, e.g., a hospital emergency room, a community health center, or a physician's office. During model implementation, researchers will define study parameters by selecting a health care setting that is appropriate for the particular study's scope. Several factors may influence the design decision, including: the research question may specify setting; data are available or data collection is more feasible in a certain setting; the population of interest utilizes a certain setting more frequently, etc.

Language Barrier. The initial focus of this model was on *verbal* language barriers between providers and patients. More specifically, the model illustrates instances in which

the two parties involved speak different primary languages (i.e., language dissonance). Upon completion, however, the breadth of the framework allows for studies that examine effects of other (non-verbal) language barriers, e.g., written translated materials or services for individuals who are hearing impaired. Variations within this model component also will be determined by a particular study's research questions. Possible ideas for research studies include: comparing the health care costs and quality experiences of LEP and non-LEP patients, LEP patients who speak different languages, and LEP patients with varying degrees of English proficiency, etc.

Intervention. Communication barriers associated with provider-patient language dissonance can be addressed with linguistically appropriate interventions. Such interventions include, for example: on-site interpreters, telephonic interpreters, and videoconference interpretation. Another "intervention" is to systematically address and eliminate language barriers by hiring bilingual clinical and non-clinical staff. In addition to various types and modalities of LAS interventions, the model includes factors related to the intervention's financing mechanisms (e.g., the cost is prepaid or reimbursed to providers, paid to the IPA, paid directly to interpreters, etc.). Rather than examining the costs of linguistically appropriate interventions alone, this model assumes that the *absence of LAS* (which would not need a financing mechanism) is a kind of intervention which, in and of itself, may have an impact on the quality and costs of health care.

Impacts on Health Care Quality and Costs. Impacts on health care quality, utilization, and associated costs (that result from provider-patient language dissonance) are related to all key points of service delivery, including in-take, examination, treatment, and follow-up. Measures of impacts on health care quality, utilization, and costs during *In-take, Examination, Treatment, and Follow-up* encounters (boxes 5a, 5b, 5c, and 5d) are framed within the six quality improvement areas suggested by the Institute of Medicine (Committee on Quality Health Care in America 2000). These quality improvement areas include health care delivery that is:

1. ***Safe:*** avoiding injuries to patients from the care that is intended to help them;
2. ***Effective:*** providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
3. ***Patient-centered:*** providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions;
4. ***Timely:*** reducing waits and sometimes harmful delays for both those who receive and those who give care;
5. ***Efficient:*** avoiding waste, including waste of equipment, supplies, ideas, and energy; and

6. **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, race, age, ethnicity, income, education, disability, sexual orientation, geographic location of residence, or primary language spoken.

Efficiency and equity (quality improvement areas 5 and 6) are cross-cutting and applicable to the entire model. By definition, every study that utilizes the conceptual model will be concerned with efficiency related to costs and inequities related to quality and patient outcomes across the continuum of care for LEP individuals. Researchers are encouraged to draw from established and published measures of health care quality, such as those offered in the AHRQ's 2003 *National Healthcare Quality Report* and *National Healthcare Disparities Report*.

Follow-up activities (or lack of) represent short-term outcomes for the patient. The patient often leaves the treatment phase with instructions related to medication, disease management, and/or subsequent clinical appointments. Once the appointment is made, the model then illustrates the dotted line path back to the patient's (re)-entry into the appropriate setting. In a longitudinal assessment, the patient would be followed over time, and new and separate data would be collected for the patient across the model for each subsequent encounter.

Outcomes. Outcomes are the results of the patient's health care delivery and overall experience. Clinical outcomes and utilization outcomes—and costs associated with both types of outcomes—are necessarily study-specific in that they are determined by the hypothesis of the particular study. Examples of clinical outcomes to be assessed by studies that use the model include: patient condition/disease management and patient health/disease status. Utilization outcomes are system-related, and include: length of stay, adequate and appropriate diagnostic procedures, etc.

Other factors. Many factors other than language dissonance (or more broadly, communication barriers) influence quality of care and patient outcomes. Language dissonance is only one type of language barrier. Other types of language barriers include low level of health literacy and lack of language clarity. Similarly, language barriers are only one type of communication barrier. Cultural differences between provider and patient (including racial, ethnic, gender, socioeconomic, etc.) also influence the patient's health care experience. Although the model does not encompass the various types of communication barriers, these other influential factors are acknowledged.

In sum, the conceptual model is to be utilized by research studies that examine how language barriers impact health care costs and quality. The model includes seven components that relate to: various health care settings and patient populations; a range of linguistically appropriate interventions and their funding mechanisms; impacts on health care quality, utilization (including medical errors), and costs; and outcomes that may be

associated with quality of care. To better illustrate the conceptual flow of the model and its components, a hypothetical assessment of four patient cases is provided in the following section.

3.2.2 Illustrative Exhibits of Four Patient Cases

Figures 3-2, 3-3, 3-4, and 3-5 demonstrate how researchers may use the model as a conceptual framework for their study designs. The vignettes present the hypothetical experiences of four patient cases throughout the continuum of care—framed within the model’s seven key components. Although the four patient cases presented are hypothetical, they reflect similar stories of real patient experiences submitted by expert panel members. Arrows and lines demonstrate the directional flow of the hypothetical patient’s experiences through the health care continuum. The descriptions are provided to help illustrate the obstacles patients with LEP face and how individuals may experience these obstacles at different points within the model (e.g., access, examination, treatment, and outcome). Also, the hypothetical cases show how the conceptual model may be used to obtain an inventory of costs and impacts of provider-patient language barriers on health care quality.

When appropriate, variables within each model component have been assigned a cost, usually reflecting the national average cost.¹ As indicated in the exhibits, time is also an important measure of quality. Time spent accessing care and timeliness of accurate diagnosis and treatment are examples of data indicators that may be used in research studies implemented under this model. Each exhibit also contains the total costs associated with the outcomes component of each hypothetical patient case.

CASE 1: LEP PATIENT REFERRED TO EMERGENCY ROOM FOR NON-EMERGENCY CONDITION

Figure 3-2 illustrates the case in which a man who speaks no English is experiencing pain and swelling in his knee.

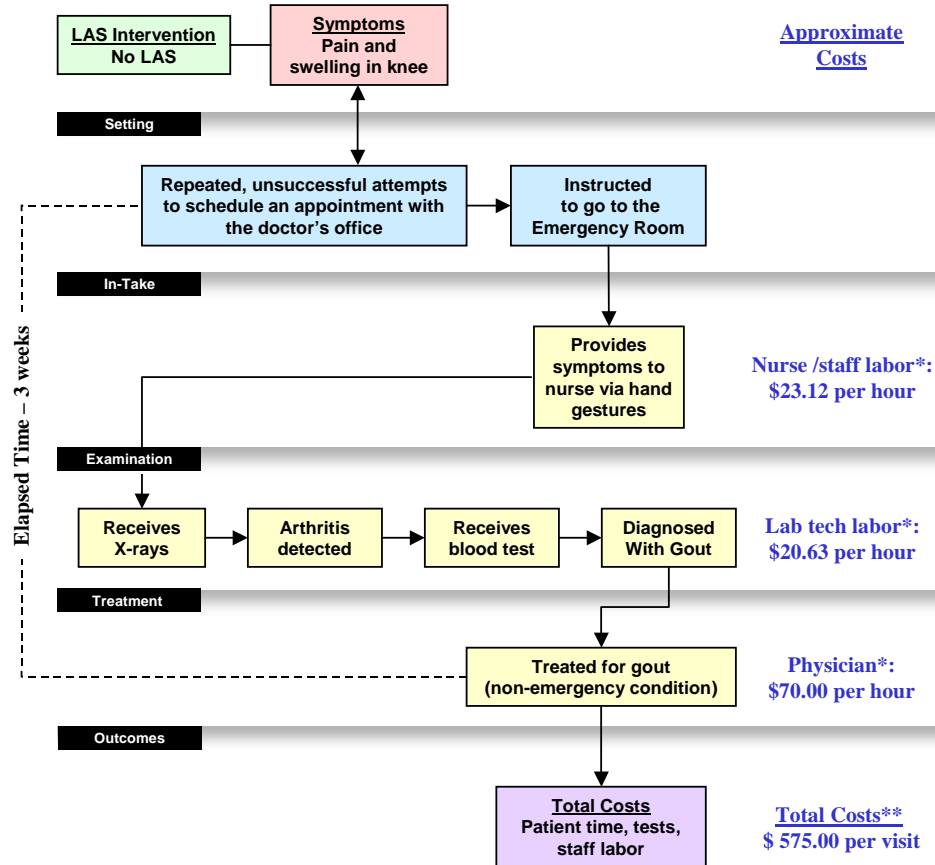
Access. He repeatedly tries to schedule an appointment with his primary care provider (PCP). Given his limited English proficiency, he is unable to communicate effectively with the office staff. As a result, he is instructed to go to the emergency room.

Examination. During the examination, the patient continues to experience communication barriers, because the attending physician does not speak a language other than English. In haste, the doctor orders an X ray to further assess the man’s knee.

¹ Costs for labor hours are derived from the Bureau of Labor Statistics (www.bls.gov). Costs for other expenses are derived from AHRQ’s *Medical Expenditure Panel Survey: Household Component*.

Figure 3-2

CASE 1: LEP PATIENT REFERRED TO THE EMERGENCY ROOM FOR A NON-EMERGENCY CONDITION



*Costs for labor hours derived from Bureau of Labor Statistics. (www.bls.gov)

**Costs for other expenses derived from: Household Component Analytical Tool (MEPSnet/HC), August 2003.

Agency for Healthcare Research and Quality, Rockville, MD. (www.meps.ahrq.gov/mepsnet/HC/MEPnetHC.asp)

Treatment. While examining the X rays, the physician notices a deterioration occurring within the joint capsule of the patient's knee. The doctor begins to detect that the patient may have arthritis. To determine what type of arthritis, the doctor orders blood tests to examine uric acid levels. The additional tests indicate that the patient has gout and does not require emergency care.

Outcome. As illustrated in Figure 3-2, the patient experienced pain and discomfort for an extended period of time as a result of the communication barrier between the patient and staff at his PCP's office. In addition, when the patient was instructed to go to the

emergency room for a non-emergency condition, he incurred additional costs which could have been avoided if he had been able to access his primary care provider.

CASE 2: PATIENT EXPERIENCING ADVERSE DRUG EXPERIENCE RESULTING FROM A MEDICAL ERROR

Figure 3-3 describes the experiences of a 23-year-old female with LEP.

Access. She is admitted to the hospital for an in-patient procedure.

Examination. While recuperating in a hospital bed, a nurse enters the hospital room and asks the patient if her tonsillectomy had been performed by the doctor. Although the patient did not understand the question, she politely nods to the nurse only to acknowledge her presence.

Treatment. Relying on the misunderstood gesture, the nurse failed to review the patient's chart and incorrectly administered medication intended for a patient who received a tonsillectomy, while the patient had actually received an appendectomy.

Outcome. The patient experienced an adverse drug experience (ADE) which required a hospitalization of three extra days for treatment and observation. In addition to the physical and psychological stress which was experienced by the patient, she and her family incurred the expenses of additional hospitalization, as well as time away from work. These costs could have been avoided if his primary care provider had LAS available at first contact.

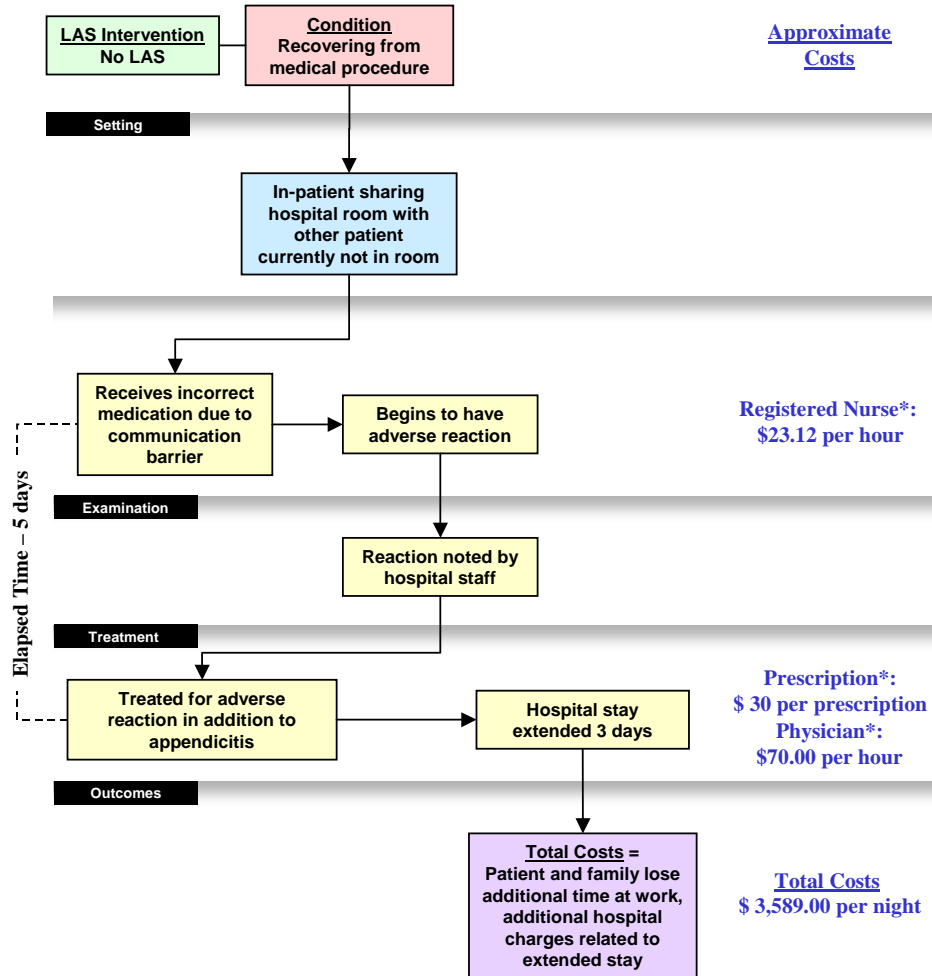
CASE 3: PATIENT IN NURSING HOME EXPERIENCES DELAY IN ADMITTANCE TO THE EMERGENCY ROOM

A patient with LEP who is a senior citizen residing in a nursing home facility experiences severe back pain in the middle of the night. As shown in Figure 3-4, he attempts to explain his symptoms to the staff by pointing to his lower back area. However, evening staff do not speak the patient's language and are unable to communicate effectively. The patient is prescribed aspirin and instructed to sleep.

Access. The next day, a bilingual staff person enters his room to check on him as part of her daily rounds. The patient explains that he cannot stand up straight and is experiencing severe nausea. The woman calls an ambulance and accompanies the patient to the hospital so that she can serve as an interpreter for the patient.

Figure 3-3

CASE 2: PATIENT EXPERIENCING AN ADVERSE DRUG EXPERIENCE RESULTING FROM A MEDICAL ERROR



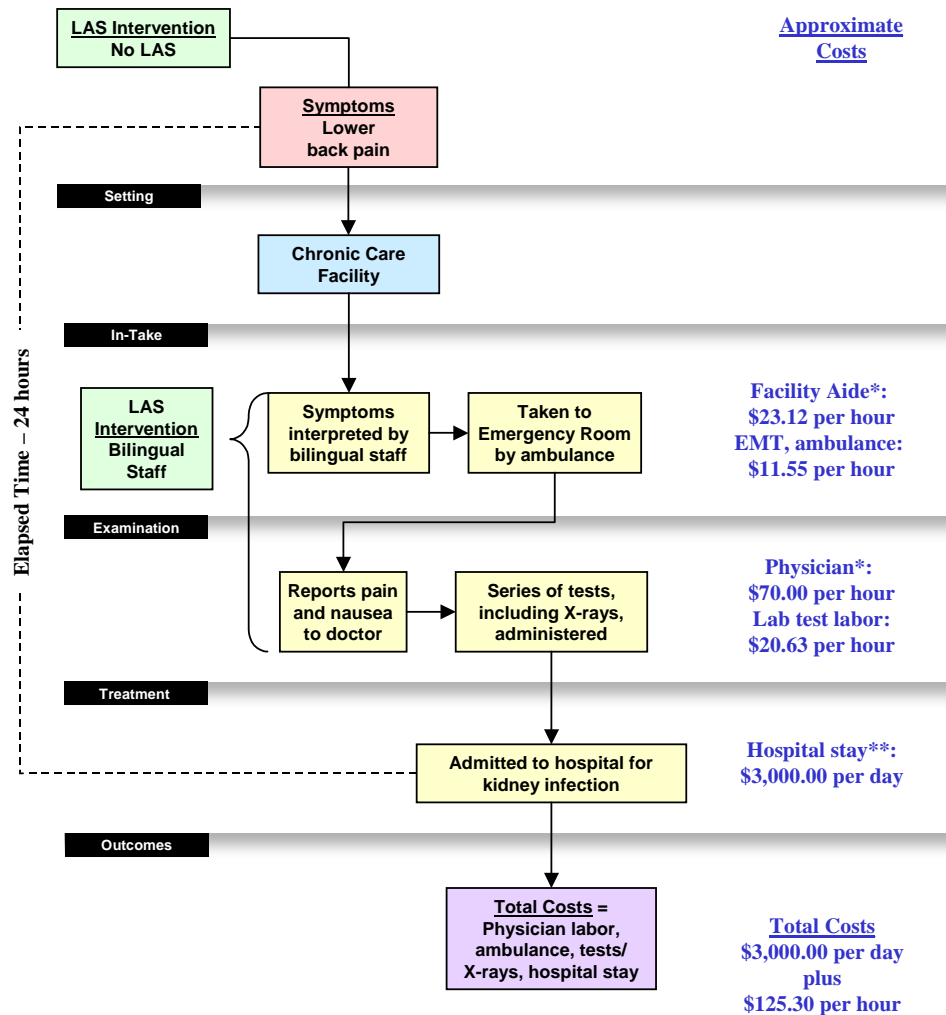
*Costs for labor hours derived from Bureau of Labor Statistics. (www.bls.gov)

**Costs for other expenses derived from: HCPUnet, Healthcare Cost and Utilization Project.

Agency for Healthcare Research and Quality, Rockville, MD. (www.ahrq.gov/data/hcup/hcupnet.htm)

Figure 3-4

**CASE 3: PATIENT IN NURSING HOME EXPERIENCES DELAY
IN ADMITTANCE TO THE EMERGENCY ROOM**



*Costs for labor hours derived from Bureau of Labor Statistics. (www.bls.gov)

**Costs for other expenses derived from: HCPUnet, Healthcare Cost and Utilization Project.

Agency for Healthcare Research and Quality, Rockville, MD. (www.ahrq.gov/data/hcup/hcupnet.htm)

Examination. In the hospital examining room, the staff person interprets for the patient and is able to provide the physician with an accurate series of symptoms including severe pain in his back and an upset stomach.

Treatment. The doctor runs a series of tests (including X rays) and determines that the patient has a kidney infection. He is admitted to the hospital and prescribed antibiotics.

Outcome. Due to the delay in medical care, the patient's condition worsened and resulted in a longer hospital stay. Also, the patient incurred the medical costs of the ambulance, as well as emergency room expenses which could have been avoided with an earlier diagnosis.

CASE 4: DELAYED DIAGNOSIS OF LEP EMERGENCY ROOM PATIENT

Figure 3-5 illustrates the emergency room experience of a Hispanic female patient with LEP who has undiagnosed diabetes and is experiencing symptoms of frequent urination and extreme thirst. She is aged 57 and has limited experience accessing health care services in English.

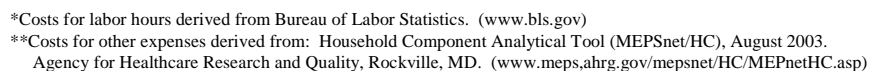
Access. A nurse with limited Spanish proficiency attempts to document the patient's symptoms. The patient points to her throat to indicate thirst. Consequently, the nurse perceives that the patient is experiencing throat-related problems. The patient also utters the word "bathroom." The nurse asks the patient if she uses the bathroom frequently, and the patient provides a gestured affirmative response.

Examination. The nurse concludes the assessment with the notation of symptoms "sore throat" and "frequent urination" documented in the patient's chart. The nurse provides the attending doctor (who speaks little Spanish) with the patient's chart.

Treatment. Based on the recorded symptoms, the doctor diagnoses the patient with a urinary tract infection. To treat the urinary tract infection, the doctor provides the woman with a prescription for an antibiotic. The doctor also concludes that the woman is experiencing a cold as well, and therefore assumes that her sore throat will improve.

Outcome. After a week has passed, the woman returns to the emergency room with the same symptoms. This time, the woman is accompanied by an *ad hoc* interpreter, her bilingual neighbor. During the examination, the neighbor interprets, and the patient tells the doctor that she is experiencing frequent urination. The patient also tells the doctor that she is still experiencing extreme thirst. The doctor is puzzled by the use of the word "still" and begins to refer to her records from the previous visit. The doctor notices the error in symptom notation, as the nurse recorded "sore throat" instead of "thirst." The examination also reveals that the patient is experiencing blurred vision. Enlightened by the new information, the doctor orders a hemoglobin A1c (HbA1c) test. The results show high blood glucose levels resulting in diagnosis of Type 2 diabetes.

CASE 4: DELAYED DIAGNOSIS OF DIABETIC LEP PATIENT



The doctor refers the woman for a consultation with a nutritionist so that she can learn dietary management, glucose monitoring, and medication usage. After her initial visit with the nutritionist, the woman fails to return due to communication barriers. The nutritionist's office does not have any bilingual services or products available including bilingual staff, bilingual brochures, or bilingual instructions.

3.3 OVERVIEW OF FOLLOW-ON STUDY

For the second (final) phase of this project, OMH commissioned a follow-on research study which utilized as its framework the conceptual model that was developed during the first phase. OMH was able to support an actual follow-on study relative to the revised scope of work because (1) the level of effort for the taxonomy and the framework for assessing costs and other impacts associated with language barriers was no longer needed or substantially reduced; and (2) the expert panel recommended that such a study be conducted to utilize and test the model in a localized setting. The intent of the study was to test the model and further illuminate other studies that examine the effects of language barriers on health care costs and quality. The follow-on study would in fact respond directly to recommendations of the expert panelists in that the study's focus responds to one of the research questions offered as a priority area of inquiry (see Section 2.3.2.2).

The follow-on study was led by Elizabeth A. Jacobs, M.D., M.P.P., and was conducted at the John H. Stroger, Jr. Hospital of Cook County in Chicago, Illinois. This section presents a brief overview of the study and its findings. The full study report, written by Dr. Jacobs, may be found in Appendix D.

Using the project's model as the conceptual framework, the purpose of the study was twofold: 1) to gather data on the costs and other impacts of *not* providing adequate interpreter services to Spanish-speaking hospitalized patients; and 2) to measure the costs and cost-benefits of an interpreter service intervention to improve the care of Spanish-speaking hospitalized patients.

Over six months, three groups of adult patients were followed: Spanish-speaking patients with adequate linguistic access (experimental group); Spanish-speaking patients with inadequate linguistic access (control group 1); and English-speaking patients (control group 2).² *Adequate linguistic access* was defined as receiving the interpreter service intervention. *Inadequate linguistic access* was defined as patients receiving "usual care" where, for example, family, friends, non-fluent (and sometimes fluent bilingual) staff or

² Adult patients (age ≥ 18) were invited to participate in the study if they identified themselves as speaking only Spanish or having difficulty communicating in a language other than Spanish, and if they were admitted for care of one of three of the most common admitting diagnoses: chest pain; asthma exacerbation; or congestive heart failure. English-speaking patients were matched on age, gender, and diagnosis.

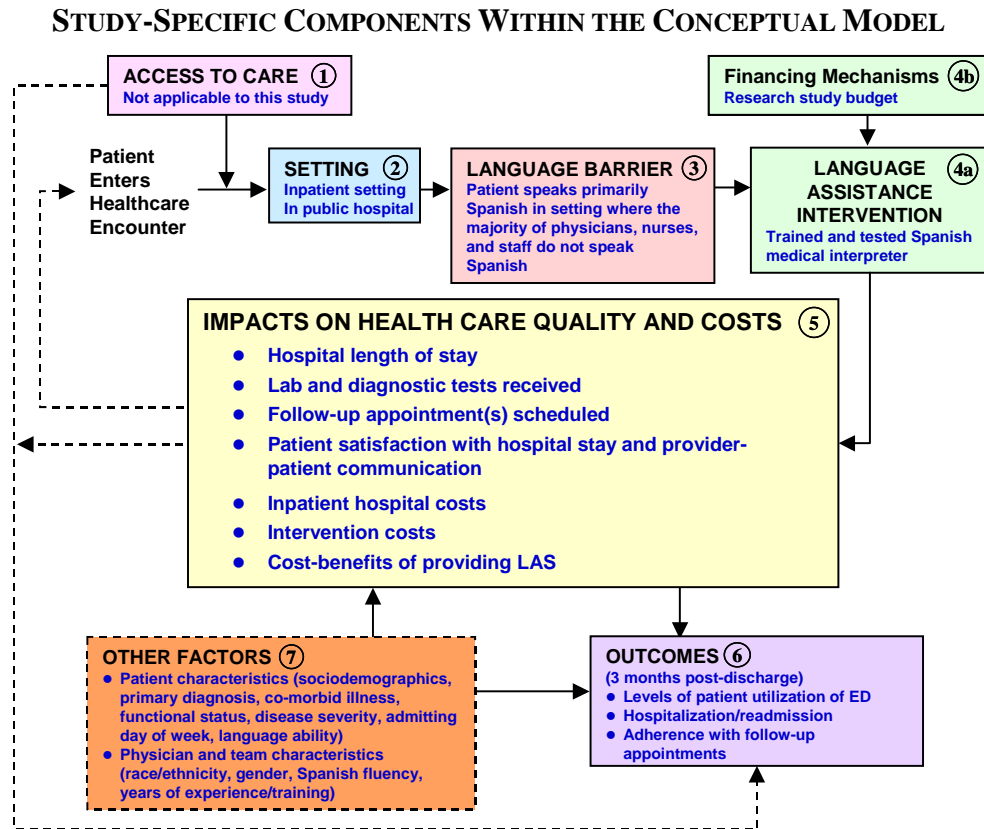
physicians, were used to assist with provider-patient communication with Spanish-speaking patients during their hospital stay. The interpreter service intervention consisted of a trained and tested Spanish-speaking medical interpreter who was assigned to work with the patient and their physicians and nurses throughout the hospital stay. An interpreter was available during the hospital's busiest time period, from 7:30 a.m. to 3:30 p.m. daily, seven days a week during the study period. However, the interpreter service intervention was not available for all encounters between hospital staff and study participants because either the interpreters were not called or because they were not available 24 hours a day. No interpreter intervention was necessary for the English-speaking group because of language concordance or consonance.

All patients admitted were assigned to one of three teams of doctors called Firms. These Firms were organized in order to provide efficient high quality care by making a smaller group of physicians responsible for an assigned group of inpatients. Each Firm comprises four groups of doctors who work together during a month-long rotation. Each group is on call every fourth night so that they get new patients assigned to them every fourth day, and then they are responsible for them for the remainder of their hospital stay. Patients are assigned to each Firm at random so that the patient mix, over time, is very similar across Firms. This Firm system allowed for a "quasi-experimental" design in which patients' Firm and physician assignment occurred randomly. This organization of the inpatient system allowed the assignment of an interpreter intervention to one Firm and examine what happened on that Firm compared to another Firm that did not receive the intervention. In this study, Firm C received the intervention, and Firm B was the comparison Firm. Firm A was not involved in the study at all.

The final study sample included 323 participants (124 Spanish-speaking intervention patients; 99 Spanish-speaking "usual care" patients; and 100 English-speaking patients). As an incentive, each study participant was given a \$20 grocery store certificate.

Figure 3-6 illustrates the data that were collected for this study using the model as the conceptual framework. The overall hypothesis was that *hospitalized Spanish-speaking patients who do not receive the language assistance intervention will generate higher inpatient costs compared to hospitalized Spanish-speaking patients who do receive the intervention*. Secondary hypotheses included: 1) Spanish-speaking patients who cannot adequately communicate with their physicians will be less satisfied with the hospital stay and with doctor-patient communication than the adequate communication group; and 2) they also will have higher rates of post-discharge emergency department utilization and hospitalization, as well as poorer adherence with scheduled outpatient visits than the adequate communication group.

Figure 3-6



The study's primary findings are as follows:

- The conceptual model developed during the first phase of this project was useful in successfully implementing a study that examines the impacts of provider-patient language barriers on health care costs and quality.
- The one significant difference found between the Spanish-speaking “usual care” group (SS-U) and the Spanish-speaking intervention group (SS-I), was in length of stay. The SS-U group stayed in the hospital significantly longer than the SS-I group. However, similar (but not significant) differences in length of stay were found between Firms for the English-speaking group, suggesting that the difference between SS-I and SS-U groups could be due to Firm effects rather than the intervention. The direct cause of group difference is unknown.

- If the difference in length of stay between the SS-U and SS-I groups was due to the interpreter service intervention, by providing the intervention to LEP patients, the hospital would save \$1,894 per person.
- There were no differences between the SS-U and SS-I groups in satisfaction, hospital care utilization; or post-discharge Emergency Room visits and hospitalization.

There are a number of reasons why the follow-on study did not show a clear impact of language barriers or the interpreter intervention on the cost and quality of hospital care. First, the Firm effects may be masking the effect of language barriers and interpreter intervention. While the exact cause could not be determined, it is likely due to differences in attending practice across the two Firms. Second, there were a number of attending physicians and residents who speak Spanish. The intervention would likely have a more profound effect in a setting where there are fewer language concordant physicians than were involved in this study. Third, the interpreter service intervention may not have been strong enough. Interpreters were only available eight hours for each day, and their use depended on nurses, physicians, and other staff to voluntarily call upon them for their services.

Despite these limitations, the importance of this study is twofold. First, it demonstrates the applicability and utility of the conceptual model developed by the Project Expert Panel in 2003-04. This complex and controlled study was designed and successfully implemented using the model as its framework. Second, the study findings highlight the extremely low cost of providing inpatient hospital interpreter services (\$240) relative to the total cost of hospital stay (\$2,200 per person per day)—when hospital stay *may* be lengthened for patients who do not receive interpreter services. This finding begins to address the original questions of this project related to the costs of *not* providing LAS and not adequately addressing provider-patient language barriers. Although the findings are inconclusive about the reasons for difference in length of stay between the SS-U and SS-I groups, if indeed the difference can be attributed to the intervention, the cost of *not* providing LAS for this hospital would be \$1,894 per LEP person per day.

Based on lessons learned during the conduct of this follow-on study, three recommendations were offered upon its completion:

- Future studies should measure the impact of language barriers in a setting in which there are very few LAS, including language concordant physicians and staff. While the vast majority of physicians who cared for the study's participating patients did not speak Spanish, there may have been sufficient Spanish-speaking physicians to reduce language barriers.

- Researchers conducting future studies of this kind should consider using a randomized control trial in which physicians as well as patients are randomized to avoid the physician practice effects that appeared to be driving the differences in Firms found in the follow-on study.
- Future studies of interpreter services should institute an intervention that covers most of patients' waking hours in the hospital so as to maximize the impact of the intervention.

Again, the study's full report is found in Appendix D.

3.4 RECOMMENDATIONS FOR FURTHER ACTIONS

As detailed in Chapter 2, many recommendations emerged throughout this project via the analytic briefs, the subsequent invited presentations by Mr. Quan and Dr. Stryer in October 2003, deliberations and suggestions from the expert panelists during both (May and October 2003) meetings, and the specific recommendations that came out of the project's follow-on study. The types of recommendations offered included those related to: 1) the project's scope; 2) the conceptual model and its components, 3) the support of an initial study that tests the model in a research setting; 4) the utility of the model and further research relative to, or informed by, the follow-on study that was commissioned; 5) the need for further research on the impacts of language barriers on health care costs and quality; and 6) the need for other (non-research-related) actions that promote health care quality. The 38 recommendations that emerged throughout this project are reiterated below in terms of these six recommendation types.

Recommendations Related To The Project Scope:

1) The project scope should include provider-patient language barriers, and not be limited to physician-patient communications. Because the clinical encounter also involves interaction between the patient and clinical staff *other than the physician* (e.g., triage staff, nurse practitioners, pharmacists, etc.), it is important for the model to include language barriers experienced during interactions with varied staff (i.e., the full range of providers in the clinical setting).

2) The project scope should not be limited to experiences during the clinical encounter. An attempt should be made to include LEP persons' experiences related to the impacts of language barriers on *access* to clinical services. Many LEP patients never make it to the clinical encounter due, in part, to language barriers. To the extent possible, the *entire continuum of care* should be acknowledged by this project and in its primary product, the conceptual model.

Recommendations Related To The Conceptual Model:

3) *The “medical errors” box within the model should be expanded to include all impacts on health care quality, of which medical errors represent only one type.* The original “impacts on quality” box within the model shell represented only medical errors that resulted from language barriers. However, panel members agreed that to examine only the costs associated with medical errors would be too limited and quite difficult considering the emerging nature of the literature on the subject. Rather, the taxonomy to be developed within this particular model box should include *all measurable impacts on health care quality and utilization* that may result from language barriers—which includes, but is not limited to, medical errors.

4) *The model should include costs associated with impacts and costs associated with clinical and non-clinical outcomes.* Panelists recommended that relevant costs are not limited to the (former) “costs” box within the model. Rather, costs are associated with impacts on quality, as well as (clinical and non-clinical) outcomes. In other words, the “costs” component of this model should not be segmented out as its own box. Instead, a new box that represents “outcomes” should replace the (former) “costs” box, and the “costs” component of this model should be illustrated as relevant *throughout the model*.

Panel members emphasized the importance of non-economic impacts on health and quality of life, and suggested these impacts might be illustrated in terms other than dollar amounts, such as years of life saved or quality-adjusted years of life saved. In recognition that the economic argument for providing LAS is not always the best one, some panelists suggested the need to include in the model less tangible and less frequently cited benefits of providing LAS, e.g., how LAS may contribute to the well-being of society, and the moral obligation to provide high-quality health care to all patients, regardless of primary language.

5) *The model should include costs associated with different types of language assistance interventions that may be utilized to address provider-patient language barriers.* According to panel members, an important model component would be the inclusion of an “intervention” box (and its associated costs) that may be used in health care settings to address existing provider-patient language barriers. Many types of interpreter services (or interventions) are available and utilized in health care settings, e.g., language (telephone) lines; bilingual physicians; face-to-face interpreters; and video conference interpretation. For researchers who eventually implement this project’s model in their studies, this component will be imperative. Studies could be generated that, for example, compare the cost-effectiveness of different intervention modalities, or compare the cost-effectiveness of a particular intervention modality among different non-English languages.

6) *The model should identify financing mechanisms for implementation costs related to the different interventions.* Similar to the fifth recommendation above, panel

members suggested the model include information on financing mechanisms (e.g., prepaid or reimbursed to providers; paid to the IPA; paid directly to interpreters; etc.) associated with the implementation of specific interventions. Although this recommendation was agreed upon during the first (May) meeting, OMH and project staff, as well as some panelists, requested more information on this topic. As such, Kelvin Quan, J.D., M.P.H., then Chief Financial Officer for Alameda Alliance for Health (Alameda), who introduced the idea to the group, was asked to prepare a presentation for the second meeting, held in October 2003.

7) *The model should acknowledge factors other than language dissonance that may impact health care quality, costs, and outcomes.* Because the scope of this project and its model is limited to language dissonance and the resulting impacts on health care quality and costs, panelists pointed to the importance of recognizing and illustrating other factors (e.g., other communication barriers, cultural differences, systemic variability, etc.) that also may influence those outcomes.

8) *The model should include a component which illustrates the health care setting in which the language barrier is experienced.* One element (that was not incorporated during the May 2003 meetings) is the model component which identifies the particular setting of the patient experience. The language barrier and resulting impacts on quality and costs could occur in a variety of settings which may prove important for comparison studies. Examples of various health care settings that are applicable to this model include: doctor's office; hospital inpatient; hospital emergency room; and community health center.

9) *The model component illustrating "impacts on quality" should be framed using the six dimensions of quality identified by the Institutes of Medicine.* These six quality areas include health care access and provision that is: safe, effective, patient-centered, timely, efficient, and equitable. Panelists agreed that instead of developing an extensive listing or taxonomy of quality measures within the "impacts" box of the model, these existing "quality dimensions" would prove more useful. Panel members began to envision the model differently at the October 2003 meeting. The idea of including a detailed taxonomy or classification scheme of quality measures came to be viewed as unnecessary and undesirable. Instead, the model components should remain as general guidelines for researchers to identify their own quality measures (see below) and the IOM's six dimensions of quality represent a more general and cross-cutting schematic that would appropriately replace the more detailed taxonomy within the "impacts" box of the model.

10) *The conceptual model should be a framework for individual researchers to utilize in their own studies and areas of expertise.* During the October 2003 meeting, an overarching consensus emerged regarding the overall purpose and usefulness of the conceptual model: *the model should be a guiding tool for researchers and should not attempt to answer specific questions.* Researchers within the Expert Panel advised that access to and provision of cost data associated with health services and impacts would not

present a formidable barrier to research at the local level. Thus, the general consensus of the Panel was to modify the original scope and approach to the project. It was recommended that OMH avoid planning and undertaking the broader, more complex effort to identify national cost averages of medical errors and other health care impacts associated with language barriers (for the purpose of de-linking cost-related results from, presumably, proprietary data in specific cost-benefit analyses and comparisons). Rather, the recommendation was to pursue a simpler and less problematic approach involving the use of the model as a framework for localized studies of the costs (and other impacts) of language barriers on health care, and obtain cost data through such studies.

Recommendations Related To The Support Of An Initial Study To Test The Model:

11) Support localized research studies that could utilize and “test” the model. In light of the revisions to the project’s scope (based on previous recommendations from the expert panel members), the final product of this project should involve commissioning an actual study that attempts to gather cost data and generate findings while testing the applicability and usefulness of the conceptual model as a framework for such an assessment. Panel members emphasized the sense of urgency to collect appropriate data for addressing some of the project’s initial concerns. In response to this recommendation, OMH sought further guidance from the panelists on exactly what types of studies would be most appropriate and desirable for an initial study, should one be commissioned. Panel members offered a variety of research ideas that would be appropriate for the first study that utilizes the model. These suggestions were offered in the form of appropriate research questions and study topics, and are provided below.

PANELISTS’ SUGGESTIONS FOR RESEARCH QUESTIONS THAT ARE APPLICABLE TO THE MODEL:

- What are the costs and quality issues associated with LAS?
- What are the differential impacts and costs of the provision or lack of LAS in terms of specific diseases?
- What are the impacts on quality which result from language barriers across the continuum of care (e.g., with triage staff, office staff, and other health care providers)?
- Does the impact of providing (or not providing) LAS vary by health care setting?
- How do the costs of providing LAS vary geographically? What does it cost on a national level to provide LAS?
- What are the missed opportunity costs associated with the provision (or lack) of LAS, e.g., bilingual staff who provide interpretation services to physicians by taking time from their required duties?

- Does the prevalence of LAS vary among financial models (e.g., capitation, fee for service, or risk sharing)?
- Do patients prefer certain LAS modalities? What are the costs of the preferred modalities?
- Does it matter (in relation to impacts on quality) who is providing LAS (e.g., hired interpreter, physician, clinical staff, non-clinical staff, etc.)?
- Are there various degrees of language dissonance that impact health care quality (and subsequent costs) differently?
- How is an interpreter's competence and certification best defined (e.g., training, native speakers)? Does interpreter level of competence/ certification have differential impacts on costs and quality?
- What are the perceived challenges faced by LEP populations in accessing LAS (e.g., immigration status, missing work, etc.)?

PANELISTS' SUGGESTIONS FOR RESEARCH TOPICS THAT ARE APPROPRIATE FOR THE MODEL:

- Examine the differential impacts on costs associated with LAS provision and *lack of LAS*, based on specific diseases.
- Assess differential impacts of language barriers on costs and quality *across the continuum of care*, and in *various health care settings*.
- National cost averages of providing (different types of) LAS.
- Compare the prevalence of LAS among different financing mechanisms.
- Examine differential impacts based on *types* of LAS provided (e.g., trained face-to-face interpreters; telephone language lines; bilingual health care staff).
- Conduct case studies in a local setting that explore and document the experiences of individual LEP patients throughout the continuum of care.
- Utilize state and national databases on adverse events to explore how patient safety may be impacted by provider-patient language barriers.
- Compare cost and quality impacts among LEP and non-LEP patient groups with similar diagnoses.

Recommendations Related To The Utility of the Model and Follow-on Study Findings:

The follow-on study for this project showed that the conceptual model can be utilized to successfully conduct research that answers important questions related to costs and

language barriers in health care settings. In addition to serving as an example of a study successfully implemented with the model as its framework, three primary recommendations were offered at the conclusion of the follow-on study.

- 12) Future studies should measure the impact of language barriers in a setting in which there are very few LAS, including language concordant physicians and staff.*** While the vast majority of physicians who cared for the study's participating patients did not speak Spanish, there may have been sufficient Spanish-speaking physicians to reduce language barriers.
- 13) Researchers conducting future studies of this kind should consider using a randomized control trial in which physicians as well as patients are randomized to avoid the physician practice effects that appeared to be driving the differences in Firms found in the follow-on study.***
- 14) Future studies of interpreter services should institute an intervention that covers most of patients' waking hours in the hospital so as to maximize the impact of the intervention.***

Recommendations Related To Further Research:

As described earlier, many recommendations for future research emerged as this project unfolded. The four analytic briefs, the presentations of the invited speakers, and the discussions among panel members revealed enormous gaps in knowledge related to this project's subject matter. In an effort to address these significant gaps in understanding, the following recommendations were offered related to furthering research (and thereby increasing knowledge) in these areas:

- 15) Direct links between language and cultural barriers in physician-patient communication and specific health outcomes.***
- 16) Interventions to reduce barriers within the physician-patient encounter, such as health literacy, race/ethnicity, gender, and socioeconomic status, and physician interaction style.***
- 17) Different kinds of language assistance interventions, their costs and impacts.***
- 18) Various cultural groups, including, but not limited to Hispanics.***
- 19) Particular communication barriers and their consequences.***

- 20) *Consensus development on terminology and categorization of medical errors and distinctions between those errors that do/do not harm the patient.*
- 21) *The distinguishing factors of those communication barriers that do/do not result in medical errors.*
- 22) *Communication barriers and medical mistakes between providers and minority patients.*
- 23) *The relationship between LAS and positive patient outcomes, such as patient satisfaction and patient adherence.*
- 24) *Costs related to LAS, including measuring the benefits of providing linguistic access and measuring the direct and indirect costs of providing these services.*
- 25) *More methodologically sound studies that define, identify, and measure certain essential components for any study involving LAS or persons with LEP, such as clear definitions of LEP or the nature and extent of interpreters used and larger sample sizes from which to generalize findings.*
- 26) *Longer-term impacts and outcomes of LAS interventions.*
- 27) *How to measure costs associated with medical errors.*
- 28) *How systems issues can facilitate or prevent medical errors.*
- 29) *Short- and long-term impacts and outcomes, including but not limited to, costs of not providing LAS interventions when language barriers exist.*
- 30) *Short- and long-term impacts of lack of LAS not only on costs, but also on health outcomes.*
- 31) *Costs and benefits of various practices for addressing (or not addressing) language barriers in health care, such as use of family and/or friends for interpretation, use of telephonic or audiovisual equipment to facilitate access to interpreter services, impacts of providing LAS on facility and equipment needs and costs as well as on time and effort required for clinical encounters, impacts of*

treating patients by relying on diagnostic procedures independent of communication barriers, etc.

- 32) *The nature and extent of “clear and effective” communication between doctors and patients when language barriers are not an issue.*

Recommendations For Non-Research-Related Actions:

Several recommendations were offered regarding further actions that are not research-related, but that are nevertheless significant for policymakers, health plan administrators, medical and other health professional groups, and others. These recommendations include:

- 33) *Increase education and training of medical residents to understand the patient (including cultural backgrounds), and to more effectively deal with language barriers as well as the ever-present degree of uncertainty in their profession.*
- 34) *Identify and address costs of providing LAS and improve financing mechanisms for covering such costs.*
- 35) *Implement health system and service improvements to increase awareness and knowledge of providers about patient language needs prior to appointments, as well as available financial incentives and financing mechanisms within and outside of health plans for covering LAS.*
- 36) *Educate and train physicians and other health care providers about what is known regarding the lack of LAS and poor health outcomes as well as how to effectively use interpreters.*
- 37) *Aggressively disseminate results of relevant new research to physicians, other health care providers, and the public at large.*
- 38) *Frame concerns about the costs of providing LAS as a health care quality issue, as a way of ensuring that other “costs” do not manifest themselves as poorer health outcomes for LEP patients because physicians and other health care providers were unable to understand and be understood by their patients, and that this “understanding disparity” may contribute to racial/ethnic/linguistic disparities in health care.*

3.5 CONCLUSIONS

Although this project began with a certain set of objectives, the expert panel members' review and deliberations resulted in a scope that allowed achievement of the *intent* of the original project objectives through a greatly simplified, more expedient, and cost-effective approach. The original plan to develop a taxonomy of medical errors was replaced by the conceptual model itself as a framework for researchers who are studying the impacts of language barriers on the costs and quality of health care.

In addition to the conceptual model, this project produced several other significant results, including four analytic briefs to be disseminated for public use; a follow-on study that showed the utility and applicability of the conceptual model in designing and implementing a successful study that examines cost and quality impacts of language barriers; and 38 specific recommendations for further actions in this field—both research-related actions and non-research-related actions. High priority should be placed on initiating additional (varied) studies that utilize this project's conceptual model. The types of studies generated may show further evidence of negative impacts on quality of care caused by provider-patient language barriers. Like this project's follow-on study, future studies will likely produce findings that will build support for the notion that *understanding and being understood is a critical component of health care quality*—regardless of primary language spoken or LEP status. Improving quality of care by providing the necessary resources for clear communication is an important dimension in the overall effort to eliminate health disparities.

References

REFERENCES

- Agency for Healthcare Research and Quality (AHRQ), *Medical Expenditure Panel Survey: Household Component Data*, Rockville, MD, August 2003.
- Agency for Healthcare Research and Quality (AHRQ), *National Healthcare Disparities Report (NHDR)*, Rockville, MD, July 2003.
- Agency for Healthcare Research and Quality (AHRQ), *National Healthcare Quality Report (NHQR)*, Rockville, MD, December 2003.
- Bach, Peter B., Laura D. Cramer, Joan L. Warren, and Colin B. Begg, "Racial Differences in the Treatment of Early-Stage Lung Cancer," *New England Journal of Medicine*, 1999, 341:1198-1205.
- Becker, M.H., and L.A. Maiman, "Strategies for Enhancing Patient Compliance," *Journal of Community Health*, 1980, 6(2):113-135.
- Beenstock, J., J. Broadbent, and J. Castro-Frasier, "Patient Information: In the Clear," *Health Services Journal*, February 12, 1998, 108(5591):32.
- Black, Douglas, J.N. Morris, C. Smith, P. Townsend, *Inequalities in Health: The Black Report*, Department of Health and Social Security, London, 1980.
- Brach, C., and I. Fraser, "Can Cultural Competency Reduce Racial and Ethnic Disparities? A Review and Conceptual Model," *Medical Care Research and Review*, 2000, 57(Supplement 1):181-217.
- Centers for Disease Control and Prevention, "National Diabetes Fact Sheet: General Information and National Estimates on Diabetes in the United States, 2003," U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta, GA, 2003, <http://www.cdc.gov/diabetes/pubs/factsheet.htm>.
- Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Web-based Injury Statistics Query and Reporting System (WISQARS), U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta, GA 2004, <http://www.cdc.gov/ncipc/wisqars/default.htm>.
- Cohen, Elena, and Tawara Goode, "Rationale for Cultural Competence," Policy Brief 1, National Center for Cultural Competence, Winter 1999.

- Collins, K.S., D.L. Hughes, M.M. Doty, B.L. Ives, J.N. Edwards, and K. Tenney, "Diverse Communities, Common Concerns: Assessing Health Care Quality for Minority Americans," Findings from the Commonwealth Fund 2001 Health Care Quality Survey, Commonwealth Fund, New York, 2002.
- Committee on Quality Health Care in America, *Crossing the Quality Chasm: A New Health System for the 21st Century*, Institute of Medicine, National Academy Press, Washington, D.C., 2001.
- David, R.A., and M. Rhee, "The Impact of Language as a Barrier to Effective Health Care in an Underserved Urban Hispanic Community," *Mt. Sinai Journal of Medicine*, 1998, 65(5/6):393-397.
- Denboba, D.L., J.L. Bragdon, L.G. Epstein, K. Garthright, and T.M. Goldman, "Reducing Health Disparities Through Cultural Competence," *Journal of Health Education*, 1998, 29(5, Supplement):S47-53.
- Department of Health and Human Services (HHS), *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, U.S. Government Printing Office, Washington, D.C., 1991.
- Department of Health and Human Services (HHS), "HHS Fact Sheet on Asian American and Pacific Islander Issues," 1999.
- Dovey, S.M., D.S. Myers, R.L. Phillips, Jr., L.A. Green, G.E. Fryer, J.M. Galliger, J. Kappus, and P. Grob. "A Preliminary Taxonomy of Medical Errors in Family Practice," *Quality and Safety in Health Care*, 2002 11:233-8.
- Federal Register*, "Policy Guidance: Title VI Prohibition Against National Origin Discrimination as it Affects Persons with Limited English Proficiency," Volume 67, No. 22, February 1, 2002.
- Flores, Glenn, "The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review," *Medical Care Research and Review*, 2005, 62(3):255-299.
- Gibbons, M. Chris, *Communication, Healthcare Disparities and Quality Healthcare*, prepared for the Office of Minority Health, U.S. Department of Health and Human Services, April 15, 2003.
- Health Resources and Services Administration, DHHS, *Eliminating Health Disparities in the United States*, November 2000.

Heckler, M.M., "Report of the Secretary's Task Force on Black and Minority Health," U.S. Department of Health and Human Services, Washington D.C., 1985.

Interpreter Standards Advisory Committee, "Bridging the Language Gap: How to Meet the Need for Interpreters in Minnesota," 1998.

Jacobs, Elizabeth A., *The Costs and Benefits of Overcoming Language Barriers in Health Care*, prepared for the Office of Minority Health, U.S. Department of Health and Human Services, April 4, 2003.

Jacobs, E.A., D.S. Lauderdale, D. Meltzer, J.M. Shorey, W. Levinson, and R.A. Thisted, "Impact of Interpreter Services on Delivery of Health Care to Limited-English-Proficient Patients," *Journal of General Internal Medicine*, 2001, 16:468-474.

Jin, Xian Wen, Jacquelyn Slomka, and Carol E. Blixen, "Culture and Clinical Issues in the Care of Asian Patients," *Cleveland Clinic Journal of Medicine*, January 2002, 69(1):50-61.

Kirkman-Liff, B., and D. Mondragon, "Language of Interview: Relevance for Research of Southwest Hispanics," *American Journal of Public Health*, 1991, 81:1399-1404.

Kravitz, R.L., et al., "Comparing the Use of Physician Time and Health Care Resources Among Patients Speaking English, Spanish, and Russian," *Medical Care*, 2000, 38(7):728-738.

Ku, Leighton, and Timothy Waidman, *How Race/Ethnicity, Immigration Status and Language Affect Health Insurance Coverage, Access to Care and Quality of Care among the Low-Income Population*, The Kaiser Commission on Medicaid and the Uninsured, August 2003.

Lee, Sharon M., *A Review of Languages and Other Communication Barriers in Health Care*, prepared for the Office of Minority Health, U.S. Department of Health and Human Services, June 2003.

Manson, A., "Language Concordance as a Determinant of Patient Compliance and Emergency Room Use in Patients with Asthma," *Medical Care*, 1988, 26(12):1119-1128.

National Center for Health Statistics, *Health, United States, 1983 and Prevention Profile*, (PHS) 84-1232, U.S. Government Printing Office, Washington, D.C., 1983.

Office of Minority Health (OMH), Department of Health and Human Services (DHHS), *National Standards for Culturally and Linguistically Appropriate Services in Health Care: Final Report*, Washington, D.C., March 2001.

Pastor, P.N., D.M. Makuc, C. Reuben, and H. Xia, *Chartbook on Trends in the Health of Americans*, National Center for Health Statistics, Hyattsville, MD, 2002.

Perez-Stable, E.J., A. Napoles-Springer, and J.M. Miramontes, "The Effects of Ethnicity and Language on Medical Outcomes of Patients with Hypertension or Diabetes," *Medical Care*, 1997, 35:1212-1219.

Peterson, Eric D., Linda K. Shaw, Elizabeth R. DeLong, David B. Pryor, Robert M. Califf, and Daniel B. Mark, "Racial Variation in the Use of Coronary-vascularization Procedures: Are the Differences Real? Do They Matter?" *New England Journal of Medicine*, 1997, 336:480-486.

Pitkin Derose, K., and D.W. Baker, "Limited English Proficiency and Latinos' Use of Physician Services," *Medical Care Research and Review*, 2000, 57(1):76-91.

Queseda, G.M., "Language and Communication Barriers for Health Delivery to a Minority Group," *Social Science Medicine*, June 1976, 10(6).

Rosenthal, Marilyn M., *Medical Errors and Patient Safety*, prepared for the Office of Minority Health, U.S. Department of Health and Human Services, May 2003.

Smedley, Brian D., Adrienne Y. Stith, and Alan R. Nelson, eds., *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare*, National Academy Press, Washington, D.C., 2002.

Todd, K.H., N. Samaroo, and J. Hoffman, "Ethnicity as a Risk Factor for Inadequate Emergency Department Analgesia," *Journal of the American Medical Association*, 1993, 269(12):1537-1539.

U.S. Bureau of the Census, "Census 2000 Summary File 3," 2000.

U.S. Bureau of the Census, "Overview of Race and Hispanic Origin," Census 2000 Brief, March 2001.

U.S. Bureau of the Census, "QT-P17: Ability to Speak English: 2000," 2002.

U.S. Bureau of the Census, "We asked...You Told Us: Language Spoken at Home," February 1994.

Villarruel, Antonia M., C.J. Portillo, and P. Kane, "Communicating with Limited English Proficiency Persons: Implications for Nursing Practice," *Nursing Outlook*, 1999, 47(6).

Weiss, Barry D., *Health Literacy: A Manual for Clinicians*, American Medical Association Foundation and American Medical Association, Chicago, Illinois, 2003.

Woloshin, S., N.A. Bickell, L.M. Schwartz, F. Gany, and H.G. Welch, "Language Barriers in Medicine in the United States," *Journal of the American Medical Association*, 1995, 273(9):724-728.