

# **Symbol Usage In Health Care Settings for People with Limited English Proficiency**

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**In Association with Hablamos Juntos  
A Program of The Robert Wood Johnson Foundation**

**April, 2003**

**SYMBOL USAGE  
IN HEALTH CARE SETTINGS  
FOR PEOPLE WITH  
LIMITED ENGLISH PROFICIENCY**

**PART ONE  
EVALUATION OF USE OF SYMBOL GRAPHICS  
IN MEDICAL SETTINGS**

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# TABLE OF CONTENTS

ACKNOWLEDGEMENTS	1.II
FOREWORD	1.III
INTRODUCTION	1.IV
PART ONE	1.V
LITERACY ISSUES	1.1
A BRIEF HISTORY OF SYMBOL USAGE	1.3
SYMBOL BASICS / SYMBOL LEARNING	1.7
STANDARDIZATION	1.15
EDUCATING THE MASSES	1.20
CULTURES AND SYMBOLS	1.22
SIGNAGE SYSTEMS IN USE	1.25
GOVERNMENT GUIDELINES	1.31
CONCLUSIONS	1.35
APPENDIX A	AP-1.39
APPENDIX B	AP-1.40
APPENDIX C.1-C.2	AP-1.41
APPENDIX D.1-D.2	AP-1.43
APPENDIX E	AP-1.45
SOURCES	1.i

# ACKNOWLEDGEMENTS

The authors would like to thank the following people for contributing time and information to this report:

Ann Makowski, SEGD; Gladys Brenner, AB Design, Inc.; Kate Keating, Kate Keating Associates, Inc.; Paul Dudley, Total Identity; Graham Walker, Karo Design Vancouver Inc.; John Bosio, Hillier; Frederico Viebig, Spring Signs; Ben Goodman, Karlsberger; Anthony Barbieri, Designer Sign Systems; John Branigan, ESI Design; Patricia Ford, FordDesign; Jack Biesek, Biesek Design; Laura Fanning, Baptist Health Architects; Margaret Faye, Fayeworks Design; Enrique Vonrohr, Design360inc.; Todd Pierce & Nate Hawley, Design Pacifica; Collette Miller, Enterprise IDU; Malcolm McKay, COMPIC; Lois Lanier, Picture of Health; Wendy Olmstead, Ivy Tech State College; Joanne Skiba & Joe Schramm, SNOMED; Dr. Jeremy Foster; Sergio Bustos, Gannett News Service; Lucy Cowgill; Sarah Marsh, JRC Design; Guadelupe Pacheco, Deeana Jang, Paul Cushing, U.S. Department of Health and Human Services, Office of Minority Health; Suzanne Salimbene, Ph.D., Inter-Face International

For further information on symbol signage, Wendy Trennert Olmstead's Master of Science in Design thesis *Comprehensibility Estimates of Symbols for Public Information Signs in Health Care Facilities*, and the book *Visual information for everyday use, Design and research perspectives*, edited by Harm J. G. Zwaga, et.al., are highly recommended.

The NHS Estates website (<http://www.nhsestates.co.uk>) is an excellent source for wayfinding information, as well as all aspects of medical center design.

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# FOREWORD

Hablaamos Juntos translates from Spanish to English as “We Speak Together”.<sup>1</sup> Hablaamos Juntos: Improving Patient-Provider Communication for Latinos is a national program of The Robert Wood Johnson Foundation intended to eliminate language barriers and improve the quality of health care provided to Latinos with Limited English Proficiency (LEP). To achieve this goal, ten of the nearly 180 original applicants were awarded planning grants. The grantees are:

**Molina Healthcare, Inc.**  
Long Beach, CA

**Inova Health System**  
Falls Church, VA

**Temple University Health System**  
Philadelphia, PA

**Central Nebraska Area Health Education Center, Inc.**  
Grand Island, NE

**En Español**  
Birmingham, AL

**Greenville Hospital System Foundation, Inc.**  
Greenville, SC

**School of Public Health—University of North Texas Health Science Center**  
Fort Worth, TX

**Regional Medical Center at Memphis**  
Memphis, TN

**Choice Regional Health Network**  
Olympia, WA

**Neighborhood Health Plan of Rhode Island**  
Providence, RI <sup>2</sup>

**THE ROBERT WOOD JOHNSON FOUNDATION**, based in Princeton, New Jersey, is the Nation’s largest philanthropy devoted exclusively to health and health care. It concentrates its grant making in four goal areas: To assure that all Americans have access to basic health care at reasonable cost; to improve care and support for people with chronic health conditions; to promote healthy communities and lifestyles; and to reduce the personal, social and economic harm caused by substance abuse—tobacco, alcohol and illicit drugs.<sup>3</sup>

# INTRODUCTION

Medical facilities in general, and hospitals in particular, are often seen as unfriendly places. Visits can be a cause of stress for patients and the general public because of the nature of the visits and unfamiliarity of place. New staff, volunteers and even existing staff who have been accustomed to their own areas may not be comfortable navigating the rest of the facility.

During research by NHS Estates, 20% of patients and visitors said they were “very worried” or “quite worried” when they were at a health care site. Some complained about “getting angry because the directions weren’t clear.”<sup>1</sup> The anger and frustration is understandable when a person faces labyrinth routes common to architecture for hospitals that have grown and expanded over time. The stress is great enough when you can speak the native language and can read the sometimes inadequate adequate directional signs. But when you do not speak that language, it is much easier to feel isolated and to get lost, adding to the stress level.

**NHS ESTATES is an executive agency for the department of health in Great Britain. They play a significant role in elevating health care by providing “expert advice, information and guidance on estates and facilities management issues to ministers, the department of health and the NHS.”<sup>2</sup>**

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In January, 2003, JRC Design was tasked by Hablamos Juntos with developing recommendations for program standards for signage to best serve Limited English Proficiency (LEP) patients in a variety of health care settings across the health care delivery system. While the national program specifically mentions “Communication for Latinos”, JRC Design’s scope included that “these signage materials should not require literacy in order to be understood, and should be understandable to people regardless of their country of origin, primary language, education, socio-economic status, etc.”

The following report is in two parts. The first part provides research and background information regarding the use of symbols in health care facilities in the United States. The second part describes processes for implementation (if any, based upon findings in the first report) of symbols within the 10 grantee demonstration environments.

## **PART 1** | EVALUATION OF USE OF SYMBOL GRAPHICS IN MEDICAL SETTINGS

This report will address the following questions:

**A What is the existing “state” of signage and symbol graphics usage in medical settings in the United States?**

**B What is known about signage for LEP and low-literacy populations? Are there examples in other countries?**

**C What is the potential for the use of symbol graphics to meet the needs of LEP populations in health care settings in the United States? How does the literature and research support this and under what conditions?**

This report will also identify factors beyond literacy that influence the effectiveness of symbols and are essential to the use of signage as a “communicative event” through the use of color, fonts, etc.

Finally, this report will provide the rationale for using symbol graphics for LEP populations as part of the Hablamos Juntos demonstration sites, while describing possible outcomes that can be achieved by the project.

## LITERACY ISSUES

According to the 2000 United States census, 4.13% of the country's population (10,513,832) report that they "can't speak English well, or at all."<sup>1</sup> Nearly six million or that group are Latino.<sup>2</sup> It is nearly 17% of the entire Latino population numbering 35,305,818 in 2000.<sup>3</sup>

The lack of language skills creates health risks for that part of the population and adds a burden to the health care industry. *Hablamos Juntos* reports that LEP persons have:

- Lack of awareness of existing services and how to access them.
- Difficulty in making appointments and accessing basic information about the visit, when they do seek care.
- Inability to communicate adequately with health care support staff, providers, and ancillary staff at all points within the health care delivery system.
- Low patient satisfaction with cross-language encounters, which may lead to reluctance to return to the health care setting.
- More medical errors.<sup>4</sup>

In the report *Hispanic Patients' Double Burden: Lack of Health Insurance and Limited English* by Michelle M. Doty and sponsored by The Commonwealth Fund, surveys showed that:

One in four Hispanics [that were LEP] felt that their doctor had listened to them just "somewhat" or only "a little," and reported that they understood "some" or only "a little" of what their doctor told them. In contrast, only one of ten Hispanics who speak English reported the same.

One-quarter of Hispanics with limited English proficiency reported that—even though they had questions about their care—they left a health care visit without asking those questions.

In all, forty-five percent of Spanish-speaking Hispanics



experienced at least one communication problem, compared with twenty-seven percent of English-speaking Hispanics.<sup>5</sup>

For the health care industry, the inability to communicate with the patient has its own share of difficulties and burdens. LEP patients “are less likely to keep subsequent appointments and are more likely to make emergency room visits than are patients in same-language encounters.”<sup>6</sup> Instructions for treatment regimens are harder to follow, and there is greater “risk of other medications or home remedies not being discovered.”<sup>7</sup> by the patient’s doctor.

## A BRIEF HISTORY OF SYMBOL USAGE

Long before written language, pictographs (literally, “word pictures”) were used as a means to communicate. Wall and cave art throughout the world shows some of humankind’s earliest attempts to convey messages and stories to others. Even without a written language, the message was left and the story was told.



As societies grew and written languages developed, pictographs were used to visually provide information to populations that were largely illiterate: A shoe carved from wood and placed outside a building would symbolize a cobbler. An image of a cow would identify the dairyman in ancient Rome. Tools of the trade would represent various craftsmen.<sup>1</sup>

Over time, some of these images became abstractions—a less concrete connection to the original trade, and more a symbol of the work to be performed: The barber pole represents the bloodied bandages of the barber, who also handled shaving and bloodletting duties.<sup>2</sup>

Symbols have appeared in signs for thousands of years. It has only been since the 20th Century that there were concerted attempts to create uniformity in the symbols so that their meaning would be clear to all, whether or not they spoke the native language.

Traffic information signs were among the earliest examples of a

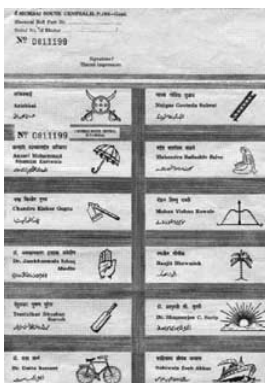
uniform symbol-based sign system. In 1909, the Convention on the International Circulation of Motor Vehicles was held in Paris. The Convention recommended four road signs showing hazardous road conditions: Bump, road crossing, curve and railroad crossing. The system was adopted by several European countries. Adaptations from other organizations in the 1920's and the League of Nations in 1939 expanded the number and scope of symbols used.<sup>3</sup>

After World War II, the United Nations (UN) specified fifty road signs in a “protocol of road signs” that was adopted by approximately thirty (mostly European and Asian) countries. Other nations followed suit as the UN expanded the system in 1953 and again in 1968. Until 1970, the United States used a sign system consisting mainly of words. The Department of Transportation (DOT), working with the American Institute of Graphic Artists (AIGA), developed a standard symbol system that has become the basis for many different sign programs throughout the world.<sup>4</sup>

Nations with high illiteracy rates, such as India and Egypt, still use symbols in everyday matters, even as means of identifying political parties on ballots so that voters may cast their votes.



**Examples of traffic symbols used by the Convention on the International Circulation of Motor Vehicles, 1909. From the top: Bump, road crossing, curve and railroad crossing.<sup>5</sup>**



**Examples of ballots used in India<sup>6</sup> (left), and Egypt (right), demonstrating the use of symbols to identify political parties to largely illiterate populations.<sup>7</sup>**

### Here Comes the Candidate, Down With the Coffee Pot

In Egypt, where illiteracy is a chronic problem, candidates are assigned symbols such as a car, a boat or a clock to make

it easier for illiterate voters to identify their choices on the ballot. There are 100 electoral symbols, officially approved since 1984, which the Interior Ministry's election department assigns to the candidates in each constituency.

But while some symbols are easy to identify and remember and may have positive connotations, such as the crescent and camel, others, such as a coffee pot and a [spool] of thread have been dubbed unmemorable. In the case of the potty and the pistol, it was considered down-right negative.<sup>8</sup>

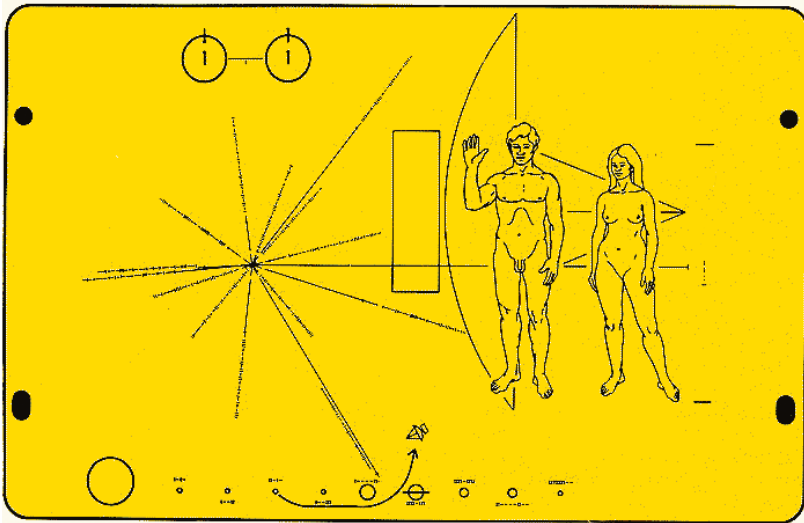
In the 1960's, as the jet age made international travel more common, attempts were made to accommodate visitors that might not speak the native language. Symbols started to become prevalent in international airports and other transit stations.

Many thousands of travelers are, in fact, illiterate in countries whose language they do not know and whose alphabet they may not even be able to decipher. There is, therefore, a need for graphic symbols to lead us to the nearest telephone, to help us claim baggage or find an elevator.<sup>9</sup>

Indeed, the ability of symbols to convey messages to those who don't speak the language is believed to be so strong that attached to the bodies of the Pioneer and Voyager Space ships, sent on their missions to explore beyond the solar system, are plaques using graphic symbols to explain where they originated in the event they are intercepted by extra-terrestrials.

Because these symbols are designed and thought to be understood without the need to speak or read the native language, the concept evolved that these were "international" (or, in the case of the space

ships, “intergalactic”) symbols. Anybody should be able to read symbols because the symbols are expected to be read by anyone.



Those expectations are most readily achieved when certain rules are applied to the symbol’s design:

Analyze and utilize only the essential facts about the concept being turned into a graphic.

Design should be uniform throughout the graphic, and throughout the entire graphic system.

Symbols should be as visually simple as possible.

Silhouette or side views tend to contain more distinct and useful information than frontal views.

It must be different enough from other symbols that its message is not confused with other symbol messages.

The term “International Symbol” is used by several books to denote symbols that can be understood across many languages and cultures. The International Organization of Standards (ISO) uses the term “public information symbols” and defines them as, “[a] graphical symbol, intended to give information to the general public, the understanding of which is not normally dependant on specialist or occupational training.”<sup>10</sup>

**THE PIONEER 10 & 11 PLAQUES (on left), show line drawings of a typical man and woman, based upon “computerized analysis of the average person in our civilization.” The man’s hand is raised as a gesture of goodwill.**

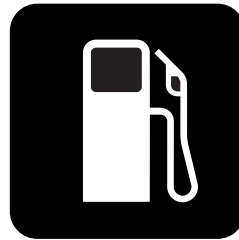
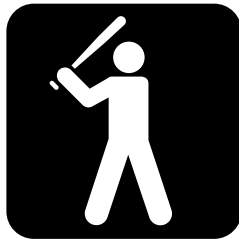
“The key to translating the plaque lies in understanding the breakdown of the most common element in the universe - hydrogen. This element is illustrated in the left-hand corner of the plaque in schematic form showing the hyperfine transition of neutral atomic hydrogen. Anyone from a scientifically educated civilization having enough knowledge of hydrogen would be able to translate the message. The plaque was designed by Dr. Carl Sagan and Dr. Frank Drake and drawn by Linda Salzman Sagan.”<sup>11</sup>

## SYMBOL BASICS | SYMBOL LEARNING

The more concrete a message is, and the more the graphic relates to its intended message, the more intuitively that message will be understood. If the message is more conceptual, then the more arbitrary or abstract the image will be, causing a greater need that the relationship between the two be taught to the viewer.

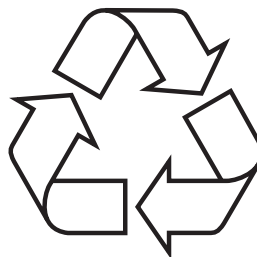
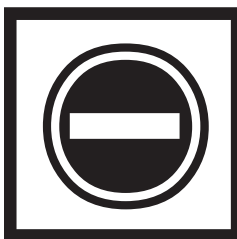
Basically, symbols can be viewed as being:

A Image Related/Form/Pictorial/Concrete which includes resemblance or use of analogous images.



**IMAGE RELATED SYMBOLS**  
airport (left), baseball field (center),  
gas station (right)

B Concept Related/Arbitrary/Abstract where the image “has no relationship to the referent.” “Referent” in this case means the “[s]ubject represented by the graphical symbol.”<sup>1</sup>



**CONCEPT RELATED SYMBOLS**  
Do Not Enter (left), recycling (center),  
biohazard (right)

The symbol for recycling is elegantly conceived; once you are told what it means, it has a visual sense. It graphically shows the concept of recycling. The symbol for biohazard is purely an abstraction with no connection to its message. Unless you are told what it means, it is just a combination of some pointed shapes.

Conceptual symbols include the cross, Star of David and the crescent moon to symbolize the Christian, Jewish, and Muslim religions. The elephant, donkey and hammer and scythe represent political parties and ideologies. But a symbol's meaning can be taught, and it can be learned.

In their report, *Public Information Symbol Signs, Part 3—Hospital Signs*, Standards Australia tests the effectiveness of nine symbol signs to be used in medical facilities. Each symbol is shown, along with the relevant information gathered from the tests. The test results note the percentage of people that understood the meaning of the symbol “when first shown it” and the percentage of people understanding the meaning “a week later having been told its meaning at the first test.”<sup>2</sup> The symbols averaged a twelve percent increase in comprehensibility from the first to the second test. At the second test, both Admissions and Pathology had the largest increases in comprehensibility, of twenty-six percent and nineteen percent respectively. Dental Department and X-Ray were understood by 100 percent of the test group<sup>3</sup>, suggesting that the less abstract the concept, the easier its understanding will be.

**STANDARDS AUSTRALIA** represents the Commonwealth of Australia to the International Organization for Standardization (ISO). They coordinate the attendance of Australian experts at international meetings, and participate extensively in the preparation of a wide range of international standards.<sup>4</sup>



**Examples of Australia Standards symbols for Admissions (top left); Pathology (top right); Dental Department (bottom left); and X-Ray.**

Peter Houts, PhD., professor emeritus at Pennsylvania State University, College of Medicine, and research associate at the Johns Hopkins Oncology Center is researching the use of simple line drawings to assist cancer and AIDS patients who read below a fifth grade level to remember medical instructions. Dr. Houts said, "Pictographs can also be cues to help people remember spoken information."<sup>5</sup>

He has developed a series of pictographs "that show low literacy patients and family caregivers how to recognize a medical emergency as well as how to avoid medical emergencies."<sup>6</sup>

As opposed to photographs, which cost time and money to organize and take, "Effective pictographs are something anybody can do, don't take very long to draw, and don't have to be good looking art."<sup>7</sup> Stick figures or doodles are fine to use, and often avoid issues related to gender, culture and mood.



Drawings based upon pictographs developed at John Hopkins Oncology Center (left).

Houts believes that pictographs can communicate health information, and he "recommends that clinicians should use them in their everyday work—especially when working with people who have difficulty reading."<sup>8</sup>

The pictographs should be simple drawings that do not have any unnecessary details. The user should focus on using concrete pictures



rather than abstract symbols.

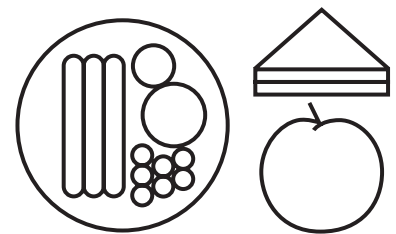
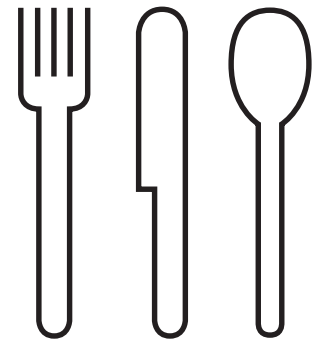
Using processes similar to Dr. Houts', though more standardized in execution, are COMPIC, a symbol-based means of communicating with children having physical or intellectual difficulties that was developed in Australia and Picture of Health, developed by Lois Lanier in Colorado.

The original premise of COMPIC dealt with domestic situations with a heavy emphasis on personal and household tasks. As the concept evolved (and as the children grew up) more symbols were added for "activities associated with more group oriented tasks, e.g. meetings, dealing with government for private services, etc."<sup>9</sup> The COMPIC system now has over 1600 images.

According to Malcolm McKay, COMPIC Administration Officer:

Our pictographs can be used in a range of situations both domestic and public, and have been for many years. They are the preferred symbols in many government released documents that target people with communication difficulties. This is primarily because of their wide adaptation by speech therapists over the years which has resulted in large numbers of "COMPIC literate" disabled people.

The road testing of the product has been largely accomplished over the years by direct use and response to suggestions from users. Given its small beginnings, there was never any opportunity for long-term research before implementation. Cultural differences have never been a problem because of the range of symbols and their emphasis on [similar] domestic situations.... [The] Publishing Software...on CD ROM allows for captions to [be] altered or reworded in different languages....[COMPIC] enjoys good sales in Southeast Asia



**COMPIC SYMBOLS**  
Cutlery (above), and Food (below).

where Malay is the primary language.<sup>10</sup>

Lois Lanier created Picture of Health flash cards out of personal need:

When my son Kyle [who has Down's Syndrome] had major surgery, he was on a respirator for two days afterwards and could not speak. When he was able to speak, the nurses and doctors did not understand him because his speech [was] unclear. Also, a patient on the same unit was from India and could not speak English at all! I began to think of all the patients who could not communicate due to medical reasons or language barriers. How isolated and afraid that must make them feel. I immediately thought of pictures as a way for the medical staff to learn what patients want and to give information to non-English speaking patients....<sup>11</sup>

Picture of Health consists of twenty-eight cards, and all are bilingual (English and Spanish), but the desire was that language wouldn't be necessary; the pictures would work well by themselves and cover many aspects that a patient may encounter in a medical facility. Currently the system is in use in seventy-nine hospitals and medical facilities throughout the United States.<sup>12</sup>

Blissymbolics was developed by Charles K. Bliss "for the purpose of international communication. It was first applied to the communication of children with physical disabilities by an interdisciplinary team at the Ontario Crippled Children's Centre (now the Bloorview MacMillan Centre) in 1971."<sup>13</sup> Comprised of over 2000 symbols, Blissymbolics is similar to the COMPIC system. They are both total language systems, as opposed to a shorthand means of identification and communication across various languages.

The above mentioned systems' approaches are valid means of



**Example drawings from three different sets of Picture of Health cards: "Bed up", from the Patient Comfort Card-Neuro series (top), "How to take a throat culture" from the Patient Instructions Card (center), "Suction me" from the ICU Comfort/Symptoms Card Set (bottom).<sup>14</sup>**

communicating to those with limited language skills, or as an entirely new language, but they deal with people and the messages in a more one-on-one manner. The so called “international” symbols are meant to be viewed and understood while the viewer is on the move, either in a car or on foot. That requires a different set of design parameters for the symbols to be successful.

In designing the graphic symbols for the 1972 Munich Olympic Games, Otl Aicher had the following criteria for designing symbols that were meant to communicate to people of various cultures and languages gathering to enjoy the sporting events:

- The symbol shouldn't look illustrative, rather it should contain the characteristics of a sign.

- The symbol should not be particular to a specific culture.

  - Instead, it needs to be understood by people of differing cultures from around the world.

- It should be cognizant of, and avoid, any cultural taboos.

- The educational level of the viewer should not be a factor in the symbol's understanding.

- The symbol should be easily readable and understandable.

- The design of the symbol should be based upon uniform rules of design comparable to grammar in a language.<sup>15</sup>

The challenge is to make sure the symbols **do** cross the language and culture barriers, or, at the very least, convey their intended message. Unfortunately, it's often not the case. Rudolf Modley, in the book

*Handbook of Pictorial Symbols*, wrote:

One reason for badly conceived and ineffective public symbols is that administrators like to select symbols that have been used previously by others, and which thus have presumably already been accepted by the public. This has led to the widespread adoption of some illogical or ambiguous symbols, such as the one showing a man and child to indicate “pedestrian crossing” and the use of a pictograph of a man to indicate “men’s room” and of a woman to indicate “ladies’ room.”<sup>164</sup>

This is a somewhat harsh assessment. Five designers contacted during the research phase of this report indicated that timing and costs were issues preventing the adoption of fully realized symbol systems, particularly when it came to health care facilities:

“[W]e have...difficult[y]...find[ing] a large set of symbols [for] hospitals and medical facilities.”<sup>17</sup>

“I wasn’t getting paid for developing symbols ‘from scratch’, so I came up with a palette which was a combination of [existing systems.]”<sup>18</sup>

“I...consulted for a hospital group in California regarding the use of symbols for their Southern California hospitals. [T]hey did not want to take the time or spend the money...to conduct necessary research on their largely Hispanic population to validate the symbols they [wanted] to use.”<sup>19</sup>

However, Mr. Modley’s comment that many symbols are used because they have “presumably already been accepted by the public” is quite on the mark. In some cases, constant use of these “illogical” symbols has led to the public’s acceptance of them: Silhouettes

of standing men and women do represent “Men’s Restroom” and “Ladies Restroom”. But without exposure to, and feedback from, people of various cultures and languages, it can only be assumed that a symbol is legible and effective for most of the world’s population. Standardization organizations are rising to the challenge of addressing these shortcomings, attempting to develop truly “international” symbols.

# STANDARDIZATION

Nearly every study reviewed for this report emphasizes that symbols can reach beyond language to convey their messages. The United States Department of Health and Human Services Department (HHS), the Federal Transit Administration (FTA), and the Department of Transportation (DOT) are some of the government agencies that recommend using pictographic signs:

## **From the Federal Transit Administration:**

Transit facilities and signage systems must be designed with the overall objective of creating a concise and informative series of nonverbal messages, consisting of environmental clues and signs that are understandable by the full range of travelers who use the system....<sup>1</sup>

## **From the Department of Transportation:**

...DOT encourages recipients to explore [the] use of methods and devices that do not use language. For example, use of pictograms, symbol signs, standard symbolic signs..., diagrams, color-coded warnings, illustrations, graphics, and pictures can be considered.

Standard symbols such as are used on international roads and at the Olympics can be used. Use of such non-verbal methods will also help alleviate problems of communication for those who are illiterate or partially literate, those who are too young to read, and those with hearing impairments...Symbol signs and pictograms also benefit globalization of trade and travel.<sup>2</sup>

The DOT does not mention the effect of culture on symbol comprehensibility. However, other reports do. The aspect of culture will be reviewed in a later chapter.

To be effective, a symbol must “command attention or be easily detected by the person who needs the information. It must be legible at the appropriate distance and must often be legible when seen for a very brief time...or under adverse viewing conditions.... The symbol must be clearly understood and the action to be taken in response to the message should be immediately obvious.”<sup>3</sup>

Since the early 1970s, Technical Committee 145 of the International Organization for Standardization (ISO) has been working on the development of comprehensible public information symbols. Testing procedures that could evaluate a symbol’s effectiveness were proposed in 1974.<sup>4</sup> At about the same time in the United States, the DOT contracted the AIGA to develop a series of passenger/pedestrian symbols for use on traffic signs and transportation facilities.<sup>5</sup>

The ISO testing procedure has evolved over time, and evaluates symbol variants based on two criteria. The first is “appropriateness”, a prediction of a control group to estimate the percentage of population that will intuitively understand the symbol. This helps to winnow an often large number of graphic images to be tested down to a manageable few. The second criteria is the public’s comprehension of that symbol (how accurate that understanding is). ISO uses the figure of sixty-seven percent of the control group comprehending the symbol as being acceptable for adoption and use with their symbol systems.<sup>6</sup>

ISO issued a graphic list of fifty symbols (ISO 7001, see appendix A) that have been tested per their standards. The symbols are similar to DOT, and are similar to systems issued by other standards organizations such as Standards Australia (SA), American National Standards Institute (ANSI), Österreichisches Normungsinstitut/Austrian Standards Institute (ÖN) and the British Standards Institute (BSI).

#### **WHAT IS ISO?**

**The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from more than 140 countries, one from each country.**

**ISO is a non-governmental organization established in 1947. The mission of ISO is to promote the development of standardization and related activities in the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity.**

**ISO’s work results in international agreements which are published as International Standards.<sup>7</sup>**

It is not fully clear, however, where these symbols have been tested. Certainly the symbols have been tested in industrialized nations (United States, Switzerland, Great Britain, Australia, Austria, etc.) that have a high degree of literacy. It is unclear if these systems have been tested in less industrialized nations or with cultures with greater percentages of illiteracy, or greatly different cultural values.

Dr. Jeremy Foster, a psychologist working with ISO to evaluate and test public information symbols, wrote:

[I]t is true that most of the testing that has been done has been in industrialized countries, although I am just completing a study on symbols for one referent which is obtaining data from Korea and Iran as well as the UK. We would love to have more non-Western industrialized countries involved, but they tend to be less enthusiastic for pretty obvious reasons of cost.<sup>8</sup>

Wendy Olmstead, a graphic designer and author of several articles on symbol development, tested forty-one public information symbols “on a population in China and Japan in their native language and analyzed it relative to one of my [test populations in the US].”<sup>9</sup> These symbols represented seven categories: Admissions, Emergency Room, Information, Outpatient Services, Patient Rooms, Pharmacy and Waiting Room. All categories had six symbols to choose from except Emergency Room, which had five symbols.

Five symbols “rated most meaningful which were common for both the US and China,” according to Ms. Olmstead. None of the symbols presented to the Japanese were rated “most meaningful.”<sup>10</sup>

Most of the major standardized systems (ISO 7001, BSI 8501:2002, ÖNORM A 3011) address health care graphics in a peripheral manner. The majority of the system’s symbols pertain to transportation,



recreation, leisure and sports activities with a small number of symbols for Ambulance, or Emergency. Specific medical terms, such as X-Ray or Outpatient are not typically addressed. However, some systems have been developed directly for hospitals.

In response to a questionnaire circulated throughout Australia in April 1974 to “major hospitals, architects, relevant authorities such as health commissions, departments of works and organizations in contact with migrant groups”, Standards Australia, with AS 2899.3-1986 *Symbols—Healthcare in Hospitals*, developed nine symbols pertaining to health care. These address Admissions, Casualty, Dental Department, Occupational Therapy, Outpatient’s Department, Pathology, Pharmacy, Physiotherapy and X-Ray.<sup>11</sup> (See Appendix A)

In their preface, they noted that Casualty could also be called Accident, Emergency or Accident and Emergency.<sup>12</sup> Physiotherapy is the same as Physical Therapy in United States.

The goal was to help “achieve uniformity of hospital signs and symbols throughout Australia....” There was a “special need for symbols in some hospitals which serve large non-English speaking populations.”<sup>13</sup>

It was further stated that, “In spite of extensive research and testing, the committee was unable to resolve a suitable symbol for Psychiatry,”<sup>13</sup> demonstrating a major challenge for symbol design: Creating public information symbols that depict abstract concepts that can be intuitively understood.

Professor Ravi Poovaiah of ITT Bombay developed a system to be tested in five hospitals in Bombay, India.

Communications in India [are] constrained by factors arising from the very diverse cultural, traditional, [linguistic] and social backgrounds of its people—resulting in potential as well as real situations of communication impasse. A drawback of no mean proportion, it is related to the simple linguistic and cultural fact that in India, there are as many as 14 major languages and about 1,600 dialects. Secondly, many of its adults are perhaps functionally literate but are literally illiterate. Thirdly, people do not communicate easily because of boundaries determined by the cultural-traditional-social denominators of gender-divide that limits the free mixing between the sexes, or among different castes or religious communities.

Five major hospitals run either by the government or the municipality within the city limits of Bombay were therefore chosen for a study of the potentials of symbol development. The results of the study revealed that there were several problems deriving from the absence of a sign system. There was a great degree of confusion that resulted from using a number/numerical system for identifying the departments, counters, etc. It was found, for instance, that 35-40% of the first-time users coming to a hospital to utilize health services invariably ended up standing in the wrong queues. Since the queues were lengthy on account of high patient turnouts, the patient often wasted over half an hour to simply realize this error. It was felt that visual symbols, appropriately used could go a long way in ameliorating these avoidable conditions.<sup>14</sup> (see Appendix B for additional symbol samples)



**Examples of symbols developed at ITT Bombay, India**

## EDUCATING THE MASSES

For symbol signs to be truly “international” in usability, the intended message must be intuitively understood by the viewer. But the nature of language and culture precludes this. Language changes throughout time and generations. What was proper language usage 200 years ago may be hard to understand today. Words from fifty, twenty, or even ten years ago may have new meanings today.

What is a point of reference for one generation may not have any meaning to a new generation. We do not “dial” a phone anymore. Hand a ten-year-old child a rotary phone and he may stand there with a blank look, not comprehending the mechanics of the device. Yet many symbols that represent Telephone use a rotary phone as their point of reference. (However, the advent of cell phones may soon eliminate the need for public Telephone signs.)

There is often a naiveté as to how “international” symbol signs actually are. In the report *Guidelines for Transit Facility Signing and Graphics* issued by the Transportation Research Board, they state that “[e]asily recognized symbols [can] accommodate people who cannot read English...”<sup>1</sup> and later, “One of the advantages of using symbols is their ability to communicate meaning in various languages. The symbols can be used throughout the system with English text written below.”<sup>2</sup> From the book, *Signs+Emblems: A Collection of International Examples*: “Pictographs (pictorial symbols) are understood throughout the world. Hence visual communication is definitely at an advantage over verbal communication which depends on the national language spoken in each case.”<sup>3</sup>

These kinds of expectations for a symbol’s automatic ability to be read across many languages (or even its original language) are not totally supported by the research. Gladys Brenner, a designer who helped to develop a symbol system for Danville Regional Medical

Center in Danville Virginia noted, “some icons that meant something to me, as a Spanish speaking native, meant something totally different to English speaking people, who consistently chose the same icon for the meaning proposed.” <sup>4</sup>

Symbols must be tested in various countries and/or cultures for their comprehensibility. Even then, the masses need to be educated. Most standards organizations have adopted ISO’s use of comprehension by 67% of a surveyed group as the magic number for a symbol to be accepted as a “standard”, leaving a potential one-third of the population left in the dark.

The people that compiled the Standards Australia report *Symbols—Healthcare in Hospitals*, understood the fact that not all symbols are intuitive:

Some of the symbols included in this standard appear familiar and may already be in use in hospitals; **others are likely to need a period of use and some education if they are to become familiar and meet the test of clear and unambiguous interpretation.**<sup>5</sup> (emphasis added)

## CULTURES AND SYMBOLS

As mentioned in a previous chapter, it is a false assumption that a symbol will be necessarily be understood by an illiterate, or even a literate person. Cultural background can effect a person's perception for what a symbol may mean.

...(L)anguage and culture are inseparable. A patient and a provider who speak different primary languages will of necessity be of different cultures. Even patients and providers who do speak the same language may not share a cultural background. As a result, both providers and interpreters must be aware of the role that culture plays in communication and in health-related knowledge, attitudes and behavior, so that messages can be accurately rendered and comprehended in their own cultural context.<sup>1</sup>

Some people from other cultures have problems communicating with members of the opposite sex regarding matters of a medical nature. Body language differs throughout the world:

In other cultures, one does not smile at someone one does not know—especially if that person is of a higher status—such as a physician or nurse! In the same manner, the behaviors of caregivers who belong to a rather formal culture—or one that is referred to as a “distance” or “non-touch” culture may also be misinterpreted by patients who come from a more informal, “touch” culture such as our mainstream White culture in the U.S. The patient may fail to develop a sense of trust with a caregiver whom they have labeled as “unfeeling” or “unconcerned”.<sup>2</sup>

These cultural differences can include symbol usage, color, body language and gender. Sharp objects (i.e. knives, scissors, letter openers) symbolize “cutting short good luck” to Chinese, Japanese and Vietnamese people. In the United States, making a circle with

your finger and thumb signifies “OK”. In Japan it symbolizes “money.” White signifies purity in some cultures, death in others. Combining white and blue suggests funerals to the Chinese based on their custom of distributing white lanterns with navy blue letters at those functions. “Asians do not touch another in public, not even on the shoulder. The only exception to the touching ban is for Vietnamese, who show friendship to people of the same sex by holding hands.... To Koreans, foot shaking connotes driving out bad luck, and crossing legs is not smiled upon in most Asian cultures. But neither is considered as offensive as this long-standing taboo: showing the soles of the feet or shoes.”<sup>3</sup>

Three of the symbols for “Waiting Room” Wendy Olmstead tested in the United States, China and Japan showed figures with legs crossed. None of those images were selected as being appropriate images by either the Japanese or Chinese control groups.<sup>4</sup> One wonders how much those decisions were influenced by their cultural heritage.

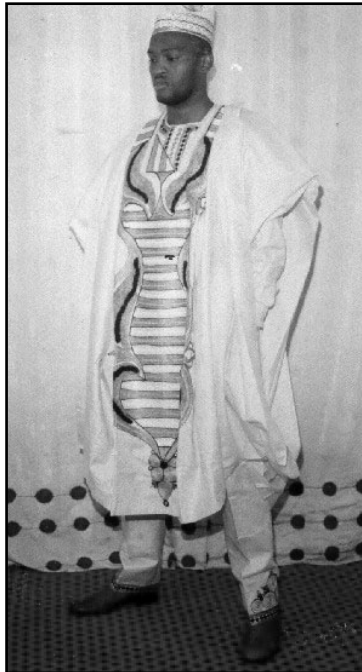
Numbers also have significance. The number four signifies death to many Asians. That could cause concern for someone going to the fourth floor for surgery. Methodist Hospital in Arcadia, California had a phone number consisting primarily of the number four. Since eight is considered a lucky number, both their main phone number and the Chinese patient information hotline were changed to take advantage of the information.<sup>5</sup> In western cultures you may have a hard time finding a thirteenth floor in a building.

Sometimes a symbol’s obvious meaning may not be obvious to the viewer. Cultures have differing ways of doing things. They may use forks. Others use chopsticks. Some use toilets while other cultures have differing sanitation systems.



**Examples of tested “waiting room” symbols**

An old graphic design magazine once had a cover that showed several men standing in line to use a restroom, despite the fact that it was a ladies restroom. The only sign to indicate the restroom's gender use was a typical "Ladies" symbol sign. The men in line included a Scots man, an African and several others whose native male attire was strikingly similar to the restroom graphic.



**Examples of traditional Scottish male clothing (left) and traditional African clothing (center).**

**Typical "Ladies" restroom symbol (right)**

## SIGNAGE SYSTEMS IN USE

During the research phase of this project, approximately 275 designers and medical practitioners throughout the world were requested to provide information determining the types of sign systems that have been designed and used in medical settings. Approximately forty people responded. The systems being used could be broken into four categories: Single language only; Primary language with translations; Limited symbol usage and Site “addressing”.

The single language system uses names or room numbers in the primary language. In the U.S. these signs also have design constraints based upon requirements of the Americans With Disabilities Act (ADA) Title III. These include font and color contrast limitations, and the inclusion of raised, tactile letters, and Grade 2 Braille. Symbol usage is required in limited cases; primarily to identify accessible or non-accessible spaces or special telephones and the like.

As ethnic populations grow in the U.S., health care facilities are discovering the fact that English is not the primary language spoken by many of their clientele. To address this, in many medical facilities, and other public buildings, bilingual (primarily English/Spanish) signs are used. The English text tends to supersede the translation in size since ADA specifies 5/8” type minimum for information on signs, but has no type or size requirements for translations on the same signs.

All Saints Healthcare of Southern Wisconsin serves residents of the Greater Racine and Kenosha areas. Their public lobby areas and high volume service areas on the All Saints-St. Mary’s and All Saints-St. Luke’s campuses feature signs in both English and Spanish.<sup>1</sup>

Primary Children’s Medical Center (PCMC), is a full-service pediatric referral center serving the Intermountain West and is located in Salt Lake City, Utah. About 90% of their LEP patients speak Spanish.

### WHAT IS ADA?

**The Americans with Disabilities Act was signed into law in 1990 and was designed to provide equal access and remove barriers for all Americans with disabilities. The act has an effect on “jobs, public accommodations, government services, public transportation and telecommunications—in other words, full participation in, and access to, all aspects of society.”<sup>2</sup>**



The other 10% tend to speak Arabic, Bosnian, Vietnamese or Korean. The Center has a volunteer program to provide interpreters. Five interpreters are employed full-time and there are sixty-one community volunteers that are on call.

PCMC has an average of forty LEP patients per day. When an LEP person enters the facilities, the staff working at the information desk are instructed to contact interpreters to help that person navigate the Center. According to Lucy Cabal, Language Program Coordinator for the Center, signage is currently (March 2003) being developed by an internal committee, with both “universal symbols” and color coding being considered for implementation. That signage is expected to be installed by May 2003.

The hallway carpets have symbol insets to aid in wayfinding. The Cardiology Department features a heart, X-Ray and Imaging has lines (symbolizing the ribs of a chest), and water fountains have a faucet. In addition to enlivening the spaces, these are believed to assist the entire population utilizing the facilities.<sup>3</sup>

Broadlawns Medical Center in Des Moines, Iowa has all their directional signs and main identification signs in both English and Spanish. Individual room signs are in English only. According to Joni Swartz, the bilingual signs are contained in the patient care areas. Signs are translated as the need arises.<sup>4</sup>

In addition to a large Latino population, the area also has significant groups of Bosnians, Laotians, Vietnamese, and Cambodians. Currently, only specific lobby signs describing available services are translated into those languages.<sup>5</sup>

Gladys Brenner, noted on pages 20 and 21, helped to develop the

symbol system for Danville Regional Medical Center in Danville, Virginia. The symbols were used extensively in room identification signs, directionals and directories.<sup>6</sup> (See Appendix D).

Besides Danville Regional's example, the research for this report did not reveal an extensive use of symbols to identify specific medical functions within medical facilities in the U.S. Instead, symbols tend to be used sparingly within written language systems.

Graham Walker and Barry Marshall of Karo Design Vancouver Inc. from Vancouver, British Columbia wrote:

We have been involved in the design of wayfinding and signage systems for a few hospitals, here in British Columbia, and in Alberta.

In these projects, we have used pictograms taken from the standard DOT system, and found it, at least at this point, not necessary to use any specifically medical pictogram design.... [A]part from some of...these familiar signs, we haven't found any pictograms that clearly communicate better than written and audio messaging....<sup>7</sup>

One of the hospitals had 70% Punjabi speaking visitors. Printed leaflets were recommended along with bilingual volunteers at key reception areas and multilingual messages on telephones at information desks.<sup>8</sup>

Patricia Ford of FordDesign wrote:

...I have been designing signs for hospitals for many years. It's my personal belief that symbols that refer to medical departments or procedures are confusing to everyone, but I've never seen this documented....I recently designed a wayfinding

system for Children's Hospital Los Angeles where colorful compasses occur in the flooring at major corridor intersections, supported by bilingual directional signs at those intersections. When people first enter the hospital, the information desk people give them a map which shows those compasses, and they draw the route in marker from compass to compass, to their destination. But beyond the third or fourth turn, people need help. But the kids like them...." <sup>9</sup>

A system submitted by Frederico Viebig, owner of Spring Signs in Sao Paulo, Brazil, shows symbols they used in medical facilities in Brazil (see Appendix C). The symbols are a collection from various other systems along with some original designs. They were not tested for effectiveness, but he claims to not have any complaints with their use.<sup>10</sup>

Margaret Faye of Fayework compiled:

[A] palette which was a combination of...Common SEG D symbols..., Ultimate Symbol symbols which I paid for the right to use on CD disk...[and] parts and pieces of symbols put together from hard copy books in my library and other digital sources.... I didn't develop or put together symbols for very many departments...for some there didn't seem to be any 'commonly recognized' visual images to draw upon.<sup>11</sup>

Anthony Barbieri of Designer Sign Systems wrote:

We do a major portion of our work for hospitals. We usually stay to the standard international symbols when we feel symbols are necessary or required by the code. We also use numbers since they are more universally understood.<sup>12</sup>

Numbering systems were mentioned by some of the other respondents. John Bosio, Associate Principal of Hillier (a design firm), is

#### **WHAT IS SEG D?**

**SEG D is an international design association with 1000 members involved in the design of graphic elements in the environment. It is also known as the Society for Environmental Graphic Design.**

**Environmental Graphic Design involves many different design disciplines including graphic design, interior design, architecture, landscape architecture and industrial design.<sup>13</sup>**

wayfinding for the New York City Health and Hospital Corporation (NYCHHC), which oversees twenty-one hospitals in the five boroughs. The hospitals serve populations represented by a minimum of three languages and sometimes up to eight languages.

The LEP issues [are] a major concern, we recommended against general “medical” pictograms, because [they] are not easily or universally recognizable. We will be incorporating the more common pictograms for restrooms, information and other amenities.

We felt “internal addresses” for departments was a reasonable approach, but it must be heavily supported by translation materials, including brochures, directories and other strategically placed “translation signs.”<sup>14</sup>

The translation signs would include up to eight languages, and are to be placed at key gathering and decision points.<sup>15</sup>

Kaiser Permanente, America’s largest not-for-profit health maintenance organization, has a growing and diverse ethnic population.

[W]e have opened three clinical care modules that focus almost exclusively on providing culturally competent care.... One module, at the San Francisco Medical Center focuses on serving the Chinese-American community; another module, located at our West Los Angeles Medical Offices, focuses on serving the African-American community; and another module, located in East Los Angeles, focuses on serving the Latino community....

To design these centers to meet the needs of specific populations, every detail has been reviewed to ensure that the module conforms to the expectations of its surrounding community. Signage is posted in several languages, physicians

and other staff members are bilingual where necessary....<sup>16</sup>

For two of their hospitals, they are implementing an addressing system that was developed by Kate Keating of Kate Keating Associates, Inc. Ms. Keating chose not to use multi-lingual signs, believing that they could get too crowded with information, limiting their legibility. Her concept, inspired by the gate numbering systems used in airports, was for all public destinations to be given a number or “street address.” That number would be permanently placed on the sign, along with the English copy. Translations for other languages would be printed on leaflets that can be handed out by the information staff or placed on racks at strategic locations throughout the facility.<sup>17</sup>

The destination addresses would have some “holes” built into the sequencing so that additions to the building could be accommodated at a later date. This system has not yet been placed in a working facility, but testing has been done to confirm its validity. A medical building that had not yet been opened to the public was selected. All of the existing signs were covered over and new paper signs with a numbering system were added. Groups of non-English speaking people (Latinos and Cantonese) were given floor plans and assigned to locate three destination points and then work their way back to the building entrance. The groups passed with flying colors, according to Ms. Keating.<sup>18</sup>

When asked about the prospect of a litter problem from the leaflets when the full plan is implemented, Keating said that the Kaiser Permanente maintenance team believed it would be a small problem compared to the big picture of access for a major part of their clientele. The system is scheduled to be installed in a hospital in the fall of 2003, with another two scheduled within the near future.<sup>19</sup>

Although several of the designers chose not to use symbols, new government regulations may change their thinking.

## GOVERNMENT GUIDELINES

Unlike the Americans with Disabilities Act (ADA), a law which regulates sign usage, placement, colors, type, etc, there are few government regulations for multiple language signs. It does not, however, mean that none exist.

**Section 601 of Title VI of the Civil Rights Act of 1964,** ...provides that no person shall “on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance....”

On August 11, 2000, **Executive Order 13166** was issued. “Improving Access to Services for Persons with Limited English Proficiency...” Under that order, every federal agency that provides financial assistance to non-federal entities must publish guidance on how their recipients can provide meaningful access to LEP persons and thus comply with Title VI regulations forbidding funding recipients from “restrict[ing] an individual in any way in the enjoyment of any advantage or privilege enjoyed by others receiving any service, financial aid, or other benefit under the program” or from “utiliz[ing] criteria or methods of administration which have the effect of subjecting individuals to discrimination because of their race, color, or national origin, or have the effect of defeating or substantially impairing accomplishment of the objectives of the program as respects individuals of a particular race, color, or national origin.” <sup>1</sup>

This guidance would assist the various federal agencies such as the US Department of Health and Human Services, the Department of Transportation, and the Department of Education to name a few.

Within the Department of Health and Human Services are the Office of Civil Rights (OCR), and the Office of Minority Health (OMH) which was created in 1985 to advise the Department Secretary and Office of Public Health and Science “on public health issues affecting American Indians and Alaska Natives, Asian Americans, Native Hawaiians and Other Pacific Islanders, Blacks/African Americans, and Hispanics/Latinos.” The OMH’s mission “is to improve the health of racial and ethnic populations through the development of effective health policies and programs that help to eliminate disparities in health.” <sup>2</sup>

In the case of the Department of Health and Human Services, the guidelines include “any state or local agency, private institution or organization, or any public or private individual that (1) operates, provides or engages in health, or social service programs and activities, and (2) receives Federal financial assistance from HHS directly or through another recipient/covered entity.” <sup>3</sup>

Each of the Departments had to create guidelines addressing the issues put forth by Executive Order 13166. For both the OCR and OMH, committees were formed and public input was sought. Fourteen “National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Healthcare” were established. Of the fourteen, Standard 7 addresses sign issues most directly (see sidebar).

The Department of Justice (DOJ) issued the following policy guidance:

#### **Providing Notice to LEP Persons**

Once an agency has decided...that it will provide language services, it is important for the recipient to let LEP persons know that those services are available and that they are free of charge. Recipients should provide this notice in a language LEP

#### **STANDARD 7 OF THE NATIONAL STANDARDS FOR CULTURALLY AND LINGUISTICALLY APPROPRIATE SERVICES (CLAS) IN HEALTHCARE:**

**1 Post signage regarding procedure for registering or receiving services in the languages of the three to five most populous groups in the institution’s service area. Note: These should be posted at all points of entry into departments as well as entry into each of the buildings where services are offered.**

**2 Provide directional signs to locate specific departments, waiting areas, and services, [These should] be in the languages of all three to five primary language groups.**

**3 Health care organizations serving large numbers of limited English speaking patients might also consider installing informational telephones and signs directing the patient to the telephone so that persons who are lost or unsure where they can pick up a telephone, press the appropriate language button, and ask for directions from someone who speaks their language.**

**4 Place pictorial signs to direct persons belonging to less populous client groups of the service area as well as persons who are not literate in their primary spoken language.**

**5 Check the accuracy of every written or pictorial sign before posting. This may be accomplished by requesting that a qualified employee or member of a community group which represents persons of that language background to translate the sign or picture back into English.**

**6 Check the appropriateness of the sign by asking the member of the community group whether any of the language or pictures could be considered in any way inappropriate or insulting to members of that group <sup>4</sup>**

persons will understand. Examples of notification that recipients should consider include:

Posting signs in intake areas and other entry points. When language assistance is needed to ensure meaningful access to information and services, it is important to provide notice in appropriate languages in intake areas or initial points of contact so that LEP persons can learn how to access those language services. This is particularly true in areas with high volumes of LEP persons seeking access to certain health, safety, or law enforcement services or activities run by DOJ recipients. For instance, signs in intake offices could state that free language assistance is available. The signs should be translated into the most common languages encountered. They should explain how to get the language help.<sup>5</sup>

The signs mentioned in the previous paragraph pertain not to symbol signs but to signs that serve notice to the availability of translation and interpreter services for LEP people. An additional means to aid in communication is the “I-Speak” card. This is a handout in multiple languages that asks the reader to check the box next to their preferred language. The card can be handed to a receptionist and the appropriate language can be given to assist the reader. (see appendix E)

Unlike the ADA, which is a law, the CLAS Standards are guidelines—recommendations—but not requirements. Deeana Jang and Paul Cushing, of the Office of Civil Rights, emphasize that difference. Both agree that while Title VI is a law, the CLAS Standards will remain only guidelines for the foreseeable future. They also emphasize that Title VI guideline implementation will be based upon the size and uses of a facility. Hospitals are expected to implement a greater number of the guidelines than would a small clinic.<sup>6</sup>



The Standard 7 CLAS recommendations (sidebar, page 32) will certainly aid in wayfinding, allowing most of the population, English speaking or with LEP, to navigate properly signed sites, provided there are means to explain what the symbols represent to the various language groups.

## CONCLUSIONS

### **A What is the existing state of signage and symbol usage in medical settings in the United States?**

The research has shown that there are a great many symbols and symbol systems available for use, some good and some not so good. Most standard symbol systems designed and in use (ISO 7001, BS 8501, DOT) pertain to transportation issues, airport, train stations, automobiles and the like. Other major symbol systems were designed for national parks and recreational activities. With the exception of the AS2786 system, health care symbols have been marginally addressed by the standards organizations. Additionally, some medical terminology tends to defy being reduced to a simple, tasteful symbol.

Only one U.S. medical facility was identified that currently uses symbol signs to identify spaces or objects beyond the commonly used symbols based upon DOT and ISO standards. Indeed, most responding designers said that when symbols are used, they are often a mix of various symbol systems. The use of symbols has not been seen as a critical need for most facilities. However, recommendations from the various CLAS standards developed by the Office of Minority Health, because of Title IV of the 1964 Civil Rights Act, will make symbol signs a critical component in creating access for LEP people using federally funded medical facilities.

Bilingual (or multilingual) signs appear to be the current standard. The obvious challenges are to stay ahead of the shifting populations, having fully adaptable sign systems to facilitate those changes, and having space available to implement the sign systems. A directory of more than two languages can become very unwieldy, both to maintain and to use.

**B What is known about signage for LEP and low-literacy populations? Are there examples in other countries or in the international community?**

In the United States, most signage systems are English only, with additional required ADA information. When concerns of dealing with other languages (usually Spanish) occur, a second tier of information is often added. However, it was noted that in certain cases, such as with New York City Health and Hospital Corporation, that five to eight languages are being placed on directional signs. Throughout the world, symbol use in medical facilities appears to be limited.

**C What is the potential for the use of signage to meet the needs of LEP populations in health care settings in the United States? How does the literature and research support this and under what conditions?**

Signage is already in use in health care settings. However, it is not being used to its fullest potential. When all the factors are considered (literacy or lack thereof, population shifts, government mandates, best business practices, etc.), the need to not ignore significant portions of a medical facility's constituency becomes obvious.

The two most likely systems for adoption appear to be either symbol usage or the number "address" method. In either case, the use of inexpensive, hand-held directory maps keyed to the directories, and translated to various languages would be important components.

***Most importantly, for any system to be truly effective, it must be implemented throughout the entire site, replacing any pre-existing sign system(s).***

The research claims that symbol signage is an effective means to communicate across languages and cultures. However, the emphasis for those organizations has been the development of symbols for

transportation, recreation and sports. A collection of hospital symbols could be collected and tested per standards developed by the International Organization of Standards. This would require facilities usage, time and money expenditures beyond what may be desired.

An alternative would be to review as many existing medical symbols, tested or not, and select the ones that seem most appropriate. Since the symbols may come from several sources, time should be spent to ensure that once selected, all the symbols are consistent in design.

The selected designs would then be collected in booklet form, translated into the most appropriate languages and distributed to schools, adult centers and organizations that cater to communities with large LEP populations. Standards Australia emphasizes that educating the public to a symbol's meaning is an important component, particularly when it comes to health care, which has its own nomenclature. It cannot be emphasized enough that for a multilingual symbol based system to work, educating the public is the key, both before their visits, and on-site during their visits. Methods for this are explored in Part Two of this report.

**This report will also identify factors that influence the effectiveness of symbols beyond literacy and that are essential to the use of signage as a “communicative event” through the use of color, font usage, etc.**

Attractive, well-planned signs, whether they include symbols or not, add to the overall effect of creating a pleasant experience within a building or campus. Coordination with the site architecture creates a feeling of quality. Coordination within the sign system creates a cohesion and adds to the effectiveness of the wayfinding and navigation through the site. This means choosing and maintaining a limited number of fonts (probably no more than two) to be used

on signs. Color usage, especially color coding, must be carefully developed. If it is used, color coding must be carried out well beyond signs. It must become an integral part of the architecture, including the finishes and even the furniture for it to be effective. And it must have a limited palette. People may have a hard time differentiating between lavender and purple or other combinations of similar hues.

**Finally, this report will provide the rationale for using signage for LEP populations as part of the Hablamos Juntos demonstration sites, while describing possible outcomes that can be achieved by the project.**

As the LEP population grows, Hablamos Juntos is provided a great opportunity to be the leader in defining standards that address multilingual signage in health care facilities throughout the U.S., and even the world. By demonstrating working examples at a multitude of sites located throughout the country, in sizes ranging from offices to clinics to hospitals, a solid, unified signage system can be explored and developed that can address the needs of not just the LEP population, but the entire population of this nation.

Once this system is established, efforts must be made to publicize its effectiveness to organizations such as the American Hospital Association (AHA), American Society of Interior Designers (ASID), SEGD, AIGA, and the American Institute of Architects (AIA) for possible implementation in other sites throughout the nation.

Just adding symbols to existing sign systems, or using entirely new symbol sign systems will not guarantee a successful multilingual sign system. Part Two of this report explores the methods for implementation and education that will help to make this program a success.

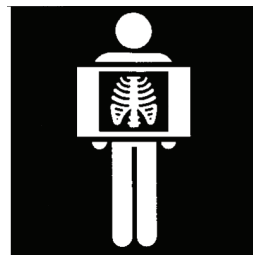


**HOSPITAL SYMBOL GRAPHICS**  
**Australian Standards AS 2786-1985**

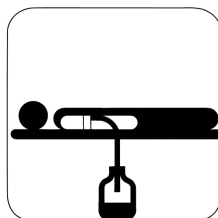
**Row One: Admissions, Casualty  
 (Emergency), Dental Department**



**Row Two: Occupational Therapy,  
 Outpatient's Department, Pathology**



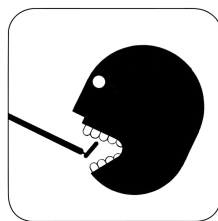
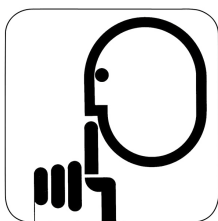
**Row Three: Pharmacy, Physiotherapy  
 (Physical Therapy), X-Ray**



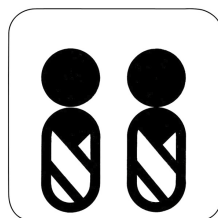
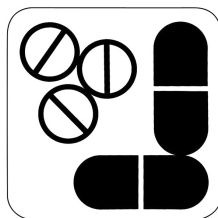
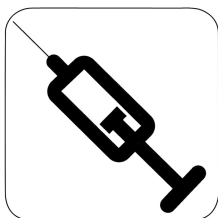
## HOSPITAL SYMBOL GRAPHICS

Examples from ITT, India.

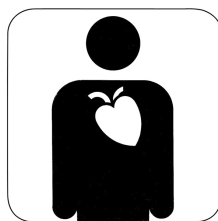
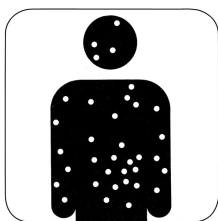
Row One: Medical Examination, Blood Donation, Emergency



Row Two: Keep Silence, Ear Nose & Throat, Dental



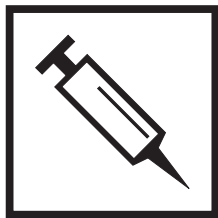
Row Three: Injections, Dispensary, Nursery



Row Four: Dermatology, Cardiology, Gastrology



Row Five: General Ward, Admissions, Waiting Area

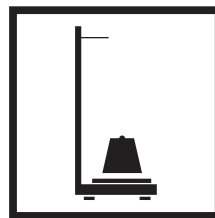


**HOSPITAL SYMBOL GRAPHICS**  
Submitted by Frederico Viebig, Spring  
Signs. Sao Paulo, Brazil.

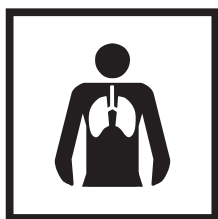
**Row One: Inoculations, Pharmacy,  
Biohazard.**



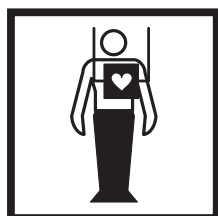
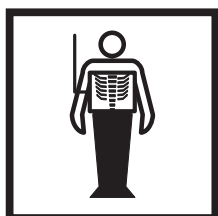
**Row Two: Patient Room, Nursery,  
Showers**



**Row Three: Exam Room, Outpatient,  
Weight Room**

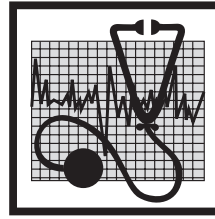


**Row Four: Respiratory, Urology,  
Gastrology**



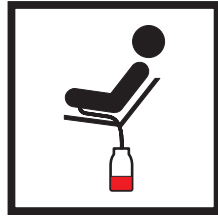
**Row Five: X-Ray, Cardiology, Maternity**





**HOSPITAL SYMBOL GRAPHICS**  
Submitted by Frederico Viebig,  
Spring Signs. Sao Paulo, Brazil.

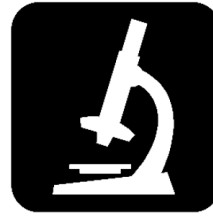
**Row One: Silence, Emergency, ECG**



**Row Two: ?, Blood Donation**

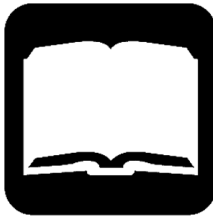


**Row Three: Laboratory, Pathology**

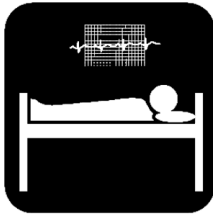


**HOSPITAL SYMBOL GRAPHICS**  
for Danville Regional Medical  
Center. Submitted by Gladys Brenner,  
AB Design, Inc.

**Row One: Auditorium, Classroom,  
Laboratory**



**Row Two: Library, Medical Records**



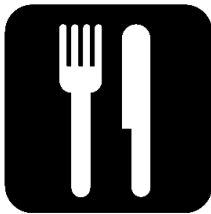
**Row Three: Critical Care, Recovery,  
EEG**



**Row Four: Hemodialysis, X-Ray,  
Biohazard**



**Row Five: Emergency, Cardiac  
Diagnostic , Cath Lab**



**HOSPITAL SYMBOL GRAPHICS**  
for Danville Regional Medical Center. Submitted by Gladys Brenner,  
AB Design, Inc.

**Row One: Cafeteria, Coffee Shop,  
Gift Shop**




**Row Two: Labor and Delivery,  
Pediatrics, Neonatology**



**Row Three: Pharmacy, Trauma  
Center**



**Row Four: Physical Therapy,  
Outpatient Center**

<div> United States  <b>Census</b>  2000 </div> <div> U.S. Department of Commerce  Bureau of the Census </div> <div>  </div>	
LANGUAGE IDENTIFICATION FLASHCARD	
<input type="checkbox"/> املأ هذا المربع إذا كنت تقرأ أو تتحدث العربية.	Arabic
<input type="checkbox"/> Խնդրում ենք նշում կատարել այս բաժանմունքում, եթե խոսում կամ կարդում եք հայերեն:	Armenian
<input type="checkbox"/> যদি আপনি বাংলা পড়েন বা বলেন তা হলে এই বাক্সে দাগ দিন।	Bengali
<input type="checkbox"/> សូមញាតក្នុងប្រមូលនេះ ចំណាត់ថ្នាក់ជាមួយខ្ញុំ ។	Cambodian
<input type="checkbox"/> Matka i kahhon komu un taitai pat un sang i Chamorro.	Chamorro
<input type="checkbox"/> 如果您具有中文閱讀和會話能力，請在本空格內標上X記號。	Chinese
<input type="checkbox"/> Make kazyé sa a si ou li oswa ou pale kreyòl ayisyen.	Creole
<input type="checkbox"/> Označite ovaj kvadratić ako čitate ili govorite hrvatski jezik.	Croatian (Serbo-Croatian)
<input type="checkbox"/> Zaškrtněte tuto kolonku, pokud čtete a hovoříte česky.	Czech
<input type="checkbox"/> Kruis dit vakje aan als u Nederlands kunt lezen of spreken.	Dutch
<input type="checkbox"/> Mark this box if you read or speak English.	English
<input type="checkbox"/> اگر خواندن و نوشتن فارسی بدرهستین، این مربع را علامت بگذارید.	Farsi

D-3309

### I-SPEAK CARD

Example of a card used by the U.S. Department of Commerce. Similar cards are handed out at reception desks to allow the appropriate translator to be contacted.

# SOURCES

## FOREWORD

- 1 *Mission*. [Online] Hablamos Juntos. <<http://www.hablamosjuntos.org>>Accessed 22 Jan. 2003.
- 2 *Grantees*. [Online] Hablamos Juntos. Accessed 22 Jan. 2003.
- 3 Robert Wood Johnson. 'Rules for Press Release', Press Release Guidelines, 25 Sept. 2002, 2.

## INTRODUCTION

- 1 *Patient Experience*. [Online]. NHS Estates. <<http://nhsestates.gov.uk>>Accessed 23 Jan. 2003.
- 2 *Home*. [Online]. NHS Estates. Accessed 23 Jan. 2003.

## LITERACY ISSUES

- 1 Smith, Norris, ed. "Figure 4/Census Statistics on Fluency in English", *Changing U.S. Demographics*. 2001.
- 2 Bustos, Sergio. "Language barrier worsens Hispanic health care crisis, study finds." *Arizona Republic*, 28 Feb. 2003.
- 3 Smith, 41.
- 4 Hablamos Juntos. [Online]. Accessed 22 Jan. 2003.
- 5 Doty, Michelle M. *Hispanic Patients' Double Burden: Lack of Health Insurance and Limited English*. The Commonwealth Fund, Feb. 2003: 12.
- 6 Hablamos Juntos. [Online]. Accessed 22 Jan. 2003.
- 7 Ibid.

## A BRIEF HISTORY OF SYMBOL USAGE

- 1 Fritsch, Paul R. "The Sign has Oldest Experience Table in Advertising", *Signs of the Times*. Feb. 1947. 40-41, 115.
- 2 *History of the Striped Barber Pole*. [Online]. <<http://www.adsd.com/holtz/bpole.html>>Accessed 25 Jan. 2003.
- 3 Dewar, Robert, *et al.* United States of America. Department of Transportation. *Symbol Signing Design for Older Drivers*. U.S. Department of Transportation, Federal Highway Administration, July 1997. 5.
- 4 Ibid.
- 5 Modley, Rudolf. *Handbook of Pictorial Symbols*. Dover Publications, Inc., New York. 1976.
- 6 Majumdar, Swapna. *Poll where a picture may be worth thousands of votes*. [Online]. SMH.com.au. <<http://www.smh.com.au/articles/2002/09/29/1033283388766.html>>Accessed 27 Jan. 2003.
- 7 Ezzat, Dina. *Here comes the candidate/Down with the coffee pot*. [Online]. Al-Ahram Weekly. <[http://weekly.ahram.org.eg/archives/1995elec/247\\_1.htm](http://weekly.ahram.org.eg/archives/1995elec/247_1.htm)>Accessed 27 Jan. 2003.
- 8 Ibid.
- 9 *Introduction to Graphic Symbols*.
- 10 International Standard. *ISO 7001, Public information symbols*. International Organization for Standardization. 1990.
- 11 *Mission Description*. [Online]. [http://spaceprojects.arc.nasa.gov/Space\\_Projects/pioneer/PN10%2611.html#plaque](http://spaceprojects.arc.nasa.gov/Space_Projects/pioneer/PN10%2611.html#plaque)

## SYMBOL BASICS, SYMBOL LEARNING

- 1 International Standard. *ISO 7001, Public information symbols*. International Organization for Standardization. 1990.

- 2 Australian Standard. AS 2899.3—1986 Public Information Symbol Signs, Part 3—Hospital Signs. Standards Australia. 1986. 301-309.
- 3 Ibid.
- 4 Home. [Online]. Standards Australia. <http://www.standards.com.au/catalogue/Script/search.asp>
- 5 Osborne, Helen MEd, OTR/L. [Online]. *In Other Words... Teaching with Pictures*. <<http://www.healthliteracy.com/oncallnov1999.html>>Accessed 16 Jan. 2003
- 6 Osborne. [Online]. Accessed 16 Jan. 2003
- 7 Osborne. [Online]. Accessed 16 Jan. 2003
- 8 Osborne. [Online]. Accessed 16 Jan. 2003
- 9 McKay, Malcolm. [Email correspondence]. 22 Jan. 2003.
- 10 Ibid.
- 11 *About Picture of Health*. [Online]. Picture of Health. <[http://members.aol.com/pichealth/cards/poh\\_bio.html](http://members.aol.com/pichealth/cards/poh_bio.html)> Accessed 21 Feb. 2003
- 12 Lanier, Lois. [Telephone interview]. 21 Feb. 2003.
- 13 *Introducing BCI*. [Online]. Blissymbolics Communication International. <<http://home.istar.ca/~bci/intro.htm>> Accessed 20 Feb. 2003
- 14 Picture of Health. [Online]. Accessed 21 Feb. 2003.
- 15 Stiebner, Ehrardt D. & Dieter Urban. *Signs + Emblems, A Collection of International Examples*. Van Nostrand Reinhold Company. 1984.
- 16 Modley, Rudolf. *Handbook of Pictorial Symbols*. Dover Publications, Inc., New York. 1976.
- 17 Viebig, Frederico. [Email correspondence]. 24 Jan. 2003.
- 18 Faye, Margaret. [Email correspondence]. 21 Jan. 2003.
- 19 Olmstead, Wendy. [Email correspondence]. 24 Jan. 2003.

## STANDARDIZATION

- 1 United States of America. Federal Transit Administration. *TCRP Report 12, Guidelines for Transit Facility Signing and Graphics*. Transportation Research Board, National Research Council. 1996.
- 2 United States of America. Department of Transportation. *DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries*. 2001.
- 3 Dewar, Robert. "Design and evaluation of public information symbols." In *Visual Information for everyday use*. Harm J.G. Zwaga, et al (ed.). 285-303. Taylor & Francis Inc. 1999.
- 4 Brugger, Christof. "Public information symbols: A comparison of ISO testing procedures." In *Visual Information for everyday use*. Harm J.G. Zwaga, et al (ed.). 305-313. Taylor & Francis Inc. 1999.
- 5 Symbol Signs. [Online]. AIGA. <<http://www.aiga.org/content.cfm?ContentID=147>>. Accessed 1 Mar. 2003.
- 6 Brugger. 306-307.
- 7 What is ISO? [Online]. International Organization for Standardization. <<http://www.iso.ch/iso/en/aboutiso/introduction/whatisISO.html>>. Accessed 17 Mar. 2003.
- 8 Foster, Jeremy. [Email correspondence]. 18 Feb. 2003.
- 9 Olmstead, Wendy. [Email correspondence]. 5 Feb. 2003.

- 10 Ibid.
- 11 Australian Standard. AS 2899.3—1986 Public Information Symbol Signs, Part 3—Hospital Signs. Standards Australia. 1986.
- 12 Ibid.
- 13 Ibid.
- 14 Poovaiah, Ravi. *Theory of Signage Systems, Hospital Symbols*. [Online]. [http://www.idc.iitb.ac.in/ravi/signage/theory/casestudy/hospital/symbol\\_page1.html](http://www.idc.iitb.ac.in/ravi/signage/theory/casestudy/hospital/symbol_page1.html). Accessed 27 Jan. 2003.

## EDUCATING THE MASSES

- 1 United States of America. Federal Transit Administration. *TCRP Report 12, Guidelines for Transit Facility Signing and Graphics*. Transportation Research Board, National Research Council. 1996.
- 2 Ibid.
- 3 Stiebner, Ehrardt D. & Dieter Urban. *Signs + Emblems, A Collection of International Examples*. Van Nostrand Reinhold Company. 1984.
- 4 Brenner, Gladys. [Email correspondence]. 24 Jan. 2003.
- 5 Australian Standard. AS 2886—1985, *Symbols—Health Care In Hospitals*. Standards Australia. 1985.

## CULTURE AND SYMBOLS

- 1 Downing, Bruce, Ph.D. & Cynthia E. Roat, MPH. *Models for the Provision of Language Access in Health Care Settings*. The National Council on Interpreting in Health Care. March, 2002.
- 2 Salimbene, Suzanne, Ph.D. "Methods for Improving Cultural Competence." *Guide to Managed Care Strategies*. Faulkner & Gray. New York. 1999.
- 3 Lipton, Ronnie. *Designing Across Cultures*. HOW Design Books. 2002.
- 4 Olmstead, Wendy. [Email correspondence]. 5 Feb. 2003.
- 5 Larson, Laurie. "Access With Honor." [Online]. [hospitalconnect.com. <http://www.hospitalconnect.com/jsp/article.jsp?dcrpath=AHA/NewsStory\\_Article/data/TRUSTEE39&domain=TRUSTEEMAG>](http://www.hospitalconnect.com/jsp/article.jsp?dcrpath=AHA/NewsStory_Article/data/TRUSTEE39&domain=TRUSTEEMAG) Accessed 3 Feb. 2003.

## SIGNAGE SYSTEMS IN USE

- 1 "All Saints Expands Spanish Language Assistance." [Online]. AllSaintsHealth.com. <<http://www.allsaintshealth.com/news/alltogether/article15.cfm>> Accessed 7 Feb. 2003.
- 2 Dunne, John R. Assistant Attorney General, Civil Rights Division. "Forward." *The Americans with Disabilities Act, Title III Technical Assistance Manual*. U.S. Department of Justice, Civil Rights Division. No Date Given.
- 3 Cabal, Lucy. [Telephone interview]. 5 Feb. 2003.
- 4 Swartz, Joni. [Telephone interview]. 10 Feb. 2003.
- 5 Ibid.
- 6 Brenner, Gladys. [Email correspondence]. 14 Feb. 2003.
- 7 Walker, Graham. [Email correspondence]. 3 Feb. 2003.
- 8 Walker, Graham. [Email correspondence]. 7 Feb. 2003.
- 9 Ford, Patricia. [Email correspondence]. 22 Jan. 2003.

- 10 Viebig, Frederico. [Email correspondence]. 12 Feb. 2003.
- 11 Faye, Margaret. [Email correspondence]. 21 Jan. 2003.
- 12 Barbieri, Anthony. [Email correspondence]. 28 Jan. 2003.
- 13 What Is SEG? [Online]. SEG. <[http://www.seg.org/about/what\\_seg.html](http://www.seg.org/about/what_seg.html)> Accessed 28 Mar. 2003.
- 14 Bosio, John. [Email correspondence]. 6 Feb. 2003.
- 15 Ibid.
- 16 Goldsmith, Oliver M.D. "Culturally Competent Healthcare". [Online]. The Permanente Journal. Winter 2000/Vol. 4, No. 1. <<http://www.kaiserpermanente.org/medicine/permjjournal/winterooi/competent/html>>
- 17 Keating, Kate. [Telephone interview]. 30 Jan. 2003.
- 18 Ibid.
- 19 Ibid.

#### GOVERNMENT GUIDELINES

- 1 United States of America. Department of Justice. *Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons*. 2001.
- 2 United States of America. Office of Minority Health [Online]. U.S. Department of Health & Human Services. <<http://www.omhrc.gov/OMH/sidebar/aboutOMH.htm>> Accessed 20 Jan. 2003.
- 3 United States of America. Office for Civil Rights. *Policy Guidance Title VI Prohibition Against National Origin Discrimination As It Affects Persons With Limited English Proficiency*. 2001.
- 4 United States of America. Office of Minority Health [Online]. *A Practical Guide for Implementing the Recommended National Standards for Culturally and Linguistically Appropriate Services in Health Care*. U.S. Department of Health & Human Services. <<http://www.omhrc.gov/inetpub/wwwroot/clas/sec6ck2.htm>> Accessed 6 Feb. 2003.
- 5 United States of America. Department of Justice. *Guidance to Federal Financial Assistance Recipients...*
- 6 Jang, Deeana & Paul Cushing. [Telephone interviews]. 10 Feb. 2003.