

Universal Symbols In Health Care Workbook



Executive Summary



**Best Practices
for Sign Systems**

Produced by



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CREDITS

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CONTENTS

Executive Summary	1:1-1:8
Best Practises for Sign Systems	2:1-2:15
Summary of Recommendations	2:16-2:18

EXECUTIVE SUMMARY

One of the most important issues facing health care executives today is the demand for health services from an increasing number of patients with Limited English Proficiency (LEP). The design community is challenged to develop design tools and methodologies that will enable those with LEP and limited literacy access to health services. Universal symbols are an effective design tool to help visitors navigate health facilities. This summary will cover the importance of universal symbols and the benefits they provide to hospitals and health care facilities including:

- Universal symbols are proven to be more effective and efficient than other wayfinding methods.
- Patients find symbols easier to see and understand.
- Universal symbols can be flexible and simple to implement, yet can be integrated into complex and far reaching sign, print and internet programs.

What are Universal Symbols?

Long before the existence of written language, pictographs (word pictures) served as a means of communication. As societies grew and written languages developed, pictographs were employed to provide information to people who were largely illiterate. However, pictographs mainly served an informal function until the second half of the 20th century, when air travel and expanding world immigration increased, causing universal symbols to increasingly serve as an international communications tool.

Designer and researcher, Jim Bolek, describes universal symbols as a language that is “read” when a picture or symbol is connected with the viewer’s concept of its meaning. Some symbols, such as an airplane or train, can be universally understood while other symbols, such as a cross or money, are subject to the viewer’s interpretation, which is highly influenced by that individual’s culture and background. However, either type of symbol can become universally understood after being widely used over time.

Why Universal Symbols in Hospitals?

In hospitals, universal symbols on signs are rare, although alternatives such as the use of identification signs incorporating a combination of text, letters, numbers and symbols, and the use of hospital specific landmarks is quite common. Although hospital symbols have been developed in countries from India to Australia to Argentina, it was not until recently that universal health care symbols have become an important option for wayfinding in North America due to changing American demographics and new health care developments.

Several American trends make a case for symbols based wayfinding in health care:

- Increased immigration from around the world has dramatically enlarged the population with Limited English Proficiency (LEP). The Census 2000 Supplementary Survey estimates that over 44 million Americans over the age of 5 speak a language other than English at home, and that language is Spanish for 62% of those 44 million.
- Through common use in transportation, parks, and institutional buildings, universal symbols and pictograms have become familiar sights. Since their development in the early and mid-1970s, universal symbols have been used in over 90% of American international airports and most significantly in large immigrant hubs like New York's John F. Kennedy Airport.

Terminal 4 at John F. Kennedy International Airport.
Chermayeff and Geismar



- Resurgent attention to federal and state laws requiring health facilities to make signage available in the language of their patients as a result of a Presidential Executive Order 13663, "Improving Access to Services for Persons with Limited English Proficiency" and National Standards for Culturally and Linguistically Appropriate Services in Health Care adopted by the United States Department of Health and Human Services.

- Hospitals are increasingly hiring health interpreters to meet the language needs of their LEP patients.
- Some hospitals and health care management companies have developed approaches to assessing wayfinding systems. These testing projects,

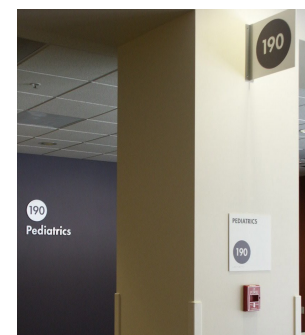
Photo by Chermayeff and Geismar

promoted by organizations like the Center for Healthcare Design, have measured the positive effects of efficient and comprehensive wayfinding systems to the corporate bottom line through decreased staff time used in directing visitors and greater visitor satisfaction.

The Current Options for Hospital Multilingual Signs and Wayfinding Solutions

Hospitals currently use many means to direct patients and visitors through their complex facilities, such as:

- *Multilingual word signs that contain two or more languages.* Multilingual word signs, often with English in larger and bolder print, are frequently used for non-English language groups. These can be complex to design and maintain, posing challenges for designers working to adhere to Americans with Disabilities Act (ADA) guidelines while ensuring the signs are correctly translated in multiple languages.
- *Words, numbers, landmarks, and unique symbols.* Designers have ingeniously and successfully used words, numbers, and floor lines to create symbols for wayfinding systems that can respond to the language needs of LEP patients. These systems, when used with print, directory, or kiosk backup can be successful within specific environments. The unique nature of these systems requires significant public education that is not transferable beyond an individual hospital.
- *Interpreters.* Interpreters can help guide LEP patients through facilities or provide instructional support at kiosks, but are impractical and expensive solutions.



(Top) A hospital directional sign in both English and Spanish. Note the diminished size of the Spanish text.

(Left) Boston Children's Hospital Identification Sign using unique symbols. *TwoTwelve Design Associates*

(Right) Kaiser Permanente Number symbol sign. *Kate Keating Design*

Photos by (Top) Craig Berger, (Left) Kevin Burke, (Right) Kate Keating Design

The Advantages of Universal Health Care Symbols

Universal symbols have a variety of advantages that make them very attractive in health care settings:

- Universal symbols are much easier to implement and maintain than multilingual signs. They can be designed without troublesome translation processes and can be updated and changed with few mistakes. Translation approaches that utilize software often lead to errors when unusual accent markings or non-Latin letter based languages are used.
- Universal symbols are more easily noticed and comprehended compared to multilingual word signs.
- Universal symbols are simpler to integrate into American with Disabilities Act Guidelines because signs can be user-friendly to the visually impaired due to consistency in size and clarity of configuration.
- Universal symbols can be equally successful in simple identification signs and complex wayfinding systems. Universal symbols can also be used in combination with numbers and letters to make those systems more effective.

(Left) Signs with multiple languages can be difficult to design, correct and change.

(Middle, Right) Universal symbols are easier to make ADA accessible.

How Were The Universal Health Care Symbols Developed?

The development of universal symbols required an extensive design and research process. Funded by The Robert Wood Johnson Foundation and overseen by the National Program Office of Hablamos Juntos, the 28 health care symbols were



Photos by (Left) Craig Berger, (Middle) Ronald Shakespear, (Right) Craig Berger

developed by a design team of leading health facility designers led by JRC Design and tested by Wendy T. Olmstead, a top symbols researcher, using testing methods adopted by the International Organization for Standardization (ISO). Existing symbols, along with newly designed symbols (approximately 600 total), were collected and evaluated by the design team. For each referent, five to six symbols were chosen to be used in the first round of testing. The symbols were tested across four language groups: English, Spanish, Indo-European, and Asian, in ten states. Based upon each round's results, symbols were either rejected or accepted and refined for further testing. With an iterative symbol design and testing process, consisting of three rounds of testing and nearly three hundred test subjects, the health care symbols set represents one of the most comprehensive symbols design efforts ever undertaken.

Symbol development and testing.



A few of the lessons learned in the symbol design testing process included focusing on a limited number of distinct symbols that could be recognized instead of a large group of symbols similar in appearance. It was also learned that while some symbols, representing easy to understand destinations, could be read with few problems, others were difficult to comprehend. This is endemic of a lack of understanding of the meaning of certain hospital functions by the general population, and brought to light the need to use symbols for tough-to-comprehend destinations as educational tools.



Once developed, a team led by the Society for Environmental Graphic Design (SEGD) and the Pennsylvania State University evaluated the symbols by placing them on signs and in print formats in diverse health care settings. They conducted wayfinding exercises with four language groups to compare navigation with symbols versus navigation with multilingual word signs. This testing enabled the design team to assess the symbols' appropriateness among different cultural

Photos by (Top) Craig Berger, (Bottom) Phil Garvey

17 SYMBOLS TESTING >87
Surgery, Billing Department,
Intensive Care Unit, Family
Practice Clinic, Social Services



Cardiology, Radiology, OB
Clinic, Immunizations,
Waiting Room



Chapel, Ambulance Entrance,
Pharmacy, Laboratory,
Medical Records



Pediatrics, Emergency



11 SYMBOLS TESTING ≤87
Oncology, Internal Medicine,
Diabetes Center, Care Staff
Area, Mammography



Interpretive Services,
Registration, OB/GYN,
Physical Therapy, Outpatient



Infectious Diseases



groups and the effectiveness of universal symbols in the health care environment. Furthermore, focus groups with facility staff enhanced the understanding of how symbols could best be implemented in hospital settings. The design and management recommendations included in this workbook are based on the lessons learned from the observations made during the wayfinding testing process in the pilot hospitals, matched to examples of best practices found in different facilities around the world. The final universal health care symbols are the product of many contributors and are a testament to a unique and extensive open testing process.

Universal Symbols are Effective in Hospitals

The overall conclusion of this work is that universal health care symbols are effective in hospitals for the following reasons:

- Seventeen of the 28 symbols were found to be “most meaningful” by at least 88% of the tested multilingual population group. These symbols represent commonly understood destinations like Radiology and Pediatrics.
- The 11 remaining symbols did not meet the threshold of 88% acceptance. These symbols tended to represent concepts like Oncology and Outpatient. Recognition of these symbols and the meaning behind them will improve with further use and public education.
- During testing, participants walked one foot per second faster to find their destination when guided by symbols than when guided by multilingual word signs.
- In a test of 86 study participants, only one person felt that word signs were superior to symbol signs, 19 felt symbol and word signs were equally effective while 66 stated that symbol signs were more effective.
- In a test of 85 study participants, 70 felt that using symbol print support increased their ease in finding a destination.
- In focus groups of hospital staff, 41 of 49 participants felt that symbols would facilitate dispensing hospital directions.

Identifying destinations with symbols is a simple first step to developing an effective wayfinding system.



Universal Health Care Symbol Ingredients for Best Practices

Universal symbols are an exciting design innovation that can improve the health care environment. For successful implementation, there is no need to create complex systems when four important elements are considered:

- Sign Location Identification. The first and most important task in using symbols in a hospital is to properly identify visible locations for placement.
- Incorporate Wayfinding. A wayfinding program using universal symbols can be combined with existing wayfinding systems. Symbols can be used with text or with other symbol support including numbers and letters. There can be endless successful creative solutions to designing the optimal wayfinding system.

Photo by Craig Berger

Massachusetts General Hospital has a print program that connects to a symbol system in multiple languages.
TwoTwelve Design Associates



- Print and Interpretive Media Support. Print support, including handouts and maps, are an ideal opportunity to deepen the understanding of the symbols and customize information to respond to diverse languages and population groups.
- Establish Staff and Volunteer Support. Symbols are an easy tool for teaching hospital staff and volunteers direction giving skills.

Universal Health Care Symbols Can Be Part of a Successful Health Care Wayfinding System

FOR MORE INFORMATION
 More workbook information will be available as well as additional tools at hablamosjuntos.org or segd.org.

For hospital executives and administrators, universal symbols can be a simpler and more flexible way to create a culture of communication and wayfinding among the entire hospital staff, stretching from the facilities staff and strategists to the doctors and nurses, interpreters, and volunteers. For architects and designers of wayfinding systems, universal symbols can be the cornerstone of creative and unique solutions for a wide variety of health care facilities, while minimizing errors in the implementation and ongoing maintenance of sign systems. For everyone who works in health care environments, universal symbols can be the key ingredient in satisfying their core health care mission of providing access and help to all in need.

Photo by Kevin Burke

BEST PRACTICES FOR SYMBOLS IN WAYFINDING

Wayfinding is a term that many people associate only with signs, but wayfinding is an overall design philosophy that aids a diverse population to arrive at a destination with ease and comfort. Universal symbols can be a key factor in successfully increasing hospital efficiency and visitor satisfaction, and are an essential part of any effective wayfinding strategy.

Start Simple but Think “Big Picture”

A wayfinding strategy does not need to be implemented completely at one time. A program can start by identifying key destinations using symbols, and then expand into more complex signs systems and print support. Simultaneously, it is important to ensure that a long range plan is kept in mind, so that symbols will be an integral part of all design decision making.

Hiring a Qualified Design Firm

When it comes to developing a complete new wayfinding sign system in a hospital, it is important to hire a qualified design firm that specializes in planning, design, and implementation of wayfinding sign systems. Most of these firms will have experience working with universal symbols on other projects, but it is crucial to specify the use of universal health care symbols when selecting a designer for a wayfinding hospital sign project. Universal health care symbols must play a central role at the onset of the planning process.

Steps to Developing a Universal Health Care Symbol Based Wayfinding System

Even though it is important to work with a qualified design firm when working on a wayfinding project, it is also important to understand all of the parts involved with creating a complete system. Many of these parts extend beyond creating a sign system, and include architectural and interior elements, print and interactive media, and staff and volunteer training programs. Hospital executives and facilities managers must have an understanding and assume active management of all these parts in order to develop a successful and complete system.

Best Practices for Symbols in Wayfinding

Introduction

Part 1 The Levels of Universal Health Care Symbols

Part 2 Wayfinding Concepts Using Universal Health Care Symbols

Part 3 The Types and Locations of Symbol Signs

Part 4 Symbols and Text on Signs

Part 5 Symbol Signs and ADA

Part 6 Reducing Clutter

Part 7 Lighting and Color of Symbol Signs

Part 8 Symbols with Print and Interactive Media

Part 9 Staff and Volunteer Training with Symbols

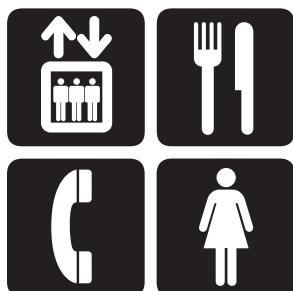
Summary of Recommendations

Part 1: The Levels of Universal Health Care Symbols

(Top) Universal Health Care Symbols. (Clockwise) Pharmacy, Laboratory, Cardiology, Medical Records.

(Middle) Examples of support symbols. (Clockwise) Elevators, Restaurant, Telephone, Women's Room.

(Bottom) Examples of tertiary symbols. (Clockwise) No Parking, Steep Grade, Roadside Bench, Road Left or Forward.



It is important to begin any design project using symbols by understanding the types of universal symbols available, and where they can be most effectively used in a health care facility.

Universal Health Care Symbols are graphic representations of language that can be understood by most people or easily learned. In addition to the 28 universal symbols designed for hospital functions, there are a number of other symbols that can be used in medical facilities.

Primary Activity Based Symbols

These symbols are for people using specific hospital functions and include the 28 universal health care symbols profiled in this workbook. These symbols represent activities common to health facilities/or health environments. These symbols are readily connected to their associated hospital activity by diverse populations. Sometimes additional support, including printed text, is needed to communicate the meaning, especially for specialized hospital functions like a diabetes clinic or cancer (oncology) lab.

Secondary Support Symbols

These symbols are for hospital functions that are universal to most buildings and are easily recognized. Common secondary support symbols are those used for elevators, restrooms, and cafeterias. These symbols need very little additional support to be understood. The Federal Highway Administration has a symbol set (available on www.aiga.org) designed for airports and train stations that are also commonly used in hospitals and other public buildings.

Tertiary Exterior Symbols

These symbols are part of the landscape outside of the hospital and direct drivers and pedestrians around the building's exterior. These external symbols connect the building to parking and other information. The symbols are easily read by drivers and pedestrians, need little or no additional support to be understood, and are common sights in most cities.

Part 2: Wayfinding Concepts Using Universal Health Care Symbols

Effective wayfinding systems are based on two basic concepts: visibility and consistency. The signs must be easily visible for people, consistent in height, and placed in easily observable locations. It is difficult for many hospitals to achieve this goal because they are often developed over a period of time and consist of several connected buildings with few landmarks and visual references. In this environment, successful design is based on having a multitude of wayfinding elements in consistent locations and at sizes that make them easily visible.

Wayfinding with Universal Health Care Symbols on One Floor

Hospitals often contain many of their functions on one floor. These sprawling complexes often have confusing floor plans and need large numbers of overhead and wall directional signs to assist visitors.

It is important to space symbols at consistent distances on long corridors. Symbols are easier to see than text over longer distances, allowing for greater distances between wayfinding signs. When small symbols (3-6 inches) are used, signs should be placed close together (less than 50 feet apart). If larger symbols (8 inches and larger) are used, much longer distances are possible. Other factors affecting the number and frequency of signs needed include lighting and clutter. It is important to test symbol signs for legibility in the specific hospital environment in order to determine optimal visibility.



Sign information should be placed in consistent places at every decision point. Whenever signs are placed in a corridor or at a corner, the sign information must be at exactly the same height and in the same location, i.e., symbols that occur on the left side of a sign must stay on the left side on every sign.

In wayfinding tests it was evident that large symbols can be visible from a much longer distance than text.

Numbers, letters, and physical landmarks augment universal symbols and

Photo by Craig Berger

permit them greater flexibility. Using additional physical and graphic information is also important on campuses and interconnected buildings.

Wayfinding with Universal Health Care Symbols across Many Floors

In multi-floor hospitals, directories are needed to inform visitors about what exists on other floors in the building. Testing has shown that directories are very difficult for many people to find and use. The following recommendations can increase the visibility and usability of directories with symbols:

- Symbols on directories must be of a legible size. It is recommended that symbols be at least 3/8 inch in height on directories.
- Directories must be strategically located. Directories need to be seen in order to be used. Directories should be large and placed in the most prominent location possible, and should also be placed in a consistent location on each floor.
- Backup information and identification. Many visitors have difficulty using directories to locate elevators and staircases. Identifying these areas with symbols or color information on directories can help create a link between the elevator and the directory.

(Left) Building unit information supports universal symbols.
New York City Hospital Corporation, Hillier Group

(Middle) LaGuardia Airport has easy to read symbols on directory signs.
Chermayeff and Geismar

(Right) Lankenau Hospital has well identified symbol information on elevator doors.
AGS



Photos by (Left) John Bosio, (Middle) Chermayeff and Geismar, (Right) AGS

Part 3: The Types and Locations of Symbol Signs

Effective wayfinding depends on the consistent location of specific sign types. Appropriately designing and installing signs in a hospital can be difficult due to the many specific issues unique to hospitals, such as:

- Ceilings that are often low and at varying heights.
- Hallways that are narrow and often of varying widths.
- Lighting that is inconsistent.
- Large numbers of people, equipment, and information that make visibility difficult.

Hospital Wayfinding Sign Types: Identification Signs

To place identification signs correctly, it is important to consider two population groups: the visually impaired and the blind. Each group has distinctly different needs that require two different types of signs:

- For both the sighted and visually impaired, an overhead sign perpendicular to the destination entrance is preferable for visibility from a distance. In testing, people saw identification signs perpendicular to destinations 50% farther away than parallel signs.
- The Americans with Disabilities Act mandates that Grade II Braille be used on identification signs. These signs are to be parallel to the wall surface and be centered 60 inches above the finished floor. Identification signs must always be at the same height to be effective.

It is important to use both parallel and perpendicular signs to identify important locations like departments and functions. Redundant identification information assures visibility by all population groups.

Directional Signs

Since ceilings in hospitals are often low or of varying heights, it is important to develop creative approaches when dealing with universal symbols. There are a variety of approaches that can be successfully implemented. These directional signs include:



Using two signs for important destinations are better than one.
Kaiser Permanente, Kate Keating Associates, Inc.

Photo by Kate Keating Associates, Inc.



(Above Left) Airport wayfinding signs are at consistent heights without regard to ceiling height.
Lester B. Pearson International Airport, Toronto, Pentagram



(Above Right) Overhead signs at low heights have little room for complex information.
Boston Children's Hospital, Two Twelve Design Associates

(Bottom) Kiosk signs should have easily visible landmarks to attract attention.
Christiana Healthcare, Mitchell Associates



Photos by (Top Left) Peter Mauss/Esto, (Top Right) Kevin Burke, (Right) Mitchell Associates

Overhead Signs

Overhead signs are commonly used when allowed by ceiling heights. Because overhead signs must be at least seven feet off the ground, existing conditions must be carefully assessed. For symbols to be effective, two approaches are possible:

- For high ceiling (9 feet and above). Large, complex signs with symbols and text can be placed on overhead signs. It is important with atrium spaces and varying ceiling heights that signs are placed at the same height.
- For low ceilings (9 feet and below). With less than 2 feet of clearance, symbol information should be very simple with only three or four of the most important destinations placed on the signs and little other additional information. It is important to combine overhead signs with redundant wall signs and maps if the signs require more information.

Wall, Pillar, and Kiosk Mounted Directional Signs

In many cases ceilings may be too low (8 feet and below) to install wayfinding signs. In these cases, signs can be mounted on walls or pillars. The bottom of wall mounted signs should be high enough off the ground to be easily visible above the clutter of the hospital hallways. If the signs are placed lower or are freestanding kiosks, they should have a prominent landmark or symbol.

Part 4: Symbols and Text on Signs

The key to success in designing with universal symbols in hospitals is remembering that the symbols are not intended to replace text, but should be integrated with the text on signs. There are a large number of successful solutions possible for combining text and symbols on signs. These solutions usually fall into two categories:

Dominant Symbols, Secondary Text

In this approach, the universal symbols are much larger than the text on the signs, making the symbol the first and most visible design element to be seen by the visitor. Text becomes only a secondary source of information and is not visible until the visitor is only a few feet away. The text reinforces the meaning of the symbol while allowing the symbol to be the dominant wayfinding approach. This method works well in environments with a high percentage of non-English and low-literacy visitors by placing the focus on the graphic. To be effective, these signs need considerable backup information that includes print graphics, maps, and other identification to support the system. The Buenos Aires Hospital system by Ronald Shakespear is a good example of the dominant symbol approach. Text is much smaller than the symbols and only in one language, but sign size allows for the placement of more information and the symbol to be seen from great distances.

Balance of Text and Symbols

In facilities where English speakers comprise a large percentage of the visitors or in which there may be a desire for two languages on the signs, larger text can be used and balanced with the symbols as support. For these signs to be effective, it is important that the print is of adequate size to be seen from a distance three inches for overhead signs for interior environments) and that the symbols are close to being the same size as the text height. It is also important that the symbols be placed on consistent locations on the signs to be visible across multiple signs.

(Top) Buenos Aires Hospital System.

Ronald Shakespear

(Bottom) The Laredo Hospital uses wall mounted directional signs with symbols of equal height.

Lebowitz Gould



Photos by (Top) Ronald Shakespear, (Bottom) Lebowitz Gould

Part 5: Symbol Signs and ADA

There are a number of building codes and regulations pertaining to health care signs. The most important of these regulations is the Americans with Disabilities Act (ADA). The ADA is civil rights legislation developed by the Department of Justice and administered by individual states. The ADA rules are the basis for sound best-practices for creating visible and effective sign systems. While state sign codes may vary slightly, these standards are the most commonly used with symbol and multilingual signs.



Wall mounted identification symbol sign.
Corbin Design

Symbols on identification signs must be contained within a contrasting color field at least six inches in height. There is no maximum height for the symbols themselves. Symbols can be very large and more than one symbol can be used on the same sign. There are no rules governing symbols on directional and directory signs.

All wall mounted identification signs must have text and Braille standards readable for the blind. Text for the blind must be no less than 5/8 inch and no more than 2 inches in height, all upper case letters. All text and Braille must be separated from each other and the sign edge by at least 3/8 inch.

Letter heights for wall-mounted directional signs are not specified. These types of signs do not require Braille or raised letters like identification signs. However, letter height should be considered for legibility purposes. These signs must follow character proportion, sign finish, and contrast as specified in the ADA. It is also advised that symbols on wall mounted directional signs be no less than 5/8 inch in height. Text on overhead signs must be at least three inches in height.

There are no ADA rules for multiple languages. The ADA rules regarding text on multilingual signs are for the English language only. It is good design practice to

Photo by Danny Roberts

use other languages based on the same regulations.

Note: The ADA is currently being reviewed and revised, with significant changes being projected for the signage portion of the Act. As of this writing (November, 2005) the changes have not been enacted. This is expected to happen in mid-2006 or early 2007.



(Left) Even though there is no height requirement for languages other than English it is advisable that text in other languages be as visible. *Ottawa McDaniel International Airport, Gottshalk and Ash*

(Right) Wayfinding signs where symbols are the primary wayfinding element can have smaller text. *MD Andersen Cancer Center, fd2s*

Photo by William P. McElligott Photography, Artwork by fd2s

Part 6: Reducing Clutter

Clutter is one of the biggest issues affecting wayfinding in hospitals today. In symbols testing, clutter ranked among the largest issues affecting people finding their destinations. Signs, planters, bulletin boards, and other information can prevent wayfinding signs from being visible while also degrading the quality of signs. Additionally, too much information on a sign can reduce the ability to recognize the required information. There are two kinds of clutter that need to be addressed when designing and placing symbol signs: clutter in the environment and clutter on individual signs.

Consistently placed design elements include furniture and floor patterns.

Lankenau Hospital, AGS



Clutter in the Environment

Consistency in the health care environment is the key to legible identification signs. Not only should unnecessary information be removed, but the entire environment must be designed to avoid inconsistencies. All wall and floor coverings should be consistent in circulation areas. Even design elements like planters, paintings, sculptures, and donor walls can affect legibility if placed indiscriminately.

Sign Clutter

Designing wayfinding signs using symbols is a balancing act of simplicity and clutter. There are two approaches to controlling clutter: putting a large amount of

information on a few signs, and spreading out information among a large number of sign and print elements.

Prioritize information on complex signs

Symbol signs have an advantage over text signs because of their ability to include a much larger amount of information on a single sign. Complex symbol signs can be illegible if not carefully designed. Complex symbol signs should have a clear hierarchy where the most important information is most visible from a distance and less important information further in the background. For example, in the New York City Health and Hospitals

Photo by AGS

Corporation design guidelines, designed by Hillier, a single sign contains building unit identification, the identification of adjacent units, and parking and transportation information. These symbols are all different sizes with unit identification being most prominent, providing a hierarchy of the most important information.

(Top) Coney Island Hospital, Hillier Group

Simplicity should be supported across a number of signs

Symbols also can be used on very simple signs, where only three or four pieces of information can be seen. For these signs to be successful there must be a great amount of backup information that includes maps, directories, landmarks, and print directions. An excellent example is the M.D. Andersen Cancer Center, designed by the firm fd2s, where very simple wayfinding signs with just a few symbols are used. These simple signs are augmented with interactive directories, maps, and landmarks. This large number of elements must be carefully managed to avoid an overload of information, but are necessary to support the complete system.

(Bottom) MD Andersen Cancer supports a large number of simple symbol elements with print and graphic support. fd2s



Photos by (Top) John Bosio, (Bottom) David Omer

Part 7: Lighting and Color of Symbol Signs

Hospitals are different from other institutional facilities in that they serve a residential population as well as a large number of visitors. Lighting levels are often set very low in hospital facilities, and are often too low for sighted people, let alone those with vision disabilities. When using the symbols, developing color and lighting standards is crucial to creating a visible and consistent system. The following three standards are most important to consider when establishing standards:

- Minimum lighting requirements are needed, especially in public areas. Lighting in hospital environments should make signs legible to most people from a distance of at least 25 feet. This requires either a higher level of overall internal lighting, or lighting the signs directly. Directly lighting the signs increases their legibility by contrasting the signs with a darker surrounding environment.
- If lighting levels are low it is advised that a light background be used. Light backgrounds reflect rather than absorb light. If lighting levels are low, a reflective surface can generate light in a low lighting area. Since glare can be an issue in reading signs, light backgrounds can provide minimum glare visibility.
- Color contrast on signs should be a minimum of 60% and is recommended to be 70%. Color contrast between foreground and background sign elements is also an excellent way to make signs more visible. The greater the contrast the easier it is to see the sign information. Color calculators like the one provided by ASI-Modulex at www.asi-modulex.com are ways to measure contrast between two colors.

(Top) Massachusetts General Hospital uses signs with light backgrounds for darker hallways.
Two Twelve Design Associates

(Bottom) ASI-Modulex color calculator.



Light Reflectance Value Contrast

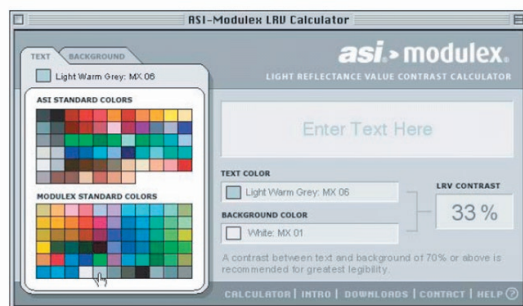


Photo by Kevin Burke

Part 8: Symbols with Print and Interactive Media

Good environmental design and sign systems are not the only factors used in creating effective wayfinding systems. Adding symbols to print and electronic media can provide ideal additional support and reassurance for people trying to locate their destination.

Elements of Print and Electronic Graphics

Printed Handouts

Handouts are simple and successful print pieces. In testing, handouts were found to be effective in 98% of participants relying on signs. Handouts can simply explain the meaning of the universal symbols in multiple languages while allowing the signs to perform most of the wayfinding duties. With printed handouts it is important to consider the following:

- Translations must be absolutely correct. Mistakes reduce trust in the entire sign system.
- If using an ambiguous name, i.e., Birthing Center instead of OB Clinic, be sure that there is a clear definition along with the name.
- Names and definitions used on the handouts must match information on the signs.

Printed Maps

Printed maps are more difficult to read than handouts. A smaller number of people can read and understand maps, especially when discerning building interiors. Some tips for effective maps using symbols include:

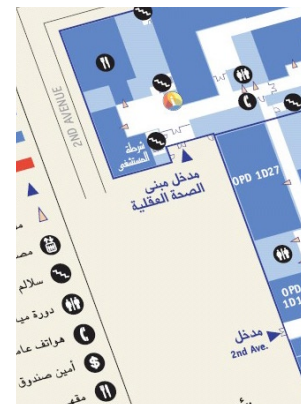
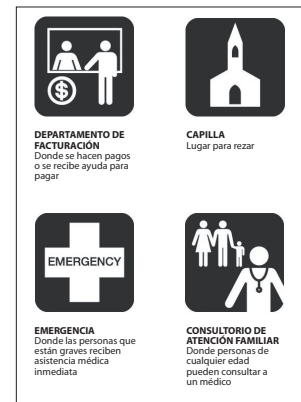
- Universal symbols should be at least 3/8 inch in size, if possible, to be easily legible.
- Interior maps should be very simple and contain limited information. Many hospitals use specialized maps meant to serve a specific use or many maps that represent individual buildings or units.

Cards and Printed Instructions

Universal symbols can be integrated into medical paperwork and other support print material. These graphics have the advantage over maps and handouts in

(Top) Portion of handout explaining the meaning of universal symbols in Spanish. Sample handouts in multiple languages are available at www.hablamosjuntos.org or www.segd.org.

(Bottom) New York Hospitals Corporation map standards. Hillier Group



Artwork by (Top) JRC Design, (Bottom) Hillier Group

that they can be highly specialized, focusing only on the functions in which visitors are interested.

The Internet and Electronic Kiosks

Symbols can be highly effective when used with electronic media. The key to effectively using Web sites and electronic kiosks is attracting people to use them. There is evidence that younger people are more comfortable with using electronic media than their elders. It is important to consider electronic media as part of an overall wayfinding program and not the main support system. Electronic graphics must match print and sign graphics.

(Left) Internet directions and kiosk. MD Andersen Cancer Center. fd2s

(Middle) Interactive map. Saint Vincent's Hospital. TTSS

(Right) Visitor information desk at Somerville Hospital, Somerville, Massachusetts.

Locations of Print Materials

Hospitals have made large investments in visitor information kiosks and help desks. Visitors gravitate to these areas, making them the best places to locate print information. Since visitors often do not arrive through a central entrance, it is important to include smaller information centers containing print information. These should be placed strategically in hospital departments throughout the building.

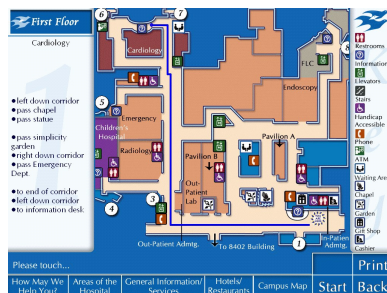


Photo by Craig Berger

Part 9: Staff and Volunteer Training with Symbols

Signs and print graphics can be highly effective in helping people find their way in buildings and can save hospital staff and translators time in directing people. Hospital staffs need clear instructions on how to best use the signs.

Information desks must have a clear and legible sign for interpretive services. It is a legal public access requirement to have sign information about interpretive services in many languages. Putting maps and handouts next to the sign for interpretive services helps make the connection for visitors. Visitors have ready access to information to find their way on their own or they can request interpretive services if they have higher level needs.

All hospital staff and volunteers must be trained in teaching visitors how to use the signs. Hospital staff should be given training in instructing people how to find their way to a specific destination using symbol signs and graphics. Some simple procedures will save staff time and energy when giving directions:

- Training should include a walk-through of the hospital, pointing out signs, maps, locations of print graphics, and major destinations.
- Instructions on how to best use printed handouts when helping visitors. Circling the specific symbol on a print piece or map helps visitors easily find their destination.
- Training on how to give verbal instructions using the symbols on the signs.
- Training on directing visitors with interpretive needs to the nearest information desk.

Interpreters can also teach people about the sign system. The interpreter should be encouraged to help orient people to the facility, pointing out destinations as they walk with visitors. Interpreters can also play a role in teaching visitors how to find destinations on their own, and should keep materials on hand that support the sign system.

(Top) Sign in multiple languages directing visitors to interpretive services.

(Bottom) A trained staff is one of the best aids for interpretive services.



Photos by Craig Berger

Summary of Recommendations

Part 1: The Levels of Universal Health Care Symbols

- Create a hierarchy of symbol information based on destination importance.

Part 2: Wayfinding Concepts Using Universal Health Care Symbols

- Symbols should be in the same location on every directional sign if possible.
- Signs can use visible numbers, letters, and landmarks.
- Signs should be placed in every location where a decision must be made.
- Signs should be spaced so that successive signs are completely visible to each other.
- Symbols on building directories should be at least 3/8 inch in height.
- Directories should be in the same location on every floor.
- Directories should be large landmarks in prominent locations.

Part 3: The Types and Locations of Symbol Signs

- Two identity signs should be used, the first parallel and at eye level to the destination entrance and the second perpendicular and overhead at the destination entrance.
- Overhead signs must have at least 80 inches of clearance.
- Wall mounted directional signs should be at least 60 inches off the ground.

Part 4: Symbols and Text on Signs

- Use extensive print and map support for symbol dominant signs.
- Use for signs that have an equal emphasis on symbols and text.

Part 5: Symbols and the Americans with Disabilities Act

- Signs must centered at 60 inches off the ground.
- The symbol field on identification signs must be at least 6 inches in height.
- Raised text and Braille must be in English.

Part 6: Reducing Sign Clutter

- Reduce the number of information elements not directly related to wayfinding and identification.
- Use fewer signs, with a clear hierarchy of information for complex signs.
- Use many sign elements that indicate specific tasks for simple signs.

Part 7: Lighting and Color of Symbol Signs

- Provide lighting that can make signs readable from at least 25 feet away.
- Use a white or light background if lighting is low.
- Sign contrast should be at least 60% between type or symbol and background colors.

Part 8: Symbols with Print and Interactive Media

- Multilingual handouts and cards provide the best support of symbol signs.
- Maps can be effective if kept very simple.
- Locate print support in multiple locations through the hospital.

Part 9: Staff and Volunteer Symbol Training

- Train volunteers and staff in giving directions using signs and handouts.
- Interpreters should help orient people to the facility and play a role in teaching people how to use the sign system on their own.

Final Summary

This workbook is meant to serve as a resource to help health care executives, designers, and facilities managers become acquainted with universal health care symbols and how they can be integrated into wayfinding systems and management strategies.

If you would like more information on developing a strategy for Limited English Proficient users in health care facilities, and how universal symbols can be involved in that strategy, visit www.hablamosjuntos.org. This Web site contains information on the efforts of Hablamos Juntos to create more accessible health care facilities using interpretive services, improved writing, wayfinding, and management.

For more information on technical issues related to symbols and wayfinding in health care facilities, visit the Society for Environmental Graphic Design at www.segd.org. Their web site contains information on best practices for health care wayfinding, case studies on specific programs, and educational programs and publications on health care wayfinding. For a CD containing all document reports and a tutorial on wayfinding in health care based on previous SEG D educational programs contact SEG D at 202-638-5555 or segd@segd.org.

