

Integrating Human Centered Design Principals in Progressive Health Facilities

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Stress and sensory overload are accepted elements of American society. Added to that is uncertainty and fear at the onset of acute illness. Together, this combination can create severe anxiety for patients and their families.

In the last half of the 20th century, medical campuses were characterized by sterile, uninspiring buildings. This was a result of the technological explosion and focus on treating illness rather than the whole person. On the interior, a maze of windowless corridors connects patients, staff and materials from one district department to another.

In the last 15 years, an increasingly competitive healthcare market inspired providers to look for ways to attract patients and insurers. Hospitals and architects borrowed design cues from the hospitality and residential markets to humanize the institutional experience. Simultaneously, academic research began to focus on the relationship between stress and healing as well as the built environment's impact.

According to Roger S. Ulrich, PhD, and director for Health Systems and Design at Texas A&M University, USA, providing daylight and

windows with views as well as individual patient controls, aids the healing process. "Research shows that ICU patients in rooms with windows and pleasant nature distractions experienced less anxiety and pain. They were also less susceptible to delirium. Additionally, it shows that hospital patients recovering from gall bladder surgery had more favorable post-operative courses if windows in their rooms overlooked a small stand of trees rather than a brick wall."

The concept of patient centered hospital care traces back to 1977. Angelica Thierot, a patient in northern California, was not satisfied with her hospital stay. She felt that she was



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The Utah Valley Regional Medical Center in Provo, Utah is designed to blend with its environment. (photography by Ed LaCasse)

hurried out of the hospital. While there, she stared at blank white walls, feeling lonely and afraid. She developed the Planetree model following her experience. In addition to intensive patient education and family involvement in the care delivery, the Planetree model stresses the importance of the physical environment in promoting healing.

The challenge for healthcare providers is to successfully integrate human centered design concepts in an industry where reimbursements are being slashed and care delivery costs are skyrocketing. Consequently, the bottom line becomes the driving force during the design process. Healing architectural design and cost-effective facilities can work hand-in-hand successfully positioning the health providers to attract patients, physicians, and staff.

There are many common aspects of design and planning that support the natural healing process through stress reduction, individual comfort and spiritual inspiration. Providing a human-centered environment in the hospital setting begins with dedicated executive, physician and nursing management. With a vision and guiding principles, the design team can form a collaborative alliance to accomplish project goals. As the design team begins the creative process, the focus should be on the following universal components.

A Path to Follow

In the United States, patients surveyed expressed that parking was their number one health facility concern. In today's society, some of our most anxious moments occur in our automobiles. Providing adequate, adjacent parking to identifiable entrances can set the tone for a successful patient experience. Considering that only 20 percent of current hospital signage is large enough to read, vehicular site orientation is paramount.

Wayfinding begins at the campus entrance and continues throughout the facility. A well-designed building will minimize wayfinding



A well placed reception desk, at Yuma Regional Medical Center Ambulatory Care Center in Yuma, Arizona, aids in wayfinding. (photography by Ed LaCasse)

needs with identifiable icons, daylighting, orientation to entrances, clear and separated interior pathways, and strategically place receptionists. Sensitivity to multiple cultures, languages, ages, and physical disabilities should be incorporated into wayfinding planning and design.

Public elevator lobbies must be readily identifiable as the patient enters the facility. At McKay-Dee Hospital Center in Ogden, Utah, all public elevators face the entrance lobbies with a view of the adjacent mountains. This reduces stress by helping patients and visitors orient themselves. Multi-story public spaces are located adjacent to elevators and along the spine providing visual cues. Through these cues, vertical and horizontal directional choices are provided. Strategically placed receptionists at major intersections and near elevators provide verbal information at McKay-Dee Hospital Center. Daylighting, color, artwork, and graphics serve as additional directional tools.

It's All About the Patient

Patient participation in the treatment and healing process is key. A sense of choice and control as well as comfort with the environment will promote the healing process.

Within the patient room, patient and family empowerment is provided with control over the



A piano player plays in the main lobby at the Utah Valley Regional Medical Center in Provo, Utah. (photography by Ed LaCasse)

noise and distraction, television, lighting, thermal comfort and social interaction. At Utah Valley Regional Medical Center the individual patient rooms were designed from the patient's perspective. All lighting, music, television, and communication controls are ergonomically located within reach of the patient bed. Concealed storage is provided for clothing and personal supplies. Display space for cards, flowers and personal items allows personalization that empowers. A residential atmosphere is created through the use of natural woods, scaled furniture, a full spectrum of color, and comforting artwork. Views to nature are visible from the patient's bed and family spaces. A clear distinction is created between the patient, caregiver and family zones. Caregiver supplies and work areas are separated from the patient and family spaces.

In public areas, circulation should be separated from service/gurney traffic and private spaces. Waiting areas with small seating groups, distinct child play areas and quiet spaces provide



A patient room with space for patient belongings as well as a natural view of a healing garden at Methodist Hospital in Arcadia, California. (photography by Tony O'Keef)

a sense of control. Additional daylighted spaces with music and television as well as access to outdoor gardens also provide choices for patients and visitors. At Methodist Hospital in Arcadia, California, waiting spaces adjacent to a day lit public path are designed with distinct seating areas for quiet contemplation, child play and outdoor access to public gardens.

Places of retreat provide positive distractions and a sense of choice – especially for long stay, inpatients. The designated spaces should be easily accessible, secure, and promote choice without confusion. Spaces can be indoor and outdoor as long as they are close to care areas. Social interaction and/or privacy, music, entertainment, retail and educational choices also create a positive environment.

The Family Approach to Healing

Research has shown that family support reduces stress and speeds the healing process. To promote family involvement, accommodations for families and children are provided in all areas of the hospital. Public waiting areas have multiple gathering spaces and distinct places for children. Private consultation, educational and meditation spaces are best placed next to key waiting areas. Distinct alcoves or rooms are designed for families to store food and belongings. This concept is especially beneficial at regional facilities where visiting families require more space



A mother/baby room is designed to provide a home-like environment for patients at Utah Valley Regional Medical Center in Provo, Utah. (photography by Ed LaCasse)

and supplies.

Within the inpatient room, adequate space must be provided for families to visit and partner in the care process. Distinct areas for family members to sit, sleep and store personal belongings are part of today's patient room. Overnight stay provisions allow family members to play a role in the care process. Sleep chairs, pull out sofas and recessed Murphy beds make the care partner feel welcome. Close access to information, food, positive distractions and shower facilities are also elements used to involve and support the families. At MD Anderson Cancer Center in Houston, Texas, the patient's length of stay called for adequate space for families with a full wall of storage and a concealed Murphy Bed for a family member.

Participating in the Healing Plan

The goal of human centered care is to provide the patient and family with information allowing informed medical choices. Sufficient and clear communication prior to the patient's arrival improves the hospital experience.

Hospitals are shifting from the traditional paradigm where all information is disseminated from the physician. Typically, the physician has a care team with global access to information supporting the care delivery. Patients and families are active participants in the care process. The focus begins with education as a preventative and supportive element to the care model. Resource centers are typically located in public areas. A resource center allows progressive care and patient/family partnering. The family resource center, providing convenient information and collaboration for inpatient and outpatient families, is a focal point of the new clinic building at MD Anderson Cancer Center.

Internet access can be provided in the resources center as well as individual patient rooms. The rooms should also include basic features such as a television, video player, telephone, and music. Based on research of the patient room of the future, it is estimated that the television will be replaced with a monitor used



A resource center for patients provides access to the latest medical information at MD Anderson Cancer Center in Houston, Texas, (photography by Wes Thompson)

for medical information, entertainment and communication. Facilities in design and construction phases should plan the infrastructure to accommodate future information technology innovations.

The human centered care environment isn't just about patients and their families. The concept includes all of their care providers. A 1,500-square-foot fitness area was transformed into a 6,500-square-foot state-of-the-art wellness center for staff at Bayfront Medical Center in St. Petersburg, Florida. Today, Bayfit offers wellness counseling and education, fitness evaluations, personalized exercise prescriptions, aerobics and other guided exercise programs and weight management, diabetes



Bayfit is a state-of-the-art wellness center for staff at Bayfront Medical Center in St. Petersburg, Florida. (photography by George Cott)

and workman's compensation programs.

At McKay-Dee Hospital Center, staff as well as patients and visitors will be provided with pagers. This allows mobility anywhere within the healthcare setting. For example, a visitor waiting for a family member in surgery can get a gourmet cup of coffee or fresh-squeezed juice from a juice bar.

A Hospital with a View

Creative daylighting is implemented as a stress reducer, health promoter, and wayfinding tool. People are naturally drawn to light. Successful daylighting applications can move patients through a facility as well as identify gathering and waiting spaces.

In public spaces, such as the Baptist Medical Center of Little Rock, Arkansas, daylighting is used as a design tool to add warmth and energy to public gathering spaces and places of escape. The quantity and quality of light links the interior and exterior. Adjacent outdoor gardens in both facilities draw patients and visitors outside to continue the stress reducing experience.

Within the inpatient setting, daylighting provides therapeutic effects with views to nature. At Utah Valley Medical Center, the Neonatal Intensive Care Unit (NICU) is designed to support a partnership between the parent and the caregiver. The pioneering medical director



Daylight transfers the dining area at Baptist Memorial Medical Center at Springhill in North Little Rock, Arkansas into a healing space. (photography by King Graf)



The NICU at Utah Valley Regional Medical Center in Provo, Utah is designed to include the mother and family in the care of the infant. (photography by Ed LaCasse)



Many of the LDR rooms at Utah Valley Regional Medical Center in Provo, Utah have rooms with a view of the Wasatch Mountains. (photography by Ed LaCasse)

created a light-filled treatment area where parents sleep next to their infants in a medically and environmentally supportive space. A significant increase in satisfaction has resulted in the program's first year. Large windows promote healing in a day lit environment. Window shades provide flexibility in simulating darkness at any time of day. Public gathering spaces, day lit waiting areas and overnight accommodations within all patient care areas give patients, families and staff the ability to care for the infant together.

The Nature of Healing

The notion of nurturing the human spirit while treating physical ailments is not a new concept. European hospitals and monasteries in the middle ages used restorative courtyard gardens to comfort and nurture patients. Early 20th century hospital practices included wheeling patients outside to porches and roofs for fresh air.

Access to nature, whether visual or physical, has a therapeutic affect on patients, families and staff. At McKay-Dee Hospital Center, the site was developed simultaneously with the building design to create an integral healing environment with gardens and gathering spaces. The spaces are organized closely around major interior

spaces and inpatient care. The design team was challenged to maximize the indoor/outdoor relationship incorporating the exterior as an extension of the interior. The central focus is



A healing garden is part of the design of the Methodist Care Center in Sugar Land, Texas. (photography by King Graf)



a cobalt blue lake with a series of landscaped gardens organized around the patient building's unique geometry. The gardens, located on public dining terraces and private meditative areas, provide a variety of colors, textures, and fragrances throughout the year. In addition to a garden view, every patient room is designed with a scenic backdrop of the Wasatch Mountains or Salt Lake Valley.

When planning a garden, proper climate and conditions should be considered. The individual plantings, which are typically medicinal or herbal, can be used to promote healing and serve as an educational tool. The outdoor gardens at Methodist Care Center in Sugarland, Texas surround the waiting areas for day surgery, diagnostics and urgent care. Patients and families can step outside to enjoy native plantings, have a private family discussion or meditate before a procedure.

A Home Away from Home

Within the public spaces, various elements can provide positive distractions for patients, families and staff. Positive distractions can include classical music emanating from the grand piano or the smell of fresh baked bread. Other positive distractions consist of fountains, entertainment/performances, art, dining, and social interaction.

The location of these elements should be



A mall-like environment was created for patients at the MD Anderson Cancer Center in Houston, Texas. (photography by Rick Gardner)

distributed throughout the facility for all to enjoy. Within a patient's room, a television playing a favorite movie, artwork with nature scenes, or a garden view can distract the patient or family member from stress. The room should be designed to provide a variety of distractions or changeable distractions like different video scenes on the television or interchangeable artwork.

Hospital patients surveyed by the *Journal of the American Dietetic Association* felt that the smell, taste and appearance of their food had a profound effect on their wellness. Some hospitals find that a kitchen on the unit, where fresh baked cookies and breads are served to patients and visitors, provides a homelike aroma and eliminates the antiseptic odor. Fresh cookies are baked daily on the mother/baby unit at McKay Dee Hospital Center.

Zale Lipshy University Hospital in Dallas, has taken this theory to heart. The hospital's food won an "Ivy Award" from *Restaurants and Institutions* magazine and the "Silver Plate Award" from the International Foodservice Manufacturers Association. Bayfront Medical Center in St. Petersburg, Florida hosts Joffery's, a gourmet coffee and pastry shop. A pizza oven is the focal point of the restaurant-style dining accommodations at Mercy Health Center in Laredo, Texas.

Setting the Mood with Color

The goal of effective color application in the healthcare setting is to enhance the built environment with the appropriate use of full spectrum coloration. Research has shown that warm, muted colors can reduce stress while bold colors can increase stress if applied improperly. Adequate sunlight with natural wood tones and a correct proportion and balance of bright colors creates a warm, stimulating and healing environment.

Some color theorists believe that different illnesses are associated with distinct representative colors. They believe that the proper utiliza-



Color is used to create a meditation atmosphere at the hospital's chapel at St. Rose Dominican Hospital Siena Campus in Henderson, Nevada. (photography by Ed LaCasse)

tion of color through lighting can compliment traditional medicine. The range and changing colored light is accomplished by light coves with neon or fiber optic sources altered per diagnosis. While this is one extreme of color application in healthcare design, the proper balance and use of color, texture, and light distribution is proven to have a positive outcome on patients - especially during extended stays.

The Future of Healing Healthcare

Design professionals are challenged to create highly efficient and flexible facilities. It was once thought that cost efficiency and creative healing environments were mutually exclusive. Today's increasingly educated healthcare clients are challenging architects to design buildings that integrate human centered principles. A