



iida and aia leaders promote  
healthcare facilities that

# The H



# uman Factor

focus on patients, rather than  
technology and equipment.

By David Whitemyer

## > It should

go without saying that hospital designs always keep the patient in mind. But around the world, an aging fleet of stoic post-World War II and '70s-era hospitals point to the fact that, historically, healthcare facilities have been designed to accommodate medical equipment and building mechanics – not people.

Fortunately, in a recent paradigm shift, consideration of the human factor in healing environments has changed the way hospitals are planned. Interior designers and architects have embraced the concept of patient-centered care, a term coined in the latter part of the 20th century. What used to be sterile, bland, clinical environments are morphing into warm, welcoming, user-friendly spaces.

In a study published by The Commonwealth Fund, a New York-based foundation that supports health systems, the quality of the

physical environment was noted as “one of the most important factors contributing to patient-centered care.” Consequently, a boom in hospital construction – one that is expected to reach \$20 billion a year by 2010 – is fostering the replacement of facilities that treat healthcare as an assembly line process with those that provide patients a sense of safety, comfort and dignity. That evolution is not only on track, but now seen as a design imperative.

### THE PROOF IS IN THE PUDDING

Following on the heels of evidence-based medicine, interior designers and architects are incorporating evidence-based design – supported by studies, as

well as pre- and post-occupancy evaluations – into the planning of healthcare facilities.

A mounting body of data shows design features that respect patients, are inviting and comforting, and encourage family involvement result in improved patient outcomes. In 2004, research teams from Texas A&M University and Georgia Institute of Technology unveiled a watershed report, “The Role of the Physical Environment in the Hospital of the 21st Century,” detailing the combined work of more than 600 studies and thousands of scientific articles. Among the myriad findings was evidence that daylight helps reduce hospital stays, single-patient rooms reduce infection

A 2004 study of patients having cervical and spinal surgery found that those exposed to more sunlight took

**220%**  
less analgesic medicine per hour, and experienced less stress and pain.

rates and way-finding systems increase patient satisfaction.

Champions of the cause are now promoting the evidence and working to convince hospital boards of the healing and financial benefits of patient-centered facilities. Planetree, a Derby, Conn.-based nonprofit healthcare organization, advocates a philosophy that encourages healing through patient empowerment. It emphasizes the importance of Interior Design and architecture in the healing process, and has set up a designation program that currently includes 97 U.S. hospitals. Surveys completed in the early '90s showed patients of Planetree hospitals had higher satisfaction rates than those of non-designated facilities.

Other stalwart advocates for improving patient care through well-designed environments include the Picker Institute, the Institute for Family-Centered Care and the Center for Health Design (CHD). In 2000, CHD launched the Pebble Project, which measures hospital performance and aims to spread the word about "healthcare organizations whose facility

The Centers for Medicare and Medicaid Services has calculated that by 2016, Americans will spend around

**\$4.41**  
billion per year on healthcare.

design has made a difference in the quality of care?"

#### **A SOOTHING STAY**

A major move toward patient-centered care is the increased number of single-patient rooms, says Peter Bardwell, FAIA, President of The American Institute of Architects' Academy of Architecture for Health and Principal at Columbus, Ohio-based Bardwell + Associates. In fact, *The Guidelines for Design and Construction of Health Care Facilities*, a bible of sorts for hospital designers, was revised within the last two years to recommend single-bed rooms as the minimum standard in certain types of

healthcare facilities.

These new single-patient rooms often feature home-like aesthetics, with fine bed linens and custom cabinetry, while also accommodating state-of-the-art hospital technologies. For example, manufacturers have created traditional-looking bed headboards that hide medical gas outlets. In addition, designers can draw from a huge market of materials and products to create a soothing appearance that is also easily cleaned.

Patient satisfaction aside, Bardwell says catalysts for single-patient rooms include improved infection control, adherence

# STRAIGHT FROM THE SOURCE



Heather Peach

Numbers and ROI are worth their weight in gold, but sometimes what can't be quantified is even more valuable. Oftentimes, caregivers — those most directly involved with patients — are the best judges of a space's success.

In 2004, Massachusetts General Hospital in Boston opened its new Yawkey Center for Outpatient Care, which houses the Pediatric Hematology-Oncology unit. Heather Peach, a Child Life

Specialist in that unit, describes the clinic where the unit formerly resided as a plain environment with a small waiting room that lacked staff office space. "For patients, we had a bay with rows of beds, and hardly any windows," she says.

The new facility, however, features individual rooms — complete with video games for children, healing wall murals and computers for physicians — and a large, colorful, child-friendly waiting space, among other patient-focused amenities. "Kids walk in and feel safe here. They know the space is for them," Peach says.

Designed by Cambridge Seven Associates, Perkins+Will and Steffian Bradley Associates, the Yawkey building was created with patients in mind, from its sun-washed corridors and warm finishes to its logical configuration and rooftop healing garden.

Peach understands she's not providing care just to the patients. "We need to treat their whole family — their support system," she says. And in that, she says, the building succeeds.

to patient privacy requirements and sophisticated portable equipment. "One fundamental premise of patient-centered care is inverting the relationship between patient and hospital," he says. Rather than moving patients from the bedroom to numerous diagnostic, treatment and lab areas, hospitals are decentralizing and bringing these things to the patient, thanks in part to the advent of portable technologies.

"Transporting patients takes up an inordinate amount of staff time," Bardwell says. It also increases contact with people and, thereby, hospital-acquired infection. "You're

saving time and being safer with single-patient rooms," he says.

Also adding to the safety of the patient is a movement toward same-handed rooms rather than mirrored rooms. Mirrored rooms, like in a hotel, are designed efficiently around a core of plumbing and ventilation systems. Same-handed rooms are oriented such that equipment, outlets and furnishings are always located at the same point around a patient bed. "When seconds count," says Bardwell, "hospital staff needs to know where everything is." According to a 1999 report by the Washington, D.C.-based Institute of Medicine,

Peach also appreciates how the space has improved caregiving, such as locating nurses stations directly across from patient rooms.

A 2007 post-occupancy evaluation, published by *Architectural Record*, lists many of the building's positive attributes, including the ease of way-finding and the quietness of the clinical interior space. The evaluation shows that staff satisfaction is also impressive, to which Peach can attest.

somewhere between 44,000 and 98,000 people die each year because of medical errors. Same-sided rooms help reduce those errors.

Designers and architects are also becoming aware of the connection between nature and healing such that, where possible, they incorporate patient rooms with windows overlooking green spaces, water or other natural settings. Even simulated nature views seem to have a profound impact on patients. A 2003 study observing blood donors in a waiting room found blood pressure levels and pulse to be lower when a wall-mounted television displayed nature

images instead of typical television programs.

#### **BE OUR GUEST**

One of the most noticeable features in a patient-centered room isn't for the patient at all, but for his or her guests. The single backbreaking chair wedged into a corner has been replaced with a large "family zone" that includes comfortable seating and flooring, a pull-out sofa and often a desk. For overnight visitors, it's a welcome retreat.

"The patient includes the whole family," says Linda Gabel, IIDA, AAHID, Columbus, Ohio-based Senior Associate at NBBJ and IIDA's Healthcare Forum Advisor. "We need to design for and treat the patient holistically. We need to accommodate the family to reduce stress." Indeed, studies have shown that anxiety can suppress the body's immune system, lengthening the healing

process or increasing the possibility of infection. "If the family is stressed, then the patient will be stressed worrying about their family," Gabel says.

Apart from patient rooms, newer healthcare facilities have taken on the air of four-star hotels.

Gabel points to NBBJ's 307,000-square-foot Southwest Washington Medical Center in Vancouver, Wash., completed in 2006. The lobby houses a flower shop, café, resource center, Internet-ready plug-and-play kiosks and pharmacy, and there's a large fireplace and stage-like space for musical performances and holiday events. "And instead of a sea of sofas," Gabel says,

"we've designed seating to accommodate smaller family gatherings."

Gabel also notes the logistical hardship of having a loved one hospitalized. "You have to take time off of work, but you still have to get work done," she says. As a result, wireless Internet access and workspaces are featured in many lobbies to make visiting more convenient.

Of course, in addition to accommodating visitors, there's a positive marketing aspect to these design changes. Offering numerous amenities in a healthcare setting attracts families who must select a hospital. "Consumers now come with high expectations of

## **For more information on patient-centered care, visit these Web sites:**

**IIDA's Knowledge Center**  
<http://knowledgecenter.iida.org>

**AIA Academy of Architecture for Health**  
[www.aia.org/aah\\_default](http://www.aia.org/aah_default)

**American Academy of Healthcare Interior Designers**  
[www.aahid.org](http://www.aahid.org)

**Picker Institute**  
[www.pickerinstitute.org](http://www.pickerinstitute.org)

**Planetree**  
[www.planetree.org](http://www.planetree.org)

**The Center for Health Design**  
[www.healthdesign.org](http://www.healthdesign.org)

**The Institute for Family-Centered Care**  
[www.familycenteredcare.org](http://www.familycenteredcare.org)

In one Indiana hospital that changed from two-bed rooms to single-patient rooms in a coronary ICU, medication errors were reduced by 67% and patient transfers went down 90%

what they want in their hospital,” says Laurie Waggener, IIDA, AAHID, Vice President at Dallas-based design firm HKS. They’re not just looking for quality care. “They’re looking for information, service and hope,” she says. And quality design can help hospitals provide those.

**HUMAN-CENTERED DESIGN**

Patients and visitors notwithstanding, there’d be no hospitals without staff. “[Interior designers and architects must] consider the whole package,” Waggener says. “Taking care of the patient means taking care of the caregiver.”

She should know. Before becoming an interior designer, Waggener spent 14 years as a Registered Respiratory Therapist and Technical Director of Critical Care at Our Lady of the Lake Regional Medical Center in Baton Rouge, La.

Waggener combines her direct experiences with what she has learned on HKS’ Healthcare Research Specialist Team to incorporate the simple comforts that can be delivered to caregivers through appropriate lighting, flooring materials and acoustics. “Consider the amount of time nurses spend standing and walking,” she says. The turnover rate for registered nurses is a staggering 20 percent, so it behooves designers to accommodate them.

Waggener notes that a lot of investigation is also going into “backstage” spaces, such as nurses stations, efficient supply storage areas, staff lounges and meeting areas. “We’re trying to make those spaces more efficient and decentralized so the caregiver is more connected to the patient, and so the caregiver also has a place to rest,” she says.

Standard hospitals tend to locate core elements such as elevators and

mechanical shafts in the center of floors. At the new JELD WEN Tower of St. Charles Redmond Medical Center in Redmond, Ore., architects from Seattle-based Callison proposed moving those elements to the ends of the building, opening up the space for maximum nursing flexibility, storage and sight-lines. Janet Faulkner, AIA, LEED AP, Principal at Callison, says the firm faced many challenges in making that work with codes, but the hospital staff greatly appreciates it. Faulkner, a leader in Callison’s Healthcare Design Studio, says, “We keep the design teams focused on *all* of the people who use the space.”

In fact, Faulkner says the term “patient-centered” shouldn’t even be used. “We should be saying ‘human-centered,’” she says. “We should not be forsaking the needs of others to meet the needs of one.” The ideal approach to hospital design considers everyone: patients, nurses and doctors, as much as housekeeping and food service staff. “Designing spaces that keep the care teams energized and adept is the best thing we can do to create patient-centered care,” Faulkner says. ☞