

# XTRAwise™

a publication for the medical community

## DESIGNING FOR THE HEALING ENVIRONMENT

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### INTRODUCTION

The founder of modern nursing, Florence Nightingale, wrote *Notes on Nursing in 1898*. In this classic work, which was intended not for nurses, but rather for the lay person, she stressed what we now know as the *healing environment*. She mentions that the environment is important for healing, and describes the ideal environment in which the patient is supported by natural light, fresh air, nutrition and clean bedding.

In the 1950's, the ideal hospital environment was one in which everything was sterile, white and impersonal. Care was segmented and not holistic. Many facilities were designed with only a few small windows and the lighting was incandescent and artificial. The patient rooms were small, and left little room for equipment and even less room for supportive family members. If there was room for family members to visit, they were seen as a nuisance and in the way. Friends and family were discouraged from staying overnight. Visiting hours were very restrictive so as to allow the patient time to "rest." In fact, many hospitals still do not have open

People say the effect is only on the mind.  
It is no such thing. The effect is on the body, too.

Little as we know about the way in which we are affected by form, by color, and light, we do know this, that they have an actual physical effect. Variety of form and brilliancy of color in the objects presented to patients, are actual means of recovery.

— Florence Nightingale

Notes on Nursing: What it is and what it is not (1860), 84.



visiting hours or flexible visiting hours. This environment is not conducive to patient healing or letting the family support the patient in his or her recovery.

### TODAY'S ENVIRONMENT

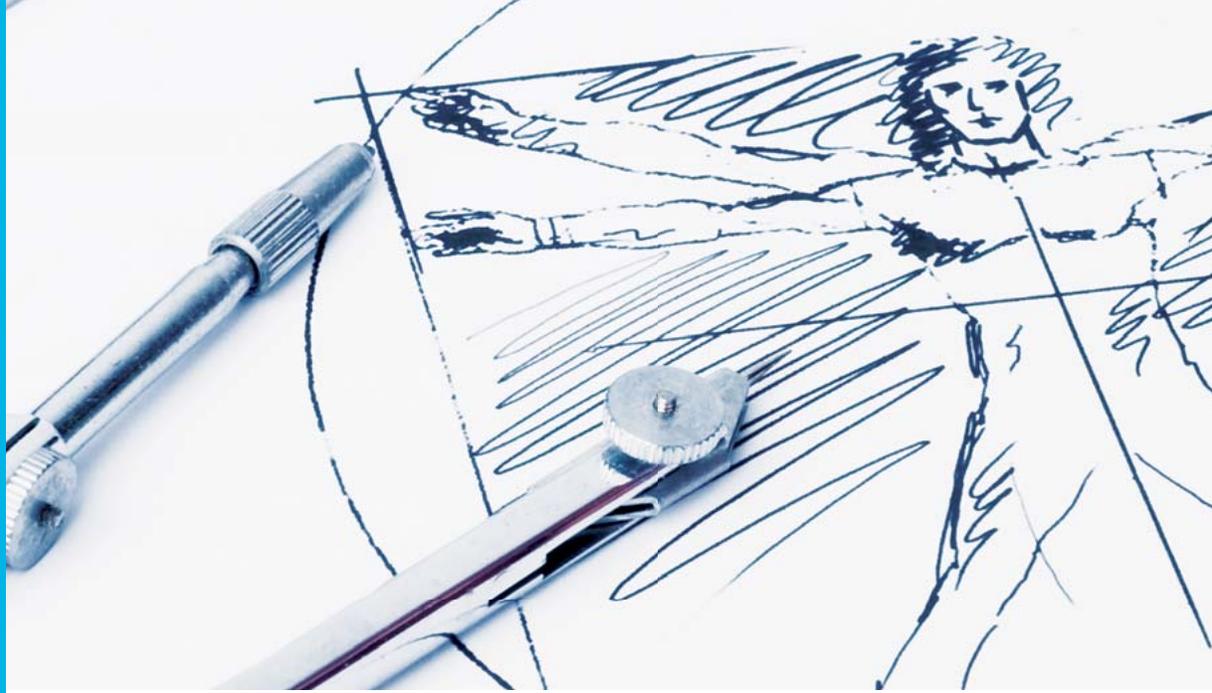
As many hospitals are being built or renovated in the US, there is a relatively new movement to dramatically change the way care is given. In the new healing environment of the future, the design of the hospital, including patient rooms and public areas such as the waiting room, lobby and landscape, will be completely redesigned with evidence of healing in mind. According to a recent publication, evidence-based design is "a process used by healthcare professionals in the planning, design and construction of healthcare facilities."<sup>1</sup> Most healthcare providers are familiar with the term *evidence-based*. Evidence-based care is a process by which healthcare professionals use the latest evidence, including research and patient preferences, to design, implement and evaluate care. The same process is now used when designing and building hospitals.

More than 1,000 research studies are available to support that the design of hospitals can improve patient care. Well thought-out design can improve staff efficiency, loyalty and patient care outcomes while at the same time, the right environment can reduce medical errors and waste. New studies are being published every day in this quickly growing body of research.<sup>2</sup>

### THE HEALING ENVIRONMENT

The healing environment is synonymous with the therapeutic environment. The therapeutic environment is one that is "designed to not only support and facilitate state-of-the art medicine and technology, patient safety, and quality patient care, but to embrace the patient, family and care providers in a psychosocially therapeutic environment."<sup>3</sup> The healthcare environment is supportive to healing and is therapeutic when it can demonstrate all of the following:

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## DESIGN IS...

Design is directed toward human beings. To design is to solve human problems by identifying them and executing the best solution.

— Ivan Chermayeff, Designer



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- EXCELLENCE IN THE CLINICAL SETTING
- PSYCHOSOCIAL AND SPIRITUAL NEEDS OF THE PATIENT, FAMILY AND HOSPITAL STAFF
- POSITIVE CLINICAL OUTCOMES AND IMPROVED STAFF EFFECTIVENESS

(Adapted from WBDG [http://www.wbdg.org/ccb/browse\\_cat.php?c=4](http://www.wbdg.org/ccb/browse_cat.php?c=4))<sup>3</sup>

Consumer-savvy patients who are hospitalized or are planning elective procedures and surgeries seek out and gather information about hospitals. These patients seek information online from consumer sites or hospital homepages. They look for information on everything from hospital infection rates to patient satisfaction scores. Included in many patient satisfaction surveys are questions related to the noise levels and the cleanliness of the hospital. Survey questions about the level of noise in the hospital during a patient stay are particularly important since patients are very sleep-deprived. In overnight hospital stays, noise at night can make falling asleep and staying asleep difficult. Patients want to stay in facilities that will support a level of quiet as part of a complete therapeutic environment.

Other features or benefits that consumers look for include environments that are private (private rooms versus semi-private rooms) and offer them control over their environment, such as the ability to control heating, ventilation and lighting.<sup>4</sup> Consumers also look for facilities that can accommodate their friends' and families' needs, including overnight accommodations and internet access. The ability to use the internet to access the latest healthcare information and to connect with friends and family through social media is very important.

All of these amenities were largely unavailable in the past and now are seen as factors that support the healing environment, and are therefore not just aesthetic improvements in stay, but critical to patient treatment and recovery. These patient-centered amenities also contribute to higher patient satisfaction scores, which in turn drive admissions in a competitive market.

## THE GLOBAL ENVIRONMENT AND SUSTAINABILITY

As part of the healing environment movement, hospitals are willing to make the necessary design changes, and at the same time leave as little of a carbon footprint as possible. Evidence-based design takes into account the need to design and build hospitals that support the sustainability movement. Hospitals now have sustainability or green teams, who look to use and buy products that are free of chemicals of concern, including products containing

# NURSING PERSPECTIVE: WHAT DO WE WANT IN A HOSPITAL BED?

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While healthcare beds and support surfaces are focused on patient benefits, healthcare providers have expectations for these products as well. New guidelines for patient outcomes, reimbursement and safety along with the shortage of nurses have placed even more demands on the bedside nurse. (See Xtrawise 12.3) All things considered,

mercury, lead, PVC, phthalates, bisphenol-a and halogenated, chlorinated or bromated flame-retardants. These teams consist of staff members from all disciplines, as well as materials managers, and have a mandate to reduce water consumption, manage waste, recycle and reuse as much as possible. In order to achieve these goals, green teams select and purchase products that are environmentally friendly.

## CONCLUSION

Patients are consumers too, and they demand more these days in terms of quality and safety. How these needs are met varies from hospital to hospital and practice to practice. Progressive hospitals design with the healing environment in mind. (For more on the healing environment, see page six). Consumers should expect services and products to meet their healing needs in subtle ways. The environmental factors that are discussed in this article should seamlessly support an environment of quality and safety and at the same time promote healing and recuperation. The healing environment is one in which there is excellent care and the least amount of environmental stressors. ✕

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nurses have the most interaction with the patient and the patient's bed as well.

## THE IMPORTANCE OF THE EQUIPMENT: FACTORS THAT MATTER

Today's nurses look at patient equipment for more than just patient outcomes. Healthcare providers want medical equipment to assist them in their care of the patient, and they also want that equipment to be designed with their own safety as well as that of the patient in mind.

**LIFTING AND MOBILITY.** One of the

first issues of concern is the ease of transferring a patient to and from the bed. It is difficult to push a bed with a patient in it, whether the hospital floor is carpeted or not. Beds that come with a drive capability provide easy and immediate movement, which is especially important in emergency situations. In addition, this type of power drive option supports the ergonomic solutions for staff in safe patient handling movements.

**HAZARD REMOVAL.** Other hospital bed enhancements also support the safety of both patient and staff. Nurses acknowledge the need for adherence to new safety guidelines, and

expect that industry can partner with them to provide a safer environment for their patients. Removing hazards can be a simple task. Retractable cords on beds as well as other medical products prevent mishaps such as tripping and entanglement. Beds that are equipped with additional power outlets allow other medical equipment and devices to plug directly into the base of the bed. This capability can reduce the number of cords plugged into other outlets and again reduce the chance of falls.

**HEIGHT ADJUSTMENT** is a very important factor in healthcare facility



beds. Fall prevention guidelines recommend a bed that goes low to the ground; yet caregiver safety suggests a bed must be elevated to a level that prevents caregiver injury from back strain. Ideally, a bed can accomplish both of these goals if it does two things: goes low enough to prevent injury when a patient falls out of bed and assists a patient with limitations to stand safely by him/herself, and, at the same time, is of a sufficient height to prevent injury to the caregiver. More and more end-users expect the inclusion of human factors, ergonomics and anthropometrics in the design of new equipment.

## ELECTRONIC MEDICAL RECORDS (EMR).

With the time constraints placed on nurses, they are looking for assistance in many ways. Beds that interact with the electronic medical records of their facility allow data entry and recording in multiple places at once. Recording data, such as the Braden Scale with an interactive bed device which not only records the information but also calculates the correct score and transfers the information directly to the EMR, saves time and allows the nurse immediate identification of the resulting score. When data is both entered and saved in the memory of the bed, nurses can easily track and follow needed medical trends of the patient right at the bedside.



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**POSITION CHANGE.** Added features that allow position changes, such as Trendelenburg and reverse Trendelenburg for emergency situations and cardiac chair position, not only reduce the amount of time it takes a nurse to perform needed activities for the patient, but also aid in patient rehabilitation and recovery.

Nurses know the advantage of using specialty support surfaces for the prevention and treatment of certain hospital acquired conditions, making open architecture a key feature in the design of a bed. When a transition from the facility bed to a specialty bed is necessary, nurses would like to see more standardization of equipment that would allow for smoother transitions.

## **AESTHETICS AND OTHER FACTORS.**

There are of course many other additions and/or changes that could improve on the beds used in hospitals—not all of which center around patient care and staff concerns. Hospital beds still look like hospital beds. Hospital exteriors and interiors have changed drastically in the last several years. Now is the time to address the patient room environment as well. Single patient rooms with more space and privacy communicate the message of care and respect for the patient. Changes can be made to the actual appearance of medical beds for a more modern, home-like look. Additional equipment can be built into the structure of the rooms thus allowing even more space and openness while reducing risk for falls and injuries. More spacious bathrooms

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with easier access to toilets and showers will permit persons with wheelchairs/walkers, mobility issues and larger patients the same convenience as other patients.

## **CONCLUSION.**

The patient environment is evolving and changing every day. Updates in medical equipment, especially beds, must be flexible enough to serve three key needs: 1) fitting the aesthetic needs of the healing room environment; 2) serving the immediate needs of the increasingly taxed care provider from an efficiency and safety standpoint; and most importantly, 3) support the ultimate goal of improved patient outcomes. The ability to align those three essentials would not only satisfy today's nursing staff, but would make Florence Nightingale proud. ✕

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## **RECOGNIZING...**

Recognizing the need is the primary condition for design.

— Charles Eames, Designer

# A HOSPITAL HEALING ENVIRONMENT: THE RESEARCH



According to an Institute of Medicine (IoM) recent report (*Crossing the Quality Chasm: A New Health System for the 21st Century*),<sup>1</sup> certain design elements should be considered in the creation or renovation of a healthcare healing environment. Based on quality aims that the IoM report defined, some of these critical elements that have been studied in the literature<sup>2</sup> have been identified as critical in ensuring patient safety and quality care, and include the following:

## **PATIENT-CENTEREDNESS**

This includes providing variable-acuity rooms and single-bed rooms (and beds that are architected with an open, accessible yet safe design); sufficient space to accommodate family members; access to healthcare information (trending patient data through a simple intuitive device); and clear signage to navigate the hospital.

## **SAFETY**

This involves the following considerations: design and availability of assistive devices that are designed to prevent patient falls (ensuring the bed itself is a “low bed”); ventilation and filtration systems for prevention and spread of infections (and using products that are “green” in the environment); surfaces that can be easily decontaminated; hand washing with the availability of sinks and alcohol hand rubs; patient and provider injury prevention; and addressing of the sensitivities associated with the interdependencies of care, including work spaces and work processes.

## **EFFECTIVENESS**

This includes use of natural lighting; use of lighting to enable visual performance (adequate lighting, including under-bed nightlights that will aid caregiving yet not disturb patients); ability to control effects of noise (customizable alarms, including the ability to record a family member’s voice).

## **EFFICIENCY**

Efficiency involves standardizing things such as room layout and location of supplies and medical equipment,

minimizing potential safety threats, and improving patient satisfaction by minimizing patient transfers with variable-acuity rooms.

## **TIMELINESS**

This includes ensuring rapid response to patient needs (lighted indicators at the foot of a bed, for example, enable a quick status glance for walk-bys), eliminating inefficiencies in care delivery, and facilitating the clinical work of nurses.

## **EQUITY**

This is achieved by ensuring that the diverse care needs of patients are met by the size, layout, and functions of a structure.

Studies in the literature<sup>3</sup> focusing on physical environment and patient outcomes, as well as patient safety, have identified several environmental factors that have impact, including the following: reduction of noise pollution can shorten a patient’s length of stay (e.g., natural lighting, care in new/remodeled units, and access to music and views of nature.); facility design can have a direct impact on patient and staff satisfaction, a patient’s stress experience, and organization performance metrics; hospital design, especially with single-bed rooms, can enhance patient safety and create healing environments that are healthier for patients, families, and staff and serve to prevent injury from falls, infections, and medical errors.

Research has shown that all of these physical aspects of a hospital room and, on a larger scale, of a healthcare facility positively impact the patient by promoting safety and human performance.<sup>4,5</sup>

Critical to understanding the factors that impact this dynamic is a comprehension of the “interrelationships between humans, the tools they use, and the environment in which they live and work.”<sup>6</sup> In healthcare, these factors have been shown to have a direct effect on performance of staff who use the facility’s fixed equipment, such as oxygen and suctioning ports on the wall of a patient room, and moveable equipment, such as a patient bed.

The design of fixed and moveable components can have a significant impact on the health and safety of employees, patients, and families.<sup>6</sup> In a large-scale review of the literature that included 600 articles, researchers found that there was a link between the physical environment and patient and staff outcomes. This included findings linking physical healthcare environmental components (such as single-bed or multiple-bed patient rooms) to fewer adverse patient events and better healthcare quality and staff outcomes, including reduced stress and fatigue and increased effectiveness in care delivery.<sup>7</sup>

In the hospital setting, the bed itself is a critical point of impact with regard to the healing aspect of the physical environment. As the station from which most care takes place, it has been shown that simplification and standardization of bed design can prevent adverse events, improve patient safety and aid caregivers in avoidance of errors that lead to harm. (*See Nursing Perspective: What Do We Want in a Hospital Bed?*, Page Three.)

A multifaceted approach to design of the physical environment of the healthcare facility includes promoting a strong safety culture, redesigning systems or facilities with their equipment and technology, focusing on eliminating conditions that lead to errors, and helping caregivers avoid errors that lead to injury to patients and staff. ✕

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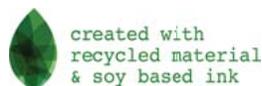


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**PUBLISHED: FEBRUARY 2012**  
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