



**CHAPTER EDUCATION SEMINAR
SUMMARY REPORT**

Please furnish the following information to your CSI Region Education Chairman immediately following the seminar.

Title: Evidence Based Design

Date/Time/Duration: September 20, 2012, 1pm-3pm

Location: Riverwalk Banquet Center, Indianapolis, IN

Seminar Attendance: (Number of Registrants)

CSI Members: 9

Non-CSI Members: 12

Learning Units: 2 AIA LU

Speaker: Ana Pinto-Alexander, R.I.D., IIDA,
Principal and Senior Vice President at HKS

Financial Information:

Registration Fee: \$45/CSI members , \$55/non-members

Speaker Costs:

Other Costs:

Seminar Content:

Evidence-based design, or EBD for short, is a field of study that emphasizes the importance of using credible data in order to influence the design process. The approach has become popular in Healthcare Architecture in an effort to improve patient and staff well-being, patient healing process, stress reduction and safety. EBD is a relatively new field of study which borrows terminology and ideas from several disciplines including Environmental Psychology, Architecture, Neuroscience and Behavioral Economics.

Attendees to this seminar will learn about the history of EBD, how it originated and how the concept can be applied to the building design process. Attendees will learn about the research that went into developing EBD, as well as its goals and expectations. The speaker will also discuss projects that integrated EBD into the design process. Attendees will learn about the state of healthcare, key trends and challenges.

Information Source: (Name/e-mail address)

Widener, Joy [jwidener@hksinc.com]

Pinto-Alexander, Ana [apinto-alexander@hksinc.com]



Ana Pinto-Alexander, R.I.D., IIDA
Principal and Senior Vice President

Ana Pinto-Alexander has more than 25 years of experience designing interiors for the country's most progressive health care facilities. Her childhood in Colombia, South America, combined with extensive international travel has influenced her unique design perspective.

Ana's extensive research in healthcare design has anchored her belief that healing environments can greatly improve the hospital experience for the patient, their family, and the medical staff. Although healthcare design is a passion, she also has created interior designs for corporate, religious, educational and retail facilities.

Ana has a Bachelor of Arts degree in Interior Design from Purdue University and has been a guest lecturer there. She is a member of the International Design Association and holds a certificate from the National Council for Interior Design.

Ana has juried *Healthcare Design* magazine's Architectural Showcase and *Contract* magazine's Healthcare Environment Awards. She has spoken nationally and internationally on the importance the built environment has in the healing process. The recipient of numerous awards for her interior design projects, she has also been featured in several national publications, including a cover story for *Interiors and Sources* and was most recently recognized as one of the 25 Most Influential People in Healthcare Design by Healthcare Design magazine.

Ana is a board member of the Hispanic Business Council and the Indianapolis Reparatory Theater.

INTRODUCTION TO EVIDENCE BASED DESIGN

Quite – Peaceful – Comfort - Safe

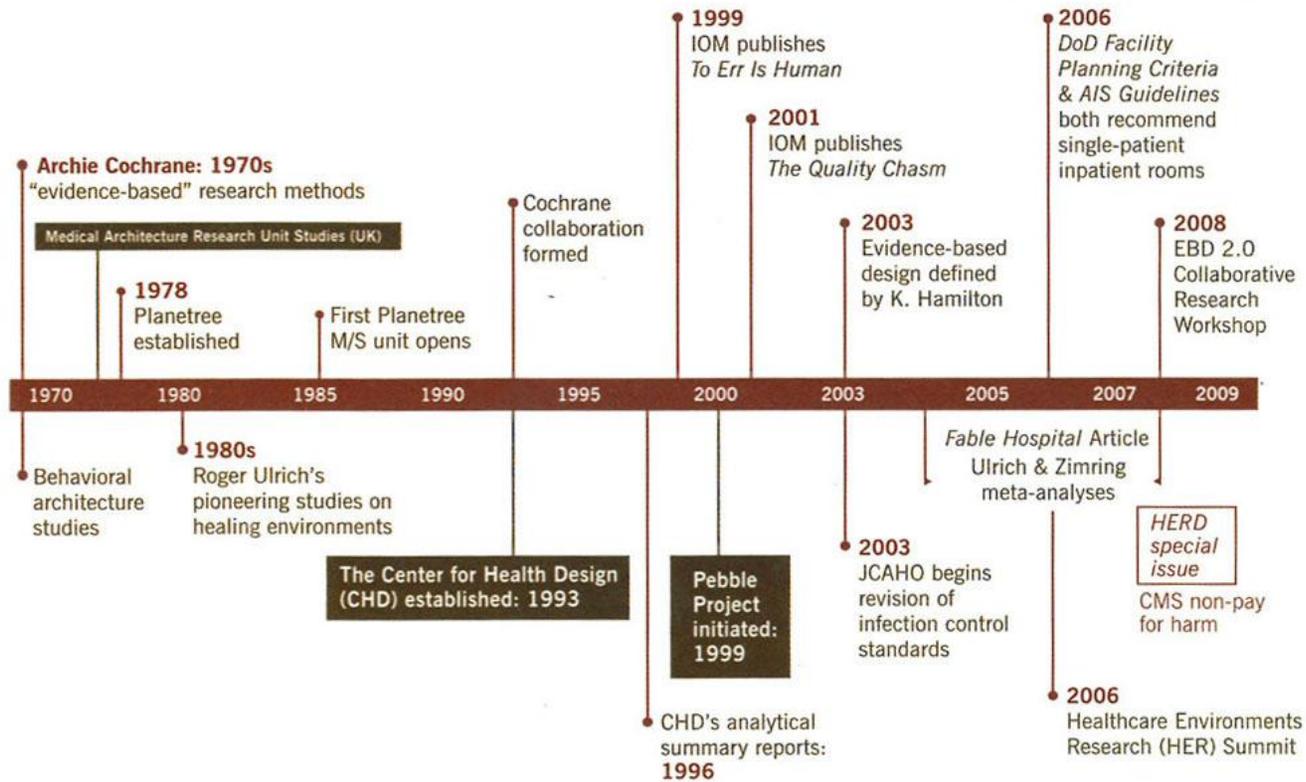


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EBD Timeline

Key events that have shaped EBD

Figure 2:
EBD Timeline: Converging Efforts



Adapted and reprinted with permission from Military Health System (Malone, Mann-Dooks, & Strauss, 2007).

History

1985 Planetree was created by Angelica Thieriot.

- Her notion of a patient-centered model of health care predated the advent of health care consumerism, the information explosion stimulated by the Internet, and the current financial and staffing challenges plaguing the hospital industry.

“Planetree is about human beings caring for and serving other human beings. This involves not only the provision of nurturing, compassionate, personalized care to patients and families, but just as important, how staff care for themselves and each other; and, how organizations create cultures which support and nurture their staff.”

- Human Interactions & Relationship-Centered Care
- Architectural & Interior Design Conducive to Health & Healing
- The Importance of the Nutritional and Nurturing Aspects of Food
- Empowering Patients through Information and Education
- The Importance of Family, Friends, and Social Support
- Spirituality: The Importance of Inner Resources
- The Importance of Human Touch
- Healing Arts: Nutrition for the Soul
- Complementary Therapies
- Healthy Communities

History

1986 Wayne Ruga founded the annual Symposium on Healthcare Design and the non-profit Center for Health Design.

- The purpose of the Symposium was to gather together a variety of people who work in the healthcare field, for dialogue and information sharing.

1992 the phrase “Healing Environments” came into common use.

- The goal of all healing environments is to engage patients in the conscious process of self-healing and spiritual growth. Spaces are designed to be nurturing and therapeutic and, most important, to reduce stress. This is a research-based approach to design (also known as Evidence-based design), aimed at eliminating environmental stressors and putting patients in contact with nature in the treatment setting.

Center for Health Design



In 1993 The Center for Health Design (CHD) was formed by a small cadre of pioneering healthcare and design professionals committed to advancing a singular idea – that design could be used to improve patient outcomes in healthcare environments.

- 1984 Roger Ulrich - study of the effects of hospital window views on recovery from abdominal cholecystectomy surgery. Ulrich's study focused on patients who could see trees, rather than a brick wall, through their patient-room window.
- 1992 Jain Malkin 's book *Hospital Interior Architecture* promoted the concept of research-based design. She has guided thousands to the idea of “designing the patient experience” through her books, articles, lectures, courses and seminars.
 - Visual Reference for Evidence Based Design
 - Architecture and Medical & Dental Space Planning
 - A Comprehensive Guide to Design, Equipment & Clinical Procedures

Evidence-Based Design

Evidence-based design often shortened to **EBD** is a field of study that emphasizes the importance of using credible data in order to influence the design process. The approach has become popular in Healthcare Architecture in an effort to improve patient and staff well-being, patient healing process, stress reduction and safety. Evidence-based design is a relatively new field of study which borrows terminology and ideas from several disciplines including Environmental Psychology, Architecture, Neuroscience and Behavioral Economics.

- 2003 Kirk Hamilton, healthcare architect, attempted to formalize a definition of the term, *evidence-based design*. He described the role of the designer and the process by stating, “An evidence-based designer makes decisions – with an informed client – based on the best available information from credible research and evaluation of projects. Critical thinking is required to draw rational inferences about design from information that seldom fits a unique situation precisely.”
- 2008 CHD defined EBD as “the process of basing decisions about the built environment on credible research to achieve the best possible outcomes.”

EBD Solutions:

- Patient Safety
 - Fewer patient falls
 - Fewer medical errors
 - Comforting environments
 - Enhanced security
- Patient Control
 - Private rooms and family areas
 - Electronic window shades operable from the bed
 - Signs, symbols and design features that help people find their way around
 - Personalized storage areas
 - Movable beds
- Staff Efficiency
 - Increased access to patients
 - Better communication with patients and family members
- Savings due to design decisions
 - Eliminating staff positions
 - Less patient transfers
 - Improved workflow
 - Heating & Cooling, etc.
- Areas being measured include
 - Clinical outcomes
 - Satisfaction – Patient, Payer, Clinician
 - Patient safety
 - Cost and Efficiency
 - Employee turnover

Beneficial outcomes also include reduced length of stay, increased employee retention, increased market share, and improved community perception.

The Pebble Project

The Pebble Project is a unique and dynamic collaborative, where forward-thinking healthcare providers learn, research, and share information to create better healthcare facilities that improve patient and worker safety and clinical outcomes, while maximizing environmental performances and operating efficiency.

The idea behind Pebble is simple. When you toss a pebble into a pond, it creates a ripple. The Pebble Project creates a ripple – first in your own organization and then across the community. Pebble Partners strive for their healthcare buildings, products, or services to make a measurable difference in people’s lives. Whether for the benefit of the caregiver, the patient, the family or the community. The Pebble Project can guide you through the Evidence-Based Design process, providing access to expertise, and provide nonbiased opinions on crucial matters. Pebble Partners have progressive cultures that seek to create optimal healing environments while proving to be economically sustainable and are committed to sharing what they learn.



CARDIAC COMPREHENSIVE CRITICAL CARE UNIT

IU Health Methodist Hospital, Indianapolis, IN

Completed – February 1999

The Cardiac Comprehensive Critical Care Unit was the 1st of it's kind in the United States. The concept of a healing therapeutic environment in a function-driven critical care unit was created by over 12 multi-disciplinary departments including cardiac critical care, clinical engineering, radiology, chaplaincy, physical therapy, social services and dietary.



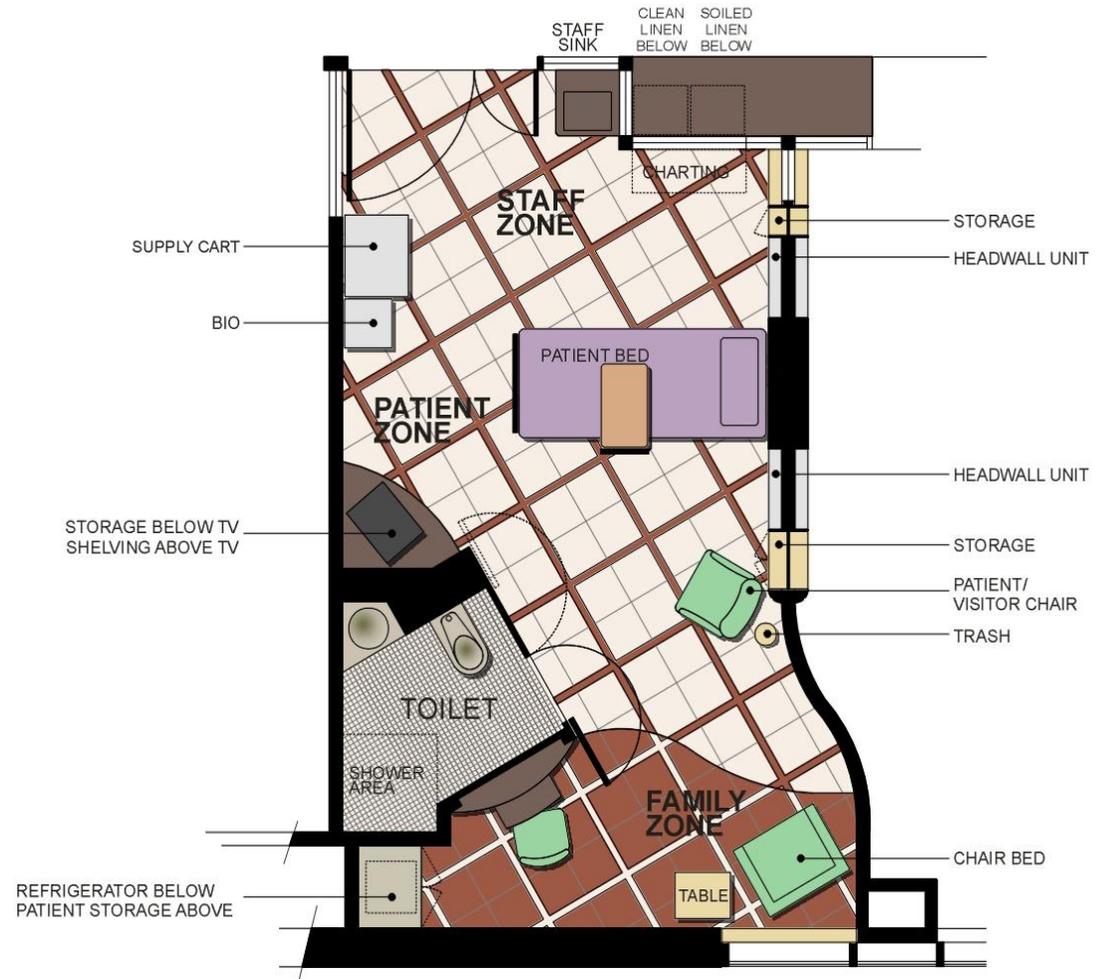
*Project in conjunction with
BSA LifeStructures

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Pebble Projects

OUTCOMES

- Reduce patient transport by 90%
- Medication errors reduced by 70%
- Patient Fall reduced by 65%



TYPICAL PATIENT ROOM CONCEPT

*Project in conjunction with BSA LifeStructures



LAKELAND INPATIENT PAVILION

Lakeland Regional Health, St. Joseph, Michigan

Completed – February 2009

Inside and out, the patient tower's design captures the community spirit and the hospital's close proximity to Lake Michigan. Design principles, drawing on the natural environment, were inspired through visioning sessions with a diverse group of residents and project stakeholders. Results of these sessions are embodied by the façade and interior finishes, where color is driven by sand, sea grass and water.



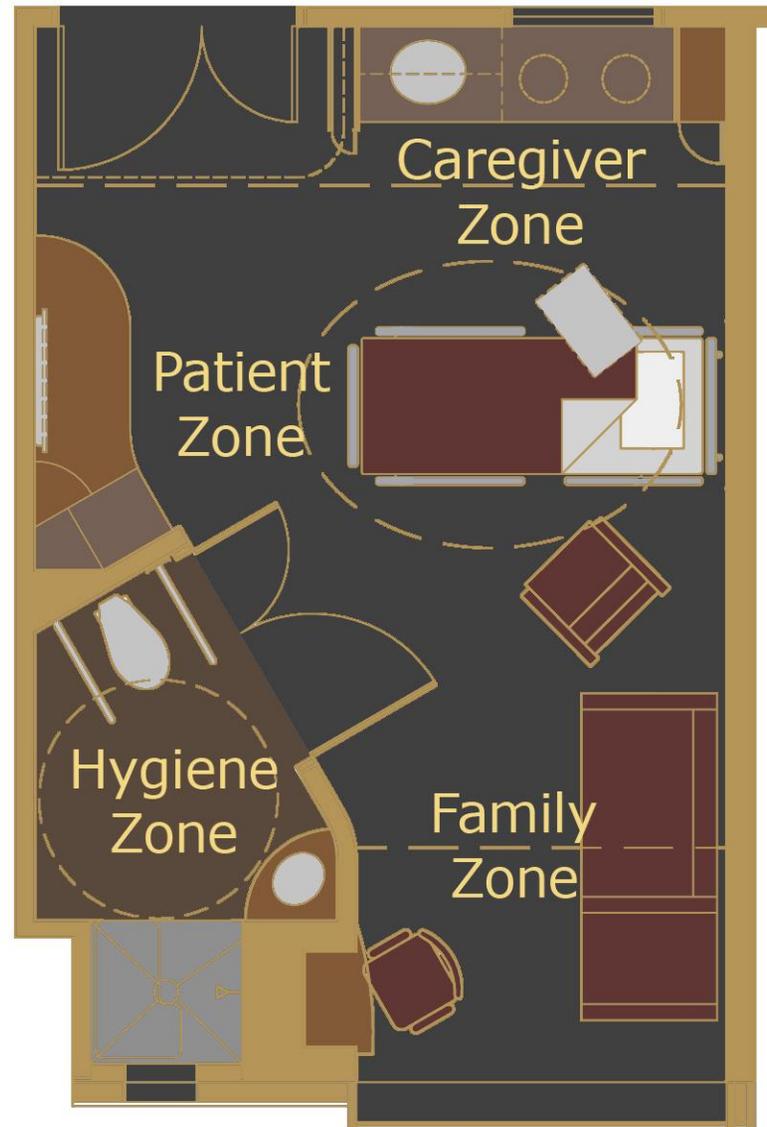
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Pebble Projects

OUTCOMES

- Reduce noise
- Reduce caregivers walking steps
- ?????



*Project in conjunction with BSA LifeStructures

EBD Research

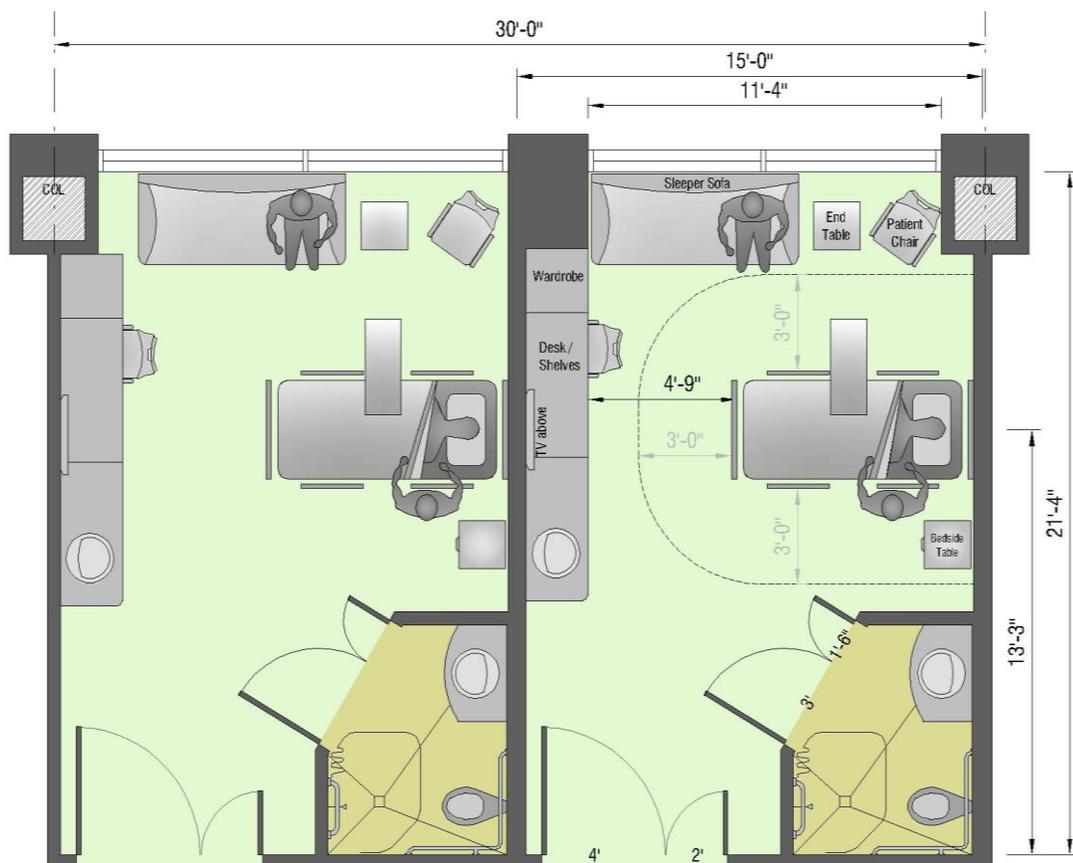
A number of approaches to the EBD process have emerged as organizations have taken the knowledge and adapted it to their circumstances. However, the common thread in all the approaches is that EBD needs to be integrated into different stages of a typical building design process.

- Define evidence-based goals and objectives
- Find sources for relevant evidence
- Critically interpret relevant evidence
- Create and innovate evidence-based design concepts
- Develop a hypothesis
- Collect baseline performance measures
- Monitor implementation of design and construction
- Measure post-occupancy performance results

CADRE - Center for Advanced Design Research & Evaluation

- Enhancing the environment for those who inhabit space is the mission of the Center for Advanced Design Research and Evaluation (CADRE). Whether the built environment is being designed for a patient at a hospital, a student at elementary school or a guest vacationing at a luxury resort, the group shapes environments by cultivating original research in the areas of architectural and engineering design. The goal: improve operational performance, streamline business practices, enhance sustainability and create overall well-being for organizations and human beneficiaries.

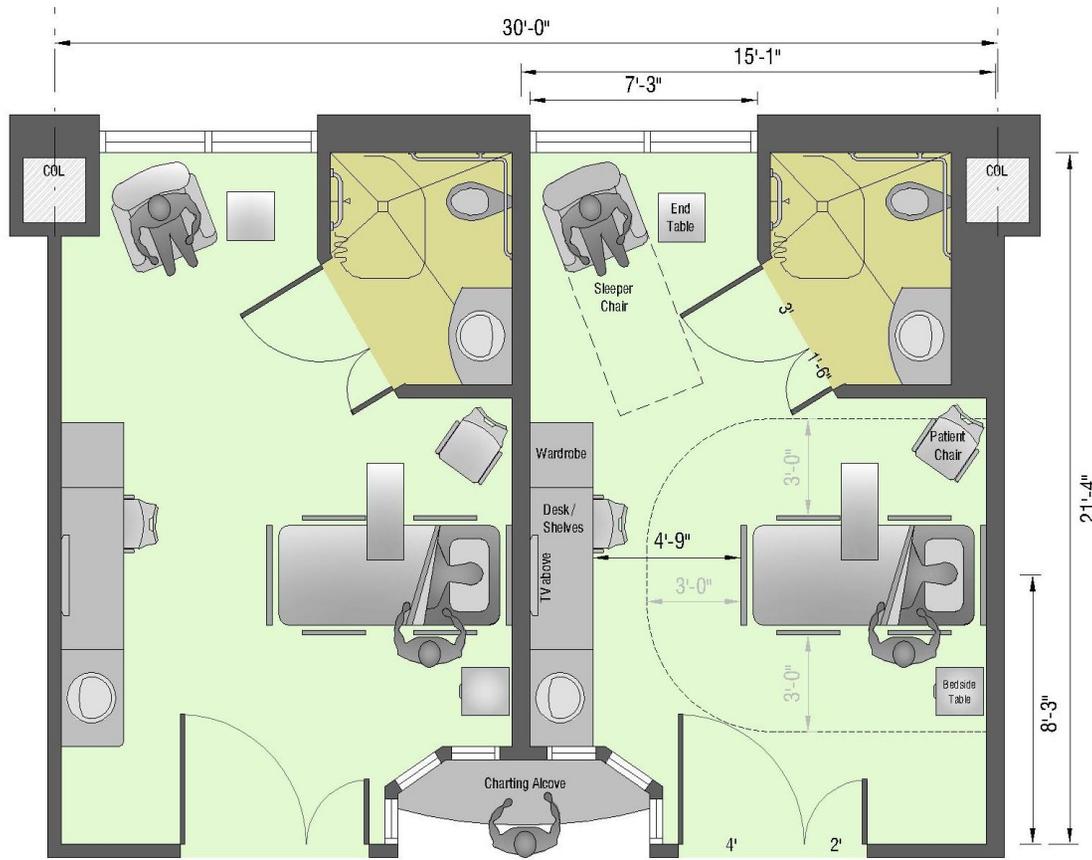
Same Side Patient Room Study



DATA	
Group Set	Set 4
Room Description	Patient Room Type D
Room Area:	259
Toilet Area:	36
Block Area	328
Toilet Location	Outboard
Toilet Type	Non-ADA
Room Hand	Same Hand

Criteria	Pro	Neutral	Con
PATIENT SAFETY			
Medication Delivery			
Access to toilet			
Caregiver access			
Toilet Room configuration			
Visibility of Patient			
Auditory Pathway			
Standardization			
STAFF EFFICIENCY			
Access to data			
Access to supplies			
Clearance at bed			
Overall Travel Distance			
CIRCULATION			
Access to patient head			
Access around patient			
Transport in/out of room			
PATIENT CONSIDERATIONS			
Privacy			
Visibility from Public			
View of Exterior			
Daylighting			
Patient Storage			
INFECTION CONTROL			
Housekeeping access			
Handwash Location			
FAMILY AMENITIES / SPACE			
Proximity to patient			
View of TV			
Sleeping Arrangements			
Guest Seating			

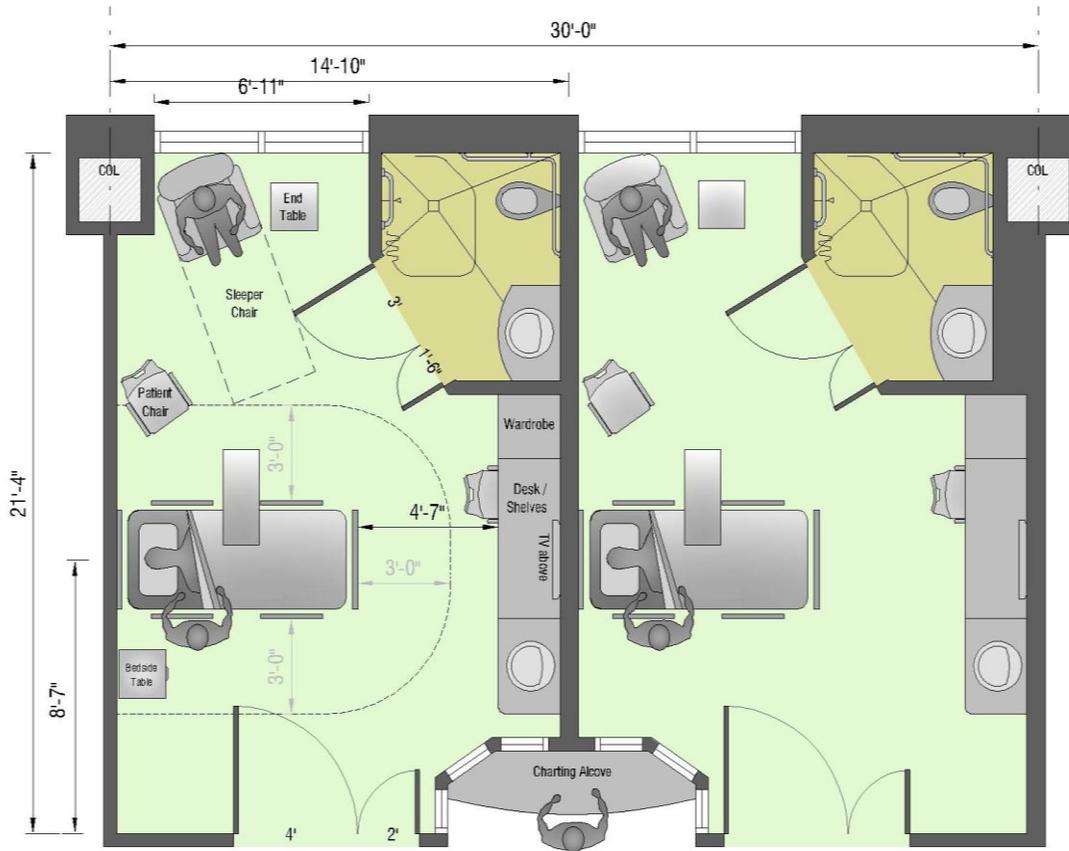
Same Side Patient Room Study



DATA	
Group Set	Set 4
Room Description	Patient Room Type E
Room Area:	248
Toilet Area:	36
Block Area	330
Toilet Location	Outboard
Toilet Type	Non-ADA
Room Hand	Same Hand

Criteria	Pro	Neutral	Con
PATIENT SAFETY			
Medication Delivery			
Access to toilet			
Caregiver access			
Toilet Room configuration			
Visibility of Patient			
Auditory Pathway			
Standardization			
STAFF EFFICIENCY			
Access to data			
Access to supplies			
Clearance at bed			
Overall Travel Distance			
CIRCULATION			
Access to patient head			
Access around patient			
Transport in/out of room			
PATIENT CONSIDERATIONS			
Privacy			
Visibility from Public			
View of Exterior			
Daylighting			
Patient Storage			
INFECTION CONTROL			
Housekeeping access			
Handwash Location			
FAMILY AMENITIES / SPACE			
Proximity to patient			
View of TV			
Sleeping Arrangements			
Guest Seating			

Same Side Patient Room Study



DATA	
Group Set	Set 4
Room Description	Patient Room Type F
Room Area:	250
Toilet Area:	36
Block Area	324
Toilet Location	Outboard
Toilet Type	Non-ADA
Room Hand	Same Hand

Criteria	Pro	Neutral	Con
PATIENT SAFETY			
Medication Delivery			
Access to toilet			
Caregiver access			
Toilet Room configuration			
Visibility of Patient			
Auditory Pathway			
Standardization			
STAFF EFFICIENCY			
Access to data			
Access to supplies			
Clearance at bed			
Overall Travel Distance			
CIRCULATION			
Access to patient head			
Access around patient			
Transport in/out of room			
PATIENT CONSIDERATIONS			
Privacy			
Visibility from Public			
View of Exterior			
Daylighting			
Patient Storage			
INFECTION CONTROL			
Housekeeping access			
Handwash Location			
FAMILY AMENITIES / SPACE			
Proximity to patient			
View of TV			
Sleeping Arrangements			
Guest Seating			

Same Sided Patient Room Research Outcomes

Statistical and content analysis of the data show that

- standardized same-handed configurations may not contribute to process and workflow standardization, and hence safety and efficiency, any more than standardized mirror-image configurations in acute medical-surgical settings. Data suggest that a global view of the patient care environment upon entry is the most sought after familiarization factor to reduce cognitive load.

EBD in Materials & Products

For Evidence Based Design, the goal is to provide patient safety, comfort and healing. Materials and products contribute in the following ways:

- **Acoustics:** proper flooring, wall, and ceiling materials to lessen sound and noise impact
- **Indoor Air Quality:** low-emitting materials that do not off gas into the patient and staff areas. Need to include furniture and furnishings, not just permanent material
- **Maintenance:** using less hazardous chemicals for the cleaning materials; choosing materials that are easier to maintain or require very little maintenance

Acoustics

CARPET

- Reduce Noise
- Backing systems that prevent moisture (spills) from leaking onto the slab
- Agents that extinguish odors
- Stain-resistant coatings applied during the manufacturing process

ACOUSTICAL CEILING TILE

- High-performance ceiling tile (High NRC Ratings .95)
- Should be carefully selected for each area of the hospital as opposed to one general tile used throughout

Acoustics

INDOOR AIR QUALITY

- Non VOC Paints
- Non or Low-VOC on all adhesives

MAINTENANCE

- Non waxable products to lower operational cost
 - Rubber Flooring
 - Sheet Vinyl
- Porcelain Tile
- Upholstery
 - 100% woven solution nylon fabric
 - Polyester and acrylic blend woven crypton

State of Healthcare Today: Key Trends and Challenges

Trend One: Public Focus on Quality and Patient Safety

Trend Two: Healthcare Costs and Reimbursement

Trend Three: Aging Population and Caregiver Shortages

Trend Four: Health Information Technology

Trend Five: Genomics and Technology

Trend Six: Disaster Preparedness and Emergency Room Saturation

Trend Seven: Environmental Safety and Sustainability

