SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

Although the overall objective was to make EBD recommendations within the framework of TCAB principles, each of the four teams had their own objective – to design:

1. Features that provide safe and reliable care for patients
2. A work environment that satisfies and supports team vitality and effectiveness
3. A workplace that enhances patient- and family-centered care
4. A work environment that increases value-added time clinical nurses spend at the bedside.

Part 1: Evidence-Based Facility Design Using Transforming Care at the Bedside Principles

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Key Concepts/Context

A western academic hospital re-examined its design strategy when after three years of building a new facility they had to plan for a new facility to meet their patient capacity. Using a combination of the principles of Transforming Care at the Bedside (TCAB) and Evidence-Based Design (EBD), an interdisciplinary team presented design recommendations. This article (Part 1) describes the how the teams used TCAB and EBD to make these recommendations.

Methods

The process to achieve the above objectives began with the constitution of four teams, each with an objective that focused on the four major categories of the TCAB framework. One team member was assigned to be the liaison between all teams. Comprehensive literature review was the main methodology used by the teams. Other methods included a qualitative staff survey and expert opinion. Team members included educators, directors, managers, clinical nurses, interdisciplinary members, and patient representatives. Each team discussed the data from the evidence and reviewed design details before preparing a report for the other TCAB teams. All teams met 16 times before submitting the final recommendations ranked by priority.

Findings

Team 1 recommended:

- Single rooms with alcove window work areas; each neighborhood to have its own supply med room, soiled utility room, linen and oxygen closets, and charting areas
- Patient beds and headwalls adjacent to bathroom, handrails leading to bathrooms
- Bariatric rooms with ceiling lifts and bariatric-sized beds
- Private bathrooms with doorways to accommodate medical equipment, graduated floor in shower, grab bars, non-skid floor tiles, wall-mounted shower benches, and adequate counter space
- Supply and medication rooms to be paired; to have partial divider and two-point entry with badge access, adequate counter space, standardization of drawers, cabinets, computers and work areas
- Location of light switches standardized across the hospital, dimmer switches to control light in patient room during medication administration, and motion detector lights in the bathroom
- Hallways alcoves for storage of medical equipment and hand-hygiene dispensers

Team 2 recommended:

- Staff work areas to have reduced noise, increased privacy for multiple disciplines, dedicated work space for MDs with capability to view radiology films
- Equipment rooms to be larger to accommodate oversized equipment; more red outlets, counter space, near soiled utility room, dry erase boards, windows in door
- Soiled utility room to be large enough to hold all carts and buckets, have adequate counter space and outlets, windows in door
- Ceiling lifts or necessary infrastructure in all rooms
- Carpeted locker rooms, more bathrooms and showers on all floors, separate break room.

Team 3 recommended:

- Carpeted hallways, sound-reduction tiles in patient rooms, sound-absorbent ceiling tiles
- Family waiting area with restrooms, vending, and wireless facilities. Solarium with view of mountains and no electronics
- Clear and visible signage for unimpaired wayfinding
- Whiteboards in patient room for communication among care team, MDs, patient, and family
- Single patient rooms to be configured into three zones – patient, clinician, family. Patient zone to have natural lighting with large windows and wide window sills; family zone to have couch to accommodate overnight stay and wireless access; clinician zone to have wall-mounted computers with wireless barcode scanner, wall-mounted personal protective equipment
- Private consult rooms near family waiting area, social worker office and PACS imaging

Team 4 recommended:

- Intermittent bright light for night shift
- Computers in patient room designed such that interaction with patient possible
- Nurse staffing and assignment scheduled within a neighborhood to decrease walking and increase time at bedside; new communication and bedside handoff procedure

Of all the recommendations made, two could not be implemented – placing the bathroom adjacent to the bed headwall (structural limitations), dimmer and motion-detector lights in patient rooms (budgetary constraints), and one recommendation was implemented in part – ceiling lifts: infrastructure built into all ICUs and installed in only 50% of rooms; built into infrastructure in 50% of medical-surgical rooms and installed in 25% of these rooms.

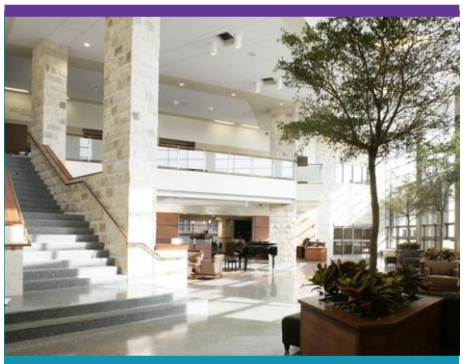
Limitations

The authors mention that a robust literature review was conducted. While it is not practical to list all the work they reviewed, it would have been helpful to know the search engine(s) and filters used, the age of the literature reviewed, type of literature reviewed (academic, industry, reports, regulatory, etc.) and the total number of works reviewed.

Design Implications

The design recommendations emanating from this research are as follows:

- Unit: To have its own supply medication room, soiled utility room, linen and oxygen closets, and charting areas.
- Single patient rooms: May be configured into 3 zones – patient, clinician and family. Include natural lighting, large windows, and wide window sills in patient zone; couch and wireless access in family zone; and wall-mounted computer and personal protective equipment in clinician zone. Other design recommendations include computers to be designed/placed to make possible interaction between clinician and patient, alcove window work areas, patient beds and headwalls adjacent to bathroom, handrails leading to bathroom, dimmer switches, whiteboards for communication, and sound-reduction floor tiles and sound-absorbent ceiling tiles.
- Bathrooms: The doorways of private bathrooms should be large enough to accommodate medical equipment; floors should have non-skid tiles and be graduated in shower; include wall-mounted shower benches, motion detector lights, and adequate counter space.
- Bariatric rooms: Equip with ceiling lifts and bariatric-sized beds.
- Hallways: May be carpeted, designed for visibility of all rooms, have alcoves for storage of medical equipment, and hand-hygiene dispensers.
- Equipment rooms: May be designed to accommodate oversized equipment, have more red outlets, counter space, dry erase boards, windows in doors, and may be located nearer soiled utility rooms.
- Supply and medication rooms: Should be paired to have partial divider and 2-point entry with badge access, adequate counter space, standardization of drawers, cabinets, open shelving, computers & work areas, and bright lighting.



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- Soiled utility rooms: Should be large to hold all carts and buckets, have adequate counter space and outlets, and windows in door.
- Staff work areas: Should address privacy for multiple disciplines, have dedicated space for physicians, and ability to view radiology films.
- Break rooms: Each floor should have a staff break room separate from locker rooms, which should be carpeted. There should be staff bathrooms and showers on every floor.
- Family waiting area: Should include restrooms, vending, wireless facilities, and a solarium with views and no electronics.
- Private consult rooms: Should be located near family waiting area, social worker office, and PACS imaging.
- Other: Intermittent bright light for night shift, ceiling lifts or infrastructure in all rooms, location of light switches standardized across the hospital

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ASHE American Society for Healthcare Engineering, A personal membership group of the American Hospital Association

AAHF Academy of Architecture for Health Foundation

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Research Design Connections