SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

This research was conducted to identify environmental design strategies supporting or hindering critical interactions between patients, care team members, and technology. The following questions were considered:

1. What are the types of interactions between staff as well as staff and patients/care partners in the preoperative (preop) and postoperative (postop) workspaces of ASCs, and where are these interactions occurring?

2. What are the characteristics of the spaces that either support or impede these interactions?

3. How does spatial layout and configuration impact the integration of technology, such as electronic medical records and associated work processes in ASCs?

Balancing the Human Touch with the Need for Integrating Technology in Ambulatory Surgical Environments: Barriers and Facilitators to Nursing Work and Care Team Interactions

Joseph, A., Wingler, D. & Zamani, Z. 2017 | *Journal of Interior Design*. Volume 42, Issue 1, Pages 39-65

Key Concepts/Context

There is a lack of information to support the design of the rapidly growing number of ambulatory surgical centers (ASCs). These centers have become more popular as trends in reimbursement, technology, and services have evolved. Research is needed to inform how the built environment of ambulatory surgical environments impacts the critical interactions between people, supplies, and equipment.

Methods

Two ASCs were observed using a multi-method approach that included behavior mapping, shadowing, spatial analysis, and semi-structured interviews with nursing staff. The systematic observational strategy of behavior mapping was used to assess behavioral dynamics of nurses and staff but only the data points associated with nurses were selected for analysis into a proprietary application called Detailed Observation Task and Time (DOTT). Coding criteria and definitions were developed from a literature review to label activities, behaviors, and interactions observed by two researchers. Select nurses were shadowed by a single researcher to capture intricacies of specific interactions and activities. Semi-structured interviews were also conducted using photographs to elicit contextual insights from participants. The interview protocol included the following questions: 1) In your current role, what tasks do you most commonly perform? 2) Where are you most likely to perform those tasks? 3) In what ways does your workspace support your ability to perform those tasks? 4) In what ways does your workspace inhibit your ability to perform those tasks?

Findings

Key findings from this study are summarized as follows:

- There is a distinct ebb and flow of activities and space usage at the both surgery centers, with postop areas underutilized during the morning and preop areas underutilized in the afternoon.
- The most common activity observed among both preop and postop nurses were talking and listening, indicating the importance of face-to-face interactions and communication in ambulatory surgery centers
- Preop and postop nurses spend a majority of their time on their feet (standing and walking).
- Nurses' work is everywhere—in the central work areas, in corridors as well as in patient bays—and they perceive all these spaces as their work areas.
- The majority of direct patient care activities, such as bedside care and charting, are done directly with the patient in the patient bays, thus making these spaces the primary work areas for nurses.
- The size and configuration (walls vs. curtains) of the patient bays impact the ability of a facility to effectively integrate wall-mounted computer workstations for charting and patient care.
- The integration of EHR does not eliminate paper from the system.

The key environmental facilitators and barriers to nurses' work in surgery centers include: size, access, flexibility, visibility, and privacy.

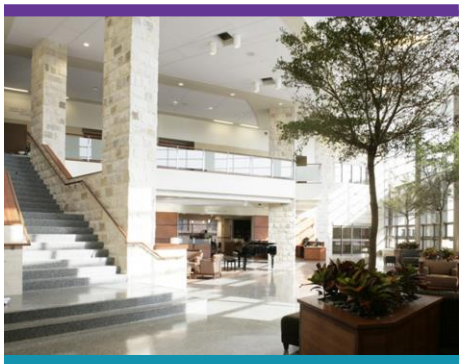
Limitations

Both ASCs observed were from a single healthcare system with similar organizational structures and policies that may have influenced workflow. Because this was a purely observational study, behaviors of nurses may have been influenced by the presence of researchers.

Design Implications

Design implications can be summarized as follows:

- Locate preop and postop areas in close proximity to enable flexible use of bays during off-peak times.
- Provide adequate space and furniture arrangement in central nursing areas to facilitate activities such as team briefings and discussions.



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- Locate workstations in patient care areas such that there are direct sightlines from the care provider to both patients and care partners.
- Provide flooring and furniture that allow nurses to rest their feet and reduce fatigue at the individual workstation level as well as in the central nursing areas.
- Provide a range of shared landing spaces in central work areas that can accommodate multiple direct and support patient care activities.
- Provide adequate space around the patient bed to allow caregivers to access the patient from all sides.
- Provide surfaces and storage for supplies that support a range of patient care activities.
- Locate supplies within easy reach of the workstation in the patient care bays/rooms.
- Conduct ergonomic analysis prior to making decisions about integration of technology and equipment into patient bays to ensure proper placement.
- Provide adequate horizontal surface area in central nurses' stations and patient care areas (bays/rooms) for paper-based communication (discharge and consent forms).
- Provide adequate space in work areas and patient bays based on task analysis and ergonomic needs of staff, patients, and care partners.
- Locate information, medication, supplies, and equipment, such as printers, such that they are easily accessible to nurses.
- Provide electrical infrastructure to support current needs for connectivity and charging (e.g., electric outlets at multiple heights and locations) as well as future needs for wireless and emerging technology.
- Provide visual sightlines between staff, patients, and care partners.
- Balance needs for visual and auditory connections between staff working in patient care bays and central work areas with patient needs for privacy.

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