



KEY POINT SUMMARY

OBJECTIVES

This study looked to assess the transition from multi-bed units to PR within a pediatric hospital based upon occupancy and patient care quality for five types of intensive care units (ICUs): an Infant Care Center (ICC), a Neonatal Intensive Care Unit (NICU), a Pediatric Intensive Care Unit (PICU), a Medical/Surgical (Med/Surg) unit, and a Cardiovascular Care Center (CVCC).

DESIGN IMPLICATIONS

From these findings, 32 recommendations were generated aimed at improving PR occupancy quality and patient care quality within the five units studied. These recommendations should be considered when designing PR within pediatric ICU units.

Occupancy and Patient Care Quality Benefits of Private Room Designs for Five Different Children's Hospital Intensive Care Units – A Human Factors Evaluation

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Key Concepts/Context

Prior research over the last two decades has shown private rooms (PR) within NICU care environments positively impact parents and patient care staff in the areas of lighting quality, privacy, noise, job satisfaction, reduced stress for staff, and increased participation and accommodations for parents. However, minimal research has been conducted to understand the impact of PR on other pediatric departments within acute care environments.

Methods

To assess each unit, data was collected through three measures. Task activity analysis observations were conducted on 128 female nursing staff for a total of 123 observation hours. The number of staff per unit observed was approximately equal. Each patient care task that a nurse under observation performed was recorded at one-minute intervals using a task activity recording form. Prior to each observation session, nurses were verbally asked three questions regarding what they liked and disliked about PR, and how they would improve PR. The Occupancy and Patient Care Quality Perceptual Response Survey, a 127-question, online survey, was used to assess 13 major indicators of occupancy quality. Using a seven-point Likert scale, a total of 145 staff from the five units rated the quality of occupancy design attributes. At the end of each section, staff were asked to leave comments pertaining to quality concerns and questions that may not have been addressed. Comments recorded from unit staff during the task activity analysis



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observations and the Occupancy and Patient Care Quality Perceptual Response Survey were also used to assess design issues and concerns from the staff perspective.

A total of 1154 comments were recorded by 206 different staff, providing 774 distinctively different comments. Analysis was conducted using univariate ANOVA to determine multi-bed versus PR for individual unit type. Statistical significance was determined using the Bonferroni procedure.

Findings

Results regarding PR and task activities within the five units reported a statistical significance between two effects. First, interaction with patients within the Med/Surg unit are lower than in the ICU, NICU, and CVCC, while bed transitions are higher than those observed in the PICU, NICU, and CVCC. Second, charting frequency for staff in the NICU is higher than that of the other four units. Results from the quality survey reported noticeably lower quality rankings from staff in the CVCC than in the other four units in all but two areas. Results from the quality survey also reported comparable ranking between the other four units. The effects on task activities due to transitioning from multi-bed to PR, revealed an increased level of interaction with patients as the only consistent difference in task activity. Quality survey rankings related to transitioning from multi-bed to PR reported consistent affects among the five units, with minimal statistically significant differences. These results suggest there is no strong consistent tendency for nurses to prefer PR over multi-bed units. Comments regarding task activity reported eight concerns, while comments regarding the quality survey revealed concerns with unit design, patient room design, and job-related health concerns.

Limitations

Limitations to this study are the small number of units observed compared to the large number of variables measured. Another limitation is that the units studied were part of a remodel within one hospital and each unit served a different function. Limitation due to existing condition could have impacted design decisions linked to occupancy quality for staff.