



KEY POINT SUMMARY

OBJECTIVES

This study explores ways medical-surgical nursing units with similar physical layouts might be modified to facilitate nursing interventions for specialized patient populations.

The demand for specialization and its influence on the design of inpatient nursing units: Can standardized design be done once and for all?

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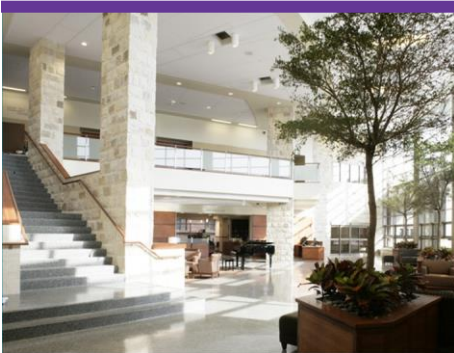
Key Concepts/Context

Research shows that specialized units, such as psychiatry and intensive care, require built environments that are specific to their patient populations. Medical-surgical units within the same facility typically have similar physical layouts even though they often serve distinct patient populations. The findings from this study suggest that customizing medical-surgical units to specific populations may enhance efficiency in nursing work.

Methods

Researchers first pilot-tested a survey that included both standardized questions on nurse perceptions of their work activities and physical environment and open-ended questions that asked nurses to make recommendations on their unit physical environment. The initial survey was piloted on seven different types of medical-surgical units: anorectal care, orthopedics, urology, neurosurgery, neurology, gastroenterology, and cardiology. The 73 pilot responses were assessed and used to inform a final survey that included demographic questions and 44 items addressing environmental factors grouped into the six categories of nursing movement (circulation), communication, teamwork, visibility, facilities and equipment, and the physical environment.

The finalized survey was distributed to medical-surgical nurses from 11 different unit types, but all with similar physical layouts. Nurses from the following departments participated: anorectal care, urology, gastroenterological surgery, hepatobiliary, cardiothoracic surgery, orthopedics, neurosurgery, neurology, gastroenterology, respiratory, and cardiology. Approximately 11-13 nurses from each unit responded for a total of 125 responses. Kruskal-Wallis statistical analysis was used to compare nurse responses and identify any differences in nurse



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perceptions among unit types; post-hoc analysis was used to estimate statistically significant variations between unit types.

Additionally, 10 nurses from different unit types (neurosurgery, outpatient, gastroenterology, cardiology, nephrology, orthopedics, anorectal care, urology, neurology, and respiratory) were interviewed. The semi-structured interviews included five open-ended questions regarding patient care routines, equipment required to care for their respective patient population, and the physical environment. Interviews lasted about 30 minutes each. Qualitative interview data and transcripts were coded and then grouped into common themes.

Findings

Researchers identified statistically significant differences in nurse perceptions of their respective unit activities and spatial environments. Findings include differences in walking distance ($p=.011$) between nurses working in anorectal care compared with cardiology. Two significant differences were noted regarding position of clinical space ($p=.000$); the first was between cardiology, respiratory, and cardiothoracic nurses compared with anorectal care, and the second was between orthopedic, neurology, and urology nurses compared to cardiology nurses. Regarding communication privacy ($p=.005$), a difference was noted between anorectal care, neurosurgery, urology and cardiothoracic nurses with respiratory nurses. There were four differences in nurse evaluations of visibility of staff ($p=.000$), and two noted for visibility of patients ($p=.009$). When facilities and equipment were compared across units, there were significant differences in perceptions ($p=.012$) between hepatobiliary and anorectal care nurses and cardiothoracic nurses. Regarding equipment storage, there were significant differences ($p=.013$) between urology nurses and cardiothoracic and orthopedic nurses. There was a difference in how cardiology nurses and those working in one of nine other unit types evaluated acoustics ($p=.001$). Two significant differences were noted regarding daylight and lighting ($p=.012$); the first was between nurses working in gastrointestinal surgery compared to hepatobiliary and neurosurgical nurses, and the second was between neurology nurses compared with neurosurgical nurses. Two significant differences were noted regarding thermal comfort ($p=.003$); the first was between urology nurses compared to cardiology and respiratory nurses, and the second was hepatobiliary and cardiothoracic nurses compared with respiratory. The themes of nursing work process and requirements, spatial requirements, and facilities and equipment allocation were identified via content analysis of interview responses. All of these findings demonstrate that although there are similarities in medical-surgical unit nursing activities, there are differences in how nurses who care for the patients perceive their work within the physical environment.



Limitations

Each unit in this study was described as having two single-patient rooms, four double-occupancy rooms, and 10 three-patient rooms, but there was also an ICU/regular room on the figure provided. The model of care represented with this type of layout and a cursory reference to adding ICU wards to the nursing unit may not represent conventional units. Although the researchers described a pilot study to develop the instrument used in this research, they included no information about instrument reliability or validity. Finally, the discussion section mentions findings from “follow-up field investigations” that are not mentioned elsewhere in the manuscript.

Design Implications

Nurses perceived general caregiving activities were comparable enough to justify similar layouts across like units, but the researchers question the appropriateness of standardized unit design across similar units with different patient populations. Nurses who cared for different patient populations within similar spaces perceived the spaces differently, suggesting patient-specific nursing interventions may require spatial modifications. The PIs propose that unit arrangement, equipment space allocation, and nursing activities specific to the respective patient population should drive design decisions.

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