



KEY POINT SUMMARY

OBJECTIVES

To examine interactions between emergency department operations and design in four different locations while identifying domains of decision-making within physical design that can influence safety and efficiency.

Physical design correlates of efficiency and safety in emergency departments

Pati, D., Harvey, T., Pati, S. 2014 | *Critical Care Nursing Quarterly*. Volume 37, Issue 3, Pages 299-316

Key Concepts/Context

Efficiency within emergency departments (EDs) is highly scrutinized, and studies tend to place added emphasis on the effects of overcrowding on ED efficiency. Overcrowding has been connected to a number of ED issues, including increased waiting times, decreased care quality, ambulance diversion, and increased mortality rates. Most solutions for these issues put forward in previous studies have focused on human-resource or operational goals. However, few have considered the physical design of the ED itself, even though design decisions have a substantial impact on work processes in healthcare environments.

Methods

Multidisciplinary gaming, touring interviews of frontline staff members, and other semi-structured interviews were conducted to gather exploratory qualitative data from four different EDs in large hospitals.

Seven people from the following departments at each ED participated in the gaming session: nursing, respiratory therapy, imaging, registration/admissions, pharmacy, laboratory, and security. In a two- to three-hour session, a team of stakeholders from these departments collaborated on an ideal ED design that emphasized efficiency and safety. Discussions were captured on video and audiotape. Later, six “what-if” style questions were posed to the groups.

Chief nursing officers and nurse managers from each ED were involved in one-hour audiotaped in-depth interviews. Participants provided information on efficiency and safety issues in EDs, and input on what they would change about their physical environments if given the ability to do so.

Spontaneous interviews with frontline staff were conducted in each ED in an attempt to understand the differences in operation at each location.



Upon review of all recorded material, notes were made on physical attributes that were repeatedly mentioned by participants, as well as the context in which the attribute was mentioned.

Findings

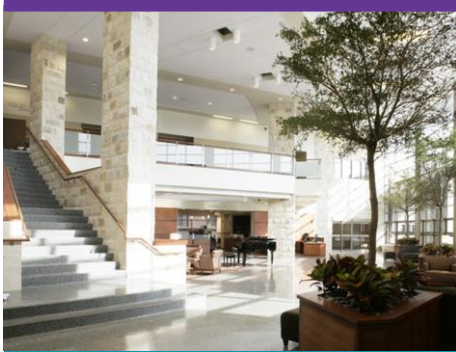
Data analyzed from the study suggests that there are 16 key areas of design decision-making that impact efficiency, safety, or both.

These are 1) entrance and patient waiting, 2) traffic management, 3) subwaiting or internal waiting areas, 4) triage, 5) examination/treatment area configuration, 6) examination/treatment area centralization versus decentralization, 7) examination/treatment room standardization, 8) adequate space, 9) nurse work space, 10) physician work space, 11) adjacencies and access, 12) equipment room, 13) psych room, 14) staff de-stressing room, 15) hallway width, and 16) results waiting area.

Participants emphasized that safety in these domains applies to staff, patients, and visitors, emphasizing the need to focus on safety and security measures for all three dimensions. Data also produced an inference that safety and efficiency are interrelated -- enhanced efficiency contributes to safe care, while enhanced security improves both safety and efficiency.

Design Implications

Several physical design decisions for the optimization of safety and efficiency are recommended and summarized in this study. Recurring recommendations include: examination and treatment room standardization, adequate spacing throughout the healthcare facility (hallway width, spacing from patient rooms to equipment supply rooms, etc.), nurses stations located for adequate nurse-patient visibility, optimized visibility of patient rooms from the physician's workspace, optimized adjacencies and proximities between triage and critical care zones, pharmacy and ED, imaging and ED, and blood bank and ED, and providing a staff de-stressing room.



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Limitations

The authors identified several limitations within this study. Potential causes for the concerns raised during research were not studied. Since the four participating hospitals were a small, voluntary sample based exclusively in America, the results from this research cannot be considered representative of all types of hospitals. All data in this study was qualitative in nature; no quantitative data was gathered regarding the effectiveness or necessity of any of the physical design recommendations made in this study.

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