SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

The authors propose that the industry needs an improved understanding of science to evolve more rigorous analyses to better evaluate how design influences clinical outcomes.

Strategies to evaluate the quality of hospital design with clinical data

Mead, M., Ibrahim, A. M., 2022 | Journal of Hospital Medicine, Pages in press

Key Concepts/Context

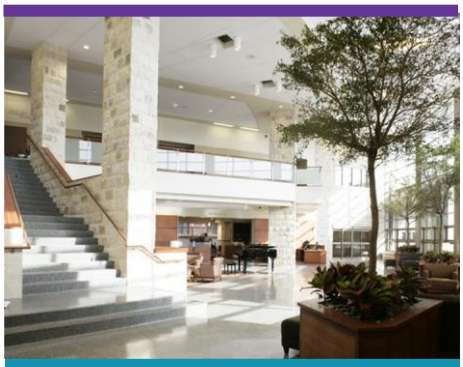
Healthcare design research engages multidisciplinary stakeholders who are often driven by competing agendas. The authors of this article discuss the challenges in evaluating hospital design, describe design features, which are often considered important to clinical care, and recommend strategies to enhance rigor into the evaluation process.

Methods

This is not a research study, but a discussion article addressing the difficulty of measuring hospital design and recommendations for applying more rigorous evaluation strategies to design elements influencing clinical care. The authors first outline the challenges inherent when multiple disciplines have differing priorities. They describe the impact of siloed data, siloed expertise, lack of incentives for post-occupancy evaluation, and differing opinions on what should be measured. They briefly describe design features that have been associated with clinical care quality, including number of patients per room, exterior views, lighting, acoustics, distance to nursing station, and line of sight, and how these can be determined by either blueprints or direct observation.

Findings

Rather than findings, the authors offer potential solutions to improve rigor in the field. For example, the authors describe how both the process of care delivery and the outcomes of care can be used in design research. They also describe how health services research techniques can be used to establish relationships between design elements and clinical measures. Recommended analytic approaches include logistic regression risk adjustment to account for patient demographics, using standardized cohorts to reduce the influence of confounding factors; testing the variance inflation factor to better understand causal relationships; using propensity score matching to 'adjust the cohort' prior to making comparisons; hierarchical modeling to understand variation across observational tools; and finally step-wedge design



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allowing researchers to control for time and exposure combinations. Lastly, the authors recommend collaborations, financial incentives, and cross training as strategies to improve evaluation and research of hospital design.

Limitations

While this is an opinion-based discussion article, it includes important observations and recommendations to advance the evidence-based design knowledge base.

Design Implications

The authors outline design features that are often referenced in the research literature (e.g., single-patient rooms, exterior views, control of lighting, noise, and distance to nursing stations). To advance how hospitals are designed and subsequently evaluated, however, teams need more granular access to both clinical and architectural data. Still, there are issues of priorities. Design features that may influence clinical processes and patient outcomes may not always be feasible, due to cost, codes, competing priorities, or other factors. Collaborations should then determine what can and should be evaluated.

And Also...

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