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Hospital design: Understanding implications for work practices, care quality and patient safety

Penfold, C., Maben, J., Anderson, J., Robert, G. & Griffiths, P.

Introduction. New hospital developments claim to be anchored in 'evidence based' design, yet the evidence is often conflicting, little is understood about the implications of hospital design for staff efficiency and quality of care and there is limited research applying a 'whole system' approach to the patient care environment. This paper argues that work practices, care quality and patient safety on acute hospital wards are influenced by more than ward design alone. Ward design is one component in a complex system also comprising operational and social processes, culture, leadership, teamwork and equipment and technology. In order to understand how potential design benefits are realised (for example, surveillance capability in Nightingale wards), it is important to understand all elements of the system within which the ward is situated.

Aim. The research aims to facilitate a fuller understanding of the healthcare environment in older buildings, its influence on work practices and staff experience, and the extent to which it supports or hinders efficiency, quality and safety.

Method. Case study research was undertaken in four clinical areas (maternity, elderly care, acute general surgery and acute assessment) in old hospital buildings. Quantitative and qualitative methods were used to examine work processes from a 'whole system' perspective. This paper reports findings based on observation (120 hours were spent shadowing staff to collect time-motion data), use of pedometers (to capture staff travel distances with over 320 hours of data collected), and 24 in-depth interviews (half additionally involving reflexive photography undertaken by staff and discussed during the interview) exploring staff perceptions and experiences of the patient care environment.

Results. Observation data revealed a variety of challenges to the functional suitability of the buildings, leading to a number of potential safety problems. Bed spaces varied in size and availability of natural light resulting in an increased rate of patient transfers both within bed clusters and between clusters with the latter resulting in additional patient handovers. Limited visibility from staff bases to patient care areas meant that qualified staff spent a high proportion of time 'away' from patients and distances between staff bases meant staff could be isolated. Poor internal adjacencies and external links resulted in nursing assistants spending a significant amount of time off the ward undertaking ward-related activities or escorting patients, leaving wards understaffed and leading to increased travel distances. Staff travel distance data showed that nursing assistants walked almost twice as far as qualified staff, up to eight kilometres during a 12-hour shift.

Observation also demonstrated that despite limited visibility and accessibility of hand wash basins and alcohol gel dispensers, staff were observed frequently cleaning and washing their hands, indicating a strong hand hygiene culture.

During interviews staff expressed affection for the existing accommodation and described the environment as 'friendly' and 'homely'. However, they acknowledged the accommodation was not 'built for purpose' and was impractical for working efficiently and safely. Staff favoured multi-bed ward design for surveillance of patients. However, staff noted that patient confidentiality and noise levels were an issue. Potential safety problems were associated with limited space at the bedside and between beds resulting in cramped working conditions and multiple trip hazards, also reflected in photographs of the ward environment taken by staff.

Discussion. Staff working in older hospital buildings have to 'work around' many challenges arising from the limitations of the physical environment. In seeking to better understand the different ways in which the healthcare environment influences work practices, this research also contributes to the development of multi-method and 'whole system' approaches to gathering data to understand the impact of the physical environment on staff efficiency, care quality and patient safety.

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