Evidence Brief

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What is the impact of single-bed patient rooms on nurse staffing requirements in general hospital units?

There is a growing interest in the potential benefits (or otherwise) from accommodating hospitalised patients in single patient bedrooms. While the NHS in England has been slow to adopt single bedroom accommodation and 100% single-bed facilities are rare, newer hospitals have higher proportions of such facilities and future new builds are likely to have wards that are solely single-patient bedrooms. Flexibility, meeting patient preferences and infection control are cited as key benefits, but the impact on nursing workload is unclear, with some concerns that wards with all single-bedded rooms require more staff to deliver safe and effective care. This review examines the empirical evidence for the impact on staffing requirements.

Introduction

In many English hospitals, patients admitted to general wards are cared for in shared rooms, with multiple beds in a single room. Large, open, Nightingale-style wards are becoming less common, with wards subdivided into 'bays' housing a smaller number of patients. Although there are increasing numbers of single-bedded rooms provided, facilities that are exclusively single rooms are still rare, with only two English hospitals identified as having 100% single patient rooms in 2022 [1]. However, those planning new facilities are increasingly proposing increasing the proportion of single rooms, particularly in the aftermath of the COVID-19 pandemic,[2] with many advocating for single accommodation for all hospital patients.

There is a growing body of research on patient preferences, experience, and clinical outcomes from single-bedded rooms. A recent review concluded that for general ward care the overall evidence, while mixed, and of variable quality indicates little overall difference [3]. In this review we focus on evidence about the workload for nurses working in such environments.

Methods

We searched for systematic reviews on PubMed published since 2015 ("private room" OR "single occupancy" OR single-bed OR single-bedded OR single-bedroom* OR "single patient bedroom*", applying filters Meta-Analysis, Review, Systematic Review) selecting those that included evidence about general wards. We scrutinised results for direct or indirect evidence related to workload and undertook forward citation searching for citations to the most relevant studies. We also scanned results of the search without the filters and identified the most relevant studies. This was supplemented by searches of Google Scholar and studies of factors influencing nursing workload more generally. Where there are multiple studies, reviews are cited as the source but, where relevant, individual studies identified in reviews or through other means are cited.

Results

We found ten reviews published since 2015 that focussed on or included consideration of the impact of single-bedded rooms. Within these reviews we found little direct evidence about the impacts on nursing workload or staffing requirements. Much of the relevant evidence was based on the studies undertaken in the NHS, which were cited in many reviews [4-8]. Because the issues covered are diverse and most evidence is indirect, the quality of the studies has not been considered.

Several studies noted concerns expressed by nurses over their ability to observe patients efficiently, with single-bedded rooms limiting a nurse's ability to get an overview of a group of patients [9]. Particular concern was expressed in relation to patient falls and patient deterioration, although there is no clear evidence of increased risk of falls [10], in-hospital mortality [11] or in-hospital cardiac arrests [12] after a move to all single rooms. However, it was unclear whether rates were maintained because staffing resources were increased and although overall evidence is unclear, some studies found increased risk associated with single rooms.

While overall evidence on clinical outcomes does not point to advantages from single rooms, the role in infection control for some types of infection is supported by several studies [13]. Single rooms facilitate isolation and grouping of infectious patients, which may in turn reduce workload otherwise associated with managing such patients.

While some efficiencies were noted in the ability to provide one-to-one care, intimate care and focus on a single patient [9], findings also suggested that reduced 'situational awareness' for patients, relatives and other staff could result in increased workload and patient safety risks because requests were not moderated by a wider awareness of other demands [6]. Challenges in communication between staff members have also been noted [4, 5, 14].

There is some indication that staff's negative perceptions of working conditions may subside over time, suggesting

positive adaptation of working patterns [14], although habituation to the negative aspects of working with single rooms is also a possible explanation.

One review reported two studies that found reduced staff costs, but both were conducted in maternity care [3], while a study in an NHS hospital found that a move to all single rooms was associated with increased staff costs resulting from a 3% increase in nursing whole-time-equivalents despite a small (0.9%) decrease in beds. Increases in staffing were explicitly linked to the changed configuration and staff reported feeling busier and a requirement for additional staff to maintain safety [4]. Increased walking distances were observed in a UK study of single rooms [4] with RNs walking 30% more based on step counts. While some of the increase may be associated with particular design features in this hospital, increases in walking have been reported in other studies too [9].

A large observational study in 4 NHS hospitals found that staff on wards with a high proportion of single rooms were considerably more likely to report inadequate staffing after adjusting for measured staffing requirements using a standard tool, indicating that there may be additional staff requirements, although the results were not statistically significant [16]. In contrast, a group of Belgian experts identified a low number of single rooms as a factor associated with increased workload in a focus group study but there was no empirical evidence to support this view [15].

Discussion

The evidence presented in this review is largely indirect and so it does not lend itself to firm conclusions. While there are clearly advantages from single bedrooms, there is considerable 'circumstantial' evidence that nursing workload and hence staffing requirements may increase. The extent to which technological solutions or changes in work patterns can reduce demands on staff is far from clear. Some of the increased demands seem to be related to particular design features (e.g. location of equipment, layout of rooms, ease of viewing).

Conclusions

- Anecdotal reports of increased staffing requirements linked to a high proportion of single rooms are supported by formal research, but much evidence remains indirect, based on perceptions of increased risk and perceptions of increased workload soon after implementation
- The availability of some single rooms may facilitate work, including infection control, but when all patients are accommodated in single rooms it seems likely that overall workload is increased for general medical and surgical inpatients.
- We found that support to adapt to new working practices and effective technology is essential, but it is unclear to what extent this reduces the additional staffing requirements.

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