



KEY POINT SUMMARY

OBJECTIVES

The objective of this study is to examine the impact of a move to a 100% single-room hospital on staff and patient experience, patient safety, and costs.

One size fits all? Mixed methods evaluation of the impact of 100% single-room accommodation on staff and patient experience, safety and costs

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Key Concepts/Context

Authors indicate that despite the trend to adopt single-patient rooms, there is a dearth of strong evidence regarding its effect on healthcare quality and safety. When a hospital in England moved to a new building with 100% single rooms, a before-and-after move study was conducted on patient and staff experience, safety outcomes, and cost analysis. The study found that over two-thirds of the patients and one-fifth of the staff preferred single rooms. There were no significant changes in the safety outcomes on moving to the new facility, and the increase in costs of cleaning and staffing were the only costs associated with single-patient rooms.

Methods

The study involved a mixed methods evaluation of before and after move on patient and staff experience, safety outcomes in two other hospitals, and a cost analysis. To evaluate patient and staff experience, data was collected through interviews, observations, surveys, and pedometers. Participants were administrators, clinicians, staff, and patients. Adult inpatient wards were targeted – medical assessment units (MAUs), surgical, medical, and maternity. Pedometers were used to measure the distances walked. Personal digital assistant (PDAs) using HanDBase software were used to record observation data. The observation, pedometer, and staff survey data were analyzed using descriptive and parametric statistics. Interviews were analyzed using a thematic matrix. To evaluate the safety outcomes, two control hospitals were used – one that moved to a new building with an increase in single-patient rooms (new build control) and the other where no move was involved (steady state control). Data relating to patient safety events – infections, falls, pressure ulcers, and medication errors were collected from January 2010 to December 2012 for MAU, surgical, and medical wards. For a comparative cost analysis, data on bed



DESIGN IMPLICATIONS

Because staff-patient visibility was perceived to be a disadvantage of single patient rooms, the authors recommend observation points and large glazed windows or doors to enhance staff-patient visibility. Based on staff and patient views, both single and multi-bedded patient rooms were seen to have advantages.

occupancy, cleaning costs, nurse staffing, payroll, length of stay, and build costs was collected, and 12 experts from architecture, construction, hospital, and facilities management and operations were interviewed.

Findings

Patient Experience:

- Single rooms were preferred by two-thirds of all patients and all patients in the post-natal unit.
- About one-fifth of participants and half of male patients preferred multi-bedded rooms.
- Some patients wanted to be offered a choice between single- or multi-bedded rooms.
- Lack of interaction with fellow patients was considered to be the biggest disadvantage of the single room by 11 out of the 32 patients interviewed.
- Shared accommodation:
 - Advantages: High visibility to staff and fellow patients; socialize with fellow patients
 - Disadvantages: Lack of privacy; lack of physical comfort
- Single room:
 - Advantages: High level of comfort, personal control, confidentiality, privacy, flexibility for visitors, good communication with nurses, ensuite bathrooms
 - Disadvantages: Feelings of isolation and disconnection

Staff experience:

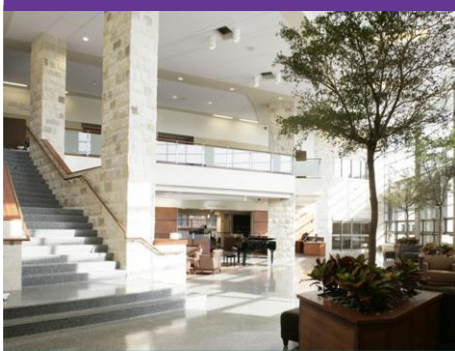
- Shared accommodation:
 - Advantages: Good visibility of all patients – facilitated surveillance and monitoring, teamwork, ability to see and locate staff; social contact with patients
 - Disadvantages: Physical environment not conducive to patient's privacy, sleep, rest, and care delivery; lack of space in bathrooms, potential for musculoskeletal injuries
- Single room:
 - Advantages: Improved patient privacy, dignity and confidentiality; better for visitors; facilitated communication with and



personalized care of patients; reduced interruptions and distractions; improved working environment for care delivery, spacious, ensuite bathrooms were convenient to assist patients

- Disadvantages: Reduced visibility of patients (because of in-board bathrooms that protruded into the corridor), increase in patient falls because of reduced monitoring, social isolation of patients, adverse effect on teamwork and communication
- Survey findings: On analyzing the pre-move and post-move survey data, the staff perceived:
 - Improvements in efficiency of physical environment, patient amenities, effect of environment on infection control, patient privacy, family and visitors ($p=0.001$)
 - The new facility would facilitate better hygiene practice.
 - Infection risks would be lower in single-patient rooms. ($p<0.001$).
 - Teamwork and the ability to deliver high-quality care would be adversely impacted in the new facility ($p=0.011$).
 - Shared accommodations were more effective in preventing falls.
 - Nurses struggled to manage time and prioritize workloads in the new facility.
 - Social isolation was a problem for both patient and staff.
 - Quality of teamwork in the old facility could not be replicated in the new facility ($p<0.001$).
 - Inability to see or instantly connect with co-workers was considered isolating by the staff.
- Pedometer data: Nurses walked more steps per hour in the new unit than in the old unit.
- PDA/ Shadow data: This data showed that there was an increase in direct and indirect care, professional communication, and medication tasks; and ward-related activities like cleaning and making beds had decreased in the new facility. But none of this was statistically significant.
- Overall, staff preferred units with a mix of single- and multi-bedded rooms.

Impact on safety: There were no significant changes in the safety outcomes after the move. An increase in falls and medication errors in the MAU decreased to pre-move levels after nine months. In the units for older people, there was an increase in



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infections and pressure ulcers. The new build control hospital did not have any such change. These outcomes hence were not associated with single rooms.

Impact on costs:

- The costs associated with cleaning were 53% higher for a 500-bed single-room hospital.
- There was a 0.9% decrease in beds, a 3% increase in staff, and 2.7% increase in staffing costs.
- In the UK, the cost of building a 100% single-patient room hospital was 5% more than building a hospital with 50% single-patient rooms.

Limitations

The authors indicate that their study had the following limitations:

- Very sick patients and patient families could not be interviewed.
- There was a weak causal inference because of the before-and-after design of the survey.

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RESEARCH DESIGN
connections