

# Challenging the culture of caring of 100 years: the evidence behind single-room provision in hospitals

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## ABSTRACT

Single-room accommodation in hospitals divides the opinions of both healthcare professionals and patients alike. While some hail this change as a benchmark for quality and flexible healthcare provision, others view the move from cohorted bays to isolated single rooms as an impedance to effective work practices and even risking patient safety. This article will present the evidence surrounding single-room infrastructure redesign, with particular reference to staffing, patient preference and overall care delivery. It also introduces the single room as an example of adaptable and flexible healthcare infrastructure, vital to creating health architecture fit for the 21st century.

**KEYWORDS:** Single room, adaptability, flexibility, culture, hospital design, construction

## Introduction

For over a century, secondary care infrastructure and design has been chasing the tail of healthcare innovation and new technologies. No global health provider has been able to keep pace with such a rapidly changing environment, creating health architecture that is out of date by the time it opens the doors. Within the NHS, the last 20 years in particular has seen information technology become integral to health systems, diagnostic testing and imaging explode in capability and use, and patient-centred healthcare become a driving force for service design. The benefits afforded by smarter networked systems and paperless healthcare are undeniable and should be at the heart of every new hospital development.<sup>1</sup> A more contested area, however, is in the design push towards 'single room' from 'multibed' accommodation for all patients. Estates planning have started to concentrate on providing hotel-style wards, with the percentage of single rooms in each new-build seeming to be a benchmark for quality. This significant change, popularised over the last 20 years, has polarised nurses, healthcare professionals and patients as it tears up the Florence Nightingale rulebook on the healing environment, and presents new challenges for both planning and provision

of healthcare. This article will seek to analyse the advantages and disadvantages of single-room hospital policy with attention to its effect on patients and staff experience, as well as care delivery. Furthermore, it will investigate the single room as an example of adaptability in modern health infrastructure, and ascertain whether services are indeed fit for 21st century healthcare provision in a constantly changing health landscape.

## Policy

The NHS has set out guidance on the future of ward accommodation. For new-build hospitals in Scotland all patients should be in single accommodation unless there are clear clinical reasons for multibed rooms to be offered, and any refurbishment projects should seek to accommodate over 50% of inpatients in single rooms.<sup>2</sup> In England, the policy leaves room for flexibility with new projects expected to provide between 50–100% single bed rooms, and at least more than the facilities they are replacing.<sup>3</sup> With such clear guidance it is surprising to see even the very latest construction projects demonstrate a wide range of planning in single accommodation. Pembury Hospital<sup>4</sup> is seen as a hospital design innovator providing 100% single rooms, whereas a hospital that opened its doors within the same year planned for only 44%.<sup>5</sup> With such a discrepancy, it is evident that the demographic drivers for leaving the multibed environment remain unclear, and may be dependent in part on local populations.

## Patient choice

As the end user, local populations should provide a persuasive voice in the design of new secondary care facilities. Patients no longer accept the traditional Nightingale ward and mixed-sex bays as an acceptable environment for healing,<sup>6</sup> and hospitals are forced to adapt to survive in a new era of patient consumerism. Research has shown that open wards are least popular with patients, but up to 40% of patients would opt for a small bay eg four beds if given a choice, compared to 35% preferring a single room.<sup>6</sup> This preference however may be due to the fact that patients have been so enculturated in the Nightingale system that they underestimate the benefits of having their own room. In fact, after experiencing both a multibed and a single-room stay, 93% of patients (aged 60–80 years) in one study indicated a preference for single accommodation for future visits.<sup>7</sup> Although there is evidence that patients in some environments eg hospice,

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show preference for shared rooms, this is often because they have no previous experience or expectation of single-room facilities, and patients indicated that this preference would likely change according to the severity of their illness.<sup>8</sup> The single-room proclivity is not just restricted to adult patients, with the majority of children in one study preferring design features that allowed them personal space, privacy and family support.<sup>9</sup> Failing to accept this strong user preference for single occupancy generates infrastructure out of step with the aim of providing patient-centred care in the 21st century.

### Staff preference

Staff, particularly nurses, have continued to demonstrate a strong preference for traditional ward layout.<sup>10</sup> Similarly for patients, the nursing culture laid down for a century has conditioned staff to care for patients in the multibed environment making a transition to single rooms challenging. Surveys of senior nurses have shown that a transition to single bed wards does not require the provision of more nursing staff, and actually may reduce the work of housekeeping services as patients are transferred between beds and bays less often.<sup>7</sup> Although patients may be less visible in this setup, design innovations to move nursing stations to central locations in wards, increasing nursing substations and improving lines of sight with considered corridor design can mitigate this problem.<sup>11</sup> Ongoing work analysing the change in nursing working practice following a move to a 100% single-room hospital design may give us a fuller picture of the impact on staff and their ability to provide high-quality care suitable for the modern era.<sup>10</sup>

### Care delivery

The delivery of quality care is a key consideration in the design of new ward structure. The benefits to patients of having their own room have been widely reported in the literature. Better privacy and confidentiality, improved visiting access for family and friends, and flexible visiting times all add to the patient experience.<sup>12</sup> The social interaction and support of potential positive roommates can be instantly negated by the increased stress of one disruptive or noisy patient. Noise itself has been shown to affect patient outcomes in hospital.<sup>13</sup> Protecting patients from disturbance by other patients and staff by allowing them their own room may directly impact on time to recovery and therefore discharge home.

Despite concerns regarding the visibility of patients in single rooms, patients benefit from a more confidential environment both to discuss their medical condition and for clinical examination.<sup>14</sup> The confidentiality afforded by a dividing curtain in a four-bed bay is wholly inadequate, meaning patients and health professionals may censure potentially important information or be in danger of breaching confidentiality. If confidentiality is a benchmark for quality care, continuity from health professionals is a cornerstone of safe patient care. Inpatients can move beds up to five times during a hospital stay, resulting in reduced continuity of care with incomplete notes and poor handover between staff.<sup>15</sup> Further to risking patient safety, the operational costs of transferring patients adds a significant cost to the inpatient episode. Patient transfers are often necessitated by infection control policies or the need to change the patients in a bay to

maintain same sex rooms. The result is a reduction in overall occupancy as beds in bays are often left unfilled if queuing patients are unsuitable due to sex or infection risk.<sup>14</sup>

The evidence for reduction of cross-infection in private rooms is mixed. The treatment of colonised or infected patients in cohorted bays does not appear to increase the risk of transfer of methicillin-resistant *Staphylococcus aureus* on intensive care units.<sup>16</sup> However the improved ventilation, filtration and accessibility of hand-washing stations in single accommodation is likely to reduce the risk of infection.<sup>3</sup> Taken together, the benefits of more efficient, cheaper care delivery, coupled with health augmenting design, lend strength to the argument for single rooms being essential in new-build hospital planning.

Service efficiency can also be judged on the percentage occupancy of inpatient beds. It is evident that high bed occupancy means infrastructure and services are being used to the maximum and therefore best value. From a patient flow perspective, single rooms offer the best chance of maximum occupancy. Evidence shows that 85 single patient rooms can achieve the same capacity as 100 beds in a multibed environment.<sup>17</sup> There has also been concern that when space for hospital design is at a premium, 100% single rooms may add significantly to the footprint of a hospital build. Research into this area however has shown that a solely private room design requires the same space as a 50% single room allocation when other space saving features are used.<sup>18</sup> In an era of budget cuts and austerity, failing to address occupancy with a single room design may significantly affect a hospital's ability to perform overall.

### Adaptability

This benefit to overall occupancy is a direct result of the flexibility that single rooms offer the healing environment, both in terms of avoiding the issues around sex segregation in bays and also isolating patients for clinical or care needs. Adaptability and flexibility within health design is seen to be critical to providing infrastructure that is able to cope with the constant changes seen in secondary care. For the NHS, private finance initiatives for funding new hospital builds were expected to lead innovative design in this area. Research shows, however, that due to poor communication between trusts, a risk-averse mentality to design and lack of knowledge transfer, the infrastructure delivered has failed to generate the innovations expected.<sup>19</sup> Evidence in this area is limited; however, the advantage of acuity-adaptable beds has been suggested. These flexible rooms can provide an escalating care environment for patients with progressive clinical needs and can exclude the need for patient transfer to expensive and overstretched intensive care units.<sup>20</sup> Planning for future expansion with modular and moveable compartments, along with allocated space externally to adapt for increased demand, has also been proposed.<sup>11</sup> Despite good evidence of benefit, such initiatives have not been employed in NHS builds, probably because they require a culture change in nursing care and innovative change management to realise their potential.

### Discussion

There is no doubt that health professionals and managers have an ongoing fascination with the multibed environment. As

shown, the single room offers far-reaching benefits for patients and hospital processes and yet despite this, most new NHS infrastructure continues to provide a high allocation of bays for patients. The decision not to up the ratio of single to multibed rooms by some trusts is highly questionable in an era of rising healthcare demand leading to bed occupancy rates of over 85%.<sup>21</sup> Indeed, evidence shows that risk to hospital systems are discernible when occupancy rises over 85%, with periodic crisis when capacity is at 90%,<sup>22</sup> so not designing infrastructure to allow maximum flexibility is unintelligible. The underlying constraining thread that stifles innovation in the design of health infrastructure appears to be the culture of professionals and patients. To change the mindset of both groups there has to be visibility of benefit. The argument for single-room design, as set out here, is strong, however this evidence needs to be translated to the key stakeholders to encourage them to engage with the concept and therefore bring about organisational change. As demonstrated, the single room fits into a broader paradigm of adaptability and flexibility within infrastructure. Hospital architects and health professionals should be looking to incorporate this idea into design to ensure hospitals are able to last the test of time, and cope with the complexities of health provision and the challenge of rising demand.

## Conclusion

The single room is an example of just one small aspect of hospital design, and shows how the culture of an organisation can hinder even the best evidenced and simple innovations. Until these antiquated and sentimental ideas on the healing environment are broken down, innovative design for adaptability and flexibility are likely to be overlooked. Failing to adopt such innovation leaves infrastructure unable to cope with the ever-changing health landscape. The monolithic structures that are left behind are not only unfit for 21st century healthcare, but are monuments to weak innovation and missed opportunity. ■

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