**An Ergonomic observation of care on a new concept hospital ward design of 20 single occupancy rooms and two four-bedded bays**

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**Oral presentation preferred**

**Introduction**

James Paget University Hospitals NHS Foundation Trust (JPUH)provides acute and specialised care for around 250,000 patients in England, UK. As part of the UK’s National Health Service (NHS) commitment to a new hospital build programme, the Department of Health and Social Care supported JPUH to build and test the design of a fully operational ‘concept ward’ with a bed occupancy of 20 single rooms and two four-bedded bays. Different hospital wards used the building on rotation, whilst allowing their existing clinical areas to undergo essential building repairs. This study aimed to gain a nuanced understanding of everyday care work on the ward to inform future designs.

**Methods**

This study took place within the context of a wider multi-method evaluation of the ward. Ethical approval was obtained from the UK Health Research Authority (IRAS ID: 334395). Observations followed a generic Ergonomic ‘walk through’ underpinned by two broad inter-related frameworks. The SEIPS (Systems Engineering Initiative for Patient Safety) model was used as a general guide for note-taking and the CARE (Concepts for Applying Resilience Engineering) model was used to capture Ergonomic interactions and associated care adaptations and adjustments. [1]

Procedures

A single trained Ergonomist (AR) visited general surgery, respiratory and paediatric wards over 54 hours total to observe: care functions (nurse handover, moving patients); staff (e.g. by shadowing healthcare assistants, registered nurses over time); areas of the ward over time (staff rooms, single rooms and bays). Note-taking was iterative and aimed to describe use of the ward rather than make direct comparisons across services. Photographs were taken for notes, avoiding images of staff or patients.

Framework analysis [2], broadly guided by standard Ergonomic domain distinctions, set out cognitive, physical and organisational factors and interactions. Themes were cross-checked in discussion with staff conducting other parts of the study (YA, ES) and at various engagement events with senior members of the project from JPUH and commercial build partners.

**Results**

The ward is roomy and facilitates good moving and transfer. Space can be used flexibly for different clinical and operational needs with multiple repurposing. Care is less centralised and more distributed than with a traditional ‘hub’ nurses’ station and physical ward board.

There are important trade-offs with single rooms between enhanced privacy, noise reduction and infection control and staff vigilance in observing patients, including those at risk due to mental health conditions. In addition, glare prevents observing patients when there is a light differential between corridor and rooms/bays.

There are challenges in everyday hybrid digital/paper working such as a lack of writing surfaces and non-operational and confusing call bell systems. Security and workflow also interact, with multiple issues in staff accessing swipe-card protected areas of the ward. There is much use of ad hoc signage to ‘finish the design’ where usability is not intuitive (such as with lighting systems).

**Discussion**

This innovative study has described care at an early stage of a new hospital build project and made principled Ergonomic recommendations for future design.

*References*

1. *Ataiyero Y, Stimpson E, Hall H, et al Evaluating the impact of a ward environment with 20 single occupancy rooms and two four-bedded bays on patient and staff experiences and outcomes in an acute NHS Trust: a mixed-methods study protocol BMJ Open 2024;14:e085528. doi: 10.1136/bmjopen-2024-085528*
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