Building a New Hospital: the role of Human Factors

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SUMMARY

The HF approach places all stakeholders at the heart of any project to identify their needs and ensure these are being met, ultimately to optimise efficiency and safety. With regards to building a new hospital, this includes not only patients' needs, but also those of hospital staff, support workers, volunteers, and patients' contacts. This paper discusses the approaches taken, and benefits realised

KEYWORDS

Building Hospital, Architecture, Design

Content

The government has committed £3.7bn to build 40 new hospitals by 2030; quite the commitment in today's climate. How these hospitals are designed will affect the entire working lives of several hundred thousand healthcare staff.

The NHS is the single biggest employer in the UK. The health and social care sectors have the highest levels of stress-related sickness absence in the country, 46% higher than the UK average (4). As ergonomists are fully aware, the impact of the work that is done and where that work is done is critical to individuals' health and wellbeing.

For patients, the impact is just as significant. In 2015 around 7% of patient safety incidents reported to the National Reporting and Learning System (NRLS) as death or severe harm were related to a failure to recognise or act on deterioration. The ergonomics of a ward environment have a direct impact on the likelihood of these events occurring.

Teams at West Suffolk NHS Trust have been engaging with Human Factors (HF) and its potential to have an impact in all areas of their healthcare environment. After completing several HF projects, they realised the potential for HF involvement in their new hospital build. They provided a case to the head of the programme, who agreed to trial HF involvement in three areas.

A HF specialist was added to the Future Systems team, which consists of clinical leads, architects and health planners. The focus of the HF work was to look at the areas that often prove most complex to design well, including the Emergency Department (ED) and both operating departments (the main theatres and day surgery unit).

HF methods and tools were chosen based on workstream need, to gain deeper feedback from staff stakeholders. This was based on some fundamental elements of HF study:

- **Interviews** Informal discussions were held with key stakeholders identified by the clinical leads, or at my request. The staff interviewed included theatre coordinators, recovery teams, operating department practitioners, stores staff, surgeons, anaesthetists, scrub nurses, receptionists, cleanliness technicians and porters.
- **Task Analysis** Key elements of tasks that needed consideration in the design were outlined. I also reviewed key tasks in theatre, including a difficult airway scenario in recovery.
- **Observation** These were conducted with walkthroughs of existing spaces, either with a focus on a particular patient, staff journey, task (from the task analysis), or observation of a specific task. I made four visits to the site and observed the current areas, including theatre walkthroughs and a clinical waste journey.
- **Simulation** Online/tabletop simulated working of a pathway or task to identify needs and potential risks inherent in the design.
- Physical Ergonomics Consideration of the physical space requirements for tasks.

Results

The results of the HF work included large scale changes to all of the departments included in the analysis, and findings that impacted those that weren't. For example, observations of the current ED illustrated the pivotal role of the department's coordinator. This person is currently sited in a central position in the 'older' part of the ED. From this base, they can maintain a visual on the high dependency beds, resus bays, the ambulance entrance, and aspects of low dependency areas. As a result, their working knowledge of what's happening in the unit is significantly higher in these areas, than in those where information is only available electronically (e.g. paediatrics and rapid assessment and treatment areas, which are currently in adjacent sections of the building).

In the design workshops, roles like this that are not directly 'patient facing' and don't form part of a patient flow can be missed in the considerations. Bringing the observational work and interview findings into the workshops around this task allowed the design considerations to reflect the need for maintaining visual oversight of the operational running of the department.

We present a full range of scenarios where consideration of the task at the centre of the environment changed the design.

Discussion

The design guidance provided to hospital teams embarking on a new build are based on Health Building Notes that were authored in 2014. This advice is out of date with the current needs of the full range of users we see in a hospital. The National Team at NHS England have been working to include some Human Factors guidance. Local hospitals need support in the application of this to their local projects.

References

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