Using a systems thinking tool to identify work system interactions in healthcare

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SUMMARY

This paper advances the use of Systems Engineering Initiative for Patient Safety (SEIPS) to provide a visual representation of how work system factors interact with each other to shape processes and outcomes. Healthcare professionals identified that deficiencies in work system factors surrounding the person, task, tools and technology, environmental factors, organisational factors and external factors shaped undesirable outcomes for the patient, professionals or organisation around the discharge process. Improving work system factors may decrease the likelihood of negative outcomes for the patient, professionals or organisation.

KEYWORDS

Systems thinking, SEIPS, incident investigation

Introduction

Healthcare staff operate in complex systems, with many factors influencing the likelihood of errors. Adopting a systems approach is a term frequently associated with Human Factors (HF) and considers how the elements of the system interact with each other. HF models that are currently available aid our understanding of the dynamic interactions within the socio-technical system (Herrera and Woltjer 2008).

The Systems Engineering Initiative for Patient Safety (SEIPS) model 2.0 was developed primarily for use in the healthcare setting (Holden et al. 2013). It aimed to be a person centred sociotechnical framework, the work system produces work processes, which shape outcomes. Current diagrams utilised by SEIPS prevent key stakeholders to easily understand interactions between the work process and outcomes. Therefore, may not prioritise resource to areas where safety and efficiency can be significantly improved.

The aim of the Work System Interactions Map (WSIM) is to visually present the interactions between work system components that shape processes and lead to an outcome (positive or negative). The interaction map may increase the likelihood that recommendations can be targeted at system changes, increasing the likelihood of sustained safety improvements (Wheway. & Jun. 2021).

Method

Focus groups were conducted with healthcare professionals to discuss positives and challenges with the Trust's discharge process. Broad questions were asked around positive and negative factors that impacted their job, challenges that most impacted on safety and identification of areas for improvement. Field notes were taken to capture the qualitative data. Thematic analysis was

performed to identify broad themes that were discussed by participants either based on the number of times that participants mentioned the theme and those that had identified serious safety issues. The themes identified were categorised into the three broad areas Work System Factors, Processes and Outcomes. These were then mapped onto the WSIM and discussions with healthcare professionals and subject matter expertise were used to identify any interactions. This work focussed on work system factors that shaped undesirable outcomes to improve the discharge process.

Results

The WSIM highlighted that deficiencies in work system factors surrounding the person, task, tools and technology, environmental factors, organisational factors and external factors shaped undesirable outcomes for the patient, professionals or organisation around the discharge process.

Therefore, improving the whole system may have reduced the delay in patient discharge, decreased safety issues with eTTOs and improved patient experience of the discharge process. This also may have reduced blame on staff and improved staff job satisfaction. The WSIM further directs senior managers where effort should be made to address some of the deficiencies.

Discussion

The NHS Patient Safety Strategy strongly advocates the need for a systems approach that considers all relevant factors in the investigation of incidents and that the pursuit of safety should focus on strategies that maximise the frequency of things going right (NHS England and Improvement 2019). This paper presents a HF modelling technique based on SEIPS that aims to visually represent how the interaction of work system factors shape processes which can lead to an undesirable outcome.

More work is required to understand whether non-HF professionals can utilise this method and increase their knowledge and capability of applying a systems approach to understand the work system within healthcare, both proactively and reactively.

The development of the WSIM provides a visual representation to highlight interactions in a complex system easily. An overwhelming amount of support is available for a systems model that provides a visual representation of how work system factors interact whether in support of Serious Incident Investigation or transformational projects and it is hoped that this model starts this journey (Wheway & Jun 2021).

References

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