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Systems for Identification and Location of Items at Scale: Study of Scan4Safety in Leeds Hospitals

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Abstract. Hospitals improve safety and workflow efficiency by implementing systems for identification of items and patients. Little is known about the implementation of these systems across entire hospitals. The aim of this study is to identify challenges and enablers of adoption of such systems at scale, within a hospital organisation and across the English NHS. The focus is on the experience of the Scan4Safety project at Leeds Teaching Hospital NHS Trust (UK). Study methods are qualitative and include interviews with staff and review of documents. This poster paper presents preliminary findings of research in progress.

Keywords. Patient Safety, Identification Systems, Inventories, Materials Management, Hospitals

1. Introduction

Hospital implementation of technology for the identification of items and patients contributes to patient safety and operational efficiency [1]. Examples of such technologies include barcoding and radio-frequency identification systems, as well as GS1 data standards [2]. However, their use is often only limited to specific workflows (e.g. transfusions), they present challenges, and they are not yet widely used, in NHS hospitals in the UK as well as other countries. Little is known of processes and outcomes of implementing such systems at scale, across entire hospitals, and how to achieve effective adoption, in particular in the English NHS. Leeds Teaching Hospitals NHS Trust (LTHT) is one of the demonstrator sites for the UK Department of Health & Social Care Scan4Safety programme (2016-2018) [3] – a national policy initiative aimed at supporting the improvement of hospital operations through barcoding and inventory systems. LTHT took a whole-hospital approach in implementing Scan4Safety, for all of its supplies (except medications) and all patients. This study investigates the experience of Scan4Safety at LTHT, to identify the main challenges and enablers of adoption of such systems at scale, within a hospital organization and across the NHS.

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2. Methods

The study started in September 2023 and is currently in progress. It is organized as a qualitative case study research design, informed by theory [4]. Data are currently gathered through review of internal LTHT documents and interviews with LTHT staff. Planned future data collection activities also include observations of meetings and of technology in use, review of patient safety incidents reports, and a survey with patients.

3. Results

To date, seven operational staff have participated in in-depth 1 hour interviews. Documents collected include programme implementation requirements and programme scope documentation, and video presentations of Scan4Safety at LTHT aimed at medical suppliers. We identified a range of hospital-wide systems implemented, including an electronic bed management platform. Preliminary analysis generated insight into hospital innovation, and processes and outcomes of the Scan4Safety systems (Table 1).

Table 1. Study of Scan4Safety at Leeds: Preliminary thematic analysis

Innovation	Process of implementation	Benefits and drawbacks
• Innovation policies in the NHS system • Innovation enablers in the hospital organization • Sociotechnical systems for operational improvement • Generative role of data and standards towards innovation	• Understanding data and standards • Learning by doing • Learning with other hospitals • Engagement across supply chains	• Recall of implants • Patient transfers • Bed management and waiting times • Waste reduction and financial savings • Staff satisfaction

4. Conclusions

Our preliminary findings highlight both the generative role of identity and location data (items, patients) for innovation and improvement, and the importance of 'making sense' of these data as information infrastructures [4] underpinning clinical and non-clinical work in hospital, for safety and operational efficiency to be achieved at scale.

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