Pilot evaluation

NHS Connecting for Health (NHS CFH) Evaluation Programme has commissioned the Centre for Health Informatics at City University, London, to carry out the national evaluation of the ‘Blood Safety and Tracking Pilot’ implementation project. The evaluation is assessing the effectiveness and potential transferability of the system. Once completed, this will then be shared with other NHS organisations as they implement the Electronic Clinical Transfusion Management System (ECTMS) IT specification.

Evaluation team

Project Lead: Professor Jonathan Kay and Professor Abdul Rodda.

Research Coordinators: Kate Goddard (on site at Mayday), Dr Oniel Shiwert, Jean Sjellman and Alun Goldin.

Background

Automation of healthcare processes is an emerging theme in the drive to increase patient safety. The Mayday Healthcare NHS Trust is Oxted, South London, was chosen as the pilot site for the implementation of the ECTMS to track blood from the point of collection to the final transfusion and to ensure correct matching of patient and blood. This benefits to be gained from the deployment of an electronic blood tracking system include reducing incorrect matches and safety incidents, reducing the number of specimens rejected by the lab, automated information sharing, enhanced accountability and audit trails, and improved traceability of blood products.

Aims of the evaluation

Areas being covered in this evaluation include:

- The system – hardware, software and related procedures and protocols.
- The staff required to design and install the system.
- The project management, technical and administrative skills and support required to implement the system.
- The changes in clinical and other working practices required to implement the system.
- The response of clinical and other staff to the system.
- Patient perception and satisfaction.
- The efficiency, effectiveness and reliability of the system particularly in terms of ensuring the correct matching of patients and blood.
- Any difficulties or problems identified with this system and its use.

A cost effectiveness analysis of the system design, planning, implementation and operation.

User ideas for capturing and sharing the learning from this experience.

The full blood safety tracking pilot went live in November 2009. The evaluation project will be assessing the system for a full year from go-live. Findings and the evaluation contains a full report and an overview and summary.

Implementing Bloodtrack using handheld PCs, mobile carts, Bluetooth and passive RFID technology constitutes new developments for the blood tracking system supplier and involved a considerable amount of work. This contributed to the go-live date being put back from April 2009 to November 2009.

Furthermore, the requirement to incorporate a unique identifier component and integrate Bloodtrack with LMS ensured a large body of work for the Trust, LMS provider. Evaluations were impacted upon the need to complete validation developments to comply with guidance driven by the NHSX and LMS, and the preference to minimise the number of software versions delivered to the Trust.

Methodology

The Project Research Objective Evaluation (PROBE) framework (produced for the NHS Information Authority) was used to guide the relevant research questions and objectives according to five evaluation areas: strategic, financial, human, operational and technical. The framework was merged with a classic model to assess information systems success, the DeLone and McLean framework (updated in 2003), which was used to generate lower-level attributes. This looked at six interrelated dimensions of success, system, service and information quality, user satisfaction, and finally net benefits (hierarchically from individual to overall system). A cost benefit analysis is also being undertaken.

Assessment of the adherence to NHS CFH, Nationalpatient Safety Agency (known as NPSA) and Medicines and Healthcare products Regulatory Agency (MHRA) standards and guidance is also being carried out.

Interviews and surveys were carried out with the implementation team, and user staff and patients to assess perceptions and satisfaction levels.

Quantitative methods are being used to track the effects of the blood safety tracking system, mainly via the Mayday’s own pathology database system as a source of data. The rate of uptake of the new system is key to the concept of future transferability to other trusts and is being closely examined for changes in usage in the old versus the new systems over time. Numbers, rates and reasons for blood request, blood usage and blood samples rejected by the lab are also being tracked, as are adverse incidents reported by the Mayday transfusion team.

Current progress

The evaluation project gathered baseline information for different versions of the process for blood production. Interviews and questionnaires were carried out with the implementation team at Mayday University Hospital to gauge stakeholder opinions. A questionnaire was circulated amongst staff and potentially patients, exploring the importance of system success factors in adoption of the full system going live.

Patient views were gathered about awareness of the blood tracking process, satisfaction with their experience and ease scores of barcode and radio frequency identification (RFID) technology. A website workload was carried out, auditing the existence and usability of patient websites.
