

Clinical Impact of the Paperless ICU

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Implementation of an Electronic Patient Record (EPR) is a multi-faceted issue with much still to be understood. There is a growing literature discussing the difficulties of EPR implementation or clinical issues at specific sites; but only a few have studied prospectively their impact on everyday delivery of care. One important aspect of such care that may be affected are the clinical ward rounds, as they constitute an important venue for information gathering and sharing activities. Other aspects include the use of alerts or reminders, the impact on quality of care, the overall impact on costs and the perception by staff of the benefits/inconvenience of such systems.

Funding was approved for the purchase of a commercially available clinical information system (Metavision, iMDsoft, Needham, MA 02494, USA) to replace the paper records in the intensive care unit at a specialist cardio-thoracic hospital. This system was selected because of it allowing customization 'on the fly' by clinical staff without IT knowledge. This allowed rapid response to request for change or correction of mistakes or non-workable design. An implementation plan was established to introduce the system at the patient bedside after a team of doctors and nurses had customized the software to meet the specific needs of the unit. The system was introduced in November 2006 and has been running since then. It is used for all tasks previously done on paper, including charting, medical notes, prescriptions and lab results. It is delivering various automated reports including CCMDS straight to our finance department.

As part of the implementation plan, working practices were observed and recorded using methods extracted from the fields of anthropology, psychology and sociology. Observations were fed back to the implementation steering group on a regular basis to ensure that issues and problems were tackled early on.

Our work was conducted with the agreement of the Trust authorities and Caldicott guardian, and the local research ethics committee issued a waiver of consent in accordance with UK national guidance [<http://www.nres.npsa.nhs.uk> (accessed on 26th July 2008)].

The presentation on Tuesday June 2nd, 2009 will show some of the findings and observations made by our multidisciplinary team. These include:

The impact of EPRs on multidisciplinary ward rounds: we have studied prospectively, using methods derived from the fields of observational psychology, sociology and anthropology, the changes in behaviour during ward rounds in our large 25-bed ICU. We have observed changes across time and explored how individuals adapted to the system, and how the system impacted on the multidisciplinary communication.

The impact of EPRs on the adherence to standard care practices: after having observed the impact of the system on the adherence to standard care bundles, we are now prospectively studying the impact that various automated prompts/alerts may have.

The impact of EPRs on artificial feeding in ICU: the difficulty of adhering to prescribed feeding regimen is a known problem in ICUs, with most patients not receiving an appropriate amount of calories per day for numerous reasons. We have studied whether the introduction of an EPR has altered this problem.

The impact of EPRs on prescriptions and overall cost: thousands of patients each year suffer the consequences of poor prescribing practices. We have evaluated the impact of the introduction of an EPR just after introduction and one year after introduction. We have estimated the effect of this on cost.

Staff opinions at various stages of implementation were reviewed, through questionnaire and structured interview. Review of the comments helped shape the system to its current form.

We have introduced channels to allow staff to contribute to the design and ongoing developments. We have looked at the flexibility of the system in allowing rapid response to new evidence.