



Impact of information technology on quality of care in Emergency Departments

Never Stand Still

Medicine

Centre for Health Systems and Safety Research

Highlights

We found the integrated Emergency Department Information System (EDIS), known as FirstNet (Cerner), allowed doctors and nurses improved access to clinical information which resulted in expedient and better informed clinical decisions. Clinicians reported:

- No need to await delivery of the paper medical record resulting in rapid availability, at the point of care, of clinical patient-specific information such as test results and previous discharge summaries.
- Improved access to clinical knowledge data bases enabling decision support for doctors and nurses
- Access to clinical information from multiple sites within and across the four hospitals allowing health professionals real-time simultaneous access to a common data set.

However challenges still remain in integrating the use of FirstNet with the work of doctors and nurses in the context of a busy ED.

Background

Emergency medicine is ideally suited to the application of information and communication technologies to facilitate doctors' and nurses' collaborative work and their need to access and share information essential for the delivery of optimal patient care. The aim of this study was to describe physicians' and nurses' perceptions of the impact of FirstNet on the quality of care delivered in the Emergency Department (ED).

“... decision making is influenced hugely by knowing what the patient's background is.” (Senior doctor)

The evidence revealed a complex and sometimes differing portrait of the perceived impact on care delivery with doctors and nurses reporting both benefits and

concerns resulting from use of the system.

Two broad themes relating to the impact of FirstNet on patient care emerged from the data:

Methods

We used a qualitative research design incorporating interviews, focus groups and observations of doctors and nurses in 4 EDs in SSWAHS. Data were taped, transcribed, entered into NVivo and analysed using a grounded theory approach. The use of qualitative methods to evaluate clinical information systems is promoted as essential to gain a comprehensive in-depth understanding of the complexities of use in clinical environments.



Results

A total of 69 in-depth interviews were conducted with 42 senior physicians, 16 senior nurses and 11 junior physicians and supplemented with 5 focus groups and 26 hours of structured observations of doctors and nurses using FirstNet.

Theme one: Improved access to information

Theme two: Difficulty integrating the use of the technology with clinicians' work practices and the ED context

Improved information access

Physicians and nurses perceived that *FirstNet* enabled clinical and ED management information to be accessed in a more orderly and timely fashion. Key categories related to information access were:

- improved access to *management information*;
- improved access to *patient specific clinical information*;
- improved access to *clinical knowledge databases*; and
- access to information from *multiple sites and simultaneous access*.

Difficulty integrating the use of the technology with clinicians' work practices and the ED context

Whilst participants reported significant benefits from the introduction of EDIS, some also reported difficulty with integrating the use of the technology with their work. Categories related to this theme were:

- increased data input;
- disruptions to clinical work; and
- perceptions of increased time in front of the computer.

Discussion and implications for practice

An overwhelming perception by both doctors and nurses from the four EDs in our study was that the *FirstNet* system facilitates access to clinical information, both patient-specific and knowledge data bases, which is essential for the delivery of high quality care.

The immediate availability of past history information is acknowledged as particularly important for ED clinicians given the need for quick decision-making in a complex, high throughput, interrupt driven environment. Our results showed that ED clinicians

perceive that access to previous past history clinical information via *FirstNet* improves the quality and speed of the decision making process in relation to diagnosis and treatment. One of the most common concerns expressed by physicians and nurses in our study was related to the data entry demands of the system. It is essential that system developers take account of the context of users and their requirements to enable ease of data input.

Further in-depth exploration of clinicians' use of

clinical information systems in real life situations is essential to tease out complex work integration issues. Understanding this will help tailor solutions and facilitate effective use of technologies. This in turn has enormous potential to make health services safer and improve quality of care and facilitate patient engagement.

Further information

If you would like additional information please contact:

A/Prof Joanne Callen -
j.callen@unsw.edu.au

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This presents a summary of work in progress. The information presented is designed to provide initial feedback to those who participated in the research process. All final conclusions will be dependent on the completion of the full study.