



ICT and impacts on work practice in the ICU - work in progress - Site 3

Never Stand Still

Medicine

Centre for Health Systems and Safety Research

Highlights

Interviews with 29 ICU staff and 70 hours of observation were conducted to investigate how information and communication technologies (ICT) impact on work practice in the ICU. These revealed that:

- Decision-making can be aided and expedited by quicker availability of information
- Access to information such as images and results is improved and saves clinicians time
- Practices such as ward and handover rounds are not likely to change until bedside computers are introduced

ICT has had a positive impact in general on work practices in the ICU. However, the potentials of integration of ICT into practice is not likely to be realised until bedside computers are introduced.

Background

Information and Communication Technologies (ICT) in the ICU (e.g. clinical information systems, CIS; electronic ordering; and picture archiving and communication systems, PACS) can have a significant impact on the workload of clinicians, error reduction, and the quality of care. Though there are studies evaluating the effect of ICT in individual ICUs there is an absence of studies reporting consistent evidence of the impact of ICT on work practices in the ICU. Therefore, we conducted a qualitative study across 4 ICUs, each with varying levels of ICT, to determine if and how ICT has impacted on work practices. We now present our main findings, highlighting those in relation to this specific ICU.

Methods

We conducted interviews with medical and nursing staff and observed clinicians undertaking their daily work in the ICU of a major Sydney teaching hospital (e.g. ward rounds) before and after the introduction of PACS. In addition to PACS, electronic ordering and results were available throughout the study.

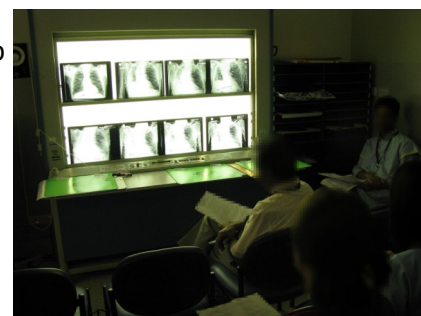
Results

We interviewed 12 doctors and 17 nurses in this ICU and observed 58h of rounds and meetings as well as 12h of general nursing practice. On the basis of the interview and observational data we present clinicians' expectations of PACS as well as particular areas where ICT can impact on work practices.

Pre-PACS Expectations

A few nurses were uncertain of the specifics of PACS and so were unsure of its potential impact on work. Other expectations were:

- work practices such as the ward and handover rounds would stay the same unless there are computers at the bedside
- PACS would save time and speed up work processes
- PACS would more likely facilitate nurses' work if it was available at the bedside
- Communication with radiology was not likely to change
- Improved access to images would make it easier to compare images with old ones from previous admissions or from other sites
- Patient care may or may not be impacted—opinions were mixed



- Decision-making could be quicker if patient management hinges on the investigation



- The way PACS would be set-up was a concern e.g. system downtime, poor infrastructure or image quality

Decision-making

Improved availability of, and quick access to, information through PACS and electronic test results was seen to expedite the decision-making process by many doctors and a few nurses. The quick availability of images through PACS was perceived to shorten the time required to make a decision in some patients and allowed appropriate treatment to be provided efficiently and quickly.

Some doctors believed the available ICT did not impact decision-making unless a result requiring quick action was received more quickly. A junior doctor thought the ability to manipulate images in PACS improved their ability to instigate appropriate treatment and aided them in their decision-making. Similarly abnormal results highlighted in Powerchart also aided the process for doctors and nurses.

Information access

Medical and nursing staff commented on positive impacts of improved access to results, including those from other sites. Archived images are easier to access for comparison with current ones with PACS, images no longer go missing and junior doctors no longer have to chase up films. Results are readily available and can be accessed by multiple people at the same time. This also saves time as there is no need to call or chase up people. It is easy to see what or has not been ordered and information is legible.

General work processes such as ward and handover rounds did not change with PACS and a number of clinicians commented that bedside computers would change practice more, particularly for nurses and their ability to access information. However some doctors commented that they access images less frequently and the system inhibits them accessing images outside

“it [ICT] just allows for information to be provided a lot easier and quicker, that’s the key thing.”

handover due to access issues and the way PACS was set-up. Additionally some remarked that the system was not user-friendly, was “long-winded” and that there were too many steps to access images.

Communication

The majority of clinicians said that communication with teams both within and outside the ICU, including radiology, had not changed with ICT. A greater awareness of patient care was likely to be facilitated once a clinical information system is introduced.

Communication was thought to be enhanced as all clinicians involved in care can access and see results in different locations. This was also perceived to improve patient safety.

Conclusions

The results suggest that ICT has had a positive impact on work practices in areas such as enhanced decision making and improved information access. ICT has generally not changed the way clinicians work. Many thought some of the potential value of integration of ICT into practice would not be realised until bedside computers were introduced and infrastructure issues addressed.

Further information

If you would like further information about this research, please contact Dr Isla Hains at chssr@unsw.edu.au.

Acknowledgements and partners

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Partner investigators: Associate Professor Kathy Gibson, Liverpool Hospital and Associate Professor Richard Paoloni, Concord Repatriation General Hospital.



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.