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# ICT and impacts on work practice in the ICU - work in progress -Site 1

Never Stand Still ❯ Medicine ❯ Centre for Health Systems and Safety Research

## Highlights

Interviews with 32 ICU staff and 37 hours of observation were conducted to investigate how information and communication technologies (ICT) impact on work practice in the ICU.  Key views of doctors and nurses, and observations revealed that:

- ICT can improve the efficiency of work, saving clinicians time
- The Clinical Information System (CIS) is a central repository for clear and accurate patient information
- Decision-making is more informed with quick availability and accuracy of information at the bedside
- CISs facilitate multiple access to patient information and change task sequence, particularly for junior doctors
- ICT can enhance communication processes and promote collaboration between ICU clinicians and other groups

*ICT has had a positive impact in general on work practices in the ICU.  However, challenges still remain in integrating such systems to fully maximise their purported benefits.*

## 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 effects of ICT in individual ICUs (for example the effect of electronic ordering on ICU workflow and of critical care systems on supporting team collaboration) there is an absence of studies

*"…you're making decisions with more confidence than in the past."*

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 your 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).  Systems available were a CIS, PACS and electronic ordering and results.

## Results

We interviewed 15 doctors and 17 nurses in your ICU and observed 23h of ward rounds and 14h of general nursing practice. On the basis of the interview and observational data we found some particular areas



where ICT can impact on work practices. In general, the majority of clinicians perceived that the presence of ICT such as the CIS and PACS made their work efficient, easier and saved them time throughout their shift, though a few had the opposite view.  The CIS also allowed for the patient record to be clear and understandable and is a central repository for all the information.

### Decision-making

The decision-making process is thought to be quicker and easier as a result of ICT and the availability of information at the patient's bedside.  The immediacy of the information was perceived to enhance the decision

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making process with some medical staff commenting that their decisions are fully informed allowing them to feel more confident in decisions they are making. Nurses in particular highlighted positive effects associated with the ability to easily view trends and abnormalities. However a few commented on potential negative impacts of the CIS on critical thinking.

## Task sequence and information access

The availability of information at the bedside facilitates the timeliness of the ward round though images were



observed to be primarily accessed outside the ward round "just for the sake of getting the ward round done in a timely fashion". Junior doctors are not spending time searching for images and "scattered looking for things" during the round and so can be present throughout the round. While the conduct of the ward round is consultant dependent some commented that practice had changed and the focus was sometimes the computer and numbers rather than clinical assessment of the patient. Nurses also said that this was a potential danger in their role. Additionally, the CIS allows a number of clinicians to document in and access a patient's record at the same time from different workstations.

## Communication and collaboration

While the electronic systems do not greatly change communication processes within the ICU, the systems, at times, enhance clinicians' awareness of patient care

**"…multiple users can look at the same piece of information at the same time without interfering with each other."**

as documentation is clear and legible, medical staff can easily access records for patients in other units in preparation for future shifts, and the CIS allows all clinicians looking after a patient to clearly see what their colleagues are thinking. However a number of clinicians commented that electronic documentation can allow notes to become repetitive and unclear at times where "the ability to distinguish

what's important and not important in the notes is really, really bad". Communication and collaboration between ICU clinicians and outside teams was thought to be enhanced through: 1) simultaneous access to patient data in different locations while discussing a patient's care; and 2) reliance of outside teams on ICU staff to gain access to the system for notes thus increasing communication between the teams. However this can also be detrimental as on occasion outside teams will not document on the CIS but in the patient's paper note folder, which is often not read.

## Conclusions

It was found that in general ICT has had a positive impact on work practices in areas such as decision making and communication. For some ICT has changed the way in which they work although there are ongoing challenges to ensure that the use of such systems reach their full potential to transform healthcare delivery.

## Where to now?

The results from this research will inform the development of a survey to allow us to quantitatively measure the perceived impacts identified above.

## Further information

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

## Acknowledgements and partners

*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.*

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