MEDINFO 2007
HISA Ltd Australia
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Information Technology Supported Clinical Handover - A Pilot Study

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Abstract

Major improvements in the clinical handover process have been introduced to the Women's and Children's Hospital (WCH) in line with recently published Australian recommendations. The enhancement of this process by using the newly developed OACIS Clinical Handover module in a paediatric medicine setting is reported. The assessment included a pre-pilot survey questionnaire conducted to assess the medical staff opinions regarding the existing handover process with a follow up questionnaire after one week of using the OACIS computer augmented process. A further questionnaire will be conducted with the next rotation of medical staff.

Keywords:

continuity of patient care, medical errors, quality of health care, safety

Introduction

The implementation of Salaried Medical Practitioners' awards has changed the way healthcare personnel work in hospitals. No longer is a patient looked after by one doctor or only one team during an admission. Additionally, a doctor may have little or no day to day contact with a patient he/she is responsible for on a given shift. Also with increasing complexity of care, more and more patients now require care by multiple teams. Thus clear accurate and efficient communication is required to ensure optimal safe care.

In order to ensure good communication of relevant information about patients to all the team members, effective handovers are now deemed indispensable.

There has been a number of reports on clinical handover in recent years, particularly in Australia, ranging from descriptive to evaluative studies and suggestions for good practice[1-5]. While every format cannot be directly applicable in every clinical situation, most reports agree that the handover helps improve patient safety, aids medical education, improves patient confidence and fosters job satisfaction for the medical staff.

Recognition of the importance of the clinical handover process resulted in a Clinical Handover Improvement Project at the WCH in 2004. Prior to this paediatric medical handover was an informal process. The mission statement of that project was "that within six months 100% of paediatric evening and night trainee medical officers (TMOs) will follow a standard template of clinical handover." The implementation strategies and future plans resulting from the Improvement Project included the following:

- establishment of executive support and appropriate budget,
- to explore the possible roles for IT applications in handover,
- to address all issues pertaining to the morning handover.

At the time of the WCH handover improvement project, a clinical information system module to support clinical handover was being developed (OACIS system, careconnect.sa). . There are plans to introduce it to the integrated public hospital system in South Australia, providing the planned pilot study at the WCH and Royal Adelaide Hospitals does not display any major problems.

This study reports the pilot in the Department of General Medicine, WCH, including the utility of the new handover module and the criteria for assessment of key performance indicators.

Materials and methods

The Department of General Medicine (DGM) has a throughput of approx 3-3,500 patients each year. Three concurrent teams comprising a consultant, registrar and resident medical officer manage the patients during normal working hours. After hours, a single team of one registrar and two RMOs manage the patients until midnight; one registrar is on call from midnight until the following morning. There is a consultant on-call during these 2 shifts. The after hours team provides cover for all paediatric medicine inpatients both general and subspecialty.

At 08:00, the morning handover is held in a dedicated room. The Senior Registrar or one of the Consultants facilitates the meeting which is also attended by the nursing shift coordinator from the main medical ward and the Medical Emergency Team nurse who also contribute.

The general and subspecialty day teams handover to the after hours team at 16:30 -17:00. Both medical and nursing staff use the patient list summary reports (PLSRs) prepared from the careconnect.sa OACIS clinical information system.

OACIS is an Open Architecture Clinical Information System which is comprised of a series of integrated applications designed to deliver benefits to the public healthcare sector of South Australia via information technology. It is Australia's largest multi-hospital integrated real-time common clinical information system. The integrated modules available prior to the handover pilot included

- **Clinical display**, which provides a single point of access to the integrated online patient record. It includes demographics, encounters, outpatient appointments, medications, laboratory results, imaging reports, operating theatre procedures and emergency department attendances. This allows the clinician to view a comprehensive history in real time that charts and displays information and results without having to wait for paper records to be delivered.
- **Order Entry,** which is an electronic ordering system for diagnostic, therapeutic, pharmaceutical, medical and surgical patient services and incorporates best practice information into multi-disciplinary order sets. This enables clinicians to submit prescriptions, referral requests, restricted antibiotic approval requests and requests for diagnostic, medical, surgical and therapeutic services electronically.
- **Separation Summary,** which communicates information from the public hospitals to General Practitioners and other referring providers, thus ensuring continuity of ongoing healthcare. The summary gives a comprehensive account of the encounter, tests and continuing care requirements, and may be sent by hardcopy, electronically or by secure fax to the referring provider.
- **Clinical Reporting Repository (CRR)**, which provides the capability to query, analyse, and explore the substantial clinical data held across the patient population in the OACIS Data Repository (the data store for OACIS) to facilitate clinical decision making . The repository facilitates tracking of trends over time and leads to higher quality care. This allows research and reporting which has previously, not been possible.

The only changes to the established handover process needed prior to commencing the pilot were to provide the hardware for projection of the OACIS modules within the handover room and also to provide the individual training for the users.

The process was evaluated in two ways:

1. A pre implementation survey was done with all the staff attending the handover.. This was repeated one week after deployment of the handover module. The survey will be repeated with the next rotation of trainees.

Written feedback was also sought from the users of the system by means of a notebook left in the handover room. User comments were collated and acted upon and where necessary modifications made to the OACIS module or the handover process.

Results

The results indicated that all the staff were positive about the handover process.. The majority felt that the meetings started on time and that there were few distractions. There was universal agreement that the new electronic handover provided instant access to relevant investigations and past medical details (which were not easily available in the previous format).

In the one week post-implementation survey, several staff felt the new handover process took too long. Many of the respondents also gave valuable suggestions to improve the efficiency of this process. These changes have been introduced and the overall impact will be reassessed in the final survey.

Further benefits were noticed during the period of evaluation. Details of past admission and results of prior tests were instantly available at the time of handover. One could also access references online and this was helpful in planning the care for complex patients. The system has enabled the teams to recognize reportable incidents and provision has been made to insert reminders for these to be documented and reported.

Discussion

This paper describes the successful implementation of an IT supported handover module in a busy medical unit. It has been feasible to integrate the new format with existing patient management software and enhance the efficiency of the handover process.

The addition of the handover module to the handover process has obvious advantages:

- the ability to enter free text information,
- record jobs to do
- flag urgent issues into the database
- have the ability to print out customised lists (this was well received by the medical staff)
- allow the information to be accessed by all authorized staff involved in the care of a patient, thus ensuring continuity of care.

A list of patients is displayed prominently on the screen, thus enabling all the team members to be involved in the discussion.

Nursing staff were also very receptive to the introduction of the new module. Patient management plans can be accessed by ward staff (where authorised) thus keeping them informed of the medical plans.

The survey was limited by the small group of respondents (11 medical and nursing staff). Moreover, the medical unit already had an efficient handover process in place and so the introduction of the new handover module did not result in major improvements. It will be interesting to conduct this process in an environment where no pre-existing formal handover is established. We plan to continue assessing the impact of this module as it is introduced and taken up by other medical, surgical and allied health units in this hospital as well as the other South Australian public hospitals.

We believe there are exciting potential future advantages for this module. Preliminary work has already established that the OACIS system is enhanced with the availability of bedside computing through wireless or hard wired systems and this should improve the utility of the handover module. Communication with different teams will be more efficient and, therefore, safer.

The quality of the handover can be monitored by key performance indicators generated from the CRR and data collected at the time of the handover.

Conclusion

The addition of an IT module to an already established clinical handover has enhanced the quality of the information transfer between clinicians. It has improved the quality of patient care.

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