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Electronic clinical handover

A simple solution to a complex problem

Implementing electronic clinical handover in a hospital for better patient safety



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Clinical handover: defining the problem

Clinical handover is defined as inter-clinician communication occurring at care interfaces.

This usually refers to changes of shift within a clinical team. In essence, clinical handover is the transfer of professional responsibility and accountability for some or all aspects of a patient's care to another person or professional group on a temporary or permanent basis (British Medical Association 2004; Royal College of Physicians 2011). With the decrease in hours worked in modern medical practice, the number of handovers performed has increased proportionally. This has raised concerns about continuity of care and the potential for patient safety to be compromised. Indeed, clinical handover has been identified as a major preventable cause of harm (Royal College of Physicians 2011; WHO 2007). In root cause analyses of sentinel events, communication is repeatedly identified as an area of concern. In almost 66 percent of cases, communication is identified as the root cause, or a key cause of the adverse event (Joint Commission 2007). Ineffective clinical handover has been shown to increase the risk of preventable adverse events, length of stay and rate of complications.

A simple solution?

Given these issues, there has been significant interest in promoting effective handover amongst health-care professionals. Despite numerous clinical policies relating to handover, formal handover strategies are often lacking in clinical practice. For example, prior to our study, clinical handover was performed via non-standardised informal mechanisms in our institution. This could involve phone calls, handwritten information or verbal handover. This system was vulnerable to errors and had the potential to compromise patient care. We sought to introduce a reliable, standardised, reproducible method of communicating information regarding inpatients within our medical department, and to subsequently analyse the clinical outcomes and physician attitudes associated with this.

Implementing change

An electronic clinical handover project was piloted within our medical department. The pilot concept and protocol was discussed and agreed upon by the Medical Department, General Manager and Clinical Director. All staff were informed of the clinical handover pilot by email and at a departmental meeting. In addition, in order to achieve 'buy in' a talk was

delivered to all medical department doctors on the evidence base for clinical handover in the healthcare setting and the proposed clinical handover pilot.

An electronic clinical handover template was designed based on the ISBAR3 clinical handover tool (health.gov.ie/wp-content/uploads/2015/01/ISBAR3-Shift-Clinical-Handover-Nov2014.pdf) using Microsoft Word. A Clinical Handover Protocol was produced in order to provide a guide for staff to handover patients. This was distributed to all staff via email and was also available in the doctors' residence.

Staff were instructed to hand over all patients in the intensive care unit (ICU) and coronary care unit (CCU) mandatorily. Staff were also encouraged to handover any patients they felt were critically unwell or for whom the on-call staff should be aware.

“ DESPITE NUMEROUS CLINICAL POLICIES RELATING TO HANDOVER, FORMAL HANDOVER STRATEGIES ARE OFTEN LACKING IN CLINICAL PRACTICE ”

What you don't measure...

In our centre, we believe in the adage 'What you don't measure, you don't manage'. In order to effectively audit and manage this handover system, we determined pre-defined primary endpoints for our pilot study. These were defined as:

1. Compliance with mandatory handover of ICU/CCU patients
2. Total number of handovers performed
3. Acceptability of handover pilot to physicians

Descriptive statistics of handover activity and compliance with mandatory handover were also distributed to all medical staff on a weekly basis. This audit email also served as a reminder of the handover pilot as well as providing feedback on performance. Medical Staff completed a survey before and after the handover pilot. This survey gathered information on physician attitudes to handover and their experience of the programme.

Results

Clinical handover

Over the six weeks of our clinical handover pilot, there were 191 separate handover events at an average of 31.8 handovers per week. Compliance with mandatory handover of ICU/CCU patients averaged 58.9 percent.

Extrapolating out our pilot results for the year would result in approximately 1,655 handover events per annum for our department at our current rate of 58.9 percent compliance.

Physician attitudes

All staff surveyed reported that they were involved in clinical handover. 100 percent of staff felt that written documentation of handover was helpful, and staff satisfaction with handover improved after initiation of the handover pilot (24 percent vs 81 percent, $p=0.000914$). Doctors reported that the number of handovers missed decreased (35 percent vs 13 percent, $p=0.002159$).

Whilst 64 percent of physicians were concerned before the pilot that a typed handover would increase their workload, only 6 percent of the post pilot survey group felt that this was the case ($p=0.000485$). 94 percent of staff felt more comfortable with a formalised method of handing patients over, and their confidence that handover tasks would be completed increased from 18 percent to 81 percent ($p=0.000943$). It was also felt by the majority that patient management plans were clearer using the handover template (65 percent vs 94 percent, $p=0.041381$). Overall, 81 percent of staff surveyed agreed that the clinical handover protocol had improved the way in which we hand over the patients under the care of the medical department.

One size doesn't fit all

An important aspect of clinical handover is 'flexible standardisation'. This refers to the local interpretation of clinical standards to accommodate contextual factors in order to maximise the effectiveness of handover (Laine 1993; Australian Commission on Safety and Quality in Health Care 2013). It is also recommended that electronic applications and templates for handover should be developed in consultation with healthcare staff.

Bearing this flexibility in mind, we believe that the ideal clinical handover system would have the following features:

- Traceability: Physician accessing & modifying handover can be traced
- Username/password protection: For patient confidentiality
- Available and modifiable on all computers within a hospital intranet system
- Steady format: All sections of the handover template must be completed
- Printable: Can be printed and brought with physician on ward round

In our institution, our handover format was designed with our services' needs specifically in mind. As such, all aspects may not be applicable, practical or feasible in other centres. However, the basic principles and clinical standards should still apply, and it is probable that our survey feedback should be ubiquitously reflective of physician attitudes toward clinical handover.

What's the benefit?

Effective clinical handover has the potential to improve patient care. In addition it poses several advantages for medical practitioners, both for those on call and for those working during the day.

“ PERFORMING AN ELECTRONIC HANDOVER OF PATIENTS IS ACHIEVABLE AND FEASIBLE WITHIN A MEDICAL DEPARTMENT ”

For on-call staff, it provides guidance on patient care, contingency planning for possible clinical scenarios and 'problem framing'. Problem framing refers to the way in which the definition of a problem changes the way in which one approaches and understands it. 'Framing' a problem can help broaden the range of alternatives and solutions examined. These benefits should act to reduce the on-call workload. For our day staff, it provides a reliable, transparent method for transferring clinical responsibility and accountability for their patients to the on-call staff. In an era of decreasing shift durations, it is essential we provide physicians with a safe method of transferring responsibility for the patients under their care to their colleagues. Starmer et al. (2015) demonstrated a decrease in medical errors from 33.8 per 100 admissions to 18.5 per 100 admissions ($p < 0.001$) with improved clinical handover. They also showed a reduction in preventable adverse events (3.3 to 1.5 per 100 admissions, $p = 0.04$).

Conclusions and future directions

Our study demonstrates that performing an electronic handover of patients is achievable and feasible within a medical department. Using only a simple Word document and a standardised protocol for its use, we created a cost-neutral solution which would result in >1600 patient handover events per year. It was found to be attractive and effective to physicians without increasing their workload. Looking forward, dedicated software solutions are required to create a reliable, semi-automated clinical handover system integrated with pre-existing inpatient management systems. These have the potential to improve service provision and minimise the risk of adverse events within our healthcare systems. Clinical handover is undoubtedly a complex, multi-faceted process. However, as for many complex problems, the solutions can be surprisingly simple. ■

KEY POINTS

- ✓ Clinical handover refers to inter-clinician communication at care interfaces
- ✓ Clinical handover is a major preventable cause of harm
- ✓ Digital technology has the potential to improve clinical handover
- ✓ In our centre, an electronic clinical handover pilot proved both effective and acceptable to physicians
- ✓ Dedicated software solutions are needed to standardise and digitise clinical handover in our healthcare systems
- ✓ Improved clinical handover could potentially decrease the rate of adverse events and improve patient care



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