"HAND ME AN ISOBAR": a pilot study of an evidence-based approach to improving shift-to-shift clinical handover

Kwang C Yee, Ming C Wong and Paul Turner

ABSTRACT

Objective: To develop, using an evidence-based approach, a standardised operating protocol (SOP) and minimum dataset (MDS) to improve shift-to-shift clinical handover by medical and nursing staff in a hospital setting.

Design, setting and participants: A pilot study conducted in six clinical areas (nursing and medical handovers in general medicine, general surgery and emergency medicine) at the Royal Hobart Hospital between 1 October 2005 and 30 September 2008. Data collection and analysis involved triangulation of qualitative techniques; 120 observation sessions and 112 interviews involving nurses and junior medical officers were conducted across the six clinical areas; information on more than 1000 individual patient handovers was analysed.

Results: We developed an overarching four-step SOP and MDS for clinical handover, summarised by the acronym "HAND ME AN ISOBAR". This standardised solution supports flexible adaptation to local circumstances.

Conclusion: A standardised protocol for clinical handover can be developed and validated across professional and disciplinary boundaries. It is anticipated that our model will be transferable to other sites and clinical settings.

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Shift-to-shift medical and nursing handovers have been identified as high-risk areas in which improved clinical handover solutions are urgently required.[1] Clinical handover requires a transfer of information, responsibility and accountability for patient care.[2] Unless the receiver of the information during handover understands and acts upon the information given, continuity of patient care will not be achieved.

Major factors inhibiting handover improvements include the lack of basic understanding of handover processes and the absence of a common structure.[1] Medical shift-to-shift handover remains poorly defined and poorly understood.[3] Many hospitals do not have clear policies on how to conduct effective handover, and the transfer of responsibility and accountability is not well practised.[4] At the same time, the nursing profession has a long tradition of practising shift-to-shift handover.[5] Recently, the efficiency and effectiveness of nursing handovers have been scrutinised, and the need to improve and optimise the accurate transfer of information, responsibility and accountability has been identified.[6] More importantly, the need to improve clinical handover has been recognised as important for reducing errors, improving patient safety and responding to the increasing use of information technology.[7]

Despite a proliferation of research literature on clinical handover over the past 5 years, there remains a lack of evidence on best practice.[8] Studies recommending the development of standardised operating protocols (SOPs) and minimum datasets (MDSs) are an important step towards improving handover processes.[9-13] A number of SOPs and MDSs have been developed and implemented, including the widely promoted SBAR (situation–background–assessment–recommendation) technique[14] and the handover tool utilised in the TeamSTEPPS program.[15] However, most of these SOPs and MDSs lack validation in clinical settings, and few studies provide details on the experiences and practices of their implementation.[8,15] There is also little evidence that any of these SOPs and MDSs have been developed through direct engagement with health professionals. Furthermore, none of the SOPs and MDSs appear to adequately address the transfer of both responsibility and accountability during handover.

We describe an evidence-based, user-centred approach to developing and validating an overarching MDS and an SOP to improve shift-to-shift clinical handover across disciplinary, professional and departmental boundaries.

METHODS

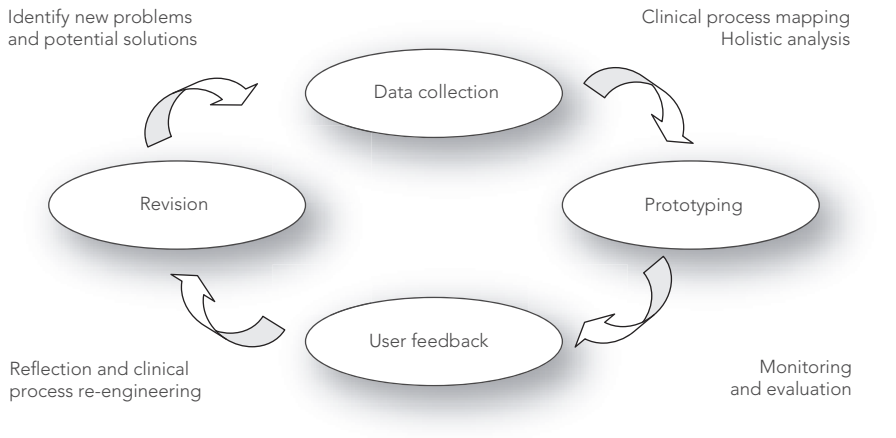
We adopted a sociotechnical approach to understanding and improving clinical handover.[16] Our research team comprised four hospital staff members (three nurses, one registrar) with experience in clinical areas and two information systems researchers. Integrating expertise from clinical and information systems within the research team allowed us to use an iterative approach in combination with qualitative field techniques underpinned by user-centred design principles.[16-18] This helped to optimise transferability and sustainability of the research outputs (Box 1).

Our study was conducted at the Royal Hobart Hospital from 1 October 2005 to 30 September 2008. We examined three clinical departments (general medicine, general surgery and emergency medicine), with a focus on junior medical officers and nursing staff. Data collection and analysis involved triangulation of qualitative data from several sources (handover notes, field observations, semistructured interviews and focus groups).

Five steps were involved. Step 1 focused on understanding current handover practices, acquiring data on users' experiences and attitudes, and generating insight into key factors affecting handover and the inter-relationships between them. We conducted 120 observation sessions (60 with nurses, 60 with doctors) and 112 interviews (51 with nurses, 61 with doctors) across the six clinical areas (nursing and clinical handovers for all three departments). Interviews were audio-recorded and researchers also took comprehensive notes covering not just the content but also other factors of potential relevance, including body language and frequency of interruptions (although interviews were conducted in a separate room, clinical staff answered pagers when necessary). Interview transcripts were analysed using a coding process drawing on the principles of grounded theory.[19]

In Step 2 we analysed handover messages (both written and verbal) for information content and structure as part of the process of developing initial MDSs and SOPs for each of the clinical areas. Some clinical areas already had typed handover sheets in combination with verbal handovers, while other areas had typed/written handover sheets or verbal handovers only. For medical officers, written handover sheets were collected by the doctor in the research team, who analysed them together with results of the observation sessions to help validate the emerging MDS. For nurses, typed handover sheets and verbal

1 Holistic approach integrating expertise from clinical and information systems



information transfer were analysed in combination with observation sessions by the whole research team following data collection. Handover sheets from 60 medical handover sessions and 60 nursing handover sessions were analysed. These contained handover information on more than 1000 individual patients.

Step 3 involved analysis and interpretation of the data gathered in Steps 1 and 2. This generated six individual MDSs and SOPs for nursing and medical handover, along with associated training manuals and training workshops.

Step 4 involved iterative processes of refining and validating these SOPs and MDSs by trialling them in each clinical area with doctors and nurses. The clinicians then interacted with the project team both formally (through focus groups) and informally to provide comment and feedback for their improvement. This real-life clinical testing, over a period of 4 months, provided validation of the SOPs and MDSs in each clinical area.

In Step 5 the research team engaged in a further detailed analysis to explore similarities and differences across the six SOPs and MDSs. This led to the development of an overarching SOP and MDS, as described below.

Ethics approval

Our study was approved by the Tasmanian Social Sciences Human Research Ethics Committee. Informed consent was obtained from all participants.

RESULTS

The overarching SOP and MDS that we developed was given the acronym "HAND ME AN ISOBAR". This represents a four-step evidence-based approach to clinical handover. The steps and their constituent phases are summarised in Box 2 and Box 3 and explained in detail below.

Step 1: HAND (prepare for handover)

Preparation is very important for an effective clinical handover process and is comprised of four phases:

H: Hey, it's handover time!

Clinicians are busy, often simultaneously engaged in multiple tasks requiring completion. To be effective, clinical handover has to be viewed as a key task. This step emphasises the importance of culture in ensuring that handover is embraced as a priority.

A: Allocate staff for continuity of patient care

During the clinical handover process, it is essential that emergency patient care be maintained and delivered by staff. Therefore, clear allocation of staff to maintain continuity of care is essential to ensure patient safety and minimise disruptions during handover.

N: Nominate participants, time and venue for handover

Attendance of key staff should be arranged and the handover process should have a clear starting time, place and maximum duration. Clinical handover should ideally be conducted at a venue that will minimise disruptions.

D: Document on written sheets and patient notes

As clinicians tend to retain little information from purely verbal handover, it is important to complement verbal instructions with written handover sheets. Thus, it is essential that all information be clearly documented in both the patient progress notes and the handover sheets.

Step 2: ME (organise handover)

The organisation step is comprised of two phases:

M: Make sure all participants have arrived

It is critical to ensure that all key participants have arrived before handover of essential information begins. Each organisation should determine key participants for each handover session. Clinicians must be provided with paid and protected time to attend handover. Punctuality is important, reflecting the professionalism of clinicians and a safety culture within the organisation.

E: Elect a leader

The handover of patients during a shift change should be supervised by a designated leader (usually the most senior clinician present). The leader should ensure that all relevant agenda items are covered in a timely manner.

Step 3: AN (provide environmental awareness)

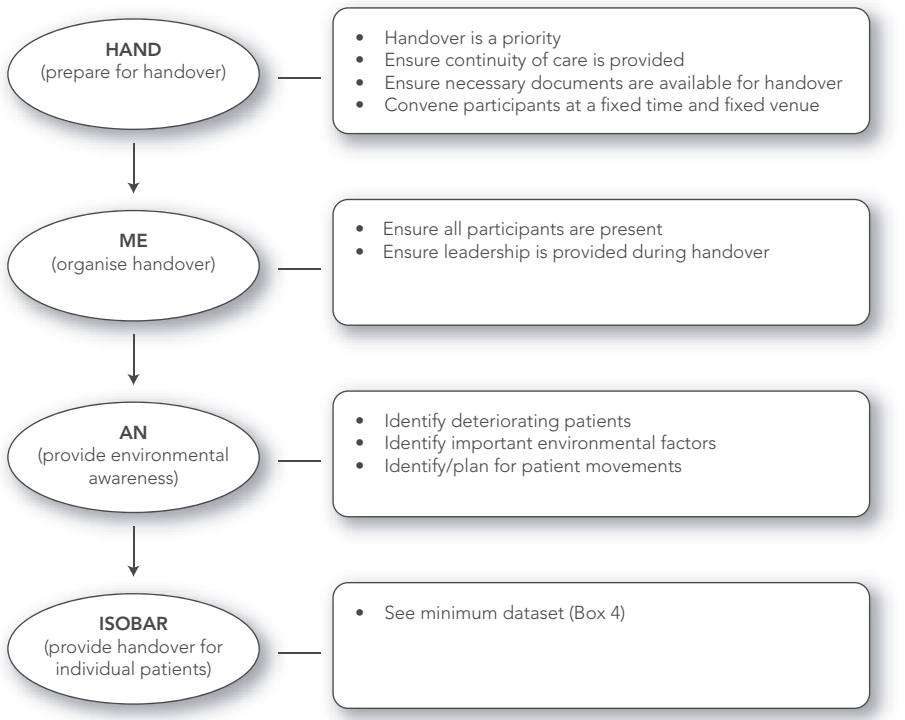
All handovers, regardless of type, should provide the incoming team with a clear idea of the

2 Standardised operating protocol summary ("HAND ME AN ISOBAR")

Step 1: HAND (prepare for handover)	
H	Hey, it's handover time!
A	Allocate staff for continuity of patient care
N	Nominate participants, time and venue
D	Document on written sheets and patient notes
Step 2: ME (organise handover)	
M	Make sure all participants have arrived
E	Elect a leader
Step 3: AN (provide environmental awareness)	
A	Alerts, attention and safety
N	Notice
Step 4: ISOBAR (provide handover for individual patients)	
I	Identification of patient
S	Situation and status
O	Observations of patient and call to MET
B	Background and history
A	Action, agreed plan and accountability
R	Responsibility and risk management

MET = medical emergency team. ◆

3 Standardised operating protocol flow chart



environment and situation in which they will be working. This step should include clear guidelines on the identification of deteriorating patients. This step is comprised of two phases:

A: Alerts, attention and safety

It is important at the beginning of a shift to identify patients who require specific or urgent attention, as well as any occupational safety issues (eg, patients who are aggressive towards staff). Information should include environmental factors that may affect the safety of patients, health care professionals or others. Staffing issues (such as the number of permanent staff on leave who have been replaced by relieving staff) should also be mentioned.

N: Notice

All potential patient movements should be identified to members of the incoming team so they can devise plans to manage the workload. Information about potential patient flows should be given in summarised form.

Step 4: ISOBAR (provide handover for individual patients)

This step may involve a range of different formats, including written sheets and/or verbal handovers, but face-to-face handover (supported by documentation) is the preferred option. It emphasises the need to allow for interaction and clarification during handover.

The MDS for individual patient handover (summarised by the acronym "ISOBAR" [see below]) will ensure effective and efficient clinical handover if used in accordance with the SOP outlined. The six components of the MDS are designed to ensure the transfer of information, responsibility and accountability during handover:

I Identification of patient
S Situation and status
O Observations of patient and call to medical emergency team (if indicated)
B Background and history
A Action, agreed plan and accountability
R Responsibility and risk management

These six elements are presented in a flow chart in Box 4.

DISCUSSION

The overarching SOP and MDS described here emphasise the transfer of information, responsibility and accountability and provide a coherent framework for improving the clinical handover process in different clinical settings. The SOP and MDS have undergone considerable validation within the Royal Hobart Hospital across six different clinical areas. Specifically, the SOP and MDS illustrate how to flexibly adapt a standardised approach into shift-to-shift handover for medical and nursing staff in general medicine, general surgery and emergency medicine. More generally, their development recognises the need for solutions that are transferable to national and potentially international levels.

The initial experience of implementing the SOP and MDS has been an improvement in clinical handover. Extensive evaluation is now underway to further assess the impact of the SOP and MDS on clinical handover, with the results to be reported in future publications.

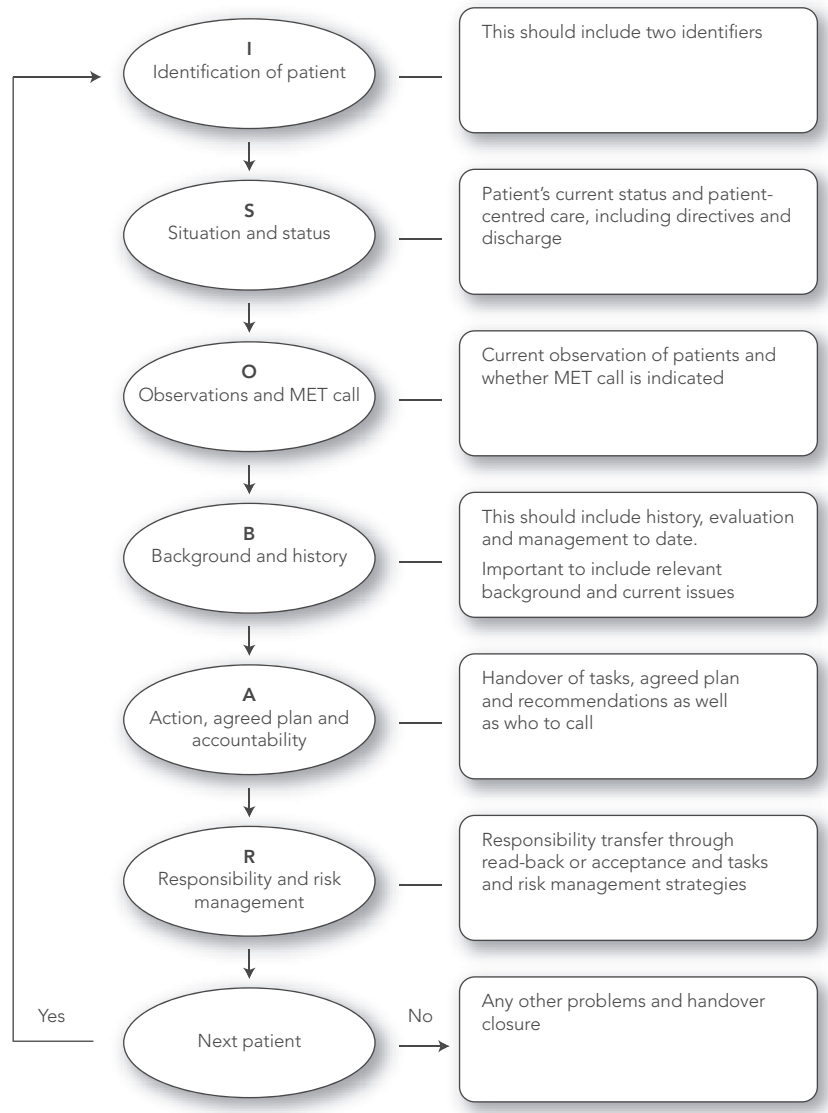
Any standardised solution to handover must be adaptable to local circumstances to achieve safer clinical care. The flexible standardisation embedded within our overarching SOP and MDS was designed to support their transferability to other clinical settings. Although multidisciplinary handover was not the focus of our research, we anticipate that the SOP and MDS will provide a framework for developing and implementing multidisciplinary handover in the future.

The development of six MDSs in six clinical areas provided the project team with evidence of the generalisability and transferability of this work. This perspective is further supported by the fact that our SOP and MDS can accommodate a range of different methods for clinical handover, including verbal handover, written handover and bedside handover. Most importantly, flexibility can be maintained in the development process of MDSs within this framework to accommodate local circumstances, including differing handover content requirements.

We acknowledge that there are ongoing conceptual arguments regarding the possibility of actually transferring accountability for patient care during clinical handover.[2] We accept that there are certain handover circumstances in which the responsibility and accountability for patient care cannot be explicitly stated and transferred. Nevertheless, our model does support continuity of patient care from one team of practitioners to another.

We are now very keen to further validate the generalisability and transferability of our overarching SOP and MDS by trialling them in another hospital and in a range of other clinical settings. In this regard, we emphasise the importance of the initial data collection process. It is not only an essential tool for deriving an SOP and MDS for local use, but also a means of engaging local clinicians in the clinical handover improvement process. We also emphasise that successful implementation of our SOP and MDS requires the commitment and involvement of all relevant stakeholders. In this regard, a clinical handover improvement guide, known as the "OSSIE Guide", is currently being developed

4 Minimum dataset flow chart for individual patient handover



MET = medical emergency team. ◆

by the Australian Commission on Safety and Quality in Health Care, based on our research, to assist clinicians to improve clinical handover.

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COMPETING INTERESTS

None identified.

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