

# Exploring socio-technical insights for safe nursing handover

Ming Chao WONG<sup>a,1</sup>, Kwang Chien Yee<sup>b</sup> and Paul TURNER<sup>a</sup>

<sup>a</sup>*eHealth Services Research Group (eHSRG), School of Engineering and ICT,  
University of Tasmania*

<sup>b</sup>*School of Medicine, Faculty of Health, University of Tasmania*

**Abstract.** Current efforts to improve nursing handover frequently use prescriptive approaches based on research evidence of handover issues within a single nursing ward or nursing specialty. Despite reported handover improvement, few studies adequately consider the transferability of results to other nursing handover environments or acknowledge the unique attributes that supported sustained improvement. With the increasing diffusion of electronic tools it has become even more critical to ensure that socio-technical issues that may impact on the quality and safety of nursing handovers are identified. This paper describes a qualitative research project that examined nursing handover in three different wards – General Medicine, General Surgery and Department of Emergency Medicine in a tertiary teaching hospital. Through conduct of a detailed analysis of nursing handover processes, this paper highlights the similarities and differences in the handover among the three different wards and presents five key socio-technical insights to support safe nursing handover.

**Keywords.** Socio-technical, nursing handover, patient safety, continuity of care, handoff

## Introduction

Clinical handover is defined as “the transfer of professional responsibility and accountability for some or all aspects of care for a patient or a group of patients to another person or professional group on a temporary or permanent basis” [1]. In examining handovers conducted by different healthcare professionals, it is evident that there is a substantial body of literature available to support evidence-based practice in nursing handover [2,3]. This volume of literature is partly explained by the fact that nursing handover has been a part of nursing practice for a long time and has become something of a ‘ritual’ within the nursing profession [1,2]. Nursing handover remains a priority for many nurses as they value the information obtained from the process [1]. The significance of nursing handover for nursing practice is also evidenced by its inclusion within nursing placement handbooks [3].

Noticeably most studies reporting on efforts to improve nursing handover have tended to adopt a prescriptive approach that is often based on research evidence on handover issues within a single nursing ward or nursing specialty. These prescriptive

---

<sup>1</sup> Corresponding Author: Dr. Ming Chao Wong, Senior Research Fellow, School of Engineering and ICT, University of Tasmania, Private Bag 87, Hobart 7001, TAS; Email: mcwong@utas.edu.au

approaches include the use of electronic tools [4], standardized information transfer [5] and bedside handover [1]. Although these approaches often report success in terms of improvements it is evident that significant differences existing in handover practices in different wards, specialties and hospitals [2]. While various prescribed methods might well improve nursing handover in a particular area, these may not be easily transferable to other nursing handover settings. More importantly, with the increasing diffusion of electronic tools it has become even more critical to ensure that socio-technical issues that may impact on the quality and safety of nursing handovers are identified.

This paper describes a qualitative research project using an over-arching user-centred approach that examined nursing handover in three different wards – General Medicine, General Surgery and Department of Emergency Medicine in a 550 bed tertiary teaching hospital. Through conduct of a detailed analysis of nursing handover processes, this paper highlights the similarities and differences in the handover among the three different wards and presents five key socio-technical insights to support safe nursing handover.

## **1. Methodology**

This study adopted a user-centred approach to conduct research on nursing handover improvement within the General Medical Ward, General Surgical Ward and DEM at a 550 bed Tertiary teaching hospital in Australia. Observations, semi-structured interviews and analysis of clinical handover notes and messages were used in collecting the data which were analysed drawing on the principles of grounded theory. These three techniques are examined in turn.

*Observations:* In recognition of the complexity of nursing handover processes and to ensure that existing processes in each clinical area were understood, the project team conducted a minimum of 10 observation sessions in each ward documenting the clinical context, factors affecting the nursing handover process, the nature and content of information transfer and information technology artefacts used during nursing handover. This approach enabled the rapid identification and understanding of specific socio-technical sensitivities and all existing procedures, processes, challenges and issues within each clinical area. A total of 60 observations were conducted, equally divided among the three nursing areas of general medicine, general surgery and department of emergency medicine.

*Semi-structured interviews:* Semi-structured interviews were conducted primarily with nurses who were perceived by their peers as being good at handover and where this had been cross-validated through observation sessions. The interviews which deliberately stimulated interviewees to engage in a process of self-reflection on their handover process as well as their role within it aimed to generate an in-depth understanding of the nursing handover process, the minimal data set required to support nursing handover, the role of information technology and strategies that could improve nursing handover in the respective wards. All interviews were voluntary and audio recorded with consent. The audio-recordings were transcribed and analysed drawing on the principles of grounded theory within 24 hours of the completion of the interviews. A total of 58 interviews were conducted, including 22 from general medicine, 12 from general surgery and 24 from department of emergency medicine.

*Handover notes and messages:* A combination of typed handover sheets and verbal information transfer was analysed in order to contribute to the development of the minimum data sets in each area. The typed handover sheets were from general medicine and general surgery wards as these wards have a word document computer templates for nurses to enter data. The verbal information transfer came from emergency department, as the emergency department used verbal handover and these verbal handovers were written down during data collection period (during observations). A total of 100 handover messages for each ward were analysed in this study.

## **2. Results**

### *2.1. General Medical Ward*

The General Medical Ward accepts the care of patients with medical issues requiring further investigation and management. The staff have special expertise in the management of acute strokes, endocrinological, rheumatological, renal and gastroenterological problems. Most of their patients are elderly with multiple comorbidities requiring social care in addition to caring for their acute medical condition. Nursing care requirements for medical patients are complex and require individual planning. While clinical pathways are available for common conditions, most patients in this ward have different diagnoses and treatment plans. Nursing staff also have to interact significantly with the medical team and allied health.

The medical ward is divided into three sections with each section looking after approximately 10 patients. There is a nurse unit manager who is in charge of all patients and issues related to the ward. There are also two senior nursing staff who assist in the coordination of staff for patient care delivery during the day. Each section is looked after by a team of nurses. There are usually 2-3 nurses per team and generally speaking, the most senior nurse of the team acts as the team leader. As the care for patients is delivered via 3 teams of nurses over a 24 hour period, each shift-to-shift handover essentially requires all relevant information to be handed over in order to hand over the responsibility of care. It is very important to note that while the same nurse may work consecutive days, he/she may not look after the same patients during these days as he/she might work in a different section and with a different team.

There are three clinical handover sessions per day everyday of the week. Morning handover starts at 7:30am, afternoon handover starts at 2:15pm and evening handover starts at 10:00pm. There are thirty minute shift overlaps with the aim of achieving good handover. A handover sheet typed up in MSWord is used and contains some of the minimum data set required. Nursing staff conduct face-to-face handover in a meeting room away from the clinical area with this handover sheet and refer to the patients' notes when necessary. This usually involves all nursing staff from the incoming team and at least 1 nurse from the outgoing team. Information regarding the care of the patients was discussed at handover time and most of the information were available from the patients' notes of the handover sheet. Each incoming nurse obtained a print out of the handover sheet that contained the information. They made personal notes about the patient and planned for their shift with this piece of paper which was kept in their pocket and they referred to it when communicating with other healthcare professionals. They wrote on this sheet of paper throughout their shift and entered all

the information into the computer using MSWord towards the end of their shift. During handover, the verbal transfer of information mainly covered what their experiences was of looking after the patients during their shift and highlighting tasks which needed to be completed. They also highlighted the level of care that each patient required including medical emergency team (MET) status and resuscitation status.

## *2.2. General Surgical Ward*

The General Surgical Ward accepts care of patients who have surgical issues requiring further investigation and management. There are a total of 25 beds within the General Surgical Ward, with a step-down ICU care area, known as the Special High Observation Unit (SHOU room), which can cater for up to 3 patients requiring close observation and monitoring. Many of the inpatients under surgical teams, however, present with acute problems and their clinical status changes rapidly. While post-operative care is usually complex and labour intensive, that care requirement is standardized into patient care pathways.

The surgical ward is a long “U” shaped ward. There are a total of 34 nurses, comprising of part-time and full-time staff. The morning shift consists of 6-7 staff, excluding the clinical nurse manager. The afternoon shift consists of 5-6 staff and night shift has 3-4 staff. There is a 30 minute overlap between shifts for morning and night handover and a 1hr and 45mins overlap for afternoon handover. This staffing model is based on the fact that nursing staff need to prepare patients for surgery in the morning and in the early afternoon. Patients are allocated to nursing staff by the incoming nurse-in-charge.

There are three nursing handover sessions per day everyday of the week. The handover sessions start by updating on the computer the handover sheet which is typed up using MSWord and printed off for each incoming staff member. The handover sheet consists of patient demographics, operation details, deterioration status, in situ devices and urgent care requirements. The handover occurs near the patient’s bedside. Each patient chart also contains a nursing care plan with basic care details e.g. hygiene, dressings, mobility, allied health referrals that are updated every-day. The nursing care plan and the MSWord handover sheet is used to guide discussions at handover. This discussion generally focuses on clinical pathways and the deviation from those clinical pathways.

## *2.3. Department of Emergency Medicine (DEM)*

DEM accepts care of patients requiring emergency medical treatment. There are usually many sick patients at any one time and they require constant observations as they have the potential to deteriorate rapidly. The nursing staff are allocated patients to look after but the complex and dynamic environment of DEM with the rapid changeover of patients mean that nursing staff need to multi-task continuously. Information transfer is intense amongst nursing staff in DEM, nursing staff in DEM with nursing staff in other wards and with other healthcare professionals (monitoring devices?). Constant interactions, discussions and interruptions are the norm in DEM. The pressures of delivering efficient and effective care dictate the need for rapid communication and teamwork from doctors and nurses as well as other healthcare professionals. Due to the acuity and complexity of nursing care delivered in DEM, the focus on continuity of care is paramount during handover. The main task in DEM is

continual care planning for patients i.e. Is it likely that the patient will require inpatient care or can a diagnosis be reached and a management plan derived in order to discharge the patient back to the community?

There are three main clinical handover sessions per day everyday of the week. Varying times of shift overlap were observed within DEM i.e. Morning to afternoon shift 2hrs, afternoon to night shift 45mins, night to day shift 15 mins. Nursing handover always commences in an allocated room at the commencement of the afternoon and night shifts. The nursing staff in the incoming shift are briefed by the outgoing nurse coordinator who provides a brief summary of the previous shift and an overview of DEM. Following this, nursing handover occurs in parallel in the following areas: A-side (acute), B-side (non-acute), Resus, Short Stay Unit and the General Clinic and Triage.

In each of the above mentioned areas, nursing handover occurred outside the clinical area, near a computer terminal where patient notes were available. No other information artefacts were used during face-to-face handover as there is a nursing care plan available for each DEM patient. Nursing staff will only obtain handover information related to the patients allocated to them. The verbal handover process is succinct and focused mainly on tasks which had to be completed for the patient to be discharged from DEM. Nursing staff wrote down the information and tasks which had to be done often on a piece of paper or even a paper towel and that is placed close to the patient's folder.

### **3. Discussion**

Analysis of the results has revealed interesting socio-technical insights for development of technology tools to improve nursing handover. Our results have confirmed the ritualistic nature of nursing handover [4] which includes having a protected time for handover, anticipating that handover is going to take place at the beginning of the shift, and having time for patient care and workload planning for the shift. Importantly, handover appears to be the time to re-evaluate the patient care plan and compare that with the clinical notes and other documentation used during the shift to record progress. As such, handover occurs routinely in nursing practice and there is a strong handover culture embedded in the nursing profession evident across the three wards [3]. However, the results also evidence significant differences in the way the three wards function and nursing handover for each ward is developed towards understanding the nursing care needs of the patients in their respective wards.

The current nursing handover practice across the three wards raises issues regarding the quality and safety of patient care. Firstly, the emphasis in nursing handover was found to be less about the transfer of responsibility and accountability and more about marking the start of a shift and the allocation of workload. This is especially obvious with the long shift overlaps where the responsibility and accountability for the patients is ambiguous as it is shared between the in-coming and the out-going teams. Secondly, the information artefacts used to support nursing handover play very different roles in the three wards. In General Medicine, the handover sheet contains all the care plans for the nursing staff and all updates are handwritten on that handover sheet. Clinical notes were only referred to on an as needed basis. In General Surgery, the handover sheet contains a summary of patient information and the clinical pathway is the vital document used to support handover. In

DEM, information artefacts are used only temporarily for the transit of patients. None of these information artefacts used are archived and in the case of DEM, standardized. Thirdly, information pertaining to the hospital and the ward which might have impacted on the nursing shift is delivered through social interactions during clinical handover sessions rather than formally. These can include issues relating to patients who have been wandering around in General Medicine, the transfer of patients to and from the operating theatre in General Surgery and external events in DEM e.g. bushfires. Finally, the information that is shared between the two nursing teams relates more to the requirements for patient care rather than the development of a shared mental image of a patient. In General Medicine, the verbal handover communicates the level of escalation of care as well as a nurse's experience of caring for that patient. Transferring that experience in caring for that patient during the shift takes precedence over the objective clinical information provided. In General Surgery, handover is about communicating the tasks that need to be completed especially in regard to the clinical pathway. When there is a deviation from this e.g. a medical patient being placed in a surgical ward, problems arise as it is difficult to accommodate this patient into their current handover practices. In DEM, the emphasis is all about transiting the patients through rapidly and handover communication is very short.

Given the discussion provided above, it is important to consider the following insights for nursing handover improvement which will assist different wards in designing a safe nursing handover process:

1. Nursing handover practice must interact with the current nursing care requirements for the particular ward as this is the time when nurses plan for their shift.
2. The shift overlap must allow nurses to clearly transfer the responsibility and accountability of care from one team to the other.
3. The information artefacts used to support nursing handover must ensure accurate and current information transfer and should be archived.
4. The organisational issues which affect nursing care of the patient must be formally handed over from one shift to the other.
5. Patient information needs to be standardised and objective.

#### **4. Conclusion**

This paper has provided a detailed account of nursing handover processes in three different wards – General Medicine, General Surgery and DEM. Through analysis of these three handover processes, this paper has highlighted five important insights to improve nursing handover process to improve patient safety.

#### **References**

- [1] Australian Commission on Safety and Quality in Health Care. *OSSIE guide to clinical handover improvement*. Sydney: Australian Commission on Safety and Quality in Health Care.; **2010**.
- [2] Australian Council for Safety and Quality in Health Care. *Clinical handover and patient safety: Literature review report*: Australian Council for Safety and Quality in Health Care.; **2005**.
- [3] MC. Wong, KC. Yee, P. Turner P. *A structured evidence-based literature review regarding the effectiveness of improvement interventions in clinical handover*: Australian Commission on Safety and Quality in Health Care; 2008.

- [4] S. Scovell. Role of the nurse-to-nurse handover in patient care. *Nurs Stand.* (2010) **24**, 35-39.
- [5] AM. Evans, DA. Pereira, JM. Parker. Discourses of anxiety in nursing practice: A psychoanalytic case study of the change-of-shift handover ritual. *Nurs Enq* (2008) **15**, 40-48.
- [6] ACC. *Participants workbook. Clinical leadership: Theory into practice.* Australia.: ACC; 2012.
- [7] N. Staggars, I. Clark, JW. Blaz, S. Kapsandoy. Nurses' information management and use of electronic tools during acute care handoffs. *West J Nurs Res.* (2012) **34**, 153-173.
- [8] KC. Yee, MC. Wong, P. Turner. "HAND ME AN ISOBAR": a pilot study of an evidence-based approach to improving shift-to-shift clinical handover. *Med J Aust.* (2009) **190**, S121-S124.
- [9] W. Chaboyer, A. McMurray, J. Johnson, L. Hardy, M. Wallis, SFY. Chu. Bedside handover: quality improvement strategy to "transform care at the bedside". *J Nurs Care Qual.* (2009) **24**, 136-142.