OPTIMISING THE NURSING SHIFT HANDOVER IN PAEDIATRIC INTENSIVE CARE

Candidate: CLARE DAVIS (DVSCLA006)

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Supervisor: Assoc. Prof. Minette Coetzee, PhD, UCT Child Nurse Practice Development Initiative, Department of Paediatrics

Co-supervisor: Dr. Una Kyriacos, PhD, UCT Division of Nursing & Midwifery, Department of Health and Rehabilitation

Division of Nursing and Midwifery, Department of Health and Rehabilitation Sciences

DECLARATION

I, Clare Davis, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and have used the UCT Harvard system of referencing. I declare that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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ABSTRACT

Background: The practice of handover between health professionals is an everyday practice, but a potentially risky aspect of patient care. Miscommunication of information can result in inadequate or unsafe care. Consequently, the World Health Organization called for a standardised handover approach, and multiple strategies to achieve this have subsequently emerged. However, effecting and sustaining changes to improve practice in healthcare has been well recognised as a challenging task.

Objective: The aim of this study was to optimise the quality and efficiency of nursing shift handover in the Paediatric Intensive Care Unit (PICU) at Red Cross War Memorial Children's Hospital, Cape Town, by use of a participative approach.

Methods: Using an action research approach participants from the study setting, together with a facilitator, worked in action research cycles to diagnose the existing handover practice and plan, and to implement and evaluate strategies to optimise features identified as requiring optimisation.

Results: PICU nursing shift handover consists of a bedside, shift leader and unit handover. This study concentrated on the bedside and unit handover. Analysis of the bedside handover identified features that required optimisation related to both the content of handover and its process. This led to implementation of a handover information form and a conversation with nursing management to request assistance in ensuring a protected handover window period. Analysis of the unit handover also identified potential for optimising the process. The handover was converted to an electronic handover presentation and situated in the staff tea room. A standard operating procedure was also proposed to make the optimal bedside and unit handover practice explicit and provide a document for use in future. Evaluation of these strategies demonstrated their potential to optimise the pre-existing handover practice and identified a need for ongoing action research cycles to refine the strategies.

Conclusion: Progress towards the optimisation of handover practice in this setting is evident from the results, but actioning a change and optimising practice was found to be neither easy nor quick. Key conclusions from the study are as follows: handover in this setting is not simple – it is a complex practice consisting of three different handover episodes; there is an absolute need to make practice visible in order to be able to start an optimisation process, and an action research approach is particularly effective for doing this; a dedicated facilitator was significant to effect a change and thus optimise practice; handover is a sub-system within the larger parent system of healthcare, and it should be expected that making a change to one sub-system is likely to impact on another; and change and optimisation are only possible if those in the setting are ready for them.

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ABBREVIATIONS

BMA: British Medical Association

EN: Enrolled Nurse

ENA: Enrolled Nursing Assistant

HIV: Human Immunodeficiency Virus

ICEN/ENA: Incoming enrolled nurse/enrolled nursing assistant

ICRN: Incoming registered nurse

ICU: Intensive Care Unit (Can be also used to mean just Intensive Care)

IHI: Institute of Healthcare Improvement

MS 2010: Microsoft 2010

NICE: National Institute for Clinical Excellence

OGEN/ENA: Outgoing enrolled nurse/enrolled nursing assistant

OGRN: Outgoing registered nurse

OM: Operational Manager

PICU: Paediatric Intensive Care Unit (Can be also used to mean Paediatric Intensive Care)

RCWMCH: Red Cross War Memorial Children's Hospital

RN: Registered Nurse

NHS: National Health Service

NICE: National Institute of Clinical Excellence

SMS: Short Message Service (Also known as a 'text')

SOP: Standard Operating Procedure

WHO: World Health Organisation

WMA: World Medical Association

OPERATIONAL DEFINITIONS

Caregiver: The person present with the child (patient) in hospital. Usually, the mother, it is also commonly an aunty or grandmother but, the term is all encompassing of other adults as well.

Clinical Mentor: A senior registered nurse working in the clinical environment teaching other nurses clinical knowledge and skills.

Clinical technician: A technician working in the clinical environment whose role it is to provide assistance to other practitioners using specialist equipment for and on patients.

Community service: The requirement of all newly registered professional nurses to complete a period of one year working at a public health facility.

Core participant: Someone in the core participant group.

Emergency department: The department in a hospital to which people can present if they have a sudden onset of acute illness or following trauma. An appointment is not necessary; patients are assessed on arrival and then treated according to severity at presentation.

Enrolled nurse: A nurse enrolled with the South African Nursing Council under section 31 of the Nursing Act (2005) having completed a minimum of two years of training. They are able to complete nursing tasks under the supervision of a registered nurse.

Enrolled nursing assistant: A nurse enrolled with the South African Nursing Council under section 31 of the Nursing Act (2005) having completed at least six months of training. They are able to complete nursing tasks under the supervision of a registered or enrolled nurse

'First tea' and 'second tea': Terms used to separate the nurses on a shift into two groups. It is primarily used to determine who takes the first tea break but is also used to provide groupings for other activities such as handover attendance and attending at training.

Incoming nurse: Any nurse who is starting her shift.

Insider-participant: Any participant employed to work in the PICU.

Intensive care: The speciality that provides care to "patients with potentially recoverable, life-threatening conditions who can benefit from more detailed observation, treatment and

technological support than is available in general wards and departments or high dependency facilities." (The Paediatric Intensive Care Society, 2010a)

Intensive care unit: The setting within a hospital in which care is provided to adults requiring intensive care

Ja: South African way of saying 'yes'.

Nursing process: A collective term used for the folder in which all nursing documentation is contained. Contains the paper where nurses write their notes during and on completion of a shift.

Operational Manager: A senior registered nurse who is the overall manager and leader in a specific ward environment.

Outsider-participant: Any participant normally employed outside of the PICU.

Paediatric intensive care unit: The setting within a hospital in which care is provided to children requiring intensive care

Participant: Someone from the overall PICU nursing team.

PICU nursing management team: The Deputy Nursing Manager responsible for the PICU, the Operational Managers and the Clinical Mentors were classed as the PICU Nursing Management team within this study.

PICU nursing team: Every nurse working in the PICU.

Red box: The term used to describe an emergency resuscitation – the equipment that may be required is all stored in a 'red box' that someone will be asked to bring to the bedspace.

Registered nurse: A nurse registered with the South African Nursing Council under section 31 of the Nursing Act (2005) having completed a minimum of three but usually four years of diploma or degree study. Usually known as a 'sister' in the clinical environment.

Shed: The 'shed' is colloquial term used to describe a smaller side room containing five bed spaces in which the children post-operative cardiac surgery are commonly nursed together.

Shift leader: A senior professional nurse with PICU experience who, within a set shift period, will oversee the care of all patients, manage the ward organisation, support junior team members and assist the Operational Manager.

Specialist paediatric critical care nurse: A registered nurse who, in addition to the registered nursing training, has completed and registered with the South African Nursing Council, a postgraduate diploma in Paediatric Critical Care Nursing, and gained clinical experience though working in a Paediatric Intensive Care Unit.

Outgoing nurse: Any nurse who is finishing her shift and therefore going home.

Chapter 1

INTRODUCTION

Chinese Whispers is a game played around the world, in which one person whispers a message to another, which is passed through a line of people until the last player announces the message to the entire group. Errors typically accumulate in the retellings, so the statement announced by the last player differs significantly, and often amusingly, from the one uttered by the first ("Chinese Whispers", 2013).

The similarity between this childhood game and the practice of handover in health care is one that is all too real. Unlike the game, however, the delivery of inaccurate patient information is not amusing but potentially dangerous, and thus the practice needs to change.

This chapter serves to give the reader an overview of the research problem by first introducing the concept of handover, explaining its relevance to patient safety within the healthcare environment and indicating current international recommendations regarding optimisation of handover practice. Secondly, it will describe the clinical context in which the research took place, together with the rationale, aims and objectives of the research.

1.1 OVERVIEW OF THE LITERATURE

Within the healthcare environment handover forms an essential element of daily practice. It is normal for patients to receive care and treatment from a number of professionals within the multidisciplinary team, all of whom need to have a comprehensive and up-to-date understanding of the patients and their conditions, to be able to competently and safely carry out their role. Effective communication, both within and between multidisciplinary teams, is therefore essential, and has been recognised as such in the World Health Organization (WHO) High 5's Project (WHO, 2009).

Jeffcott et al. (2009:272) define handover as "the transfer of information, and professional responsibility and accountability, between individuals and teams, within the overall system of care". Essentially, one person providing care to a patient imparts information about that patient to another person who is assuming responsibility for the patient's care in a different manner or setting, or simply for the next period of time. Handover therefore occurs on a regular basis between healthcare professionals; at the start and end of every shift, when they

take breaks, and when a patient is transferred between different levels or settings of care, either within or between hospitals (Dracup & Morris, 2008).

1.1.1 Nursing handover practice

Nurses make up the largest proportion of the multidisciplinary team, their role being to ensure that consistent care and appropriate treatment are provided to patients for 24 hours a day. Effective communication and co-ordination, both within the nursing team and between the wider multidisciplinary team, are essential to the fulfilment of this role, and one method of facilitating this is through the deliverance of handover. Riesenberg, Leitzsch and Cunningham (2010:24) describe it as being "integral" to nursing practice and Strange (1996) suggests that it may even be a ritual.

Literature published about nursing handover practice focuses primarily on the end of shift handover, which occurs twice, if not three times, daily. It has been studied within a range of clinical specialties and with a multitude of different goals. However, research related to handover practice in the intensive care unit (ICU) is limited, particularly so for the paediatric intensive care unit (PICU). This is despite the patients in such settings being acknowledged as vulnerable (Dracup & Morris, 2008) and the handover described as "complex and multifaceted" (Philpin, 2006:86). At the point of writing, I have found only three articles that explicitly address the PICU nursing handover (Manias & Street, 2000; Philpin, 2006; Sri, 2012). The little that has been published about the ICU nursing and medical handover in both the ICU and PICU focuses more on the handover at the point of transfer into the ICU.

1.1.2 The effect of poor handover practice

The exact function, structure and content of shift handover vary between clinical settings; however, the need for communication in handover to be accurate and appropriate is absolute. "Incomplete, confusing, unclear, misunderstood, not standardised, misinterpreted or non-existent" communication is ineffective and dangerous (Mascioli et al., 2009:52). Indeed, Dunn and Murphy (2008:9) assert that "the delivery of information appropriately in patient care (process) may be at least as important as the substance of care itself (content); certainly, at least, they are inextricably linked".

The effects of poor communication on patient safety are increasingly evident in the literature. The Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations) report that for the period 1995–2005, ineffective communication was the cause of greater than 60% of adverse events in healthcare settings (Joint Commission, 2007). Wilson

et al. (1996) reported that out of more than 14 000 admissions, 16.6% (n=2353) had experienced an adverse event; in 11.1% (255) improving communication was cited as an area for attention to prevent recurrence. With particular reference to nursing, during the development of a classification system for nursing error, Tran and Johnson (2010) identified that communication errors accounted for 22% (64/285) of all errors, 9% (26/285) being directly related to nurse-to-nurse communication.

A few studies have detailed the specific effects of a poor handover on patient care. McCann, McHardy and Child (2007) recount that 60.9% (25/41) of doctors and 37.5% (12/32) of nurses reported experiencing a clinical problem with a patient, which they perceived to be a direct result of a poor handover, more than 7-14 times in the previous 3 months. Pezzolesi et al. (2010) similarly describe how out of 334 handover incidents, 51% (170/334) occurred intra-speciality, with 84% (143/170[1]) related to the shift handover. Classifying the incidents in terms of type, poor handover was recorded for 45% (151/334), and no handover for another 29% (98/334); however, the authors do not associate the type of incident with the location where it occurred, nor do they distinguish the discipline involved in the incident. Donchin et al. (2003:146) found that within their 6-bed intensive care unit, a total of 554 errors occurred within a 4-month period, 26.5% (143/554[2]) of which were graded as "severe or potentially detrimental to the patients if not discovered in time". Verbal communication was acknowledged to be a factor in the occurrence of these errors, and it was noted that there was an increase in nursing errors at the change of the nursing shifts.

In short, the nursing shift handover has been identified as a potential risk to patient safety. The practice has been described as "problematic" and its complexity as providing opportunities for "'vulnerable gaps' in patient care" (Johnson & Barach, 2009:S110). Indeed, the British Medical Association (BMA, 2004) has described it as a potentially "perilous" time for patients.

1.1.3 The international call for improvement in handover practice

Identification of this risk has prompted many international health improvement initiatives to make it a key focus area of their work. The WHO highlighted the importance of handover by citing "[C]ommunication failures during patient handovers" as one of the five major patient

[1] Percentage reported in the article found to not correlate with the raw data provided. Communication with the lead author led me to rather use the raw data and thus I have recalculated percentage accordingly.
[2] Percentage reported in the article found to not correlate with the raw data provided. No amendment made in the journal and no contact details for the lead author were included in the article. As a result, a decision was made to use the raw data and recalculate the percentage accordingly.

safety concerns in their High 5's Project (WHO, 2009). In the USA, The Joint Commission announced "[I]mproved effectiveness of communication among caregivers" as one of its 2006 National Patient Safety Goals (Catalano, 2006). The BMA released the "Safe handover: Safe patients" document (BMA, 2004), and the Australian Commission on Safety and Quality in Health Care presented the "National Clinical Handover Initiative" (Australian Commission on Safety and Quality in Health Care, 2007). Each of these initiatives captures the notion that "[G]ood handover does not happen by chance" (BMA, 2004:4) and call for active intervention to improve this aspect of clinical practice. Specifically, the WHO (2007) suggests that handovers in healthcare should be designed with a standardised approach.

In response to this call for handover improvement and in an effort to learn, healthcare providers have sought out other industries in which standardised handovers are already the norm. Believed to be the "best handoff experts in the world," Dunn and Murphy (2008:9) studied the handover practice of a Formula 1 racing team, and other studies have examined handovers in aviation, nuclear power plants and space centres (Chang, 2011; Patterson et al., 2004). Handovers in these industries are regarded as high-risk, on the assumption that any mistakes made come with a high likelihood of costing a life, if not many lives (Dunn & Murphy, 2008). To counteract this risk, the studies demonstrate how handover practices in these industries are well outlined, with strategies in place that are clear to all, so as to ensure sustained quality, effectiveness and efficiency (Catchpole et al., 2007; Patterson et al., 2004; Catchpole et al., 2010). Indeed, Dracup and Morris (2008:97) assert that these practices are used "religiously". Parallels, in terms of teamwork, information transfer, and time efficiency, can be clearly drawn between these industries and health care and yet research would suggest that the same attention to detail in healthcare handover practice is severely lacking (Catchpole et al., 2007; Patterson et al., 2004; Catchpole et al., 2010). With the risk to people evidently comparable in nursing, it is reasonable to conclude that adopting some of the strategies used in these settings into the nursing handover practice would be beneficial.

1.1.4 Making a change in health care

Effecting a change in healthcare is, however, viewed as a challenging task (Parkin, 2009; National Institute for Health and Clinical Excellence [NICE], 2007). Particularly with regard to handover, "[R]esistance of caregivers [professionals] to change behaviours" is noted to be a potential barrier to achieving standardisation (WHO, 2007). Anderson and Mangino (2006) comment on the notion that individuals cling to rituals such as handover so as to maintain a level of control within an environment that can appear to be constantly changing. The NICE

document endorses the fact that small changes can make a considerable difference, especially if they are relevant to a regularly occurring practice such as handover (NICE, 2007).

A key component of facilitating change is the intentional participation in the change process of those who will effect the change (Parkin, 2009). This allows for a wider understanding of the need for change and facilitates a combining of opinions and ideas from a variety of people, thus resulting in a more suitable and sustainable change solution (Nadler, 1993; Jabri, 2012). With the challenge of implementing change and the benefit of participation in mind, it is not surprising to see in the literature an increase in participative methodologies being used to facilitate the identification and implementation of more standardised handover practices.

1.2 CHILD HEALTH IN SOUTH AFRICA

The setting of this study is the PICU at the Red Cross War Memorial Children's Hospital (RCWMCH) in Cape Town, South Africa. The hospital is a tertiary-level hospital located in the Western Cape province. It is currently the only dedicated child health institution in the country. It offers a wide range of specialist paediatric services, and children country-wide and from sub-Saharan Africa are referred for care and treatment.

South African child health demographics are similar to those in many countries on the African continent. Mid-year 2013, the population of South Africa was estimated to be 52.98 million, of which 29.2% (15.4/52.9million) were estimated to be younger than 15 years of age, and just over 10% (5.2/52million) younger than 4 years (Statistics South Africa, 2013). In 2010, 59.7% (11/18.5million) of children lived below the lower poverty line (less than R575 a month) (Hall, 2012a), and 27% (5/18.5million) lived in either informal or traditional housing (Hall, 2012b). Only 64% (11.8/18.4million) had access to adequate water supplies (Hall, 2012c) and 66.9% (12.3/18.4million) to adequate sanitation (Lake & Hall, 2012). All these factors contribute substantially to the health of the country's children (Sanders, Bradshaw & Ngongo, 2010).

Currently the infant mortality rate is estimated to be 41.7 per 1000 births (Statistics South Africa, 2013), and the under-five mortality is 47 (WHO, 2013a). The majority of deaths in the neonatal period are caused by prematurity, birth asphyxiation and infection, whereas the human immunodeficiency virus (HIV) and associated infections are the leading cause of death in the under-fives (WHO, 2012). An estimated 460000 children are currently living with HIV (WHO, 2013b). With 17.5% of children evidently going hungry (3.2/18.5million) (Hall, 2012d), malnutrition is a significant concern. While not reported as a cause of death in itself,

malnutrition is noted to impair immunity (Sanders, Bradshaw & Ngongo, 2010), and contributes to a considerable number of childhood deaths (Hendricks & Bourne, 2010).

1.3 THE PICU AT THE RCWMCH

The aforementioned picture of child health is strongly reflected in the reasons for and high numbers of admissions to the RCWMCH and specifically to the PICU. The hospital admits approximately 21 000 children a year and approximately a further 140 000 attend the emergency department and outpatient clinics (RCWMCH Patient activity record, 2013). The PICU, a 20-bed facility offering intensive care to children from birth to 13 years, admits approximately 1200 children a year, two thirds of which are emergency admissions (Paediatric ICU Patient Summary Database, 2013). It frequently operates at full or exceeded bed capacity, with admissions and discharges occurring throughout the day and night. 'Paediatric illness' is the diagnostic category under which the majority of the children are admitted, with respiratory infections contributing the most to this category (Paediatric ICU Patient Summary Database, 2013). Approximately 65% (839/1289) of the patients admitted to the PICU are younger than two years old and 6.6% (95/1289) have either confirmed HIV infection or have been HIV exposed (Paediatric ICU Patient Summary Database, 2013). Using the Paediatric Index of Mortality 2 score, predicted mean mortality in the PICU is 12.4% (Data provided by Argent, Personal Communication, 2013, August 5). However, actual mortality is recorded at 7.5% (Data provided by Argent, Personal Communication, 2013, August 5).

While supporting a full range of sub-specialties (pulmonology, cardiology, neurosurgery, general surgery, hepatology, oncology, nephrology and burns), the PICU functions as a closed model of care. This means that care is primarily directed by the intensivist with sub-specialty doctors advising on consultation (Rothschild, 2001). Nurses, doctors, administrators, physiotherapists, occupational therapists, dieticians, clinical technicians, a social worker and a psychologist make up the core of the multi-disciplinary team. English is the clinical and written language of the unit; however, owing to the population demographics of the Western Cape, Afrikaans and Xhosa are also frequently spoken within the clinical team.

The internal PICU nursing team is made up of two Operational (ward) Managers (OM), two Clinical Mentors, 55 Registered Nurses (RN), 16 Enrolled Nurses (EN) and 26 Enrolled Nursing Auxiliaries (ENA). The Manager of Nursing and a Deputy Nursing Manager responsible for the PICU are positioned external to the PICU setting. Qualifications and experience levels of the RNs vary: four have recently qualified and are currently completing their year of community

service in the PICU, 20 are registered specialist Child Critical Care Nurses and seven are registered Adult Critical Care Nurses (data as of 2012, December 10, reported by the OM) (Figure 1.1).

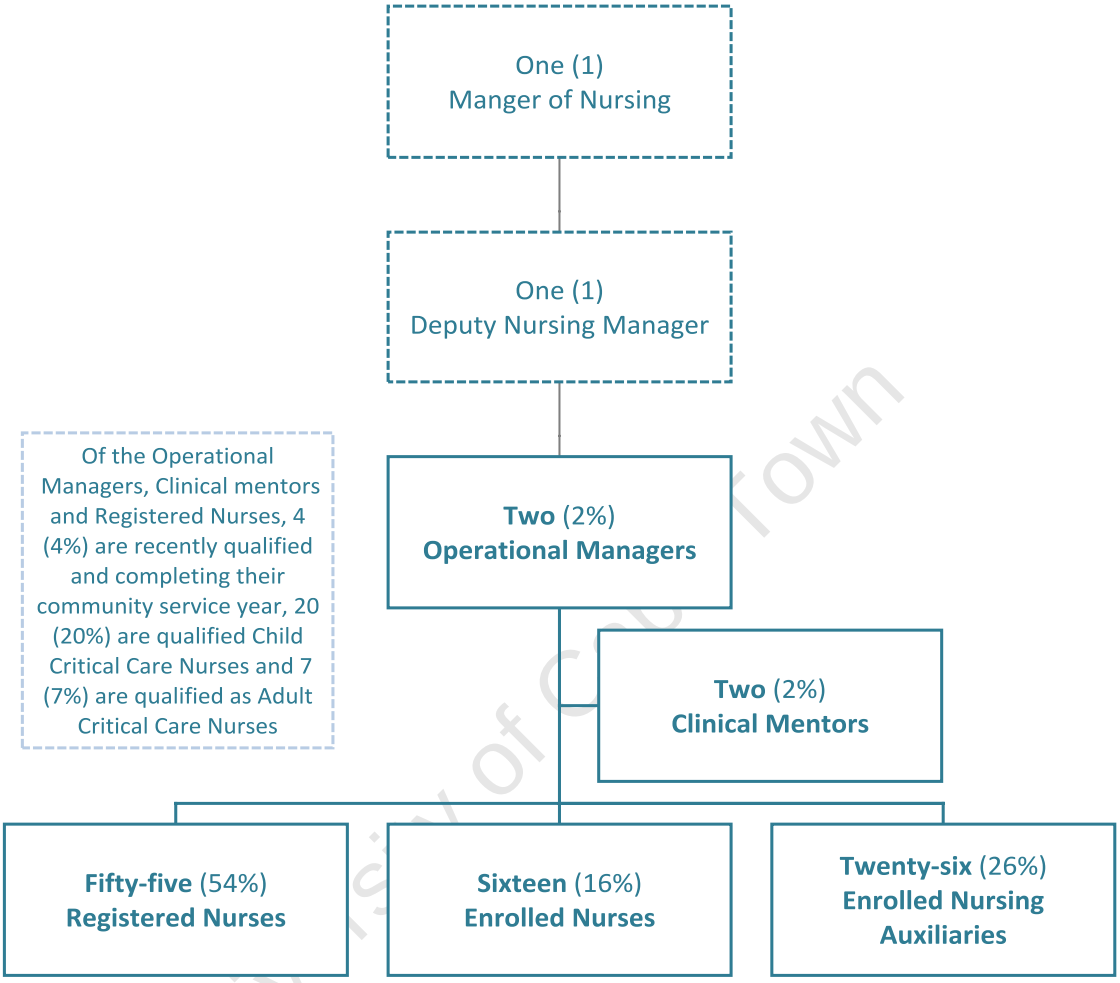


Figure 1.1: Structure of the PICU nursing team including qualifications (n=101 for internal PICU nursing team) (% = of the nursing team)

Nursing shift times are 07h00 - 19h00 / 19h00 – 07h00 with no formal overlap period, and nurses work a shift pattern that results in them being on duty seven days out of fourteen (Table 1.1). In the unit, the staffing norm is a ratio of one professional nurse and an enrolled/assistant nurse for every two patients, together with a senior registered nurse who is the co-ordinating shift leader.

Table 1.1: Example of a nurse's duty for a two-week period

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
On duty	On duty	Off duty	Off duty	On duty	On duty	On duty
Off duty	Off duty	On duty	On duty	Off duty	Off duty	Off duty

1.4 PROBLEM STATEMENT/RATIONALE FOR STUDY

In my previous role as a specialist paediatric intensive care registered nurse in a PICU in Birmingham (UK), I valued giving and receiving a good quality handover at the change of a shift. This practice gave a solid platform from which to start planning and implementing safe and appropriate daily patient care. I realised that individual handover practices varied and that being able to verbally deliver all the details of complex, intensive patient care required expertise and was a learnt skill in its own right.

In my current role as a lecturer-practitioner based at the University of Cape Town, I have, on more than one occasion, experienced a situation in which a PICU registered nurse excluded information about a patient that I would ordinarily have included in the handover at the start of a shift. Also, when I asked students to present a patient's details in class, a teaching exercise designed to be synonymous with best handover practice, they often lacked the necessary skills to do so. I began to question the current practice of nursing shift handover in this clinical setting. Was the current practice dissimilar to the handover I used to deliver? Was different information required in the South African setting? Was key information excluded? Was there a need for improvement?

Having read the available current published literature, I was reassured that my questions were not unique to the PICU setting described – other institutions and international healthcare improvement initiatives were also questioning current handover practice. The published literature demonstrated the relationship between patient safety and handover quality. However, I was disappointed by the dearth of nursing handover research in the PICU. Finally, on enquiry, I discovered that the current nursing shift handover practice within the PICU at the RCWMCH had not been previously documented or investigated.

Encouraged by the international call to improve handover, and convinced that I too could work in a participative manner to effect a change to the existing PICU handover practice, I

posed the question: Can the quality and efficiency of nursing shift handover in the PICU at RCWMCH, Cape Town, South Africa, be optimised?

1.5 RESEARCH QUESTION

Can the quality and efficiency of nursing shift handover in the PICU at the RCWMCH, Cape Town, South Africa, be optimised?

1.6 RESEARCH AIM

The aim of this study is to optimise the quality and efficiency of nursing shift handover in the PICU at the RCWMCH, Cape Town, South Africa, by using a participative approach.

1.7 RESEARCH OBJECTIVES

i. To engage the nursing and medical leadership of this unit in a participative change process
ii. To recruit a core group of registered nurse participants from the PICU
iii. Together with the core group to describe the existing nursing shift handover in the PICU
iv. To collaboratively identify features of the existing handover requiring optimisation
v. To collaboratively identify, develop and implement strategies to optimise the existing nursing shift handover
vi. To evaluate the implemented strategies for optimising the quality and efficiency of the nursing shift handover
vii. To make a timely withdrawal from the study setting.

1.8 CONCLUSION TO CHAPTER 1

Chapter 1 of this report has presented an overview of the available literature relating to the practice of handover, particularly as it pertains to nursing. The relevance of the subject to patient safety has been highlighted and the international call to improve handover practice is described. The context of child health within South Africa has also been illustrated, alongside a description of the setting in which this study was conducted.

The chapter explains the reasoning for the study together with a detailed outline of the research question, aim and specific objectives. What follows in the succeeding chapters is a full report of the study in which an action research approach was used to optimise the quality and efficiency of nursing shift handover in the PICU at the RCWMCH. Chapter 2 provides an in-depth outline of the current published literature on the practice of handover.

Chapter 2

LITERATURE REVIEW

This chapter outlines the available current published literature on nursing shift handover with particular emphasis on nursing shift handover in PICUs.

2.1 INTRODUCTION

Across the world nursing handover has been recognised as playing a vital role in the provision of safe and appropriate holistic patient care. However, handover practices have also been summarised as being "highly variable and potentially unreliable" (Manser & Foster, 2011:182), and consequently an association between handover and patient safety risk has been identified. Since the early 1990s there has been a "groundswell of interest" in the topic (Johnson & Arora, 2009:244) and a surge in related research publications.

A thorough review of the literature was conducted. Academic Search Premier, Africa-Wide Information, CINAHL, Health Source: Nursing/Academic Edition, MEDLINE (all within EBSCO host) and PUBMED were all searched using the key words: handover, handoff, intershift report, sign-off, ward round, end-of-shift report, 'nurs*' and 'intensive care'. Three combinations of the key words were used for the literature search (Table 2.1).

Table 2.1: Literature searches conducted

First search	'handover, handoff, intershift report, sign-off, ward round, end-of-shift report' AND 'nurs*'
Second search	'handover, handoff, intershift report, sign-off, ward round, end-of-shift report' AND 'nurs*' AND 'intensive care'
Third search	'handover, handoff, intershift report, sign-off, ward round, end-of-shift report' AND 'intensive care'

Results were limited by date: 1990 onwards, and by language: English only. The search was repeated at a number of intervals: prior to the proposal submission in August 2011, again in November – December 2012, and prior to final submission in January 2013.

In addition to these searches, the reference lists of articles read were examined to identify other relevant articles and a number of articles were found in this manner. Furthermore, a 'saved search' notification schedule was programmed in PUBMED, which meant that any new article matching my previously saved search terms was emailed to me as soon as it was published. This notification schedule remained active until final submission.

Literature was gathered on a continuous basis throughout the research period. All references were collated using RefWorks and the database at submission holds 210 articles associated with handover.

Initial examination of the literature showed evidence of a continuum of research topics (Table 2.2). The first identified article about the nursing handover was published in 1973. There were few further publications until the early 1990s, when the focus was on descriptive handover studies, followed in the late 1990s by an emergence of studies into the practice of bedside handover. Literature in the early 2000s depicts a shift towards research examining the efficiency of handover, which led to the suggestion that a change in practice might be necessary. This was noted by international healthcare improvement initiatives, and so in the mid-2000s various handover improvement strategies were published, which increasingly made use of participative methodologies. In considering this evident continuum it is important to note that articles across its span will be used in this literature review, since some of the topics related to handover were last discussed approximately 20 years ago.

Apparent throughout the continuum is the limited literature published on paediatric nursing and paediatric or adult intensive care nursing handovers, with those identified being more frequently focused on handovers of transition into (admission) or out of (discharge) the ICU.

Table 2.2: Continuum of research related to handover practice

First research into the practice of handover	1973	Limited published articles related to paediatric intensive care nursing handover
Descriptive studies of handover practice	1990 - 2000	
Bedside handover and patient perceptions	Late 1990s	
Examination of the efficiency of handover + nurses' opinions Identifying barriers to an effective handover Suggestion that maybe it is time for a change	Early 2000s onwards	
International healthcare improvement initiatives announced		
Improvement strategies Examining handover in other industries	Mid- to late 2000s	
EMERGENCE OF PARTICIPATIVE METHODOLOGIES IN HANDOVER RESEARCH	Late 2000s to date	

In line with the objectives of the research, and with this continuum in mind, this literature review will describe the:

- Definition and function of handover
- Skills required for handover
- Types and methods of communication used for handover
- Content and duration of handover
- Intensive care handover
- Measurement of handover efficacy and quality
- Barriers to an efficient and quality handover
- Standardisation of handover
- Complexity of making changes in healthcare.

2.2 DEFINITION AND FUNCTION OF HANDOVER

2.2.1 Definition and transfer of information function

As highlighted by the definition of handover provided in chapter 1: "the transfer of information, and professional responsibility and accountability, between individuals and teams, within the overall system of care" (Jeffcott et al., 2009:272), delivery of information is often regarded as the key function of handover. Information transfer is reported to ensure that continuity of care is achieved (Meißner et al., 2007; O'Connell & Penney, 2001; Griffin,

2010), and that nurses are able to determine goals of care for the next shift (Wilson, 2007) and effectively implement quality nursing care (Lally, 1999). McMahon (1990) is more explicit. He states that handover should not only provide nurses with the information in which to plan care, but should also provide a forum in which care can be discussed, chosen and evaluated.

In the field of paediatrics, handover is also where information about the patient's family can be communicated, thus facilitating the practice of family-centred care (Kerr, 2002). In the current healthcare climate, Strople and Ottani (2006) reason that information transfer is particularly important given the increased use of non-permanent or part-time staff, which means that nurses have less time and opportunity to get to know their patients.

2.2.2 Transition of responsibility and accountability function

Many authors recognise that handover also functions as a space to transfer responsibility for and accountability to the patient (Wilson, 2007; McFetridge et al., 2007; Strange, 1996; Arora & Johnson, 2006; Ekman & Segesten, 1995; Dunn & Murphy, 2008; Jeffcott et al., 2009). Arora and Johnson (2006:654) state that this function is often invisible when it should in fact be "transparent and easily understood", and Strople and Ottani (2006) express apprehension as to whether nurses actually feel ready to accept this responsibility at the close of the handover period.

2.2.3 Educational, social and organisational function

There are another three clear functions of handover: educational, social and organisational (Kerr, 2002). Handover is used as an opportunity to teach students, junior nurses and those new to a ward about conditions and nursing care pertaining to the ward speciality (Kerr, 2002), unusual medications and infrequently used equipment (Griffin, 2010). By simply being part of the practice, students are able to absorb the universal language of nursing, and learn the specific terminology and ward expectations (Lally, 1999). Formally delivering the handover is seen as a good experiential learning exercise, but one in which learning is reduced if no feedback is later given (Kerr, 2002).

The social function of handover is represented by time permitted for friendly personal communication between nurses. Structurally this often precedes the information transfer/educational aspect (Kerr, 2002; Lally, 1999), whereas the organisational function, which is where ward management decisions are made, more commonly follows the information exchange. Examples of such management decisions include the consideration of patient workload, experience levels and skill mix of staff (Kerr, 2002), together with allocation

of patients (Lally, 1999). Existence of a link between the social and organisational functions has been suggested by a number of authors (Lally, 1999; Strange, 1996; Thurgood, 1995), who reasoned that socialisation leads to "increased morale, motivation, cooperation, willingness to share, reduced stress or anxiety and reduced negative effects of staff hierarchy" (Thurgood, 1995: 722).

2.2.4 Psychological support function

Another function of handover is the psychological/emotional support structure that it provides (Hopkinson, 2002). Nurses report that it gives them the opportunity to discuss their feelings and emotions while also gaining important information to assist with their care of a dying patient (Hopkinson, 2002). They explained how colleagues understood feelings of frustration in a way that family members could not, with handover acting as a debrief before they went home (Hopkinson, 2002). Furthermore, is it acknowledged that handover may be the only time when nurses routinely meet as a group and have the opportunity to offer each other the emotional support required (Kerr, 2002).

2.3 SKILLS REQUIRED FOR HANDOVER

A multitude of skills are required to deliver an effective handover. In the only article I found specific to this issue, Thurgood (1995) reported that having adequate knowledge of the patients' history and care, in combination with awareness of the team's needs, is vitally important. A confident attitude, that neither enforces hierarchy nor confuses junior team members, is necessary to ensure that all those taking part in the handover feel correctly valued (Thurgood, 1995). Skills of time and human resource management, together with the ability to teach and support, are key to ensuring best handover outcomes in the allocated handover time (Thurgood, 1995). Finally, the ability to summarise, speak clearly in an appropriate tone and pace and use suitable language are as important as non-verbal skills such as the ability to listen, to wait to speak and the use of facial expression and body language (Thurgood, 1995).

For medical handovers ability to prioritise information is particularly important, owing to the number of patients required to be handed over (Cleland et al., 2009; Nemeth et al., 2006). I surmise that the same could be said to be true for nurses working in the ICU environment due to the volume of information required to handover about each individual patient**.**

However, these skills are not purposely taught within medical or nursing curricula (Cleland et al., 2009; Jigajinni & Sultan, 2010; Nemeth et al., 2006; Riesenberg, Leitzsch & Cunningham,

2010; Scovell, 2010) and this is specifically highlighted as a barrier to effective handover (Riesenberg, Leitzsch & Cunningham, 2010). Acquiring such skills is a challenge since handover is not "a simple linear process and requires years to perfect" (ten Cate & Young, 2012:i9). Not able to learn the skills from a book, ten Cate and Young (2012) propose that they should rather be learnt in clinical practice, through "observation, practice, experience and reflection" (Thurgood, 1995:720). Dracup and Morris (2008), however, recognise that experiential learning may expose junior staff to sub-optimal handover practice, leading many to advocate that handover should be taught in more focused formal teaching (WHO, 2007; Dracup & Morris, 2008; Cleland et al., 2009; Johnson & Barach, 2009).

2.4 TYPES OF HANDOVER

In 1996 Parker reported a descriptive study of handover practice in which four different types of handover were identified: traditional, collaborative, ad hoc, and professional (Table 2.3).

Table 2.3: A typology of the nursing handover (Parker, 1996:24; permission granted from journal editor and available if required)

Nurses giving handover	Nurses receiving handover: Group	Nurses receiving handover: Individual
Senior nurse on duty	Traditional	Ad hoc
Direct care-giver	Collaborative	Ad hoc or Professional

The term 'traditional' handover was used to describe one in which the senior nurse on duty handed over all the patients to the incoming nurses. 'Collaborative' was used to describe the situation in which the nurse who cared for a patient/small group of patients handed over to all the incoming nurses, whereas the 'professional' handover was when the same nurse would handover just to the nurse who would be caring for the same patient/patients on the following shift. Informal conversations relevant to patient care, held between two individual nurses, describes the 'ad hoc' handover (Parker, 1996). In terms of location, the 'traditional' and 'collaborative' handovers are usually away from the patients in a tea room or staff office, with allocation of patients to nurses occurring after close of the handover. 'Professional' handovers are commonly held at the patient bedside, and by design denote that patient allocation must occur first.

A review of the literature shows that each of the different types of handover were used, but suggests that preferences have varied over the past 30 years. The traditional handover was more commonly used over 30 years ago (McMahon, 1990), but this is not to say that it is not also documented more recently (Strange, 1996; Payne, Hardey & Coleman, 2000). Criticised for being commonly hierarchical (Webster, 1999) and lacking in detailed patient-specific information, the collaborative handover was introduced following the advent of primary nursing. Nurses now had a newfound capacity to advocate individual patient needs and this could be incorporated into the handover process (McMahon, 1990).

In 1996 Parker relayed that she saw a professional bedside handover as being the "model for hospital nursing in the future" and the literature would suggest that this certainly came to fruition. Most papers published from the mid-2000s onward report either a move towards or current existence of a professional type handover. A combination of both a traditional followed by a professional handover is also frequently described, the rationale being that it allows both an overview of the ward together with detailed information of the patients for whom a nurse is then required to provide care (Parker, 1996; O'Connell & Penney, 2001; Griffin, 2010; Klee et al., 2012; Brown et al., 2012; Costello, 2010).

The ad hoc handover is not widely documented in the literature, but since it is described as occurring outside of the handover period (Parker, 1996) it is speculated that it becomes an almost invisible event. Parker (1996) also suggested that it was more commonly observed following patient allocation in wards conducting a traditional handover, meaning that with professional handovers increasingly becoming the norm, the need for ad hoc handovers may be diminishing.

2.5 METHODS OF COMMUNICATION USED FOR HANDOVER

Current evidence also suggests that different communication methods are used for handovers. While the verbal handover is evidently the most common, written and taped handovers are also documented.

2.5.1 Verbal handover

The term 'verbal handover' is used to describe the simple modality of nurses verbally delivering handover to receiving nurses. Its face-to-face nature provides the opportunity for body language to be read, questions to be asked immediately and education and debriefing to occur. Scovell (2010) proposes that verbal handover allows a nurse to easily adjust the content and manner in which she speaks to meet the needs of those receiving the information, while

also allowing for patient descriptions to contain more subtleties than feasible when written or taped.

This mode of handover has been negatively evaluated as potentially taking an excessive amount of time, causes of which are cited as inclusion of long periods of nurses' socialisation (Lally, 1999; Scovell, 2010), and delivery of verbose information (Sexton et al., 2004; Welsh, Flanagan & Ebright, 2010).

2.5.2 Written handover

Written handover is provision of either a purposely written patient summary for the incoming nurse (Webster, 1999), or the practice of the incoming nurses accessing information from existing documentation (Sexton et al., 2004). While it is a more permanent and tangible method of communication, the use of only a written handover presents considerable challenges.

Firstly, a written handover alone has been described as being impersonal and eliminating all opportunity for discussion (Webster, 1999). Ultimately reliant on concise, universally understandable, legible script (Scovell, 2010), there is also an added concern that nurses have limited confidence in their writing skills and indeed labour to describe nursing work that has been performed (Ekman & Segesten, 1995). The subtlety required poses a further challenge (Scovell, 2010) and may explain why psychosocial information was less likely to be included in written than in verbal handovers (Lamond, 2000; Meißner et al., 2007). If reliant on existing documentation, there is a need for it to remain up-to-date, a situation Sexton et al. (2004) believed was difficult to assume. Finally, considering time implications, it is suggested that the need to read such documents can take more time than is available at the start of the shift.

None of the available literature described a setting where written handover was used exclusively; rather written documentation was used as an adjunct to an otherwise verbal handover (Strople & Ottani, 2006). Hardey, Payne and Coleman (2000:208) and Philpin (2006), however, both acknowledge the use of 'scraps', defined by the former as "personalised recordings of information that are routinely made on any available piece of paper ... and inevitably kept in uniform pockets so that they are always to hand", they act as a 'to-do' list for many nurses. The information on them is gathered from handover, routine care and conversations with colleagues in the multidisciplinary team and then written in a manner that is often only understood by the writer (Hardey, Payne & Coleman, 2000). Nurses trust and rely on their scraps, declaring them to contain the most up-to-date information available (Hardey,

Payne & Coleman, 2000). Prior to disposal, scraps are used to guide the next handover, but never become part of official clinical documentation (Hardey, Payne & Coleman, 2000). In the ICU setting, Philpin (2006) reports a similar use of paper towels, and alongside Hardey, Payne and Coleman (2000) evaluate them as a private space in a role that so often open and available to scrutiny by all.

2.5.3 Tape-recorded handover

Recording handover on tape and then playing it to incoming nurses is viewed as a way of overcoming some of the concerns regarding verbal and written handover. Benefits of this method were demonstrated in a study by Prouse (1995). She recorded a 50% reduction in time required for handover, a fact that she attributed in part to only the pertinent information being delivered in a structured and succinct manner. This in turn meant that more time was available for direct patient contact and less time required in shift overlap. Tailoring of information to the incoming staff remained possible, and pausing/replaying of the tape ensured that the information was available to nurses starting work at alternative times.

However, many authors have commented that taped handover does not allow for face-to-face questioning, staff support or education (Webster, 1999; O'Connell & Penney, 2001; Scovell, 2010; Hopkinson, 2002) and thus contributes less to development of group cohesiveness (Scovell, 2010). It is totally reliant on provision of functioning, reliable recording equipment (Prouse, 1995), and O'Connell and Penney (2001) caution against delay between taping and listening which renders the information out of date.

2.5.4 Conclusion to types and methods of handover

Variation in type and method of communication in handover is seen widely throughout research studies, in a variety of settings and within a range of patient groups. Each type and communication method has its own strengths and limitations (O'Connell & Penney, 2001), which suggests that the structure of handover must be best matched to the needs in a particular clinical area.

2.6 CONTENT OF HANDOVER

Runy (2008: box titled 'What is handover?') summarises handover as containing "timely, accurate information about a patient's care plan, treatment, current condition and any recent or anticipated changes". The literature highlights that while there are some aspects of the content of handover that are included in the majority of patient handovers (patient name, age/date of birth, bed number and medical diagnosis) (Strange, 1996; Payne, Hardey &

Coleman, 2000; Johnson, Jefferies & Nicholls, 2011), many other aspects are specific to the patient and the clinical speciality (Johnson et al., 2011; Welsh, Flanagan & Ebright, 2010). For example, in an emergency setting, the patient's reason for admission, treatment and outcome of the treatment provided so far were prioritised slightly higher than the need to know a patient's name or age or plan of care (Currie, 2002; Johnson et al., 2011) and considerably higher than information about their social circumstances and living arrangements (Currie, 2002).

In a hospice setting, information about the emotional welfare of the patients and their family together with any possible plans for discharge were routinely discussed (Prouse, 1995). In elderly care environments, the resuscitation status of the patient was viewed to be important to handover (Payne et al., 2000; Webster, 1999, Johnson et al., 2011) together with the current capabilities of the patient such as self-care, interaction (Liukkonen, 1993), falls and pressure sore risk (Johnson et al., 2011). Assessment of maternity handover highlighted aspects that were not required in any other speciality (Johnson et al., 2011).

In addition to the clinical speciality dictating the type of information supplied, nurses acting in different roles may also have different information requirements (Goldsmith et al., 2010). They found that nurses providing direct patient care needed much more patient-specific information than those who were not.

One aspect of handover that is noted by many to be lacking is a nursing care plan. McMahon (1990:39) states that handover should be a place "for discussion about nursing issues rather than focusing on the patient's medical care", and Davies and Priestly (2006:50) advocate that handover should be a "critical communicative process that explores care, rather than a descriptive historical narrative of what has already happened". Yet the absence of forward-thinking, individualised nursing care plans in handover have been voiced as being of considerable concern by a number of authors (Fenton, 2006; McMahon, 1990; Payne, Hardey & Coleman, 2000; Sexton et al., 2004; Webster, 1999). Rather than discussing nursing issues, there is a propensity to outline the patient's medical care (Fenton, 2006:34) and recount the activities completed in the previous nursing shift (McMahon, 1990). As a result, McMahon (1990) believes nurses are neglecting the opportunity to impact on patient care.

This persistent dominance of the medical model is proposed to be the result of nurses feeling dominated by the medical profession, or because they find it difficult to assert a nursing model (Cahill, 1998; Ekman & Segesten, 1995; McMahon, 1990). Either way, this raises the question

whether handover facilitating the continuation of nursing care is possible (Meißner et al., 2007) if nurses themselves are not discussing the subject.

2.7. DURATION OF HANDOVER

Duration of handover is often in direct conflict with the comprehensiveness of handover (Kerr, 2002); handover needs to include all the relevant information but often has to be achieved in as little time as possible. The consequences of a handover with poor content have been discussed in the introduction to this research report, but it would appear that a lengthy, verbose handover can be equally detrimental (see section 2.10).

Duration of handover is also an important concern if, as noted by Scovell (2010), there is no set handover period, resulting in staff being required to attend handover in non-remunerated time. This issue is in part surmised as being the reason why nurses from France, following the recent abolishment of their handover period due a reduction in national working hours, reported the highest level of dissatisfaction about handover among nurses from across Europe (Meißner et al., 2007).

Research into handover is frequently driven by concerns regarding finance and resource management; how many financial hours do nurses spend in the handover process and how does this impact on the availability of nurses to provide direct patient care (Prouse, 1995; O'Connell & Penney, 2001; Parker, 1996; Street et al., 2011). However, literature on this subject is inconclusive.

Handover has been reported to account for between 8% (Hendrickson, Doddato & Kovner, 1990) and 25% (Thurgood, 1995) of a nurse's day. In the most recent study using a work sampling methodology, handover was found across a range of specialities to be one of the most frequently observed activities, accounting for approximately 12% of a nurse's time (Duffield et al., 2005). However, since work sampling only records activities that take nurses to a patient's bedside, handover would fail to add to the percentage if conducted in an alternative location, which means that in reality the percentage could be higher.

Duration of handover also varies, and limited non-comparable data is available. Examination of data to determine whether medical speciality, acuity and number of patients may impact on duration of handover allows no conclusions to be drawn. Randel (2011) measured handover duration across three sites and found that both a 28-bed short-stay ward and an 11-bed surgical ward conducted handover within 30 minutes, but that a 20-bed elderly medical ward took closer to one hour. Payne et al. (2000) report that a quick main handover for 20-30 acute

elderly patients takes 20 minutes, whereas Fenton (2006) records handover for a similar number (n=26) of elderly rehabilitation patients taking approximately double the time (45–50 minutes).

Looking at whether type and location of handover made a difference, Kerr, Lu, McKinlay and Fuller (2011), found that bedside handover took an average of 16 minutes less than if conducted in another location. Duration of handover may also be determined by the time of occurrence (Sexton et al., 2004; Lamond, 2000; Street et al., 2011). Street et al. (2011) found that handover in the morning (25 minutes) or afternoon (28 minutes) was longer than at night (23 minutes). Sexton et al. (2004) and Lamond (2000), however, discovered the converse to be true, the morning handover being on average 20 minutes shorter. This was ascribed to the high level of ward activity in the early part of the day (Sexton et al., 2004; Lamond, 2000). Timonen and Shivonen (2000) simply reported taking three minutes per patient, but do not state how many patients were in each ward.

In summary, handover accounts for between 8% and 25% of a nurse's time and takes between 18 and 50 minutes to complete. Acuity of illness, clinical specialty, number of patients, time of day and method of handover communication may all make a difference to the length of time required, meaning that every clinical ward environment is likely to be different from another. No firm conclusions can be drawn.

2.8. INTENSIVE CARE HANDOVER

The nursing shift handover in the ICU has been described as "complex and multifaceted" (Philpin, 2006:86). This is because the patients, due to their fragility and capacity to profoundly and suddenly deteriorate, require a multifaceted package of care (Nemeth et al., 2006). Nurses working in the ICU are also less likely to have pre-existing knowledge of the patient at handover owing to high patient acuity and turnover (McFetridge et al., 2007). Furthermore, Streitenberger, Breen-Reid and Harris (2006) suggest that, particularly in the field of paediatrics, patients have a reduced ability to communicate and are thus less able to act as their own advocate or provide information. These aspects combined reinforce the particular need for effective communication between caregivers in the ICU and especially the PICU environment.

With this in mind, it is surprising that only three studies have been found that specifically examine nursing shift handover in the intensive care environment (Manias & Street, 2000; Philpin, 2006; Sri, 2012). Sri (2012) describes the results of a telephone survey into consistency

of current ICU handover practice, and Philpin (2006) and Manias and Street (2000) both describe the structure, use of additional resources and hidden practices of handover. Handover, however, was not the intended focus of either Philpin's (2006) or Manias and Street's (2000) study. Philpin (2006) aimed to examine the nursing culture in an ICU, whereas Manias and Street (2000) explored practices and forms of knowledge used by nurses in their interactions with other professionals. No paediatric intensive care nursing shift handover studies have been sourced.

2.8.1. ICU shift handover structure and function

Sri (2012) identified that 97% (93/96) of the ICUs telephoned operated a system of a combined traditional and professional type of nursing handover. This was also found by Manias and Street (2000); a diagrammatic representation of the handover they describe is shown in Figure 2.1.

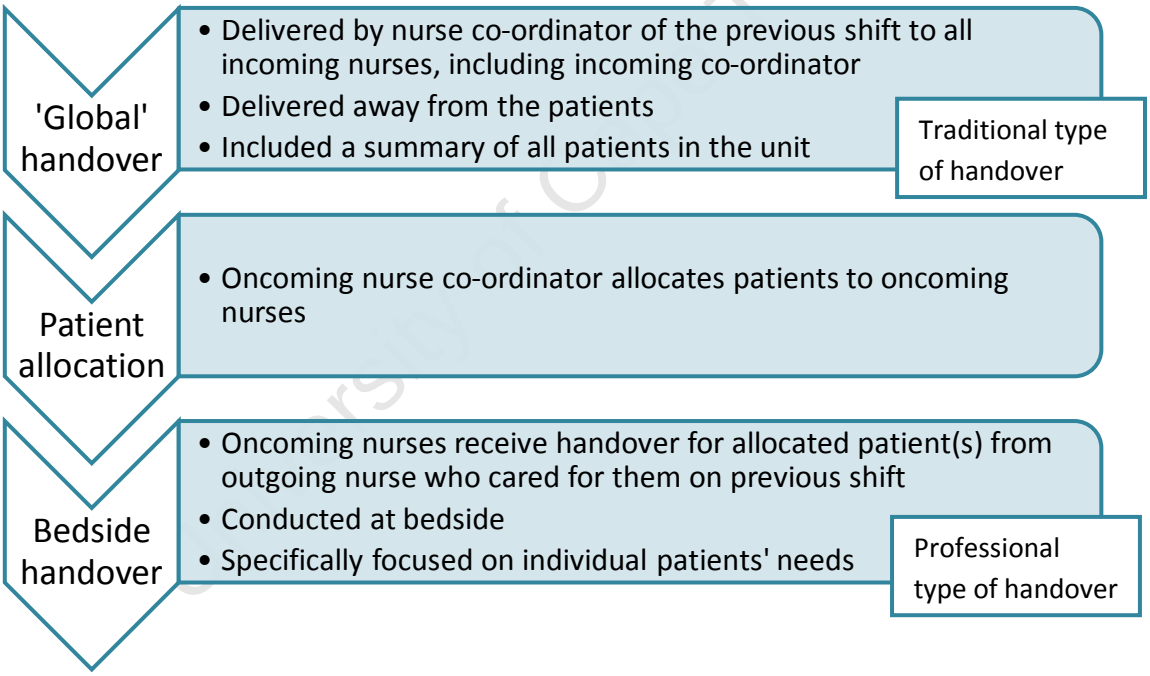


Figure 2.1: Diagrammatic representation of handover structure created from description provided by Manias and Street (2000)

Manias and Street (2000) noted that the initial 'global' handover acted primarily as a method of facilitating communication between the nurse co-ordinators, observing that the other nurses were somewhat excluded through physical positioning and the direction of questions solely between the co-ordinators. Opportunities for nurses to engage in the handover were not easily visible, meaning they were unable to express a need for more information or gain any clarification of information (Manias & Street, 2000). Information delivered in handover was gathered through the co-ordinators' routine interaction with patients, resulting in

potential for unequal amounts of knowledge about each patient. The location away from the ward seemingly permitted the outgoing co-ordinator to portray an image of organisation and control, and further limit questions from the incoming co-ordinator (Manias & Street, 2000).

The professional type of handover was then conducted at the bedside, the default location for handover in the ICU (Philpin, 2006; Scovell, 2010). This default may be due to lack of an alternative; patients in the ICU need to be constantly monitored, which is not possible if all the nurses depart to handover in an alternative location. In addition, Philpin (2006) proposes that a bedside location is more practical when imparting a vast amount of information using fixed bedside paperwork.

In alignment with other literature, information transfer was viewed as the primary function of the ICU bedside handover (Manias & Street, 2000). An additional function of judging, scrutinising and critiquing a nurse's work was however also highlighted (Manias & Street, 2000). Three concepts: 'the tyranny of tidiness', 'the tyranny of busyness' and 'the sense of finality' were described as 'hidden practices' in the handover and ways in which nurses judged themselves and others (see Table 2.4 for more detail) (Manias & Street, 2000). In essence, incoming nurses were observed to portray a need to sort all outstanding tasks, problems and untidiness from the previous shift, searching for faults instead of commending what had been achieved.

A similar practice of judgement was alluded to by Ekman and Segesten (1995). They described how, in a non-ICU setting, the head nurse who handed over to all incoming nurses frequently described current patient status using the word 'now', as if she was required to prove to incoming nurses that at the point at which she handed-over, everything was satisfactory. It was deduced that should the head nurse not speak in this manner, she would be judged as having a lack of control (Ekman & Segesten, 1995). Manias and Street (2000) describe how such practice leads nurses to feel "fear and anxiety" (p.380) and could "impede effective communication during handover" (p.382). The concepts also give rise to the question: 'If such practices are in place, would opportunities for education and emotional support even be possible?'

Table 2.4: Description of the three concepts titled 'the tyranny of tidiness', 'the tyranny of busyness' and 'the sense of finality', as described by Manias and Street (2000)

'The tyranny of tidiness': The need to demonstrate, in addition to basic care, "the ability to maintain tidiness during bedside handover" (Manias & Street, 2000) **'The tyranny of busyness':** The "compulsion to perform physical tasks around the patient's bedside area or in the immediate clinical environment" (Manias & Street, 2000:378). Manias and Street (2000) further explain that against an expected standard, nurses are judged by the degree to which they have been busy and the amount of work that has been completed. They also highlighted the potential for tension if "confronted by the tyranny of busyness and that of tidiness" (Manias & Street, 2000: 379). **'The sense of finality':** The notion that prior to shift handover or handover for break nurses would feel the need to complete all tasks rather than expose their "gaps and inadequacies" to others (Manias & Street, 2000:379). This judgement of themselves led to continuous re-examination of their own progress.

2.8.2. Content of ICU handover

As with non-ICU handovers, Philpin (2006:88) summarises the content of the ICU handover as "the previous shift's events and ... relevant aspects of the patient's condition" and Manias and Street (2000:380) outline it as being "a comprehensive analysis of progress and care". Again, no specific reference is made to evidence of discussion or planning of nursing care.

In terms of specifics, an excerpt from an interview with a junior nurse in Philpin's research highlights some of the detailed content of the ICU handover:

> "...past medical history, the current history and what's been going on since admission ... And what they have done for that shift as well as the changes during that shift, recent changes, what mode of ventilation, cardiovascular status, what's on their chest, what their oxygenation's been like, blood gas results, urine output, fluid balance, feeding regime, skin – what that's like, and the family as well"
> (Junior nurse, Interview excerpt 15, from Philpin (2006:88)

While acknowledged as being the words of only one nurse, the excerpt alludes to the use of physiological parameters to structure the handover, which is a method reported to be the norm within ICU nursing (Manias & Street, 2000) and medical handovers (Jigajinni & Sultan, 2010).

2.8.3. Duration of ICU handover

Limited data exists detailing the average duration of an ICU handover. Philpin (2006:88) describes handover as a "very thorough procedure lasting for at least 15 minutes" and Sri (2012) relays an average of 24 minutes. In neither of these studies is it made clear how many patients were being handed over, but since both were conducted in the UK where the ICU clinical norm is one RN to one patient (Paediatric Intensive Care Society, 2010b), it can be assumed that the length of time is for handover of one patient. Quite differently, a duration of six minutes per patient is reported by Alvarado et al. (2006), in comparison to one to two minutes within a ward.

Considering factors that may impact on the duration of handover, Sri (2012) noted that the size of the unit did not seem to correlate with handover duration, and when examining medical handovers Nemeth et al. (2006) found severity and stability of the patient to be better indicators of duration of handover than amount of care required.

The limited literature would suggest that the duration of an ICU nursing handover is longer than that of handover in the ward environment, taking on average a similar amount of time for one patient as for one ward's total patients. This is expected, given the severity of the patient's illness and volume of care information to be handed over. Factors that may determine the duration of handover cannot be established with certainty, owing to the limited availability of relevant research.

2.9. MEASURING HANDOVER EFFICACY AND QUALITY

Having examined the function, structure, duration and content of handover, both in general and specifically in the ICU, and having heard in the introduction that poor-quality handovers pose a risk to patient safety, it is prudent to discuss how the efficacy and quality of handover can be measured and indeed what such studies have demonstrated.

Jeffcott et al. (2009:272) state that the ability to measure handover quality, "increases opportunities for understanding, controlling and improving the practice". They also comment that this measurement should be "consistent and transparent", making use of a mixture of qualitative and quantitative methods. Manser and Foster (2011) explain how handover should be measured in terms of content, process and outcome and it is under these headings that the literature reporting on handover quality measurement will now be discussed.

2.9.1. Measuring quality and efficiency through assessment of content

One way of measuring the quality and efficiency of a handover is to assess the content. A number of key studies demonstrate this, which is not surprising given the view that information transfer is the primary function of handover.

Firstly, in a study conducted with the aim of identifying episodes of congruence[3], incongruence[4], omission[5] and omission resulting in incongruence[6] in handover, episodes in each category were found to occur (Richard, 1988). An overall average of 70% (2072/2952) congruence was reported; however, no handover produced a rate of 100%. Incongruence was on average 12.4% (366/2952) and was most commonly related to intravenous lines. Information concerning the input and output of the patient contributed greatly to the 11.8% (349/2952) of omissions and the 6% (174/2952) of omissions resulting in incongruence. Differences in the four categories occurred across the different daily handover episodes and there was a significant relationship between the type of handover and occurrence of incongruence/omissions. Audiotaped reports resulted in incongruence less frequently, but were more likely to generate omissions than face-to-face reports. Since Richard's study took place many years ago it emphasises the length of time the healthcare research community has been aware of risks associated with the handover process.

In a study by Sexton et al. (2004) nursing handovers from one general medical ward were audiotaped, transcribed and analysed against information that could be found in other ward documentation. Noteworthy results were that 84.6% (3820/4516) of the information handed over could be easily found in alternative ward documentation, 9.5% (431/4516) of information was found to be unrelated to patient care, and only 5.8% (265/4516) was both relevant and not available in another written location. It was also found that instead of ensuring continuity of care, handover was often haphazard and created confusion. Sexton et al. (2004:37) surmised that this was due to a lack of clear guidelines and staff shortages leading to a disorganised shift. Sexton et al. (2004) believed that the data reinforced the notion that handover should be streamlined to include only essential information and that other information should remain in alternative documentation sources.

[3] **Congruence**: Inclusion of information in handover that accurately represents the patient's current condition (Richard, 1988).
[4] **Incongruence**: Inclusion of information in handover that differs from the patient's actual condition and thus could result in medico-legal consequences (Richard, 1988).
[5] **Omission**: Omission of patient information from handover that could result in handover inefficiencies (Richard, 1988).
[6] **Omission resulting in incongruence**: Omission of information from handover that could have both medico-legal consequences and also result in handover inefficiencies (Richard, 1988).

Lamond (2000) conducted a similar study, comparing information found in the medical and nursing documentation with handover of 60 patients on two acute medical and two acute surgical wards. She discovered that almost all information was recorded more frequently in the notes than spoken in handover, but that the sequence of information spoken in handover ultimately made it more memorable (Lamond, 2000). The spoken handover was also more likely to contain information about the patient's psychological status (Lamond, 2000)

In summary, these three studies each give a valuable insight into the quality and efficiency of handover with particular regard to its content. They raise questions as to the efficiency of repeating information that is freely available and documented elsewhere, as well as to the quality, if certain information is not included. However, measuring the efficiency and quality of handover through an assessment of content comes with challenges; firstly, there is often first a necessity to determine what the optimal content should be (Manser & Foster, 2011; Cheung et al., 2010), and secondly, the content requirements for one setting or patient will invariably differ from those of another (Cheung et al., 2010), making transferability of research results to some extent impractical.

2.9.2. Measuring quality and efficiency through assessment of process and outcome

Assessment of the process or outcome are two other methods of determining handover quality and efficiency. Measurement of process is primarily concerned with the effectiveness of the environment and the behaviour of those involved (Manser & Foster, 2011), whereas measurement by outcome concentrates on the satisfaction of those involved and consequently on patient safety and outcomes (Manser & Foster, 2011). Examples of studies measuring by such methods will now be shared.

Firstly, in a landmark study examining the efficiency of different methods of communication in handover, Pothier et al. (2005) asked nurses to handover 12 patients, each with 21 pieces of important data, in simulated one-to-one handover cycles, set 60 minutes apart. Three handover styles were compared: verbal (verbal handover with no note-taking), written (verbal handover with participants taking notes) and sheet (patient information on a sheet given to the participant together with a verbal handover). Results demonstrated that if the handover was purely verbal, there was a total loss of all information after three cycles (0/84), compared with only a 31% (26/84) loss after five cycles if participants took notes, and no loss if a 'handover sheet' was prepared (84/84). In addition, they found that demographic and diagnostic information was least likely to be lost, whereas nursing data were least likely to be maintained.

To give an insight into the satisfaction of nurses, Meißner et al. (2007) summarise the handover-specific results of the Nurses' Early Exit (NEXT) study, a survey of 22 000 nurses across ten European countries. Results highlighted varying degrees of dissatisfaction with handover. In England, Poland and Slovakia, 22% (371/1664), 23% (688/3003) and 23% (408/1776) of nurses respectively rated themselves as dissatisfied with handover, whereas in France, Germany and Italy, 61% (1441/2368), 55% (1330/2410) and 53% (2112/4008) respectively reported dissatisfaction. For 46% (1088/2368) of nurses from France their dissatisfaction arose from a feeling of a lack of time, whereas in Germany 44% (1064/2410) complained about the amount of disturbances. Interestingly, despite both of these complaints having the potential to lead to a reduced transfer of information, no more than 19% of nurses from either country regarded 'insufficient exchange of information' as a reason for dissatisfaction. Most common causes of dissatisfaction across all countries were, in frequency order: disturbances, lack of time, insufficient information exchange, lack of space and poor atmosphere.

These two studies demonstrate how the process of handover can not only impact on quality of the content delivered but also on satisfaction of those involved.

2.9.3. Measuring quality and efficiency through combined measures

While particular importance is placed on measuring handover quality through assessment of outcome (Manser & Foster, 2011), Arora and Johnson (2006:651) deduce that this can be a difficult and costly process. As a result, Manser and Foster (2011) report that they have found very few studies that achieved it. Measurement by combined measures is also deduced to be beneficial; however, only one study has been found to confirm this (Manser & Foster, 2011).

Combining measurement of handover process with handover outcome, Dowding (2001) aimed to determine whether nurses' recall of information or ability to plan patient care was altered by either the structure or the information content of handover. Using an experiential study design, nurses were assigned to one of four condition groups, determined by the two study variables: retrospective and task-orientated vs. prospective and patient-centred, and the type of schema information: schema-consistent vs. schema-inconsistent. Each nurse was then asked to listen to an audiotaped handover, taking notes if they wished. Once finished, any notes were removed and following a mental countdown from 100, the participants were asked to write down everything they remembered and to write a plan of care. Scores were attributed to the plan of care and the amount of information recalled calculated.

Dowding's (2001) findings were noteworthy. It appeared that the nurses could recall more information if it was presented in a schema-consistent manner (a pattern which the nurses expected), but that they were more able to plan care if information was presented in a retrospective and task-orientated style. Recall was found to be always less than 27%, which Dowding (2001), like Pothier et al. (2005), interpreted as demonstrating that verbal communication alone is not the best method of communication during handover. Note-taking was also found to be inefficient with only 45.2% of the information provided written down. A perceived lack of worth in the rest of the information was reasoned as the cause (Dowding, 2001). The capacity to draw conclusions from Dowding's study is however restricted by the limitations that were in place. Real-life handovers were not observed, meaning that there was no opportunity to ask questions, clarify information or access other documentation, and the nurses were unable to meet with the patients. In a normal handover situation it is reasonable to assume that the capacity to do these would impact on the ability to write a plan of care.

In summary, while limited in number the studies described above highlight concerns about the quality and efficiency of the content, process and outcome of nursing shift handover practice and contribute to the understanding as to why the practice may pose a risk to the patient. No similar studies directly related to the ICU nursing shift handover were available and all the studies only assess quality and efficiency of information transfer during handover.

2.10. BARRIERS AND FACILITATORS TO AN EFFICIENT HANDOVER

Several studies have been conducted with the aim of identifying barriers to an efficient nursing handover (Welsh, Flanagan & Ebright, 2010; Cheung et al., 2010; Davies & Priestly, 2006; O'Connell, Macdonald & Kelly, 2008; Riesenberg, Leitzsch & Cunningham, 2010; Triplett & Schuveiller, 2011). The most comprehensive was a systematic review conducted by Riesenberg et al. (2010). They identified 2649 articles concerned with handover published between 1997 and 2008. From these, 95 full articles written in English, focusing on handover in the USA and indexed in OVID and/or PUBMED, were identified. Interestingly, of those 95, 58% (n=55) were published after January 2006, coinciding with the launch of the Joint Commissions National Patient Safety Goal. Following a thorough content analysis, eight categories of factors that act as barriers were identified. These were: communication barriers (most frequently identified factor), human factors, equipment factors, environmental factors, a lack or misuse of time, a lack of training or education, difficulties related to complexity of high caseloads, and problems associated with standardisation.

Limitations of the review were noted as: use of limited key words in the search, inclusion of articles from a range of clinical settings and only those published in the USA, and the abstract of data from all parts of the articles. The authors also acknowledged that publication bias may have influenced results. However, from a review of other studies sourced it would appear that that the categories created by Riesenberg et al. (2010) are very comprehensive, with very few barriers quoted in other studies not being encompassed. Davies and Priestly (2006) reported a smaller-scale review inclusive of literature from the UK, and certainly the issues they identified as causing discontent were replicated within the Riesenberg review.

Two barriers of note exist. Firstly, interruptions or distractions have been widely identified as potentially having a negative effect on handover (Chen et al., 2011; Currie, 2002; O'Connell, Macdonald & Kelly, 2008; Riesenberg, Leitzsch & Cunningham, 2010; Welsh, Flanagan & Ebright, 2010). They interrupt the flow of thought, thus causing the outgoing RN delivering the handover to forget information, and increase the length of time required to handover (O'Connell et al., 2008).

Secondly, in addition to the obvious barrier of handover being too short and therefore not containing sufficient information, the handover that is too long is also recognised as being a barrier to quality (O'Connell, Macdonald & Kelly, 2008; Welsh, Flanagan & Ebright, 2010) Lengthy handovers are deduced to contain non-essential and irrelevant information (Davies & Priestly, 2006), and as a result nurses report the tendency to lose concentration (O'Connell & Penney, 2001; Prouse, 1995) and the capacity to actively participate (Manias & Street, 2000).

2.11. STANDARDISATION OF HANDOVER

Handover has, in summary, been identified as a hugely variable process, with many documented barriers to effective and efficient implementation. It is recognised as a potential risk to patient safety and international health improvement initiatives have called for changes to be made. But how do they recommend we improve the process?

Globally, standardisation is recognised as being the key. The WHO in their 'Suggested Actions' to address handover stated that healthcare organisations should "implement a standardised approach to hand-over communication" (2007:2). This is mirrored by the Joint Commission, who added a similarly worded call to their 2006 National Patient Safety Goals (Joint Commission, 2007; Catalano, 2006).

Expected outcomes of a standardised approach include the promotion of patient safety (Manser & Foster, 2011) and clearer expectations of the handover process and content (Matic,

Davidson & Salamonson, 2010). Furthermore, Patterson (2008) believes that through redesign of the handover process to achieve standardisation, an in-depth examination of existing practice is likely to occur, and thus wider changes in healthcare co-ordination will be facilitated. Caution is however given to the notion of standardisation reducing a healthcare professional's autonomy (Manser, 2011; Patterson, 2008) and thus the capacity to deviate from standardised norms in critical situations remains vital. Failure to permit this may result in future healthcare errors being attributed to failure to communicate in the standard manner, thus ignoring other contributing factors (Patterson, 2008).

2.11.1. But what does a standardised approach actually entail?

Adamski (2007: Second paragraph) states that standardisation does not mean that every handover within an organisation needs to be identical; rather that an "organization needs to define, communicate to staff, and implement a process in which information about patient care is communicated in a consistent manner." Different disciplines, specialities, patients and settings have diverse requirements for information (Adamski, 2007; Manser, 2011), which means that what would be the ideal standardised handover practice for one discipline/speciality will not only need to be different for another, but is also likely to need adapting for the same discipline or speciality in an alternative setting (Arora & Johnson, 2006; Manser, 2011). Jorm, White and Kaneen (2009) introduce the concept of 'flexible standardisation', describing a situation where if an organisation decides to adopt a pre-existing handover tool, it can or must be altered to best meet their clinical requirements. Johnson and Barach (2009:S111) simply stress that the need for "local customisation….can not be overemphasised".

Generally speaking, the WHO and the Joint Commission afford their recommendations of a standardised approach. The WHO (2007) suggests that the approach encompass the use of a mnemonic, provision of adequate time for handover and questions, reduction of interruptions, and delivery of appropriate but not excessive information to ensure safe patient care. The Joint Commission makes similar recommendations, adding that communication should be interactive, and that opportunities for clarification of information (read-back) and review of historical data should be facilitated (Arora & Johnson, 2006).

Specific to the critical care environment, Cheung et al. (2010) advise that standardisation of handover should consider all the elements described in Table 2.5. Comparison of healthcare handover practice to that in other high-risk industries further highlights clear standardisation

suggestions for health care. Riesenberg et al. (2011), in corroboration with their list of barriers, also provide a summary of strategies for effective handovers.

Table 2.5: Strategies to improve handover as described by Cheung et al. (2010)

Strategies to improve handovers
• Reduce the number of unnecessary handovers • Limit interruptions and distractions as much as is practical • Provide a succinct overview • Communicate outstanding tasks, anticipate changes and have a clear plan, make information readily available for direct review • Encourage questioning and discussion of assessments • Account for all patients • Signal a clear moment in transition of care

Standardisation of handover as recommended above can, however, be implemented using a number of different strategies, namely those of defining and ordering *content* and restructuring of *process*. Literature detailing studies whose goal has been to standardise through content or process will now be described, concentrating on the intensive care environment where possible.

2.11.2. Standardisation by defining and ordering content

Riesenberg et al. (2010:29) identified that "essential information [being] consistently included" and reporting "information in the same order every time" were two strategies that ensure an effective handover. With this in mind, together with the WHO recommendation to provide appropriate information about the patients' status and care plan (WHO, 2007), standardisation of handover through the introduction of a content guide is emerging as a common trend (Caruso, 2007; Wilson, 2007; Fenton, 2006; Klee et al., 2012; Berkenstadt et al., 2008; Triplett & Schuveiller, 2011; Zavalkoff et al. 2011; Joy et al., 2011). Also frequent is the use of mnemonics (Manser & Foster, 2011; Riesenberg, Leitzsch & Little, 2009).

2.11.2.1. Development of a content template

While noted to have been implemented in a variety of settings (Caruso, 2007; Wilson, 2007; Fenton, 2006), the ICU is one clinical speciality in which the content template has been frequently introduced. This is conceived to be due to the recognition of the necessity to

accurately handover a vast amount of information, in a timely manner knowing that the patient condition can change almost without warning (Jigajinni & Sultan, 2010). Three articles reporting on the introduction of a content template for the nursing handover have been identified.

Firstly, following a process of continuous process improvement and rapid process improvement workshops, Klee et al. (2012) identified that since nurses each had their own manner of organising information during their handover, the development of a content template would beneficially serve to standardise both content and sequence. One month post-implementation and training, evaluation of the template found that 48% of nurses believed that the report they received was organised and complete with all necessary information. This figure increased to 98% at 60 days and was sustained at a level of higher than 90% for a two-year period. Nurses also commented that the added safety check was extremely effective.

Similarly, a written handover checklist/protocol and training package was developed and implemented in a medical step-down unit (Berkenstadt et al., 2008). Examination of data post-protocol implementation demonstrated that there was an augmentation in the reporting of basic patient demographics, medical history, treatment goals, patient physiological parameters, fluid balance, physician orders and events of the previous shift. However, the frequency with which actual physical tasks, such as the checking of the ventilator, continuous infusions or the monitor alarms, were completed had hardly changed. This was despite participants reporting their known importance to patient safety. Environmental and clinical constraints were surmised to be contributing factors to these results (Berkenstadt et al., 2008).

In a third intensive care setting questionnaire evaluation of the nurses' opinions following implementation of a bedside handover safety checklist and standardised handover content form was generally positive (Triplett & Schuveiller, 2011). It was found that 55.6% (39/69) perceived the content form to aid delivery of an accurate and consistent report of the patients' condition and almost half (34/69) recounted an increased confidence in both giving and receiving handover. Additionally, 55.1% (38/69) noted having identified medication errors as a result of the new safety checklist component. It is, however, acknowledged that the evaluation was by self-report with a limited response rate (30%: 69/230) to the questionnaire and the study report is only offered in abstract form.

The medical handover at the point of transfer into the ICU after cardiac surgery is recognised as being commonly addressed in terms of content (Zavalkoff et al., 2011; Joy et al., 2011). Evaluation of such handovers has been achieved through, pre- and post-implementation data measuring the achieved content of handover and the number of 'high-risk events' (Zavalkoff et al., 2011) or errors (Joy et al., 2011). Zavalkoff et al. (2011), having scored recorded handovers for content, found that overall the scores improved after the introduction of the template, with certain sub-scores (different categories of information) increasing more than others. Frequency of 'high-risk events' also indicated a downward trend although they were unable to claim statistical significance. Joy et al. (2011) found significant reductions in information omissions and medical errors after implementation of the template. They noted that while duration of the verbal handover neither increased nor decreased, the time taken to complete the technical tasks of strapping the endotracheal tube and transferring the central venous pressure monitoring, reduced significantly. Joy et al. (2011), however, make it clear that while the redesign suggests increased patient safety, sustainability has not yet been established.

In terms of content, the majority of the handover templates mentioned make use of pre-printed forms designed to facilitate quick recording of facts against patient/care component prompts (Joy et al., 2011; Klee et al., 2012; Wilson, 2007; Zavalkoff et al., 2011). All have a systems-based approach and include a degree of forward planning. Zavalkoff et al. (2011) and Joy et al. (2011) divide their form into two intra-operative and post-operative/current sections, and Klee et al. (2012) have an additional tick-box section to assess patient safety elements. These templates in turn, appear to result in positive effects on handover, although some studies only evaluate nurse satisfaction, which by itself cannot infer an effect on patient safety. In addition, Dunn and Murphy (2008:11) comment that "a checklist ... is simply a tool, not a solution", suggesting that the effectiveness of a handover template is dependent not just on its design but more on its appropriate use, and the knowledge, of the healthcare provider.

2.11.2.2. Use of mnemonics

A mnemonic is defined as "a word, sentence, poem etc. that helps you remember something" (Hornby, 2010:950) and is thought to aid memory of important stages or information in the handover process (Riesenberg et al., 2009). Less prescriptive than full content templates, they give guidance on the topics to be discussed together with the appropriate order (Manser & Foster, 2011).

In a recent review of published research detailing the use of a mnemonic, 19 different mnemonics were identified (from 46 articles), some of which were variations of an original

(Riesenberg et al., 2009). From the review, 16 of the mnemonics are reported to be used by nurses, but none specifically in the ICU setting. The most commonly reported mnemonic is 'SBAR' (Situation, Background, Assessment, Recommendation), which is referred to in 32 articles (Riesenberg et al., 2009). It was designed for use by a diverse range of healthcare professionals as a way of communicating in critical situations, specifically when a healthcare professional is concerned about a patient's condition and requesting the immediate attention of another (Institute for Healthcare Improvement [IHI], 2011a). However, SBAR is not applicable in all healthcare communication so variations have been developed, in particular to make it more appropriate for use in patient handover.

Other examples in the literature further demonstrate how mnemonics need to be specific to patient context and clinical speciality; 'DATAS', was developed specifically for nursing handover (Mascioli et al., 2009), 'PEDIATRIC' for doctors working in paediatrics (Arora & Johnson, 2006), and 'DeMIST' to assist ambulance crews to handover the patient to the emergency department (Talbot & Bleetman, 2007).

The effectiveness of mnemonics has, however, not been established. The DATAS mnemonic led to improved communication (Mascioli et al., 2009) and 'I PASS the BATON' was positively received by nurses, who noted that it gave them time in handover to conduct safety checks and teach (Thomas & Donohue-Porter, 2012). While noted in only a small study, use of a mnemonic by ambulance crews led to decreased recall of information, with unstructured handovers proving to be more efficient (Talbot & Bleetman, 2007). Mascioli et al. (2009) comment that staff acceptance of a mnemonic is a challenge.

Ultimately, Riesenberg et al. (2009) conclude in their review that despite the majority of mnemonics being anecdotally reported as beneficial to the handover process, there is very little quality evidence to specifically support their effectiveness, and thus they are unable to reinforce any recommendations for their use.

2.11.3. Standardisation through restructuring of process

The second common method of facilitating a more standardised handover is through restructuring the handover process; quite simply changing *how* the process happens. This may be instead or in compliment, of changing *what is said*. A number of different methods are identified in the literature for standardising the handover process.

2.11.3.1. Bedside handover

Implementation of bedside handover is one way in which the process of handover can be standardised. Bedside handover traditionally involves a professional type of handover, delivered at the bedside, using a verbal mode. The primary advantage of the bedside handover is the potential for patient involvement; it places patients at the centre of their care, thereby (in theory) ensuring that they are better informed, able to ask questions and impart their knowledge about their disease process and current condition (Triplett & Schuveiller, 2011; Anderson & Mangino, 2006; Kassean & Jagoo, 2005). Patients can also be more involved in planning their care and future discharge (Webster, 1999; Chaboyer et al., 2009) and thus display feelings of being reassured (Anderson & Mangino, 2006).

Secondary benefits of a bedside handover rest on the nursing team. Triplett and Schuveiller (2011) describe how it provides nurses with increased accountability for a patient's condition. The practice of incoming and outgoing nurses viewing the patient together serves to provide visual cues that prompt recall of information and thus increases accuracy, quality and appropriateness of handover (Griffin, 2010). The face-to-face communication allows the incoming nurse to "ask questions and seek clarification" about the patient (Chaboyer, McMurray & Wallis, 2010; O'Connell & Penney, 2001) and the educational and supportive functions of handover are not lost since a nurse is able to role model exactly how to engage with patients (Cahill, 1998). Triplett and Schuveiller (2011:e43) describe how bedside handover creates an immediate "opportunity for education exchange with unfamiliar equipment and practice" and patients are reported to observe that it enables a psychological debrief of the nurse (Cahill, 1998).

One disadvantages of bedside handover is a perceived lesser ability to protect patient confidentiality or discuss information not yet shared with the patient and/or their family (Griffin, 2010). However, this has been found to be a greater concern for the staff than the patients (Howell, 1994), who rather believe that the benefits outweigh any confidentiality risk (Greaves, 1999). Other criticisms include reduced opportunity for professional socialisation (Clemow, 2006) and a limited amount of patient involvement in reality (Timonen & Sihvonen, 2000; Chaboyer, McMurray & Wallis, 2010). Griffin (2010) also speculated that bedside handover may take longer because patients take lots of time to ask questions or make requests. In contrast, he also notes that bedside handover could be more time-efficient since information can be more focused and facilitate completion of additional nursing tasks easily in the shift time (Griffin, 2010).

Bedside handover has been introduced as a method of standardising handover in a number of clinical specialties and most reports relate positive handover outcomes (Caruso, 2007; Anderson & Mangino, 2006; Costello, 2010; Chaboyer et al., 2009; Mckenna & Walsh, 1997; Webster, 1999; Kassean & Jagoo, 2005; Bradley & Mott, 2012). Its use in the ICU setting is thought to have been common for a long time primarily due to the continued necessity to be near to the patient. Documented benefits to the patients are however, less visible since due to analgesic and sedation requirements, many of the patients have a reduced capacity to be involved in the handover process. Close family members may however be present, and an adult ICU study demonstrates how they benefit in a similar manner to that of alert patients (Tobiano, Chaboyer & McMurray, 2012).

No study has been found to confirm that the same would be true in the paediatric setting, but the following study conducted in a PICU suggests that it would. Landry et al. (2007) present their findings of parent preference comparing resident bedside case presentation[7] and conference-room case presentation. Having experienced both styles, parents indicated that they were more satisfied with the bedside case presentation since it led to greater understanding and more of their questions being answered. Interestingly, surveyed parents also considered that both their child's and their own confidentiality was better respected during bedside case presentation.

2.11.3.2. Restructuring of ICU handovers

One handover in the ICU that has received a lot of attention is that which occurs on admission of a child after cardiac surgery. This complex handover has been identified as including a wealth of information about the patient gained over the course of the operation together with information about the dense equipment required by the patient at this time. It involves a large number of people as it is delivered while the patient is at high risk of becoming unstable (Catchpole et al., 2007). Miscommunication within this handover specifically has been found to be abundant (Mistry et al., 2005). Reports have been published on strategies implemented to address this practice, and aspects of these could be applicable to other handovers as well.

Catchpole et al. (2007) were among the first healthcare teams to address this handover, choosing to consult with a Formula 1 pit-stop team and aviation experts for advice. The external industries identified positive elements of their own handovers and used them to highlight potential areas of improvement within the ICU handover. From this engagement the

[7] A case presentation involves a resident presenting an overview of the child and his/her care to an attending physician, then answering questions and listening to additional information bestowed. This may occur either at the bedside in front of parents or in a conference room away from parents (Landry et al., 2007).

authors identified eleven safety themes, most of which, when translated to the ICU handover, signified a need to change current practice. As a result a new handover protocol was created, clearly outlining the exact order in which the various people involved should do certain actions or speak certain information.

Handovers before and after implementation of the protocol were analysed in terms of technical errors, quality of information, duration of handover and team performance (Catchpole et al., 2007). The results were encouraging, essentially demonstrating that key concepts could be extrapolated from other industries and then successfully applied to the ICU environment (Catchpole et al., 2007). The authors did, however, note that turnover and use of temporary staff in health care is far greater than in the other industries, and that this could lead to an increase in frequency but decrease in effect of any handover training provided (Catchpole et al., 2007).

Chen et al. (2011) also decided that a redesign of the environment surrounding the post-cardiac surgery handover would be beneficial. Having identified areas of concern they first decided who should be in attendance at the post-operative handover and what their tasks should be. They conceived the concept of a 'sterile cockpit' which signified that no communication should occur until all required personnel were present, and that once handover had commenced only minimal distractions should be permitted. In addition, a total of 14 items were agreed as being crucial to the content of the handover.

Following training and implementation, measurements of attendance, content and frequency of distractions were taken. Unfortunately, three years after implementation the authors found that the results were variable, citing challenges related to irregular reporting of crucial content and frequent distractions despite reliable and consistent attendance (Chen et al., 2011). The authors reached the firm conclusion that long-term sustainability requires strong leadership, compulsory education updates/reminders, and making visible any data collected.

2.11.3.3. Standardisation of handover through the use of technological solutions

On discovering that 38% of a nurse's day is dedicated to passing on information, Hendrickson, Doddato and Kovner (1990:36) proposed that using computers, whose function is typically "to collect, store and transmit information", could be of assistance in the handover process. Matic et al. (2010:188) similarly advocate for the "design and development of technological solutions to improve standardisation and efficiencies of handover data". Indeed, following a review of

handover literature, Riesenberg et al. (2010) report that the introduction of technology is the second most frequently suggested way of making handover more effective.

Possible benefits of technological solutions include "the standardisation of data definitions, consistency with the information communicated, the minimisation of ambiguities and the potential to increase process efficiencies" (Matic et al., 2010:187). Randell, Wilson and Woodward (2011), however, caution that technology cannot do everything that a verbal nursing handover can. It cannot comprehensively tell a patient's story, highlighting key aspects of information, and clarifying where necessary. Furthermore, implementation of a fully electronic handover could also lead to loss of the other benefits associated with differing methods of communicating. For this reason technological solutions are often viewed as possible adjuncts to other methods. Pothier et al. (2005) and Dowding (2001) advocate that a verbal handover combined with a written component ensures greatest accuracy and recall of information, so is it possible that adding technological solutions to verbal handover is the future way of achieving this?

Examples of how technology can be used include production of an electronic patient list and use of a personal digital assistant (PDA) (O'Connell, Macdonald & Kelly, 2008; Strople & Ottani, 2006). An electronic ward list detailing minimal information about all the patients provides the reader with an overview of the ward status (O'Connell, Macdonald & Kelly, 2008) and the PDA is theorised to be the next logical technological step from 'scraps', allowing information to be saved and become part of the patient documentation (Strople & Ottani, 2006).

Strople and Ottani (2006) deduce that with a movement towards electronic patient records in developed countries, a fully automated handover seems increasingly possible. They propose a situation whereby on arrival the incoming nurse could print a handover sheet and then without disturbing the outgoing nurse, use it to complete a 'walking round' of all the patients. She would meet the patients, be able to cross-check information and then, only once that is complete, meet with the outgoing nurse to ask any clarifying questions. Following this, a short meeting to address shift issues could occur with the group of incoming nurses. The authors perceive that in doing this the benefits of a bedside handover would be retained while avoiding concerns regarding confidentiality.

Reported only in abstract format, a solitary study detailing the introduction of an electronic handover, does highlight some potential barriers (Eastwood, 2008). Nurses in the study rated the legibility of the handover highly, but also commented that it was time-consuming and

required frequent returns to a non-portable computer to ensure data were kept up-to-date. The author therefore emphasised that any electronic element to handover is only possible if the relevant equipment is freely and sustainably available and staff computer skills are sufficient (Eastwood, 2008).

2.11.3.4. Standardisation through the introduction of safety checks

A fourth emerging method of standardising the handover process is through use of a safety check (Alvarado et al., 2006; Chaboyer, McMurray & Wallis, 2010; Bone et al., 2007; Costello, 2010; McMurray et al., 2010; Chaboyer et al., 2009; Berkenstadt et al., 2008; Triplett & Schuveiller, 2011). Such a check includes a range of activities (Table 2.6) and is surmised to hold a variety of positive functions. Medication errors, information omissions or queries can be identified, non-functioning or absent equipment can be noted, and a visual scan of the patient can highlight new or changing clinical signs (Triplett & Schuveiller, 2011; Chaboyer et al., 2009; Bone et al., 2007). Inconsistencies between information being given and the actual condition can also be identified (Chaboyer et al., 2009).

Table 2.6: Components of safety checks as identified in the literature

Components of a safety check as identified in the literature
• Call bell within reach • Functioning equipment (e.g. suction and O_2) • Checking of infusion pumps • Medication chart reviewed • Patient wearing an identification and alert (where necessary) band • Visualisation of intravenous sites, tubes and dressings • Working power supply • Presence of bag-valve-mask at the bedside • Access to mobility aids (Chaboyer et al., 2009; McMurray et al., 2010; Bone et al., 2007; Chaboyer, McMurray & Wallis, 2010)

Chaboyer et al. (2009) note that safety checks allow the incoming nurse to move from being a passive recipient of handover to having an active role. Conversely, it is noted that safety checks are only likely to be conducted if their purpose is fully understood by those expected to

complete them (Alvarado et al., 2006), and Bone (2007) finds that accuracy of completion is not always consistent.

Conceived as a practice guide and teaching tool for students, Popovich (2011) developed the 30-Second Head-To-Toe Tool as a guide to a rapid review of a child's condition and environment. Taking into account common mistakes made in paediatric nursing and current evidence-based best practice, the tool is described as easy to use and efficient. It serves to identify any environmental inaccuracies/dangers and highlight minor safety tasks that require attention. When used by the students in their clinical placements, 30% of forms detected an error, all of which could be rectified within 30 minutes. Popovich (2011) believed this emphasised the need for a similar checklist to be used during nursing shift handover.

2.11.4 Evaluation of standardisation strategies

As is evident from the literature, strategies for the standardisation of handover can be divided into those that impact on the content of handover and those that impact on the process. Applicability of these strategies varies for different clinical specialities, patients and settings and may be implemented together or separately.

However, the effectiveness of such strategies to standardise and improve handover remains a question. Manser and Foster (2011) and Riesenberg et al. (2010) remark that few of the studies report on reaching of the ultimate international goals of improved patient safety and reduction of error, and they query whether this is primarily a result of these goals being difficult to measure. Initial implementation is reported to be a challenge and sustainability of the change also rarely receives a comment.

2.12 MAKING CHANGE HAPPEN

Implementing any of these strategies has been reported to be a considerable challenge. The WHO (2007:4) listed the "resistance of caregivers [professionals] to change behaviours" as a potential barrier to achieving handover standardisation and Caruso (2007:21) commented that any attempt to change the handover process "cannot be underestimated".

When examining previous research, participants themselves have expressed their reluctance to welcome change to handover practice (Kerr et al., 2011; Costello, 2010; Mascioli et al., 2009). Kerr et al. (2011) report how, following a descriptive handover study which served to identify a number of problems with current practice, 82% of the nurses voiced an unwillingness to change the handover style. Similarly, when Costello (2010:41) facilitated

change to using a bedside style of handover in one ward, she reports being faced with "initial very vocal resistance from staff".

McMurray et al. (2010:2581) describe how change is particularly problematic when "it involves transforming entrenched habits grounded in professional expectations". It is surmised that this may be particularly poignant when changing handover since its ritualistic nature is widely noted. Caruso (2007:21) explains how she believes nurses view handover as "a sacred cow", and Griffin (2010:350) describes it as a "traditional routine". It is suggested that nurses would rather stick with the comfort of the routine, even if they are aware that problems do exist (Anderson & Mangino, 2006; Costello, 2010) and Griffin (2010:350) surmises that changing handover may even require a degree of psychological adjustment.

2.12.2 Participative methodologies

In recognition of these challenges, it is interesting to note that since the late 2000s there has been an emergence of research into handover practice using participative methodologies (Anderson & Mangino, 2006; Caruso, 2007; Costello, 2010; Webster, 1999; Chaboyer et al., 2009; Kassean & Jagoo, 2005; Klee et al., 2012; McKenna & Walsh, 1997; Shendell-Falik, Feinson & Mohr, 2007);

Participative methodologies are defined by Cornwall and Jewkes (1995:1667) as those that follow "a process of sequential reflection and action, earned out with and by local people rather than on them". In contrast to more traditional methodologies, they focus on "knowledge for action" as opposed to "knowledge for understanding" (Cornwall & Jewkes, 1995:1667). The use of participative methodologies in healthcare research has recently considerably increased, primarily due to the recognition of their capacity to effectively and sustainably effect a change in practice (Meyer, 2000).

Implementation of a bedside handover is the common thread among the studies using a participative methodology (Chaboyer et al., 2009; Kassean & Jagoo, 2005; McKenna & Walsh, 1997; McMurray et al., 2010; Webster, 1999; Anderson & Mangino, 2006; Caruso, 2007). While perhaps due to publication bias, all reports tell of successful outcomes and a diverse range of benefits using the approach.

Firstly, the capacity for the methodology to facilitate an understanding of the need for change and the involvement of by those to whom the change would affect, was widely recognised as being an advantage to ultimately achieving the change goal (Chaboyer et al., 2009; Costello, 2010; Kassean & Jagoo, 2005; Webster, 1999; McKenna & Walsh, 1997). Webster (1999)

describes how staff appeared to own the change and McKenna and Walsh (1997) assert that it was the involvement of staff that ensured that the most appropriate and therefore most sustainable option for handover was chosen. The combined process of collecting data and increasing cognitive awareness was noted by McMurray et al. (2010:2586) as particularly influencing "attitude and motivation, [thus] rendering change less threatening". Increased morale of those involved, together with an enthusiasm to question and improve other clinical practices, was also noted (Shendell-Falik et al., 2007; Kassean & Jagoo, 2005).

2.13. CONCLUSION TO CHAPTER 2

This chapter has served to highlight the fact that the nursing shift handover, a multi-purpose part of every nurse's day, exists in many forms. However, limited literature exists describing the current PICU nursing shift handover. In their current format, healthcare handovers have been recognised as a period of high risk to patient safety, and international healthcare bodies recommend standardisation of the practice. Multiple standardisation strategies exist and those previously used in the ICU include introduction of a template for content, formalisation of the process and addition of safety checks. The effectiveness of such strategies remains inconclusive and significant challenges are associated with implementing the changes proposed.

Chapter 3

RESEARCH APPROACH, 'PRE-DIAGNOSIS' and DIAGNOSIS

PRELUDE TO CHAPTERS 3 - 5

A study using an action research approach is flexible and dynamic by nature, evolving continuously over time. This is not to say that distinct phases to the study do not exist. Heale (2003) suggests that an action research study can be divided into five phases: diagnosis, planning, implementation, evaluation and learning.

Easy parallels can be noted between these phases and the specific objectives of this study (Table 3.1) so they have been used to provide structure and clarity to this research report. An additional phase, termed 'pre-diagnosis' has also been created to denote the essential work required prior to commencing the diagnostic phase.

Table 3.1: Parallels between Heale's (2003) five phases of action research and this study's specific objectives

Specific objectives of this study	Stages of action research
1. To engage the nursing and medical leadership of this unit in a participative change process	'Pre-diagnosis'
2. To recruit a core group of professional nurse participants from the PICU	'Pre-diagnosis'
3. Together with the core group of participants, to describe the existing practice of nursing shift handover in the PICU at the RCWMCH	Diagnosis
4. To collaboratively critique the current handover process	Planning
5. To collaboratively develop and implement an improved standardised approach to handover	Implementation
6. To evaluate the quality and efficiency of the optimised standardised approach	Evaluation
7. To make a timely withdrawal from the study setting	Learning

These phases of an action research study handover do not, however, fit cleanly into the traditional five-chapter research report format (Herr & Anderson, 2005), making the reporting of an action research study a challenge. Meyer (1993:1072) reflects and comments on the

difficulties of "trying to share a different type of knowledge through the constraints of a traditional academic thesis". With this in mind and in consideration of the purpose of each of the phases of action research, the content of the chapters within this research report is structured differently to that of a traditional research report.

Preceding this chapter and in keeping with tradition, chapter 1 has provided an introduction to the research study and chapter 2 a literature review of the topic in question. Chapter 3, traditionally the methodology chapter, describes the research approach for the study and the rationale for its use. It then outlines the work of the 'pre-diagnosis' and diagnosis phases. The 'pre-diagnosis' phase explores the researcher's position in the study and describes the process of establishing collaboration. The diagnostic phase contains two action research cycles, for which the methodology, data collection and analysis methods are discussed.

The diagnostic phase is specifically included in chapter 3 and thus separated from the following phases to illustrate that by the end of the first two action research cycles (diagnosis phase) the existing nursing shift handover practice is clearly described. Analysis of this phase is provided in the form of visual summaries at the close of chapter 3 (Figures 3.9 and 3.10) and as a thick description[8] in Appendix A. The thick description will not be included in the main body of the report, as would commonly occur with traditional research findings, since it is not deemed to contain findings in the truest sense; rather it is information that guided the succeeding action research cycles. In keeping with tradition, the ethical considerations of the study will also be discussed in chapter 3 and the concept of rigour will be introduced.

Chapter 4 addresses the action research phases that led to action and optimisation. It commences with a description of the planning phase in which the features of handover requiring optimisation and strategies for doing so were identified. It then outlines the subsequent implementation and evaluation activities. Unlike the findings of the diagnostic phase, the outcome of the evaluation is included in the chapter since this gives an indication of the changes made up to the point of writing the research report. In traditional format, chapter 5 is a discussion outlining the appropriateness of the action research approach to answering the research question and identifying the lessons learnt regarding capacity to implement change in the PICU setting. A summary of this outline is in Table 3.2.

[8] A thick description can be defined as a detailed account of cultural behaviours and practices, defined in context (Lacey, 2010).

Table 3.2: Chapter outline of this study compared with a more traditional research report chapter layout

Chapter	Traditional research report chapter outline	Chapter outline of this action research approach research report
1	Introduction to the study	**Introduction** Including background to the study, description of the study setting (South Africa and PICU), rationale of the study, research question, aim and objectives.
2	Literature review	**Literature review**
3	Methodology	**Research approach and diagnostic phase** Including a description of the action research approach, the rationale for why it was chosen and a description of the 'pre-diagnostic' and diagnostic phase. (Analysis of the diagnostic phase [thick description of the existing handover] in Appendix A)
4	Findings	**Planning, implementation and evaluation phase** Methodology and outcomes of the planning, implementation and evaluation phases of the study
5	Discussion	**Discussion** Outlines the appropriateness of the action research approach to answering the research question and identifies the lessons learnt regarding capacity to implement change in the PICU setting
Appendix A		**Thick description of the existing PICU nursing shift handover process**

This chapter now provides:

- an outline of the reasons for choosing an action research approach for the study
- an explanation of the action research approach
- a description of the 'pre-diagnostic' phase, including the process of establishing collaboration and the identification of a core participant group
- a description of the diagnostic phase, including the methods of data collection and analysis used and associated ethical considerations.

3.1 THE CHOICE OF AN ACTION RESEARCH DESIGN

Having conducted a thorough literature review, my awareness of both the international directives to improve the quality of patient handover, and the perceived existing practice of the PICU nursing shift handover at the RCWMCH, led me to become committed to facilitating a

change. I knew that I did not want to merely describe the existing handover but rather was keen to see improvement. I recognised that bringing about change in healthcare is not without its challenges and for this reason I chose a participative methodological design. Specifically, I chose action research.

My reasoning for action research was varied. Firstly, by name, one of its primary goals is to bring about action. This mirrored my own intention entirely. Secondly, it is noted to be particularly useful in settings where little is known about current practice or where nurses struggle to make their everyday practice visible (Meyer, 2010). I believe this is common in nursing and poses a challenge to any change process, since invisible practice cannot be measured, which in turn prevents the development of a need for change. Thirdly, action research has been noted to be particularly useful in settings where modifications of processes or procedures are required (Heale, 2003) and where knowledge, skills and attitudes are insufficient to implement evidenced-based practice (Meyer, 2010). In essence, it helps to bridge the theory-practice gap (Clark, 2000; Hampshire, 2000).

For these reasons, the use of action research in nursing is increasing (Hart & Bond, 1995; Munn-Gidding, 2008). Specifically in the complex ICU environment, it has encouragingly been concluded to be a "promising methodological approach to address clinical practice improvement" (Soh, 2011:258).

3.2 ACTION RESEARCH

Action research is a participative approach to research that is positioned within the critical theory paradigm. It has clear historical roots but today is best described in terms of its main characteristics. These characteristics can then be used to distinguish between the different types of action research.

3.2.1 Historical origin

Historically, action research has its roots in the work of Kurt Lewin, a social scientist who made the statement, "research that produces nothing but books will not suffice" (Lewin, 1946:35). He described how through contact with various institutions, he had discovered that many people displayed a readiness to address problems but were unsure about how to proceed. Lewin proposed action research as the solution, describing it as "a comparative research on the conditions and effects of various forms of social action, and research leading to social action" (1946:35).

He explained how through action research, an analysis of and a focused solution for a problem faced by a particular social setting could be facilitated (Lewin, 1946). Participation of people from the setting in the research process was viewed as a crucial element since it was believed to lead to prolonged enthusiasm for the project and a greater prospect of effecting change (Lewin, 1946). Practically, action research was described as "proceeds in a spiral of steps each of which is composed of a circle of planning, action and fact-finding about the result of the action", and that the results of each cycle serve to provide focus and direction for the next (Lewin, 1946).

3.2.2 Current definition of action research

Despite 70 years having passed, little has changed from Lewin's original beliefs. In 2006, Reason and Bradbury similarly defined action research as,

> "a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concerns to people, and more generally the flourishing of individual persons and their communities" (Reason & Bradbury, 2006:1).

Stringer (2007:1) offers a more concise definition of "a systematic approach to investigation that enables people to find effective solutions to problems they confront in their everyday lives". The word "approach" used in Stringer's definition is key, since it is widely accepted that action research is not a methodology nor a way of data collection but rather an approach to conducting research in which a number of data collection methods may be used (Meyer, 2010; Khanlou & Peter, 2005; Jeffcott et al. 2009; Hansen & Brady, 2011).

Defining action research has however, been described as difficult to do (Holter & Schwartz-Barcott, 1993; Reason & Bradbury, 2006), and this has led to many authors choosing not to define but rather to describe action research in terms of its key characteristics, attributes or assumptions (Ebersohn, Eloff & Ferreira, 2010; Holter & Schwartz-Barcott, 1993; McNiff & Whitehead, 2011; Clark, 2000; Hart & Bond, 1995). Chosen for its combined simplicity and comprehensiveness, the four characteristics outlined by Holter and Schwartz-Barcott (1993) (Table 3.3) will be used within this report to further describe the approach of action research.

Table 3.3: The four characteristics of action research as provided by Holter and Schwartz-Barcott (1993)

1. Collaboration between researcher and practitioner
2. Solution of practical problems
3. Change in practice
4. Development of theory

3.2.2.1 Collaboration between researcher and practitioner

A key characteristic of action research is the collaboration between the researcher and those living or working within the study setting – the practitioners themselves. Holter and Schwartz-Barcott (1993) describe how practitioners possess an inside knowledge of the setting and the problem in question, but alert that such knowledge is not always explicit or written down. While researchers are often able to contribute knowledge of the research process and theory related to the topic they remain 'novices' in relation to the setting and the problem. Both researcher and practitioner are therefore viewed as experts in their own right. Action research acknowledges this expertise and thus places an emphasis on collaboration between the researcher and the practitioner. It recognises that both are able to contribute to the understanding of the identified problem and subsequent planning and implementation of ways in which to address it (Porter & Carter, 2000). Indeed, *both* researcher and practitioners become active participants in the study.

The researcher, however, may or may not be an outsider to the setting; indeed the practitioner and the researcher may even be the same person. Herr and Anderson (1995) suggest that the researcher may be anywhere on a continuum of positionality, from insider to outsider (Table 3.4). They describe how a person may be both an insider and an outsider at the same time or that their position may change during the course of a study (Herr & Anderson, 1995).

Table 3.4: The continuum of researcher positionality in action research (Herr & Anderson, 2005)

Insider ↕ Outsider	1. Insider (researcher studies own practice)
	2. Insider in collaboration with other insiders
	3. Insider(s) in collaboration with outsider(s)
	4. Reciprocal collaboration (insider-outsider teams)
	5. Outsider(s) in collaboration with insider(s)
	6. Outsider(s) studies insider(s)

Identification of the researcher's position early in a study is therefore imperative, since Herr and Anderson (1995) advise that it will impact on the methodology of the research and ethical stance of the researcher. It will also determine the amount of effort required to establish the collaboration/participation, as process not to be underestimated (Greenwood, 1994:176):

> "Participation is a process that must be generated. It begins with participatory intent and continues by building participatory processes into the activity within the limits set by the participants and the conditions. To view participation as something that can be imposed is both naïve and morally suspect."

3.2.2.2 Solution of practical problems

Action research is primarily concerned with solving an immediate problem in a particular setting (Holter & Schwartz-Barcott, 1993; Hansen & Brady, 2011), noting however that this may not be something that is wrong but rather something that needs improving (Hart & Bond, 1993). Intrinsically, this makes the approach particularly appealing to those based within the setting since they become, in theory, the ones that are most likely to gain (Hart & Bond, 1993). Identification of the problem may come from a variety of sources, but participant consultation is thought to be especially beneficial both in terms of ongoing participation and commitment to the process (Hart & Bond, 1993) and thus to the ultimate change outcome (Holter & Schwartz-Barcott, 1993).

3.2.2.3 Change in practice

Inherently, *action* research is about action - making a change – improving practice in a way that is most appropriate for the setting or situation. McNiff and Whitehead (2011:37) instruct that improvements "do not just happen; they happen if people think about what they need to do differently in relation to others". Action research therefore facilitates the emergence of change through the learning and knowledge generated by the process (McNiff & Whitehead, 2011). The actual change in practice is determined by the initial problem identified (Holter &

Schwartz-Barcott, 1993) and thus may involve a physical change in practice or personal, internal changes in attitude or values (Herr & Anderson, 2005).

3.2.2.4 Development of a theory

The fourth characteristic of action research and that which solidifies its position as research is the generation of new knowledge (McNiff & Whitehead, 2011; Parkin, 2009). The aim, however, is not to generate knowledge that can be generalisable to many settings, but rather that it facilitates understanding of a local context, which in turn leads to action in the same setting (Jabri, 2012; Jacobson, 1998). In more traditional styles of research, this knowledge marks the end of the study, its integration into practice becoming the work of another. For action research, however, the knowledge gained is reincorporated into practice as part of the research process (Clark, 2000). The IHI (2011b) therefore asserts that gathering data for such change is different than for traditional research, with the amount of data required limited to 'just enough' to proceed to the next cycle and to gain an insight into the practice setting.

3.2.2.5 Cyclical nature of action research

Reading around the subject of action research makes it clear that the cyclical nature of the approach is a fifth additional characteristic.

Lewin (1946) first described a cyclical process consisting of three clear steps: planning, executing and reconnaissance or fact-finding. He described how following the execution of a plan, the necessary fact-finding or evaluation should lead to the development of a new plan and thus a subsequent cycle.

This principle endures, and while authors have since proposed a variety of descriptors for the steps of the cycle, in effect, a cycle of assessing/reflecting, planning, acting and observing remains (Figure 3.1). Every cycle is succeeded by another, with each one serving to increase the knowledge of the identified setting or problem and assist in the re-framing of the question so as to ultimately lead to an implementable solution (Herr & Anderson, 2005) (Figure 3.2).

It is this cyclical nature that gives action research the 'systematic' reputation that is so often included in definitions. It is, however, also what allows action research to be described as flexible (Clark, 2000; Meyer, 2010), responsive (Meyer, 2010), dynamic (Hart & Bond, 1993) and open-ended (McNiff & Whitehead, 2011). The research process is not linear and it is unknown until the end of each cycle where the research will proceed to next.

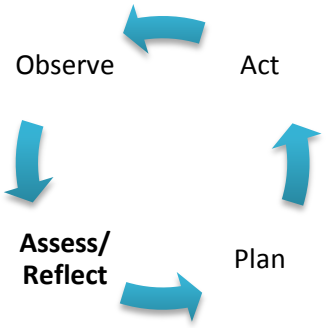


Figure 3.1: The action research cycle

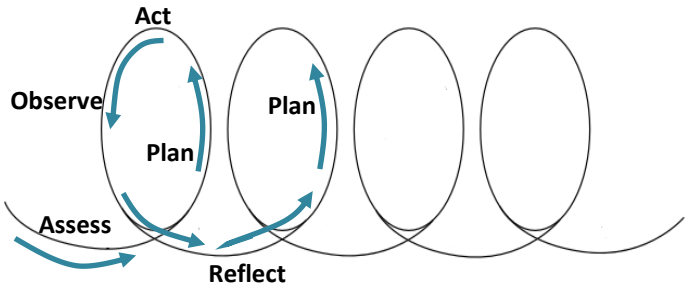


Figure 3.2: The spiral effect of action research

3.2.3 Typologies of action research

Within each of the above characteristics, variances are clearly evident – identification of the problem may be from a diversity of sources, the levels of collaboration and participation established may be different, and the type of change and knowledge created can vary. Recognition of these variances has led to the appreciation that action research exists within a spectrum of experimental to empowerment (Hart & Bond, 1993) and that within this spectrum a number of different types of action research exist. Types of action research close to the experimental end of the continuum are said to be more research-focused and those at the empowerment end are said to be more action-focused (Hart & Bond, 1993).

Hart and Bond (1993) classify action research into four types: experimental, organisational, professional and empowerment. Holter and Schwartz-Barcott (1993) provide a different typology in the form of three types: technical collaborative, mutual collaboration and enhancement. Similarities are reported between the two (Hart & Bond, 1993), so for this report the Holter and Schwartz-Barcott's (1993) typology has been used because it stems from a solid nursing base.

The *technical collaborative approach* serves to test whether a pre-existing intervention has the capacity to address a researcher-identified problem in a particular setting (Holter & Schwartz-Barcott, 1993). The researcher's role is technical and directive, the aim being to secure the interest of the practitioners in the intervention and then to secure their assistance in its implementation. Change can be relatively instant but sustainability is questionable. This approach was not appropriate for this research study since the problem was not sufficiently defined to be able to immediately identify the most appropriate solution.

The *enhancement approach* is primary aimed at raising the collective consciousness of the practitioners, following which their "stated practices, underlying assumptions, and unwritten

laws" can be compared with actual practice (Holter & Schwartz-Barcott, 1993:302). The researcher's role is to facilitate this process and identify the "norms and conflicts that may be at the core of the problem" (Holter & Schwartz-Barcott, 1993:302). The resultant change is on a personal and cultural level and thus longevity is probable. While this approach could have been beneficial to the study setting, it was not employed owing to the restrictions on time, the undetermined enthusiasm of the practitioners and, finally, the limited prior experience of the researcher.

Consequentially, this study most resembles the *mutual collaboration approach*. This approach, describes a productive equal relationship between researcher and practitioners, the researcher contributing expert knowledge of the method of research, and the practitioners, their in-depth knowledge of the setting. Together they first identify the problem, then plan and implement ways in which to improve it. Practitioners gain a deeper comprehension of their practice, which means that the need for an intervention is more clearly understood and the more appropriate intervention is identified. The outcome of a mutual collaboration study is likely to be implementation of a physical change together with the gaining of knowledge by both the researcher and the practitioners.

It is, however, important to note that while this study resonates most with the mutual collaborative approach, Hart and Bond (1993) stress that different stages of an action research study may correspond better with one approach/type than another, so that within the course of any given study a number of approaches/types may be used.

3.2.4 Position within the research paradigms

As the final part of the description of action research as an approach, it is necessary to indicate the research paradigm in which it is positioned. Three paradigms of research exist: positivism, interpretivism and critical theory.

The *positivism* belief is that scientific truths exist and that these truths can only become known through controlled observation or measurement (Topping, 2010). Research methodologies in this paradigm therefore aim to verify hypotheses (Guba & Lincoln, 2005) and so to ensure that objectivity is maintained and the data remains free of value or theory, the researcher remains external to the research setting (Jansen, 2010). Data is reduced to numeric entities which allow them to be subjected to statistical analysis (Topping, 2010).

Interpretivists, on the contrary, believe that it is necessary to understand the meaning of situations that occur, and that people in the setting/situation are best positioned to offer that

insight (Jansen, 2010). Research methodologies in this paradigm set out to study human behaviour and interaction with the goal of then interpreting them within their natural setting (Topping, 2010). Typically data is produced in the form of narrative (words), which are then subjected to content or thematic analysis to find what meanings arise from the data. The researcher is understood to be the instrument or lens through which data is viewed and also the lens through which data is analysed and interpreted (Topping, 2010).

Different again, the *critical theory* paradigm views "socially constructed realities as the products of power relations" (Giacomini, 2010:142). It recognises that these power relations are historically established, then repeatedly reproduced to the point that the capacity to alter them is now confined by various forms of power, dominance, and segregation (Nieuwenhuis, 2012). The primary goal of critical research is therefore to critique these norms, uncovering rather than discovering, the "restrictive and alienating conditions" that serve to prevent progression within the social status quo under examination (Nieuwenhuis, 2012:62). In summary, critical theory is the belief that in order to change a situation, there is a requirement to first understand it (McNiff & Whitehead, 2011).

Action research is widely accepted as being positioned within the critical theory paradigm, notably due to its ability to address the theory-practice gap (Hampshire, 2000; Clark, 2000) and difficult relations of power (McNiff & Whitehead, 2011).

3.3 STUDY DESIGN

The phases of action research detailed by Heale (2003) will be used as an underlying structure to the description of the study conducted, starting with an outline of the 'pre-diagnosis' and diagnosis phases. Figure 3.3, which will be amended and repeated throughout chapters 3 – 5, provides a location marker to indicate the progression through the phases.

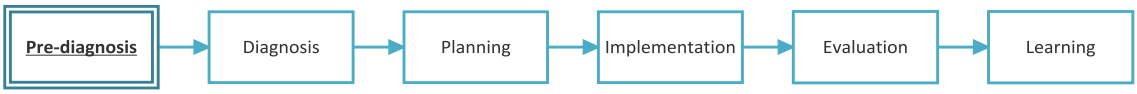


Figure 3.3: Phase location marker – pre-diagnosis phase

3.3.1 'Pre-diagnosis' phase

The building of relationships and collaboration at the start of an action research study is essential to its overall success (Herr & Anderson, 2005; Bowling, 2009). Moreover, ineffective negotiation of roles can undermine the study's credibility, and can lead to fallacious collection

of data (Herr & Anderson, 2005). Crucial to this collaboration, is the researcher's ability to reflect on and establish his or her position in the study (Herr & Anderson, 2005).

3.3.2 The researcher's positionality

In life, I would consider myself a child registered nurse (RN) first and a lecturer/researcher second. Specifically, I would consider myself a specialist paediatric intensive care nurse since this was the speciality in which I worked clinically in the UK for a period of six years. Since moving to South Africa and working as a lecturer-practitioner, I have regularly engaged with the nursing team within the PICU in the study setting, conversing about patients for teaching activities and clinical exams. In this regard, I have sufficient experience and knowledge of both paediatric intensive care as a clinical speciality and the PICU at RCWMCH as a setting, to be regarded as an insider to the research.

However, I am not *employed* as a RN in the PICU at the RCWMCH. I am employed by the university as a lecturer and engage with the PICU nursing team only in that capacity. I anticipate that they will assist me in teaching activities, but I am not in the position to carry a clinical responsibility. In addition, since my clinical experience was in the UK, I have limited knowledge of the diseases commonly profiled within the country and little experience of the challenges of working in a more resource-scarce environment. In this regard I am therefore positioned as an outsider.

Having reflected on these insider/outsider positions, I considered myself to be in the position of an 'outsider in collaboration with insiders'. While not regarded as the position with the most equal power relations, it is acknowledged to be the most common researcher position. This is primarily because insiders (practitioners/nurses) are frequently too consumed by the inside work of an organisation (Herr & Anderson, 2005), a situation certainly true in this complex PICU setting. I recognised early in the research planning process that the nurses, in their insider position, understood well the existing handover practice and thus were in the best position to describe it and identify strategies by which to optimise it. I, on the other hand, as an outsider, was able to offer an insight into the current handover literature base and the skills, knowledge and drive to guide a research process.

I foresaw a collaboration based on 'co-learning', a term described by Cornwall (1996:96) as "local people and outsiders share their knowledge to create new understanding and work together to form action plans, with outsider facilitation". In this regard, both myself and the nurses were participants in the study; the nurses as insider-participants and myself as an

outsider-participant with the additional role of research facilitator. The use of the word 'facilitator', advocated by many (Meyer, 2010; Cornwall, 1996; Bowling, 2009), was decided on rather than the term 'researcher', so as to further denote a position of equality and support.

Such a 'co-learning' collaboration, however, needed to be communicated and accepted by the PICU nursing team, and as facilitator it was my role to achieve this.

3.3.3 How did I establish the 'co-learning' collaboration?

Prior to requesting formal permissions to conduct the study, I, as identifier of a potential problem and possible future researcher/facilitator of the study, approached one of the PICU OMs. We had a brief and informal conversation about the shift handover and the possibility of conducting a research study was raised. Her supportive response encouraged the writing of a formal proposal and also the planning of an action research approach. Further consideration was given as to who else needed to be engaged, and at what stage, to ensure that a later 'co-learning' collaboration would be possible.

3.3.3.1 Formal permission

Firstly, an application to conduct the study was made to the Human Research Ethics Committee, in the Faculty of Health Sciences at the University of Cape Town. Approval for the study was granted on 11 November 2011 and renewed for another year on 30 November 2012 (approval letters in Appendices B and C). Secondly, the same proposal was used to request permission to conduct the study at the RCWMCH from the Manager of Medical Services. This was granted in February 2012 (Appendix D).

Lastly, a meeting with the Manager of Nursing was organised for 29 February 2012. The specific purpose of this meeting was to ensure that she, in her position as the nursing head of the hospital, had a good understanding of the research study and was supportive of the plan for it to take place within the PICU. A synopsis of the current literature and study approach was provided in both the spoken and the written form. The Manager of Nursing asked very few clarifying questions and granted her permission.

3.3.4.2 Establishing collaboration with PICU nursing management

Collaboration with the PICU nursing team could then formally commence. First, a meeting was held with Deputy Nursing Manager responsible for PICU, the two OMs, and the Clinical Mentor of the PICU. The second Clinical Mentor had at this point not yet been appointed. For the remainder of this report, this group of individuals will be known as the PICU Nursing Management Team. This meeting occurred on 22 March 2012.

In this meeting, an overview of the current available literature was presented alongside the recent WHO recommendation to improve the quality of patient handover. The action research approach was described, making it clear that the exact data collection methods would only emerge over time. The main focus, however, was to facilitate a collaboration with the PICU nursing team; emphasis was placed on the knowledge and experience that both parties had to offer, thus demonstrating the benefit of a 'co-learning' collaboration.

The deputy manager was keen to see changes in practice so declared her support but clarified that she would not be able to participate on an active basis owing to other commitments. She was therefore not counted as a participant and I agreed to keep her informed of the process via email. The OMs and Clinical Mentor were eager to fully participate and immediately offered advice about how to communicate the research to the wider PICU nursing team.

3.3.4.3 Participation of the PICU nursing team

In traditional research terms, the 'target population' is described as 'the total population that forms the focus of the study' and the 'sample' as a defined portion of that population (Procter, Allan & Lacey, 2010). In action research, however, the research is characteristically focused on one particular study setting, so that all the practitioners in that setting may have knowledge and experience to contribute. It was therefore prudent for all PICU nursing team to be made aware of the research and for their unanimous participant status to be acknowledged.

The OMs offered a 'window' in which to talk to the nursing team in the nursing unit handover meeting. This occurs daily on the day shift at 08h30 and is used to convey important information to those on shift. Since the nurses work a regular shift pattern (Table 1.1) and are allocated to attend the meeting on an alternate-day basis, I knew that if I spoke at every unit handover meeting Monday through to Thursday, all the nurses would have been informed, except for those on leave. I also spoke to the nurses on the night shift on the same days by calling a meeting in the unit at a similar time (20h00). This ran from the week commencing 26 March 2012 for a period of two weeks.

In these meetings, I presented a simplified, shortened version of the current literature and proposed research process. The proposed use and benefit of a 'co-learning' collaboration was explained, outlining that this would mean that they all would be regarded as participants in the study. Reinforcing the position of collaboration, the OM then offered to take questions from the team. A summary together with my contact details was provided to each attending

nursing team member and a copy made available for those unable to attend to read at a later time (Appendix E). In my mind, these meetings signified the launch of the study.

3.3.4.4 Establishing a core participant group

Despite recognising that the whole PICU nursing team were participants within the research, a 'sample group' of participants was still required to accurately represent the population (Atkinson, 2000) and facilitate data collection. In this research, such a sample group was called the core or 'insider' participant group.

Traditionally, a sample is gathered using a particular sampling method, which can be either classified as probability or non-probability sampling. Randomisation was not a goal so the core group was collated in a manner similar to a non-probability purposive sampling method. The nursing unit handover meeting was therefore also used to request that individuals who, having heard the description of the research and having read the printed summary, were interested in being part of the core team, get in touch with me by sending a short message service (SMS) to the cell number provided. My aim was to gather a group of approximately nine people, in addition to the PICU management team of three, who had already agreed to participate. Specifically, I hoped that this would result in diversity of opinion and richness of discussion among leadership and bedside nurses.

Table 3.5: Excerpt from the summary guide handed out to each nurse in the PICU nursing team (included to demonstrate inclusion criteria)

"Who can be actively involved?

If you are either …

a) a registered nurse with a specialist qualification in child critical care nursing
b) a registered nurse with a specialist qualification in adult critical care nursing
c) a registered nurse with a keen interest in this subject

… then please get in touch!!"

The inclusion criteria for the core participant group were clear (Table 3.5). Registered nurses (RNs) were recruited because participants needed to have a clear and in-depth knowledge of the care required by PICU patients. A critical care qualification, preferably child-focused, added clinical credibility and a likelihood that they would on occasion work within the shift leader role. This role reflects a degree of seniority, and an increased awareness of how the unit is organised and functions, both of which were felt to be useful to the research question. This is not to say that they do not also provide direct care to patients at the bedside. This was

perceived to be important since if later in the research a solution to an identified problem required testing at the bedside, they would be in a position to do so by offering a senior nurse/shift leader opinion.

The opportunity to be a participant was also opened to the wider registered nurse team with the statement 'a registered nurse with a keen interest in this subject'. This ensured that the voice of the junior nurse in the unit was also heard and would assist in bringing this group on board in any ultimate implementation. The OMs and Clinical Mentors provided a senior voice, and, like the other senior nurses, were in a role that is conducive to facilitating change.

Introducing the study and inviting core participants in the unit handover meeting also freed me to subsequently converse with individuals directly. These methods combined led to the development of a core participant group - very few of whom indicated their interest through SMS, many just informed me verbally. Since everyone who declared an interest met the inclusion criteria, I was able to confirm participation with them immediately.

3.3.4.5 Demographics of the core participant group

Ultimately a group of 12 nurses agreed to join the core participant group. Acknowledging the dual role of myself, as facilitator and outsider participant, this made up a core group of 13, which is reflected in the demographics below.

The group included twelve women and one man and represented a range of South African ethnic and language groups. Further specialist training had been completed by eleven of the participants: eight in child critical care and three in adult critical care. Of the RNs trained in child critical care, seven had graduated in the last four years and one six years previously. The remaining two non-specialist trained nurses had both been qualified and registered as nurses for less than two years.

Participants varied in age and experience (Figures 3.4 – 3.6) and collectively they had more than 56 years of experience in the study setting. My association with the RCWMCH, as the outsider participant, has existed for four years.

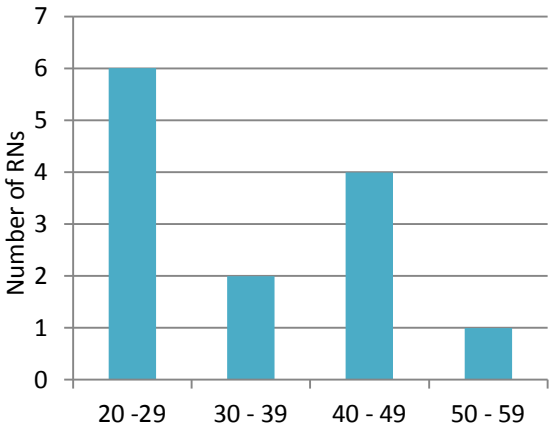


Figure 3.4: Age of core participant group (n=13)

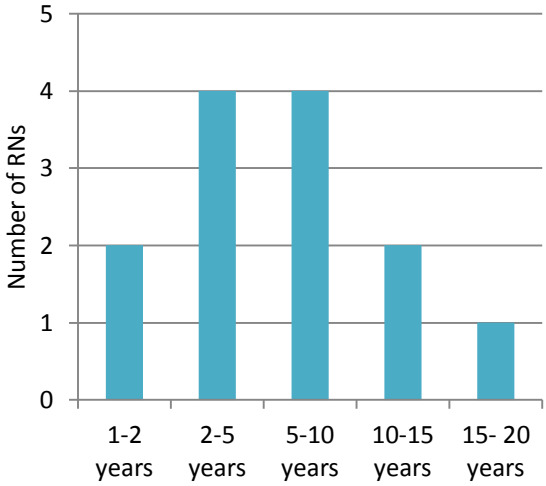


Figure 3.5: Number of years the core participants have been qualified as registered nurses (n=13)

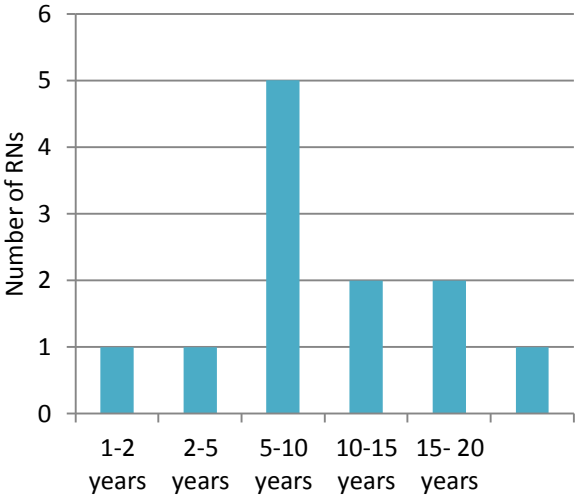


Figure 3.6: Number of years the core insider participants have worked in the RCWMCH PICU (n=12)

3.3.4.6 Gaining consent and establishing expectations

Successive meetings were then held with all core participants, at a time and in a place to suit them. This enabled me to re-emphasise the rationale and approach of the study, outline the ethical considerations and ask them to sign a consent form (Appendix F). They also completed a short demographics questionnaire that produced the statistics above (Appendix G).

Most importantly, an explanation was given concerning their role as participants in an action research study. It was clearly described how the flexible process of action research meant that their participation at every stage might not be necessary and that they too should only participate when they are happy and available to do so. I voiced my recognition that work days in the PICU are busy and stressful, that attendance at a meeting is not always possible and that days off are very 'precious'. I took the opportunity to clarify each participant's usual availability and this was carefully considered when making future plans. The whole process of establishing this core participant group took place in early to mid-April 2012.

3.3.4 Ethical considerations

The participative design of this study meant that ethical considerations were different from those in more traditional designs.

Badger (2000) suggests that owing to the participative nature of action research, the capacity for ethical dilemmas could appear to be diminished, whereas in reality they are often "less straight forward" (Clark, 2000: 189). Indeed, Meyer (1993:1070) surmises that action research has the potential to "place the subjects at far more risk of exploitation, betrayal and abandonment". She outlines how an outside facilitator could be viewed as being in a position of greater power than the insider participants (Meyer, 1993) and Kelly and Simpson (2001) emphasise how risks to participants are very *real,* since the whole premise of action research is to address *real* problems. Consideration of autonomy and confidentiality was therefore central in planning this action research study.

Good ethics is important to consider throughout a research study. For this reason, every effort has been made to ensure that this study complied with the principles enshrined in the 2008 version of the Declaration of Helsinki (World Medical Association [WMA], 2008). Potential ethical conflicts are therefore acknowledged and attempts to overcome them are described within this dissertation. However, in line with the spiral nature of action research, only the ethical implications visible at the start of the study will now be discussed, with additional

ethical considerations discussed later in relation to the point at which they arose within the study process.

3.3.4.1 Autonomy

Autonomy, or more specifically an individual's consent and the right to withdraw, as described in Principle 24 of the Declaration of Helsinki (WMA, 2008), is recognised as being a "complex challenge" in action research (Kelly & Simpson, 2001:657). Traditionally, consent is obtained from all participants prior to any data being collected, but in action research, the exact nature of the data collection, or even the participants, is commonly not evident at the start of the study. This gives rise to the question 'What are participants consenting to?' and, due to the collaborative nature, 'Who should be obtaining the consent?' To overcome these concerns, Khanlou and Peter (2005) suggest that the person who initiated the project should be responsible for obtaining consent from the rest and Kelly and Simpson (2001) assert that consent should be renegotiated as the study evolves.

In this study, as initiator and facilitator of the research, I proceeded to organise the process of consent; this was achieved in two stages. Firstly, all the core participants had received the research summary during the nursing unit handover meeting. Subsequently, indication of a desire to become a core participant was requested via SMS. This indirect method of indicating an 'opt-in' to the study was chosen since it was felt to be least open to coercion, especially since a number of the participants knew me as their lecturer in the preceding 2-3 years. The fact that many of the participants ultimately informed me in person as they saw me in the unit, I took as being a demonstration of their 'freeness' to respond.

Following this, a more detailed summary of the proposed research was supplied. Time was then given for each of the participants to read this document, and then during an informal meeting, a consent form was signed (Appendix F) 'To take part in this study' was the specific phrase used in the consent form, thus leaving the exact nature of their participative role open. Each participant was also reassured that further issues of consent would be discussed at the start of each new cycle or activity of the study.

The capacity to withdraw from an action research study has also been highlighted as difficult to guarantee since, more so than in traditional methodologies, participants may feel that they are unable to withdraw once the process has begun (Badger, 2000). Participants may feel trapped by the need to effect a change (Clark, 2000), or by the fact that their managers are co-participants, which might lead to work-life ramifications should they withdraw.

With this concern in mind, the ability of participants to withdraw from this study, or from part of the study, at any time with no negative consequences, was emphasised during the initial consent process, and again in every subsequent cycle. This was differentiated from the notion that they simply might not be able to participate in one cycle or stage owing to other commitments. On reflection, it appears that the participants felt able to act according to their wishes. One of the 12 core participants did not engage in any core group meetings or activities because of other study commitments. She was invited to re-engage at every cycle, but it appeared that she felt able to 'vote with her feet' and not participate. Other core participants also became gradually less involved, and pressure to participate was intentionally never applied.

Badger (2000) also raises the point that since nursing exists within a multidisciplinary team, changes in practice in one discipline may influence another. He advises that consent should therefore be obtained from all those in the team, but acknowledges that this could have the potential to stifle any proposed changes in nursing practice. In this setting, it was decided that since permission had already been sought from the Medical Director and the Nursing Manager of the hospital, no additional consent was required.

3.3.4.2 Confidentiality

Confidentiality, as highlighted in Principle 23 of the Declaration of Helsinki (WMA, 2008), is another frequently documented ethical concern of an action research approach (Badger, 2000; Clark, 2000; McNiff & Whitehead; Khanlou & Peter, 2005). Firstly, due to its participatory nature, participants are likely to hear each other's opinions and feelings relating to the problem in question. Secondly, it can be expected that when working with an entire team, certain individuals are identifiable purely through their designated role (Badger, 2000). These challenges are concerns when reporting on an action research study, meaning that at best anonymity instead of confidentiality is all that can be assured.

To address these concerns in this study, the difficulties in assuring confidentiality over anonymity were explained to the core participant group. An agreement of respectful, collective confidentiality was then made between the participants at the start of the study and reiterated at every successive meeting. When discussing or giving examples of current practice, participants were asked not to refer to any colleague by name. Anonymity in the research report was attained by removing all participants' names from the raw data, including my name when acting in the outsider-participant role, and replacing them with 'participant [number]'. All nurses are referred to as feminine and all role-identifying descriptors are

avoided, unless necessary to add clarity to the situation. Concerning future publication, participants will be granted the opportunity to read the report before it is published outside of the university.

Raw paper data were kept in a secure locked place accessible only by the researcher. Electronic data were stored either on the researcher's computer or in Google Drive®, an online storage facility. All electronic data were password-protected, and will be destroyed three years after completion.

Due to the notion that action research by nature addresses a problem in a particular setting, consideration was also given to the appropriateness of using the name of the hospital and unit within the study report and future publications. Ultimately it was decided that it could not be avoided since within the South African context, there exists no other dedicated children's hospital, meaning that by giving sufficient detail of the setting in the study report, the hospital and unit would be automatically identified.

3.3.4.3 Beneficence, non-maleficence and justice

For any research study, balancing potential benefits against risks is crucial (Khanlou & Peter, 2005) and so, as per Principle 21 of the Declaration of Helsinki (WMA, 2008), the principles of beneficence, non-maleficence and justice will now be discussed.

Through the approach of action research, benefits to the study setting should naturally be the ultimate outcome (Khanlou & Peter, 2005). Similarly, a host of additional 'side-effect' benefits of action research have been described earlier in this chapter. Conversely, an action research study that fails to produce an ultimate action-orientated outcome could be regarded as harmful, since it may be considered to have been a waste of time and effort for those involved. Likewise, a study that lacks validity may also be regarded as harmful (Khanlou & Peter, 2005).

Considering first the beneficence of this study, both the PICU nursing team and PICU patients stand to benefit from any action outcome of the study. Development of a more standardised approach to handover is anticipated to improve the content and process of the nursing shift handover which in turn may lead to greater patient safety. Exposure to research together with increased morale in both the core participants and the wider PICU group may also lead to further nursing research which would be an additional benefit to both the team and current/future patients.

For the nurse participants, potential 'harm' was limited to the loss of their time and money. Loss of time attributed to study activities could have been reduced to a minimum if all could have been completed in on-duty time, but practically this was not ideal or possible. For any period of time an on-duty nurse is away from her patient, another nurse is required to 'observe' her patients, thus doubling the amount of patients for whom that nurse is responsible, and potentially negatively affecting the delivery of patient care. For the nurse involved in the study, increased stress may be experienced related to the requirement to catch up on their clinical work once the study activity is completed. Completing study activities while on duty was therefore only chosen when a plan for consistent patient care delivery could be made. On occasion, these plans did not come to fruition and as a result people were unable to participate.

Instead, study activities were intentionally negotiated with both the core participants and nursing management to ensure a balance between convenience and the delivery of an effective PICU nursing service. Activities were repeated as far as possible to ensure access for all. Loss of money was rectified through reimbursement of a participant's return travel expenses to the hospital if they had travelled specifically for the study. A standard amount of R20 per return journey was provided. The possibility that reimbursement of participant costs could be considered as coercive is noted (Grady, 2001), but it was felt that such an amount would not be sufficient to produce such an effect.

With respect to the risk or benefit to patients, it was, at the start of the study, impossible to quantify since the full action research spiral had yet to become clear. The benefits of the study to both the core participants and the wider PICU nursing team were, however, thought to outweigh the risks.

In summary, negotiating access into and establishing collaboration within the study setting was a lengthy but very worthwhile component of the study. On completion of these tasks I felt ready and enthusiastic about formally starting the study, confident that solid foundations had been laid.

3.3.5 Quality (rigour) of the study

For every research study it is necessary to track the rigour so as to ensure that confidence can be placed in the conclusions as being accurate reflections of reality (Lacey, 2010; Kelly & Simpson, 2001). The criteria used to assess quality in quantitative research are validity and reliability (Topping, 2010) whereas in qualitative research, it is trustworthiness (Lincoln &

Guba, 1985). These are, however, not always applicable in the more dynamic and unpredictable action research approach. This is because neither of these criteria sets are believed to sufficiently assess or credit the rigour of the action that has occurred (Herr & Anderson, 2005; Jacobson, 1998).

Jacobson (1998) and Heale (2003) propose that in action research the concept of rigour should rather be viewed in terms of quality, with the emphasis placed on the study's integrity. Integrity is viewed as "the quality of action which emerges from [a study], and the quality of data on which the action is based" (Jacobson, 1998: paragraph 32). Greenwood (1984) states that if the main aim of action research is to effect a change, then if the change is appropriate to the problem, a simple claim of face validity can be made. Dick (1995) also interestingly notes that there may be situations in which the cyclical design of action research may be the only approach capable of achieving rigour.

Herr and Anderson (2005) suggest broader criteria that are closely linked to the specific goals of action research. The quantitative term validity is maintained but with the addition of qualifying adjectives:

- **Outcome validity** – the extent to which action, appropriate to the problems identified, has occurred
- **Process validity** – an assessment of the quality of the methodology that has been used throughout
- **Democratic validity** – an assessment of whether the study has been performed in collaboration with all those to whom the research question relates
- **Catalytic validity** – the degree to which the participants have learnt and felt the need to implement change
- **Dialogic validity** – the extent to which the research conclusions have been peer discussed and reviewed.

These criteria have been chosen to provide the structure for the assessment of the quality of this study; however, different from more traditional research methodologies, the quality of an action research study can only be tracked as the study evolves. This means that a discussion as to the quality of this study is not possible at this point in the report, but rather that the five types of validity will be indicated where demonstrated throughout chapters 3 and 4 and discussed in more depth in chapter 5.

3.3.6 Diagnosis phase

Heale (2003) proposes that diagnosis is the first true phase of an action research study and is when data is collected to establish the exact nature of the current situation (Meyer, 2010). This then leads to a heightened awareness of the problem and thus provides the necessary motivation for change (Parkin, 2009). Without this awareness, successful change is less likely to occur. Data collected may also serve as a measure for later stages of the action research spiral (Clark, 2000).

Specific to handover research, Arora and Johnson (2006) assert that the current practice, not the desired practice, must be discovered as this allows the practitioners to better understand their own environment, thus leading to increased acumen in finding solutions to the problems.

Within this study, the diagnosis phase was designed to meet objective three: 'Together with the core group of participants, to describe the existing practice of nursing shift handover in the PICU at the RCWMCH' (Figure 3.7). It consisted of two action research cycles and, for each cycle, data collection, management and analysis methods will be described, together with any specific ethical considerations.

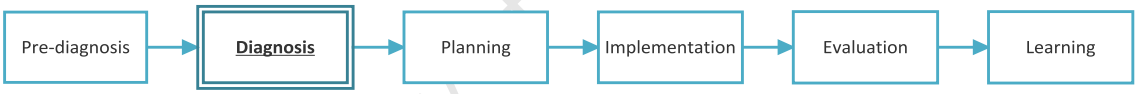


Figure 3.7: Phase location marker – diagnosis phase

3.3.6.1 Cycle one – focus groups to elicit a verbal description of the nursing shift handover from the core participants

The first cycle of this study was aimed at establishing an understanding of the practice of handover in the PICU at the RCWMCH, essentially answering the question 'What is the existing PICU handover practice?' The data collection method selected to achieve this was focus groups.

Focus groups

A common qualitative data collection method, a focus group is a "discussion group ... designed to create free-flowing conversation about one or more issues related to a general topic" (Edmunds, 1999:130). As a way of exploring "people's experiences, opinions, wishes and concerns" (Kitzinger & Barbour, 1999:5), focus groups are often used in the initial stages of a study to gather a richness of information about a topic that has previously been little understood (Kitzinger & Barbour, 1999).

Focus groups – round one

Nieuwenhuis (2012) recommends conducting more than one focus group in order to gather a variety of perspectives on the same topic. Greef (2012) advises that groups should contain between six and ten people so as to elicit polygonal participation. Mindful of these elements, and participant availability, two focus groups were planned for mid-May 2012. Participants were informed of the dates by email and SMS and asked to reply, stating which one they would prefer to attend. The two groups were ultimately held on 14 (focus group 1) and 17 (focus group 2) May 2012.

A semi-structured focus group design was used. Discussion was opened with the question 'What does the nursing shift handover currently look like?' In addition, I had a list of topics drafted from the literature that I wanted to address within the focus group discussion (Table 3.6). The conversation was facilitated by visually tracking the handover process, as it was being described. It was thought that this may help the core participants to visualise the process, thus prompting further discussion. However, the illustrations proved to be too much of a distraction and seemed to add little value. This visual data collection method was therefore not added to the raw data and not employed in subsequent focus groups. A colleague also provided additional support in the first two focus groups. She made notes, and helped to ensure that all the participants had a chance to contribute.

Table 3.6: Topics used to guide focus groups 1-4

- Who is present at handover?
- How long does handover take?
- When and where does handover occur?
- What are the roles of people involved in handover?
- What is the perceived function of handover?
- What is the content of the existing handover? Is this different to what you expect?
- Is the information received during handover sufficient?
- Are any additional items (documents, charts, notes) used to assist handover?
- Do/how do nurses prepare for handover?
- What skills are needed for handover?
- How does a nurse learn how to handover?

The focus groups were longer than usually recommended, lasting approximately 2 hours. The end of the focus groups was determined by other personal commitments and clinical responsibilities rather than by a lack of conversation or enthusiasm. Refreshments were provided as a token of thanks to the participants, and a form was signed by the participants to indicate whether travel reimbursement was necessary.

Focus groups – round two

The combined information from focus groups one and two did not produce a complete description of the existing handover process. For this reason, an additional two focus groups were held on 24 (focus group 3) and 25 (focus group 4) May 2012, again timed so that as many of the core participants as possible could attend. Participants were not necessarily expected to attend with the same core participants as in the first round, although the majority did do so.

In these focus groups a Microsoft Office (2010) (MS 2010) PowerPoint® summary of the content of the previous two groups was presented. This doubly acted as an informal member checking exercise[9] and prompted discussion about the information that had been given across the two focus groups. Participants were invited to offer clarifying and validating comments on the description to date, and then guided again with the use of questions to describe the remaining key aspects of the nursing shift handover. This process is demonstrative of dialogic validity. Focus groups 3 and 4 lasted two hours and one hour respectively.

Data analysis and management

Of the core participant group, 11 were able to attend one or more of the focus groups. In total, the four focus groups produced 6 hours and 51 minutes of audio recording, which was transcribed 'intelligent verbatim'[10] in the interest of time and experience by an externally employed transcriber (1). On receipt of the transcription in an MS 2010 Word® format I checked it for accuracy against the audio recording and anonymised the data, by removing any names or role-identifying indicators. This process was particularly valuable as it facilitated re-engagement with the data.

Analysis of the data were done using inductive content analysis. Content analysis is described as a systematic and objective means of condensing a collection of words into fewer content-related categories with the intended outcome of describing a phenomenon (Elo & Kyngäs, 2008). Both inductive analysis (in cases when there is no previous literature describing the phenomenon) (Vaismoradi, Turunen & Bondas, 2013) and deductive analysis (cases when previous literature can assist in the production of a categorisation matrix) do exist. While previous literature has extensively outlined the general practice of handover, it was decided there was an insufficient amount available on which to base a categorisation matrix for the

[9] 'Member checking' is described as the process of presenting data/analysis back to participants to determine the accuracy off the findings/conclusions (Botma et al. 2010)

[10] 'Intelligent verbatim' transcription is when the audio is transcribed and then followed by a light editing. The transcriptionist still captures every word said on the recording but edits out parts like fillers (um's, ah's, er's, etc.), ambient sounds and non-verbal communication. The transcription in this study retained "Mmm" indicating agreement (IndianScribes, 2013)

specific PICU nursing shift handover in this setting. For this reason, an inductive content analysis was conducted.

Elo and Kyngäs's (2008) content analysis process was used. Firstly, immersion in the data was achieved in three parts: through the production of an MS 2010 PowerPoint® summary presentation for subsequent focus groups and feedback meetings, through re-listening to all the audio to cross-check the transcripts for accuracy, and finally by reading and re-reading the transcripts themselves. The data were then subjected to the general question 'What does the nursing shift handover currently look like?' together with the sub-questions as outlined in table 3.4. Key concepts that provided answers to the questions were noted and then grouped together into a smaller number of more succinct overarching concepts. Due to the time and skills required, this analysis was conducted by myself, in my facilitator role.

Ethical considerations of a focus group

Ethical issues related to focus groups centre around consent and confidentiality. At the start of each focus group, the core participants were informed that their decision to attend was understood to be their consent to participate but that they could withdraw, or simply not contribute, at any time. The agreement of collective confidentiality was reinforced and participants were also reminded not to use names of colleagues during the discussion.

Permission to audiotape the conversation was also obtained at the start of each focus group. The resultant audio files were then stored on Google Drive®. The transcriber (1) signed a confidentiality agreement (Appendix H) and final transcription notes too were password-protected.

Summary of cycle one

In summary, therefore, cycle one consisted of four focus groups held with the intention of gaining a deeper understanding of the existing nursing shift handover. The focus groups were audiotaped, transcribed and then analysed using inductive content analysis. The cycle is represented in Figure 3.8 and the data collection and analysis so far is summarised in Table 3.7.

Table 3.7: Summary of data collection up to end of cycle one

	Action	Method of data collection	Method of data analysis
CYCLE ONE	4 focus groups (6:51 hours in total)	Audio + transcription	Inductive content analysis

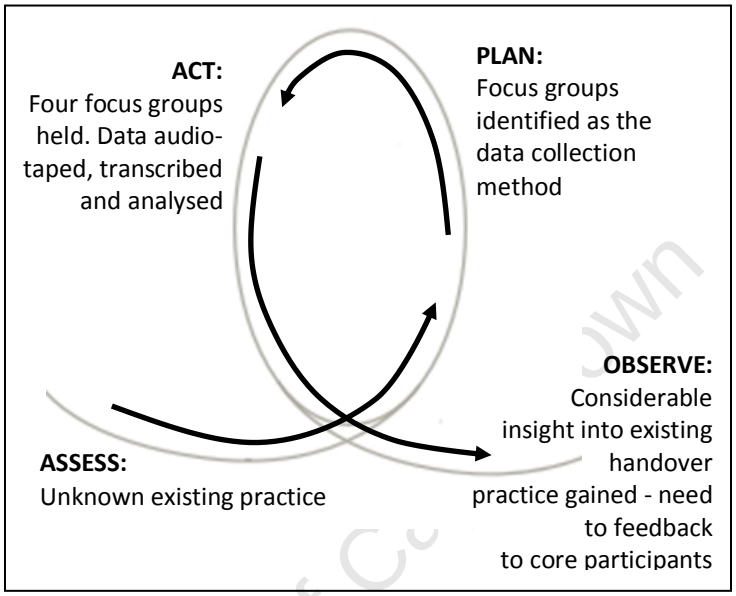


Figure 3.8: Cycle one of the action research spiral: What is the existing PICU handover practice?

3.3.6.2 Cycle two

Continuing to address specific objective number three, cycle two was intended to answer the re-framed question 'What needs to be confirmed about the existing PICU handover practice?'.

A considerable insight into the existing PICU handover practice was gained from the focus groups conducted in cycle one. Feedback of this insight to the core participant group was imperative since a number of features about the existing handover process were still not confirmed. A meeting was arranged for 13 June 2013, held at a time to suit as many as possible. Six of the core participants were able to attend. The meeting also served to act as a member-checking exercise and aided in the maintenance of core participant enthusiasm.

Outline of the meeting

This meeting was structured in two parts. Firstly, an MS 2010 PowerPoint® summary of the analysis of the data collected in cycle one was presented. Secondly, the core participants were asked to consider the question, 'Is there anything about the existing handover process [that which they had just heard] that we need to confirm?' The reason for asking this question was

explained to the core participants as being twofold: (1) that confirmation of the current handover strengthens the description of current practice and (2), that it may also provide data which can be compared with that gathered in the evaluation stage of the study.

The core participants identified a number of topics as requiring confirmation and various options for gathering such confirmative data were suggested. A decision was made to conduct a rapid appraisal of the handover practice currently existing in the PICU. A rapid appraisal is described as a technique used to gain an insight into the practice and views of people within a population of interest (Bowling, 2009). Vondal (2010) asserts that multiple data collection methods can be used and that it is particularly useful when time is limited.

In this setting, it also contributed to triangulation. Defined as "a process of adopting two or more methods in order to corroborate the findings from one method with the other", it can be achieved through data, investigator, theory and method (Simons & Lathlean, 2010:334). In this study, it was achieved in a variety of ways; both insider and outsider participants collected the data, both core participants and the wider nursing team provided information, a variety of different data collection methods were used, and the same data were collected from a variety of sources. Considerably beneficial to the study, it first ensured the existing handover practice was examined from a number of different angles thus increasing the visibility of practice, and secondly that it contributed to process and democratic validity.

Linked to the required confirmation topics, Tables 3.8-3.10 summarise the various components of the rapid appraisal. It is important at this stage to note that the initial focus group data had identified that the PICU nursing shift handover process consisted of three separate handover episodes: a bedside handover, a shift leader handover, and a unit handover. A summary of these three handovers can be seen in Table 3.11 and from this point on they will be referred to separately within this report.

Table 3.8: Details of the rapid appraisal conducted to confirm the existing BEDSIDE HANDOVER practice in the PICU setting

'What about the current handover process do we need to clarify and confirm?': Identified confirmation topics	**Data collection method implemented**	**Practical implementation and data management**	**Ethical considerations**
BEDSIDE HANDOVER 1. Who is present during the bedside handover 2. The time bedside handover starts and finishes 3. The length of the bedside handover, linked to: a. Acuity of patient b. Seniority of person providing/receiving the handover c. Diagnosis of the patient d. How well the person knows the patient 4. Whether people have all the information they require at end of a bedside handover 5. Whether people feel able to ask questions 6. How the person giving the bedside handover was feeling about it (happy or sad) 7. The style (structure) of the bedside handover	**'Insider-participant observations'**: Bedside observations were completed by the core participants and recorded on a data collection form. Occurred during the month of July 2012. Forty-four participant observations were ultimately completed.	I designed a first draft of the data collection form, and then through smaller participatory action research cycles, we modified it to produce a final copy (Appendix I). Seven of the core participants were provided with fourteen forms each. We purposely excluded those who were not normally assigned to patients, one core participant who was on leave and one who had not yet attended the research meetings/focus groups. We planned to observe and record a range of handovers (morning [07h00] and evening [19h00] handovers, week day and weekend handovers and both those that they give and receive). I then collected the forms directly from them approximately three weeks later. Data collected was subsequently entered into MS 2010 Excel®.	For the core participants, consent to take part in this data collection was confirmed by active completion of the forms. Uncompleted forms were re-collected and no explanation was requested. For the wider PICU team, formal consent was not requested on the understanding that it was a clinical practice audit. The names of those participants involved were not recorded anywhere on the form, and when collected, they were immediately added into a generic folder to conceal who had submitted them.

8. Content of the bedside handover	**'Outsider-participant observations'**: Bedside observations were completed by the researcher. Occurred 2 – 29 July 2012. Nine researcher observations were ultimately completed.	The core participants expressed that the content of handover would be a challenge for them to record, since they felt that it would be very difficult for them to remain objective. They therefore advocated that I should observe and record at a selection of bedside handovers in my outsider-participant capacity. Observations were conducted from 06h30/18h30 until the outgoing RN left the bed space. The spoken content of handover was audio-recorded, and additional field notes were taken. Bed spaces were chosen at approximately 06h25 by placing the numbers of occupied bed spaces in a jar and asking a PICU nursing team member to pull one out. The adjoining bed space for which one RN would assume responsibility on the incoming shift was also observed. For example, Number 2 pulled from jar, bed space 1 and 2 were observed. We decided that handovers at a range of times, those for first day and second day and those for long-term patients and cardiac patients should be observed. To ensure this,	Formal consent was not taken from the wider PICU team on the understanding that it was a clinical practice audit. Participants were however informed that the handover would be audiotaped prior to its start, and an opportunity was given for them to refuse. The names of those participants involved were not recorded anywhere on the audio, field notes or transcribed data.

		the observations were performed across the week, and both in the morning and evening. To ensure the long-term patients and cardiac patients were observed, on occasion only those numbers associated with bed spaces with such patients in were placed into the jar to be drawn from. The audio data were transcribed by myself, intelligent verbatim, within a week following the observation. Participants were only identified by colour: Black: outgoing RN, Red: incoming RN, Green: outsider-participant. The data and the field notes were then managed within MS 2010 Word®. The content of the handover was managed within MS 2010 Excel®.	
9. The time people think they should be at work for the bedside handover 10. The time they consider themselves late	'**Times questionnaire'**: A questionnaire was answered by the PICU nursing team – registered nurses, enrolled nurses and assistant nurses.	The questionnaire was first designed by myself. It started with two questions proposed by the core participants in the meeting, but was then added to as a result of smaller participative action research cycles between myself and the core participants. Five questions made up the final questionnaire (Appendix J). I then administered the questionnaire in the PICU bed spaces, across a Tuesday and	After a description of the purpose and format of the questionnaire, the nurses were asked if they were willing to take part. Any suggestion of unwillingness led to cessation of the interaction. The individual responses of the participants were very

	Occurred on 2 and 3 July 2012. 61 nurses ultimately responded to the questionnaire.	Wednesday day and night shifts, to ensure that the greatest number of the PICU nursing team were approached. To promote a 'gut response' from the participants, the questions were put to the nurses in a quick-fire manner and their answers recorded without them able to see the next question or the replies of others. This questionnaire was conducted at the same time as the unit handover questionnaire. Data collected were subsequently managed within MS 2010 Excel®.	minimally identifiable since the only personal detail recorded was their nursing level. To ensure patient safety, no patient care was interrupted for questionnaire completion. Nurses who appeared or said they were busy were not approached.

Table 3.9: Details of the rapid appraisal conducted to confirm the existing UNIT HANDOVER practice in the PICU setting

'What about the current handover process do we need to confirm?': Identified confirmation topics	**Data collection method implemented**	**Practical implementation and data management**	**Ethical considerations**
UNIT HANDOVER 1. The content of the unit handover: what is planned to be said and what is actually said 2. The length of the unit handover 3. The time the unit handover starts 4. The time the nursing staff are asked to come to the unit handover 5. Who attends and who should attend?	**'Unit handover observations':** Observations completed by the OMs and recorded on a data collection form. Occurred 27 June – 1 August 2012. 16 unit handover observations were ultimately completed.	The data collection form was first designed myself encompassing the confirmation topics identified. Through smaller action research cycles between the researcher and the OMs, it was then modified and finalised (Appendix K). Forms were then placed in the communication book with the understanding that on a range of days of the week, the OMs would make observations during the unit handover and record the associated data. In conjunction, the topics planned to be discussed during the handover were written in the communication book and then ticked off if they were actually discussed. The page in the communication book was later photocopied by myself and stapled to the associated form. Observations were conducted over a four-week period. The photocopied content of the handover was later retyped and managed within MS 2010 Word®, and the timing and attendance data managed using MS 2010 Excel®.	To ensure confidentiality all data collection forms were stored securely as detailed below under data management.

6. Whether the time of the unit handover is appropriate 7. The value of the unit handover	'**Unit handover questionnaire'**: Researcher conducted a questionnaire with answers supplied by the PICU nursing team – registered nurses, enrolled nurses and assistant nurses. Occurred 2 and 3 July 2012. 48 nurses ultimately responded to the unit handover questionnaire.	A questionnaire was initially created mindful of the topics identified as in need of clarification. Smaller action research cycles with one of the OMs then led to the expansion and finalisation of the questionnaire (Appendix L). I then administered the questionnaire in the PICU bed spaces, across a Tuesday and Wednesday, day and night shifts, to ensure that the greatest number of the PICU nursing team responded. A paper copy of the questionnaire was given to each available participant after completion of the above-mentioned bedside handover questionnaire. Reasoning for the questionnaire was supplied and it was reinforced that it was related to the unit 08h30 handover and not the bedside handover. Forms were then collected from the nurses approximately 10 minutes later. Data collected were subsequently managed within MS 2010 Excel®.	Consent to take part in the questionnaire was established through completion of the questionnaire. A number of uncompleted questionnaires were collected without question or consequence. The individual responses of the participants were not identifiable since no personal details were requested on the questionnaire. When collected, the questionnaires were immediately added into a generic folder to conceal who had submitted them. So to ensure patient safety no patient care was interrupted for questionnaire completion. Nurses who appeared or said they were busy were not approached.
8. Does it happen at night?	Review of communication book for seven months.	In order to confirm the regularity of the unit handover a retrospective review of the communication book was conducted. However, the decision to engage in this review was only made following a review of the data collection forms for the unit handover observations, most of which had been	

	Completed at the end of August 2012.	conducted on weekdays and not over weekends. The review was conducted for a seven-month period, from February to August. This ensured a comprehensive picture of the frequency of the unit handover both before and after the research observations identified above. Since the focus group data had described how the content of all unit handovers are recorded in the communication book, the review consisted of simply recording the dates from the book (days and evenings) on which a unit handover had occurred. The content of the handover was later transferred into and managed within MS 2010 Word®, and the collected numerical data managed within MS 2010 Excel®.

Table 3.10: Details of the rapid appraisal conducted to confirm the existing shift leader handover practice in the PICU setting

'What about the current handover process do we need to confirm?': Identified confirmation topics	Data collection method Implemented	Practical implementation and data management	Ethical considerations
SHIFT LEADER HANDOVER			
1. Which people are present during the shift leader handover 2. The time the handover starts and finishes 3. The length of handover	Outsider-participant observations were planned to be completed and recorded on a data collection form.	Due to constraints of time for data collection and of the permitted size of the Master's project, these observations were planned but ultimately not completed. A decision was made within the group to concentrate on the bedside and the unit handover since even following cycle one in the study it was evident that optimisation of these two handovers could have the largest impact on overall quality and efficiency of PICU handover practice as a whole.	

Table 3.11: Summary of the bedside, shift leader and unit handovers

	Bedside handover	Shift leader handover	Unit handover
Attendance	Outgoing RN and the incoming RN and EN/ENA.	Outgoing and incoming shift leader. The OMs and/or Clinical Mentors may attend in the morning.	Spoken by one of the OMs to half of the incoming nurse team.
Location	The bedspaces of the two patients to whom the nurses have been allocated to provide care.	Spoken while walking around all the bed spaces in the unit.	An empty bed space in the unit.
Function	To provide the incoming nurses with a detailed account of the patients' diagnosis, treatment and care.	To provide the incoming shift leader with key information about each patient in the unit.	To provide the incoming nurses with information about the patient and staffing numbers for the shift, and deliver any clinical or administrative messages.
Time	Twice a day between 06h45 and 07h00 (18h45 and 19h00).	Twice a day between 06h45 and 07h00 (18h45 and 19h00).	Once on the day shift between 08h30 and 08h45.

Informing and enrolling the wider PICU team

The plan for informing the wider PICU nursing team of their potential participation in the upcoming rapid appraisal was also decided at the meeting on 13 June. The PICU OMs assumed responsibility for this, informing and enrolling the rest of the nursing team through speaking to them in the existing daily unit handover meeting. The information was communicated to the night staff through communication with the shift leaders. Posters were also placed around the PICU (Appendix M). The need to continuously review and optimise nursing practice was highlighted and participation was encouraged. This commenced the week of 25 June 2012, and the rapid appraisal started a week later, on 2 July 2012.

The Hawthorne effect

The Hawthorne effect is described as the physiological response in which individuals alter their behaviour or responses to those that are more favourable, owing to the knowledge that they are part of a study (Carter, 2000). This was raised as a concern by the core participants in relation to the planned data collection method of observation. Deliberations on this concern

included consideration of a number of different factors; however, it was concluded that, while the Hawthorne effect could potentially be an issue, the presence of other factors would likely mitigate it and protect the data collection from any possible bias.

Firstly, in relation to the outsider-participant observations, the literature suggests that the process of handing-over has an element of routine or ritual (Caruso, 2007; Griffin, 2010), leading to an assumption that even if a person wanted to change their behaviour, the adherence to routine would present a particular challenge. Secondly, participant 3 suggested that it is the preparation for handover that makes the biggest difference. It was therefore planned the bed space to be observed would only be selected a maximum of 5 minutes before the start of the observation and 15 – 30 minutes before the start of the handover. This would leave little time for additional preparation. On reflection, very little anxiety or additional preparation was observed in any outgoing RNs on being told that they were to be observed. Thirdly, for the participants to knowingly alter their behaviour they would have to be aware of a more favourable response which they would want to portray. In this setting, in light of the lack of anxiety displayed, I surmise that the RNs were unaware of any possibility of delivering handover in any other way. Finally, in essence, action research is principally about effecting a change (Hart & Bond, 1993), meaning that should a RN change her behaviour, even for just one handover, it could be viewed as a positive change in practice.

With regard to insider-participant observations, participants from the wider PICU nursing team did not know the details of the data being collected and would have been unable to read in the time available any details from the data collection form even if it was placed in front of them. A lesser ability to purposefully change their behaviour therefore existed. As for the core participants themselves, they were aware that any change in their behaviour might bias the results of the study.

In terms of the questionnaire design, the 'gut feel' answer, quick-fire questioning and blind recording of answers to the bedside handover questionnaire were deliberately planned to counteract any Hawthorne effect. In the unit handover questionnaire, participants were simply encouraged to be honest, in view of the unidentifiable nature of the questionnaire design.

Data management and analysis

Electronic documents managing the rapid appraisal data were stored jointly on the researcher's computer and in Google Drive®. All were password-protected. To ensure

confidentiality, all paper data collection forms were kept in a secure locked place known only to the researcher. They will be kept for three years.

Data analysis was considerably different for each of the different data collection methods. A summary of the analysis process described below is presented in Table 3.8.

Numeric analysis was conducted where possible on the two questionnaires, the insider- and outside-participant bedside handover observations, the unit handover observations and the unit handover frequency review. Quantitative data were produced and reported using descriptive statistics. Inferential statistics were not produced since the data were not at interval level (Fouche & Bartley, 2011). Analysis of the qualitative data produced from the unit handover observations and the researcher bedside observation field notes was conducted through a concept analysis process; in keeping with that described in cycle one. Both sets of data were subjected to the question, 'How does this support the existing process of handover described within the focus groups?' Again, due to the time and skills required, this analysis was conducted by myself, in my facilitator role.

The data detailing the content of the bedside handover required a more complex analysis, but one that demonstrated democratic validity within the study. The goal of this analysis was to determine whether the information reported in a handover was appropriate and sufficient; however, it was quickly realised that an understanding of what was required to be communicated in handover was lacking. Arora and Johnson (2006) and Welsh, Flanagan and Ebright (2010) both assert that establishing what is critical content of the handover is crucial to handover optimisation, and so achievement of this was facilitated.

A meeting was held on 9 October 2012 in which the core participants were asked to brainstorm the specific content of the average bedside handover, first, in two small groups, writing their thoughts down on a large piece of paper and second through feeding back concurrently to myself to diagrammatically capture the information on a SMART® board. The data were later converted into visual spider-diagrams using SmartDraw® (Appendix N).

The handover content elements outlined in the spider-diagrams were then used to produce an MS 2010 Excel® spreadsheet. Working together with one of the core insider-participants, we then cross-checked the content of each outsider-participant observed handover against the spreadsheet, deciding and marking whether or not each element had been reported on within the handover observed.

Completion of the data entry made it evident that the resultant data set was too large to analyse in full for the purpose of this study. A decision was therefore made together with the core insider-participants that we would only analyse those elements of the data that were applicable to every patient. These elements were decided on together and are indicated in the visual spider-diagrams by the shaded in boxes (Appendix N). Descriptive data were then taken from these elements only.

Analysis from the full rapid appraisal data set was then combined with the analysis of the cycle one focus groups to produce a comprehensive thick description of the existing handover practice (Appendix A), which was then summarised to produce Figures 3.9 and 3.10.

Figure 3.9: Visual summary of the existing bedside nursing handover practice in the PICU.

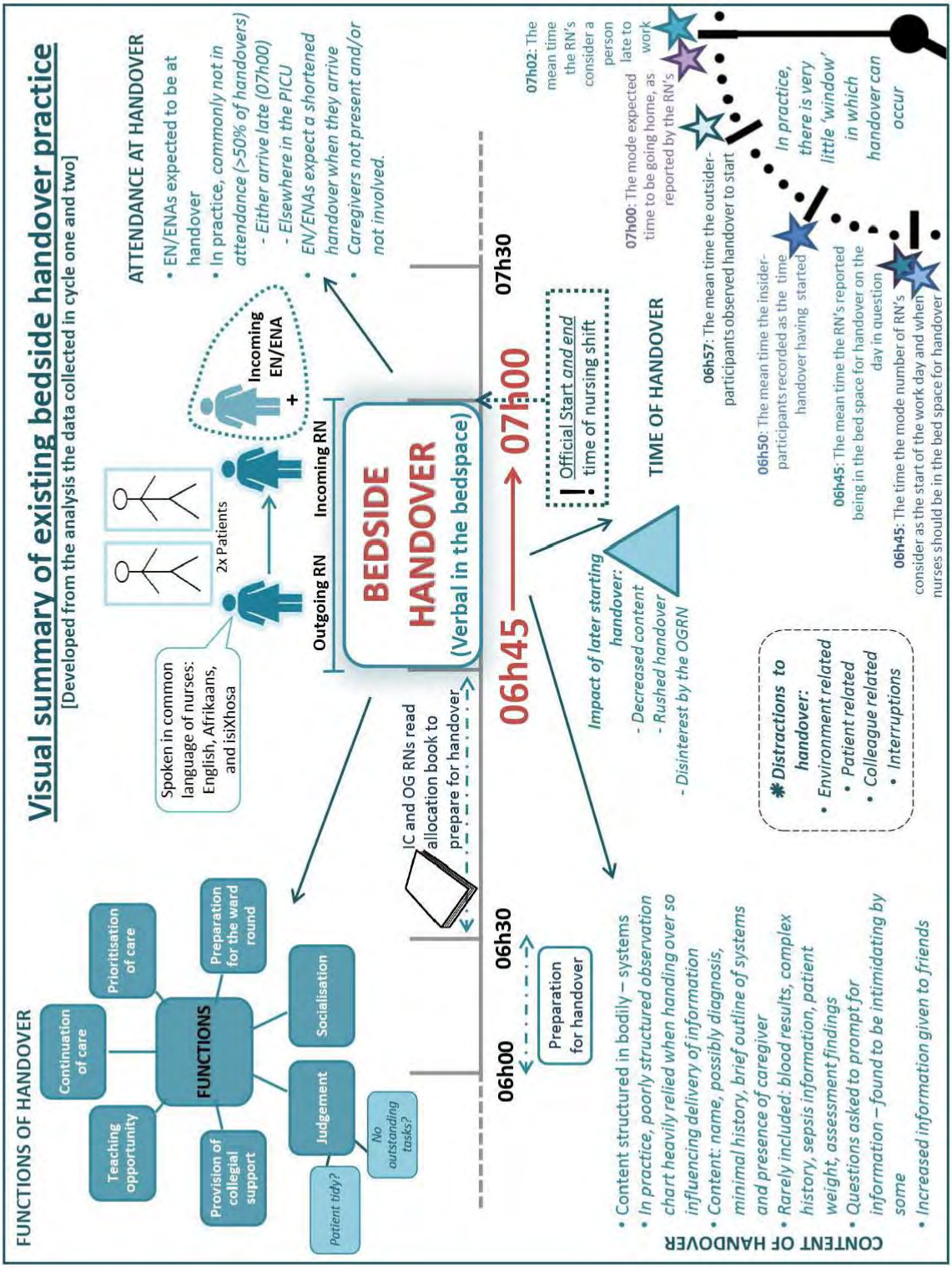
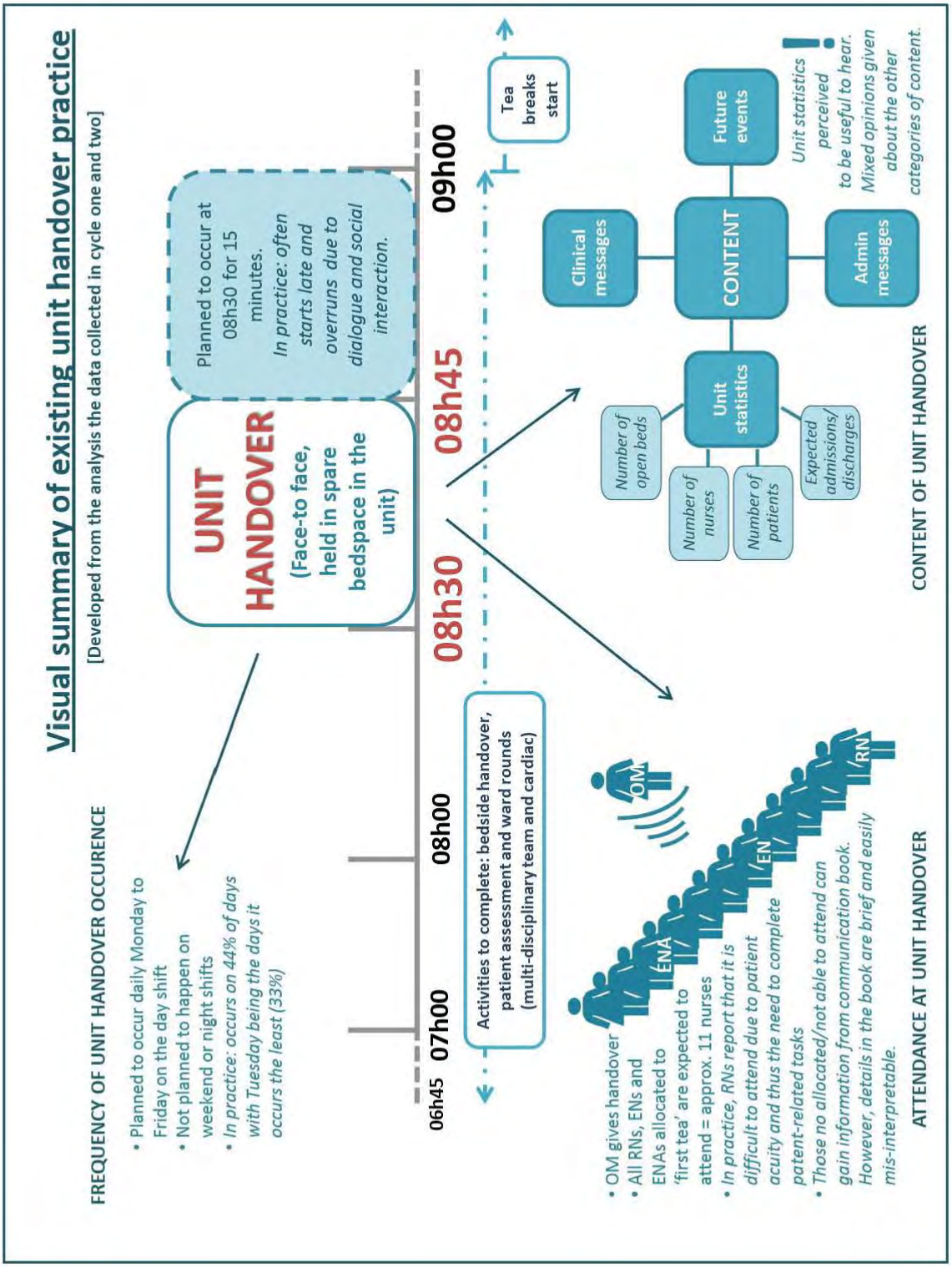


Figure 3.10: Visual summary of the existing unit nursing handover practice in the PICU.



Summary of cycle two

In summary, cycle two comprised firstly feedback of the analysis of focus groups held in cycle one followed by identification of elements about the existing practice that still required confirmation. A rapid appraisal of the existing practice was conducted, and the results were analysed and combined to produce a thick description (Appendix A) and visual summaries of the existing nursing handover practice in the PICU (Figures 3.9 and 3.10). A diagrammatic representation of cycle two can be seen in Figure 3.11. A summary of the data collection up to the end of cycle two can be viewed in Table 3.6.

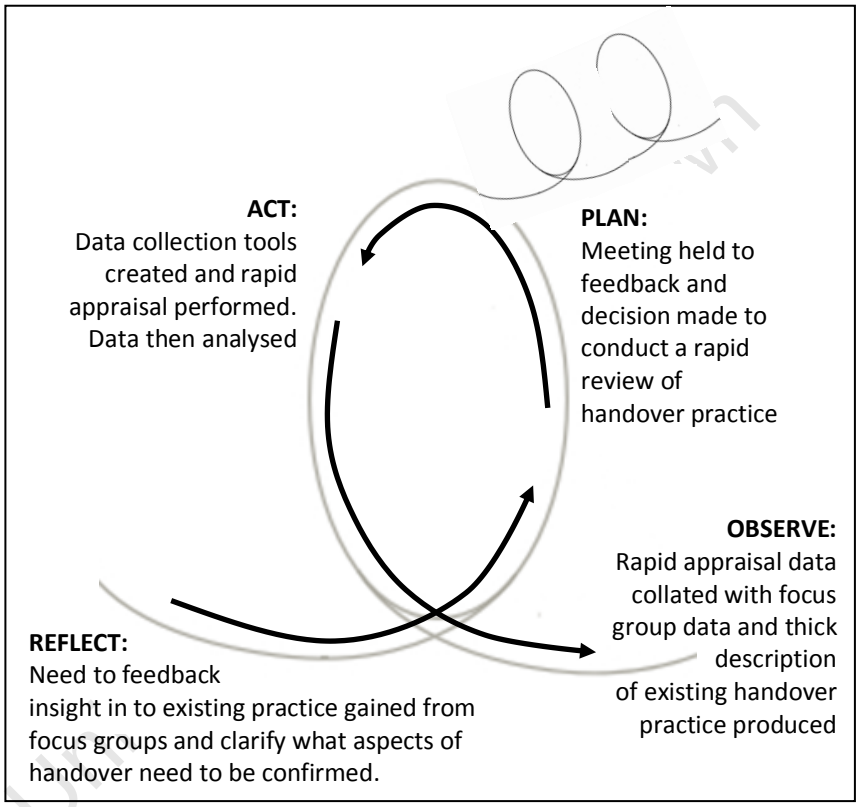


Figure 3.11: Cycle two of the action research spiral: What needs to be confirmed about the existing PICU handover practice?

3.4 CONCLUSION TO CHAPTER 3

Chapter 3 described the methodological approach used in this study and presented a rationale for that choice. It proceeded to outline efforts of myself, as facilitator, to establish a productive collaboration with the PICU nursing team and gather a core insider participant group. Details of action research cycles one and two were provided, cycle one consisting of four focus groups and cycle two of a rapid appraisal. Data collected from both cycles was analysed (Table 3.12 for summary) and combined to produce a thick description (Appendix A) and visual summaries (Figures 3.9 and 3.10) of the existing PICU nursing shift handover practice.

Table 3.12: Summary of data collection and analysis of cycles one and two

	Action	Method of data collection	Method of data analysis
CYCLE ONE	4 focus groups (6:51 hours in total)	Audio + transcription	Inductive content analysis
CYCLE TWO (rapid appraisal) Bedside handover	44 insider-participant observations	Data collection form	Numeric analysis
	9 outsider-participant observations	Audio – transcribed Field notes	Numeric analysis & Inductive content analysis
	61 questionnaire respondents	Questionnaire form	Numeric analysis
Unit handover	16 Insider-participant (OMs) observations	Data collection form	Numeric analysis & Inductive content analysis
	48 questionnaire respondents	Questionnaire form	Numeric analysis
	Communication book review	Communication book	Descriptive data

Chapter 4

PLANNING, IMPLEMENTATION and EVALUATION

Having completed the diagnosis phase and developed a good understanding of the existing handover practice, using Heale's (2003) phases of action research as a guide this chapter will outline how, through the phases of planning, implementation and evaluation, the handover practice was optimised (Figure 4.1).

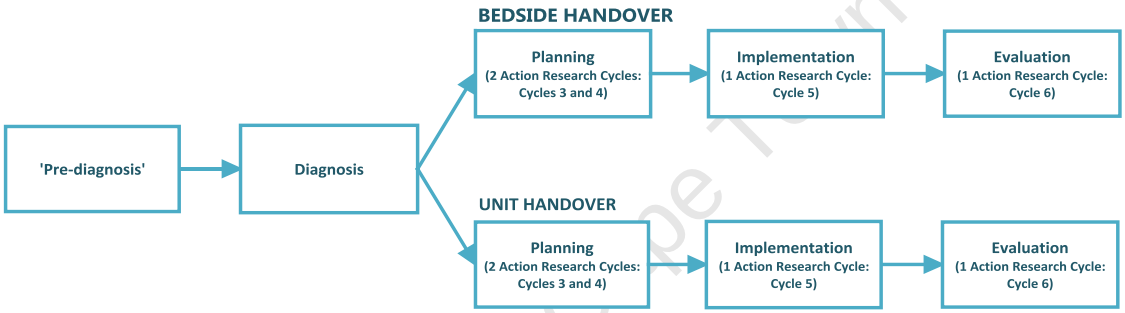


Figure 4.1: How the research process was separated into the bedside and the unit handover

One or more action research cycles will take place in each phase and, as in chapter 3, the reflection, planning, action, and observation components of each cycle will be highlighted. The findings, however, of the evaluation phase, in contrast to chapter 3, will be incorporated in the body of the report within chapter 4. It is also pertinent to note that the planning, implementation and evaluation phases of this action research study were completed for both the bedside and the unit handover; however, due to the complexities of both handovers, action research cycles for the two were completed separately to decrease the possibility of confusion. This chapter is therefore structured with an outline of each cycle followed by specific details of the completion of that cycle for each of the handovers.

To further aid navigation in, and understanding of this chapter, Figure 4.2 provides an up-front outline of the decisions and actions taken in the planning, implementation and evaluation phases for both the bedside and the unit handover.

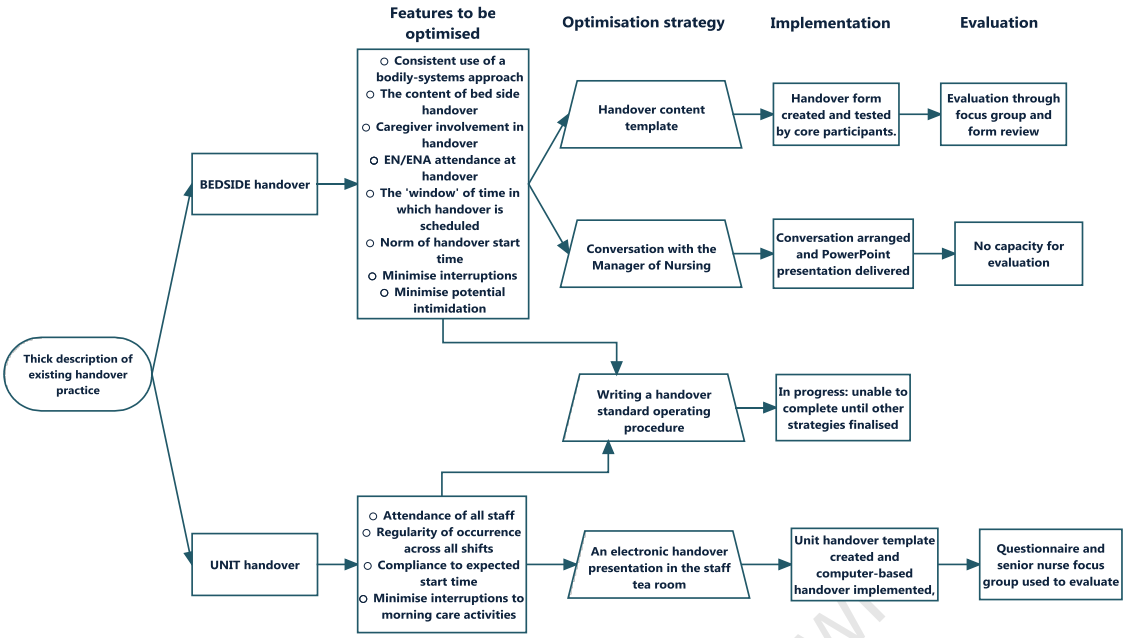


Figure 4.2: An outline of the decisions and actions taken during each of the phases for both the bedside and the unit handover

4.1 PLANNING PHASE

Clark (2000) describes the planning phases of an action research study as being the time when problems are diagnosed and possible solutions are identified. In this study, it was the phase most associated with study objective number 4: 'To collaboratively identify features of the existing handover in need of optimisation.' This phase consisted of two action research cycles: cycle three first facilitated a participative analysis of the existing handover process and cycle four used this analysis to identify features of the existing handover that required optimisation. A fuller outline of cycles three and four will now be presented, followed by the practical details of how they were conducted for both the bedside and the unit handover.

For a location marker indicating the place in the study, see Figure 4.3.

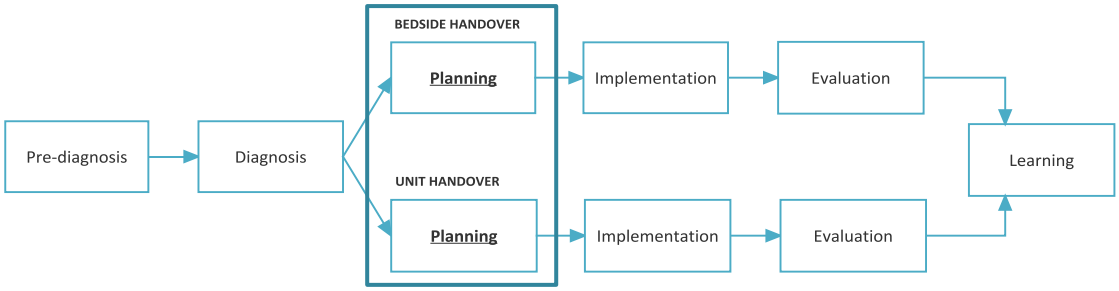


Figure 4.3: Phase location marker – planning phase

4.1.1 Global details of cycle three – identifying features of the existing handover in need of optimisation

Having produced a thick description of the existing nursing shift handover process, cycle three was planned as the first step in answering the question, 'What of the existing PICU handover practice needs to be optimised?' A meeting was called at a time suitable for as many of the core participants as possible to attend. Firstly, the full description of the existing nursing shift handover process that we had created was presented in a summarised form using MS 2010 PowerPoint®. This served both as a way of ensuring that all were aware of our collated description and to provide an opportunity for member-checks of the data. The core participants were again encouraged to comment on any part of the description, thus further clarifying the comprehensive understanding of the existing handover process.

Secondly, to facilitate a participative analysis, the data were subjected to the following questions: 'What works well about the current nursing shift handover process*?* ', and 'What works less well about the current nursing shift handover process?' Specific details of the manner in which people replied are given in sections 4.1.3 and 4.1.4. Replies were subsequently entered into an MS Word® document and where necessary the intended meaning of the replies was clarified with the core participants. An inductive thematic analysis of the replies was conducted which then facilitated the identification of the features of the existing practice that were in need of optimisation. This cycle is represented in Figure 4.4.

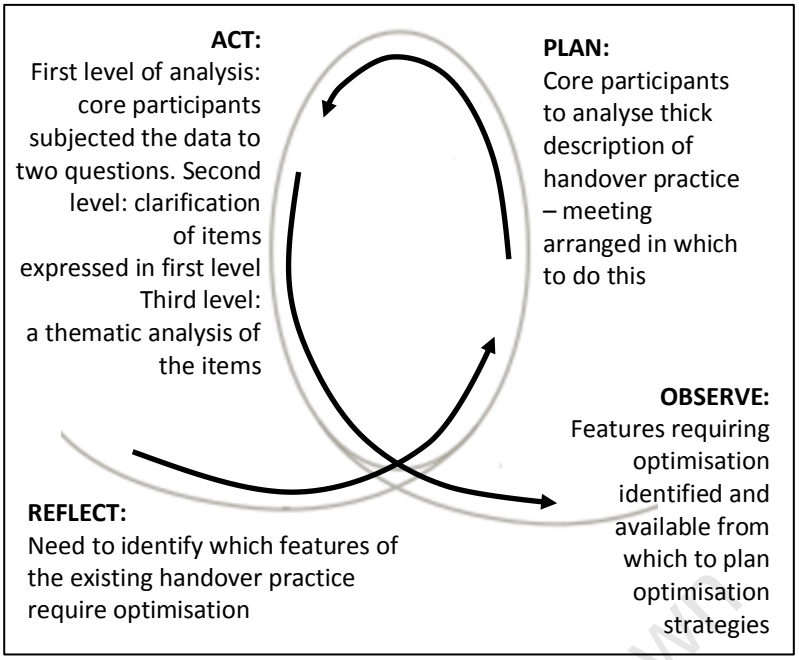


Figure 4.4: Cycle three of the action research spiral: 'What of the existing PICU handover practice needs to be optimised?'

4.1.2 Global details of cycle four – planning methods of optimisation

Having identified the features of the existing handover practice that required optimisation, cycle four sought to answer the question 'How can we optimise the features of the PICU handover practice that require it?' (Figure 4.5). Specific details of cycle four were, however, different for the bedside and the unit handover, and so they will be described individually.

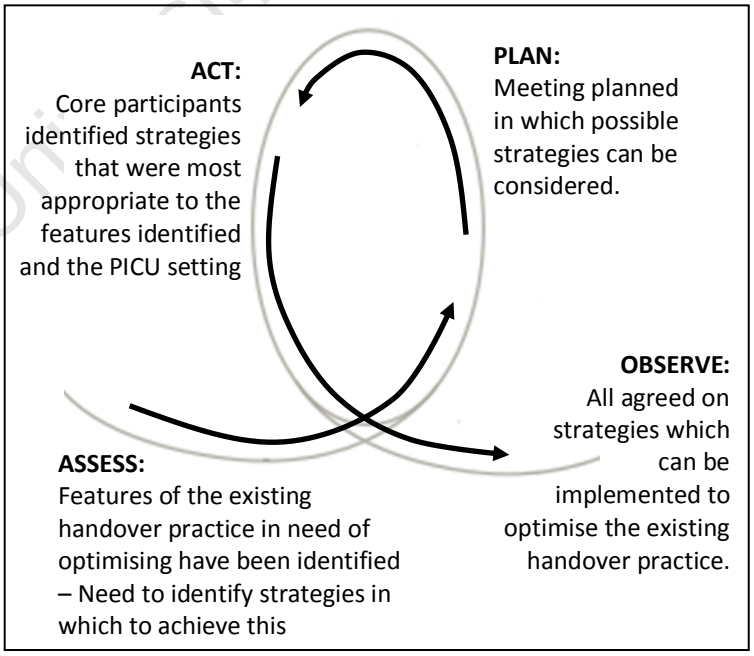


Figure 4.5: Cycle four of the action research spiral: 'How can we optimise the features of the PICU handover practice that require it?'

4.1.3 Cycles three and four for the BEDSIDE handover

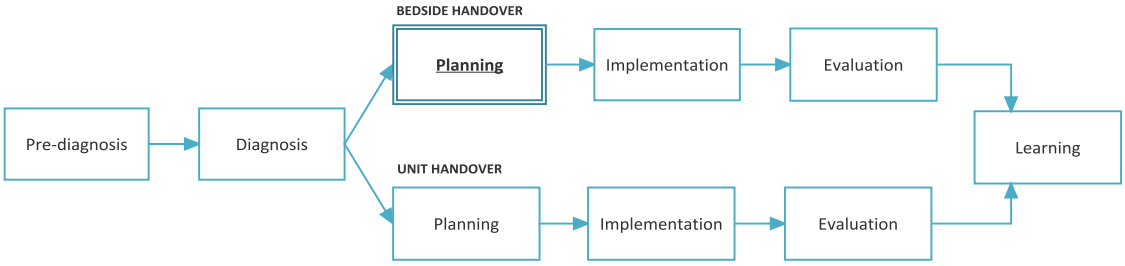


Figure 4.6: Phase location marker – bedside handover planning phase

4.1.3.1 Cycle three – identifying features of the BEDSIDE handover that require optimisation

Collating data from cycles one and two was a lengthy process and service pressures in the PICU meant that arranging meetings at a time suitable for as many as possible to attend was a challenge. A meeting in which to conduct cycle three did, however, take place on 9 October 2012. Seven of the participants were able to attend. Attendance at the meeting was accepted as consent to continue as a core participant and the need for collective confidentiality was reaffirmed and agreed to by all.

A summary of the full description of the existing handover practice was presented and member-checked by all attending (dialogic validity). It was received with sombre mood and very few comments were made. Next, the participative analysis of the data was conducted by asking those in attendance, insider and outsider participants, to answer the two questions by writing separate replies on individual sticky notes. The sticky notes were then placed on two large pieces of paper onto which the questions had been written. This method of analysis was chosen enable everyone to add their opinions to the data and to acknowledge the value of everyone's opinion. This was the first level of participant analysis.

Due to service needs, two participants were unable to stay for the full meeting, and so a second meeting was arranged on 16 October 2012, to which other core participants also unable to attend the 9 October meeting were invited. This ensured that as many as possible heard the description of the existing handover practice and participated in the participative analysis.

Following a review of this first level of analysis, there were items on the sticky notes that needed to be clarified. A third cycle three meeting was arranged, originally on 26 October 2012 but rescheduled to 2 November 2012 due to sickness and high service demands. In this,

we worked together to clarify the full list of items gathered in the first level of analysis, comparing it with the data in the thick description and talking through an additional level of interpretation. This served as a second level of participant analysis. Items that were still difficult to understand or match with data were disregarded by consensus. These first and second levels of analysis demonstrates the democratic validity of the study.

The review of the first level of analysis also revealed that some of the participants may have misinterpreted the question 'What works well about the current nursing shift handover process?' Rather they had answered the question 'What would make a nursing shift handover work well?' This perspective was added to the analysis.

4.1.3.2 Analysis of the participative analysis of the BEDSIDE handover data

A thematic analysis of the items was conducted as the third level of analysis and two themes emerged: (1) the process of the bedside handover, and (2) the content of the bedside handover. The sub-themes and key items that led to the identification of these themes are shown in Tables 4.1, 4.2 and 4.3.

Table 4.1: Data from analysis of the question 'What works well about the existing bedside handover?'

Key items reported to work well in the bedside handover	Sub-theme	Theme
• Use of a bodily systems approach • Conducting handover in the bedspace • People asking questions	Structure of handover	**Process of handover**
• Use of the observation chart and medication prescription chart	Use of additional documentation	
• Handover in a language that everyone understands best	Language used in handover	

Table 4.2: Data from analysis of the question 'What would make handover work well?' (identified from replies to the question 'What works well about the existing bedside handover?')

Key items reported that would work well in the bedside handover	Sub-theme	Theme
Inclusion of the following information: • Patient name • Patient age • Patient weight • Patient diagnosis • Number of days spent in PICU • History of admission • Social/maternal psychological history • HIV status • Pathogens identified • Social worker involvement • Fluid losses and replacements • Reporting of near misses • Informing about daily goals	Inclusion of expected content	**Content of handover**
• Use of a true bodily systems approach	Structure of handover	**Process of handover**
• Including the parents in the handover • EN/ENAs attending handover	Attendance at handover	
• Starting the handover at the intended time	Timing of handover	
• There being less interruption to the handover • A reduction of distractions • People being assertive and not allowing interruptions	Interruptions/distractions	
• An ability to easily ask questions • People not asking intimidating questions • Seniors using handover as an opportunity to teach juniors	Intimidation and lack of support	

Table 4.3: Data from analysis of the question 'What works less well about the existing bedside handover?'

Key items reported to work less well in the bedside handover	Sub-theme	Theme
Exclusion of the following information: • Previous admissions/past medical history • Patient weight • Patient diagnosis • Birth history • History of the PICU admission so far • Identified organisms • Daily goals • Skin issues	Exclusion of expected content	**Content of handover**
• No distinct time period for handover • People arriving late to handover • Handover being rushed • People annoyed at the start of handover due to it starting late • Handover too short, leading to a loss of information	Timing of handover	**Process of handover**
• EN/ENAs not attending handover or arriving late • Needing to handover twice due to EN/ENAs not being present for the RN to RN handover • Little engagement with family during handover	Attendance and involvement in handover	
• Handing over in a language other than one's home language may be a challenge	Language used in handover	
• Using only the observation chart • People relying on the observation chart	Use of additional documentation	
• Seniors not offering guidance and support to juniors during handover	Poor behaviours of seniors	
• Shift leader handover disturbing the bedside handover • Family members asking questions during handover • Nurses socialising during handover period • Incoming nurse tidying during handover	Interruptions/distractions	

The outcome of the thematic analysis of the three questions was then considered together with the thick description to identify features of the existing practice that required

optimisation to ensure a high-quality and efficient handover. These features are highlighted in Table 4.4 alongside the existing practice of handover to which they are related (related theme displayed in brackets).

Table 4.4: Features of the existing bedside handover practice that require optimisation

What have the participants identified from the data as currently not working well in the bedside handover practice?	Features of handover requiring optimisation
• A bodily systems approach is not always used. • Expected information is absent from handover. • Caregivers of the patient are not involved. • EN/ENAs are seldom in attendance at handover. • No scheduled time exists when the incoming and outgoing shifts overlap. • Handover often starts later than the expected start time and is rushed as a result. • Numerous interruptions to handover occur. • Questioning and judgement by the incoming RN can be intimidating for the outgoing RN.	**1. Consistent use of a bodily systems approach (Content)** **2. The content of bedside handover (Content)** **3. Caregiver involvement in handover (Process)** **4. EN/ENA attendance at handover (Process)** **5. The 'window' of time in which handover is scheduled (Process)** **6. Norm of handover start time (Process)** **7. Minimise interruptions (Process)** **8. Minimise potential intimidation (Process)**

4.1.3.3 Cycle four – identification of strategies that can optimise the BEDSIDE handover practice

Cycle four identified possible strategies to optimise handover practice. On 2 November 2012 participants were asked to think about strategies that would best address, in their context, the features of handover that had been identified as requiring optimisation. They were encouraged to 'dream big' and not to discount ideas that they perceived to be impossible. It was quickly evident that different strategies were needed to address the issues related to process and content, although it was equally recognised that they might impact on each other.

A tick-list was suggested as a strategy to address the content of handover, a factor that has been identified to potentially reduce the quality of handover if incomplete, inconsistent or irrelevant (Riesenberg, Leitzsch & Cunningham, 2010). This strategy, strongly supported by the literature (Berkenstadt et al., 2008; Caruso, 2007; Fenton, 2006; Joy et al., 2011; Klee et al., 2012; Triplett & Schuveiller, 2011; Wilson, 2007; Zavalkoff et al., 2011), was proposed as a way

of ensuring that all the content elements identified by the study as being imperative to include in handover, were ultimately included in the bedside handover.

Not all participants agreed with this suggestion, with reservations expressed for two reasons. First, similar to the nurses in Caruso's (2007) study, participants surmised that RNs in the unit would view such a tick-list as extra paperwork, thus reducing the potential for a successful and sustained implementation. Secondly, the initial focus groups had highlighted that the RNs in the ward were often not forgetting or choosing not to give information but rather that they simply did know the information to give. The strategy implemented to optimise the content therefore needed to increase both what the RNs *say* and what they *know*.

A refined suggestion of a handover information form was made. The rationale for this was that the form could be designed in a way that it: (1) enabled the nurses to collate all the information required for the handover, and (2) would serve as an *aide memoire* to guide the content of the bedside handover itself. Collating information prior to the handover period was thought to ensure that RNs of all levels had possession of the same information. Documenting it was considered to be beneficial in light of the literature stating that reliance on memory alone for information recall is a risky practice (McFetridge et al., 2007) and that verbal handovers alone lead to loss and limited recall of information (Dowding, 2001; Pothier et al., 2005). These benefits were deemed particularly important since the RNs in this setting are each allocated two critically ill children, and confusion between the two is entirely possible. To address the concern of it being considered extra paperwork, the form was also to doubly serve as the final written entry of the day in the nursing process[11]. This strategy was supported by all in the meeting and was subsequently planned as the next action.

Strategies for addressing the process of handover were not identified as easily, which is probably to be expected as current practice was well established. The need to optimise the EN/ENA attendance at handover, the 'window' of time in which handover is scheduled, and the compliance of the nursing team with the expected handover start time was first discussed at the meeting on 2 November 2012. Participants described how the challenge to optimisation of these features rested with the fact that the nursing team are only paid from 07h00, which meant that no overlap between shifts existed and that there was a requirement to work for at least 15 minutes without pay. Recognising the effects of the lack of a 'window' in which to handover (Riesenberg, Leitzsch & Cunningham, 2010; Meißner et al., 2007) and thus the need

[11] The nursing process is the name used for the combined nursing documentation of the patient.

for the allocation of sufficient protected time (Jorm, White & Kaneen, 2009; Lardner, 1996; WHO, 2007), possible strategies as to how nurses could be given back or remunerated for this time were debated. Final decisions, however, were accepted as being outside of the role of any person involved in the research and so the decision was made that I, in my capacity as facilitator of the research, would request a meeting with the Manager of Nursing for the hospital to present the existing practice which has emerged from the study and to request her assistance in ensuring a protected handover window period.

Developing a Standard Operating Procedure (SOP) was the second strategy decided on to optimise the practice of handover as it was considered able to address many of the remaining process features requiring optimisation. In particular it was hoped that an SOP would be able to minimise interruptions, which had been found to be potentially disruptive to the quality of handover (Chen et al., 2011; Currie, 2002; O'Connell, Macdonald & Kelly, 2008; Riesenberg, Leitzsch & Cunningham, 2010; Welsh, Flanagan & Ebright, 2010), by interrupting flow of thought thus raising the likelihood that information is forgotten and increasing the amount of time required (O'Connell et al., 2008). The SOP could also promote the mutually beneficial practice of patient/caregiver involvement (Anderson & Mangino, 2006; Kassean & Jagoo, 2005; Riesenberg, Leitzsch & Cunningham, 2010; Tobiano, Chaboyer & McMurray, 2012), and reinforce the need for the entire nursing team to be in attendance (Catchpole et al., 2007; Chen et al., 2011). Principally, however, the SOP was envisaged as to make the optimal bedside and unit handover practice explicit, clarifying elements which had been identified in the focus groups as being currently undocumented, and providing a document for use in future newly appointed nurse training.

In summary, at the end of cycle four, nine features of the existing bedside handover were identified as requiring optimisation. A handover information form, a conversation with the Manager of Nursing and the writing of an SOP were decided to be the appropriate strategies to action in response.

4.1.4 Cycles three and four for the UNIT handover

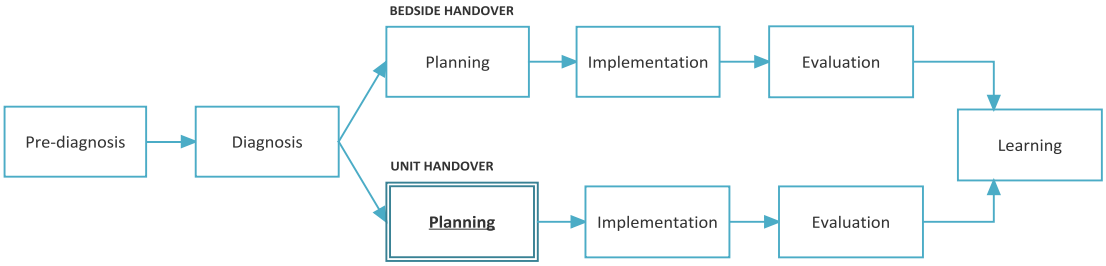


Figure 4.7: Phase location marker – unit handover planning phase

4.1.5 Cycle three – identifying features of the UNIT handover that require optimisation

Cycle three for the unit handover was completed in one meeting held on 19 December 2012. This meeting was conducted after cycle three and four for the bedside handover to give the core participants time to focus on the analysis and optimisation plan for the bedside handover before addressing the unit handover.

This meeting was only attended by myself, the OMs and the Clinical Mentors. This was because the diagnosis phase of the study had indicated that the unit handover was primarily organised and delivered by the OMs and therefore it was felt that they, together with the Clinical Mentors, would be best positioned to analyse the existing handover data and subsequently identify features in need of optimisation.

A summary of the full description of the existing unit handover was presented and member-checked by all attending (dialogic validity). Then, to facilitate a first level of analysis of the data, two questions were asked of the data: 'What works well about the current unit handover process?', and 'What works less well about the current unit handover process?' Owing to the small number and similar seniority of the attendees, the items identified were collated on a whiteboard and the meanings clarified together as the discussion progressed.

Note: Due to the timing of this meeting being almost one year into the study, the Deputy Nursing Manager responsible for the PICU was also invited to attend the meeting, giving her the opportunity of an update on the progress of the research so far. She did attend and also brought her colleague responsible for trauma and medical emergency with her. While they were not part of the original participant group, they could be considered as *outsider stakeholders.* Their attendance ensured that we were aware of the correct procedures to follow to implement a strategy, thus removing a layer of consultation that would have otherwise been required after the meeting and prior to commencement of the

implementation phase. The purpose of the meeting was clarified and they were introduced to the study by means of a summary. Their consent to participate was obtained and the principle of collective confidentiality was explained, to which they both agreed.

4.1.1.4 Analysis of the participative analysis of the UNIT handover data

As a second level of analysis, a thematic analysis of the clarified replies was conducted and, similar to the bedside handover and not unexpectedly, two themes emerged: (1) the process, and (2) the content of the unit handover. The sub-themes too were akin to the bedside handover and are summarised in Tables 4.5 and 4.6 together with the key items.

Table 4.5: Data from analysis of the question 'What works well about the existing unit handover?'

Key items reported that would work well in the unit handover	Sub-theme	Theme
• Allow for information transfer to nursing team. • Get information to more staff than the weekly Thursday meeting as more nurses able to attend (due to the fact that it occurs within the unit) • Information is later discussed in the tea room thus increasing the number of people who receive the information on any one shift. [This information was not evident in the previous cycle's data.]	Information giving	**Content of handover**
• Location within the unit	Location	**Process of handover**

Table 4.6: Data from analysis of the question 'What works less well about the existing unit handover?'

Key items reported that would work less well in the unit handover	Sub-theme	Theme
• Start time of 08h30 is not ideal for patient care delivery as nursing team is still busy with other patient tasks • 38% of respondents feel that it is not the best time to be informed of new PICU, hospital or national nursing policies/information • Start often delayed to 08h45	Timing	**Process of handover**
• Difficult to achieve full 100% attendance, especially from the senior sisters as they are unable to leave their patients	Attendance	
• Occurs very infrequently on weekends and on night shifts • Occurs less frequently on Tuesday than other days of the week	Frequency of occurrence	

During the meeting on 19 December the outcome of the thematic analysis of the three questions was considered alongside the thick description, to identify the features of the existing practice that require optimisation so as to ensure a high-quality and efficient handover. These features are highlighted in Table 4.7 alongside the existing practice of handover to which they are related (related theme displayed in brackets).

Table 4.7: Features of the existing unit handover practice that require optimisation

What have the participants identified from the data as currently not working well in the unit handover practice?	Features of handover requiring optimisation
• Not everyone is able to attend every unit handover • Unit handover very rarely happens on weekend or night shifts • Unit handover does not occur equally on day shifts in the week • Start of the unit handover is often delayed • Timing of unit handover not ideal for morning care activities	**1. Attendance of all staff (Process)** **2. Regularity of occurrence across all shifts (Process)** **3. Compliance with expected start time (Process)** **4. Minimise interruptions to morning care activities (Process)**

In addition to recognising what required optimisation, the participants noted that the content of the unit handover did not need to change, and neither should the location proximal of the handover to the patients.

4.1.1.5 Cycle four – identification of strategies that can optimise the UNIT handover practice

Cycle four for the unit handover – the identification of possible strategies to optimise the handover - was also incorporated into the meeting on 19 December 2012.

After identification of the handover practice features requiring optimisation, participants were asked to propose possible strategies of optimisation. In response, first the aspects of practice in this setting that were not likely to change were articulated, namely the acuity levels of the patients and the time available for the unit handover. Participants felt that this meant that there was limited possibility of optimising attendance or reducing the interruption to morning care activities. Increasing the frequency at which handover occurs was however deemed to be feasible**.**

One of the OMs explained that there was a separate plan in place to alter the working hours of the two OMs, which would result in one of them being present in the unit during the evening shift change. She surmised that this could mean that they could deliver a unit handover on the night shift thus resulting in an increase in frequency of occurrence and an assurance that the night shift received the same information as the day shift. A second suggestion was to start the unit handover 15 minutes earlier, at 08h15, and a third suggestion was to make attendance at the unit handover a requirement of the nurse's role and incorporate it into their performance appraisal.

Familiarity with the current literature meant that I made a fourth suggestion of changing the unit handover from that of a face-to-face unit-based verbal handover to one that was delivered as an electronic handover presentation positioned in the staff tea room. The use of technology to standardise and thus optimise handover practice is recognised as being a common improvement strategy (Riesenberg et al., 2010), one which Matic et al. (2010) noted for its particular ability to increase handover process efficiency. Updated by the OM at the start of each shift in the time previously used to deliver the unit handover, it could be read by the entire nursing team while on their first break of the shift, thus ensuring that all were able to 'attend', a notion identified as crucial to handover efficiency (Catchpole et al., 2007; Chen et al., 2011).

After reflecting on each of the suggestions we decided that the fourth suggestion, of moving to an electronic handover presentation, was worth testing.

4.1.2 Summary of planning phase

In summary, the planning phase served to analyse the data collected in the diagnosis phase and identify the features of handover practice that required optimisation if quality and efficiency were to be ensured. Strategies to achieve change, and thus optimisation were also selected and these will be actioned in the implementation phase.

4.2 IMPLEMENTATION AND EVALUATION PHASE

The implementation phase of an action research study is described as being the time when "action is undertaken" (Heale, 2003:8). The various proposals for change made during the planning stages are "implemented, reflected upon and re-implemented" with the addition of any necessary modifications (Clark, 2000:193). Clark (2000) describes the phase as having the potential to be quite lengthy and notes that it often consists of a number of different action research cycles. Essentially it is the phase when changes in practice are commenced. The evaluation phase then follows, this being the phase in which the suitability of the physical changes is assessed. Baseline measures can be repeated to provide an assessment of whether the change strategies that have been implemented have indeed made an impact on the problem that was identified (Meyer, 2010).

In this study the implementation phase is most clearly associated with objective five: 'To collaboratively identify, develop and implement change strategies to optimise the existing nursing shift handover'. In this phase we implemented the strategies proposed in cycle four for both the unit handover and the bedside handover individually. The evaluation phase is associated with specific objective number six, 'To evaluate the quality and efficiency of the implemented change strategies'. Within this report the phases of implementation and evaluation will now be described together, once again separating the phases for the bedside handover and the unit handover. Figure 4.8 provides a location marker indicating the place in the study.

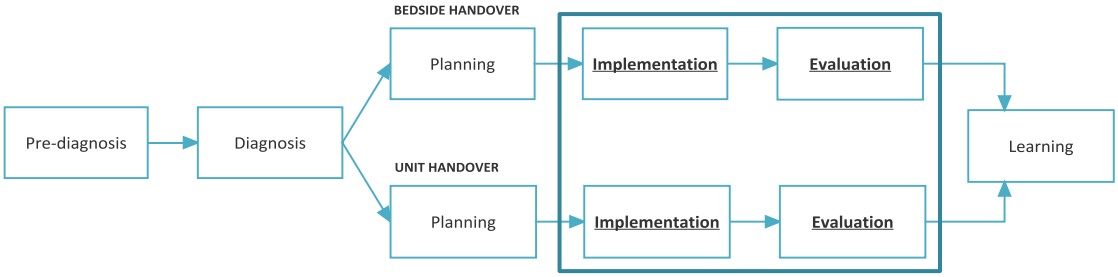


Figure 4.8: Phase location marker – implementation and evaluation phases

4.2.1 Global details of cycles five and six

The phases of implementation and evaluation consisted of one cycle each; cycle five addressed the question 'Can we implement the optimisation strategies?', and cycle six the question 'Have the strategies optimis ed the efficiency and quality of the PICU handover practice?' (Figure 4.9). Both cycles were however repeated for each of the change strategies selected in cycle four, the specifics of the cycles differing greatly for each strategy. Within these two cycles some smaller review cycles were also used to facilitate the collaborative development of some tools that were required.

In terms of the evaluation, while it is acknowledged that measurement of patient outcome is the best way to evaluate the effectiveness of an optimisation strategy (Manser & Foster, 2011), this would have been a challenge to achieve (Arora & Johnson, 2006) and outside of the capacity of this Master's study. Evaluation methods measuring nurse satisfaction were therefore chosen instead.

The specific details of cycles five and six will now be described for each of the proposed change strategies: a handover form, a conversation with the Manager: Nursing, an SOP and a unit handover presentation.

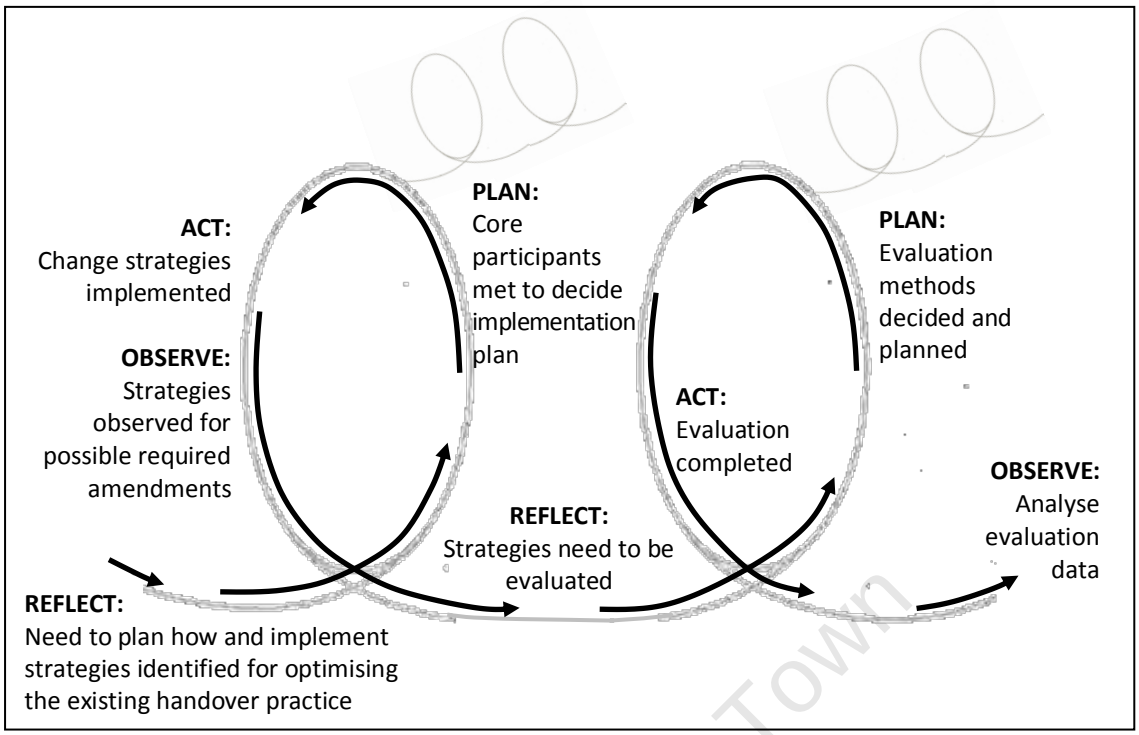


Figure 4.9: Cycles five and six of the action research spiral

4.2.2 Cycles five and six – the handover information form

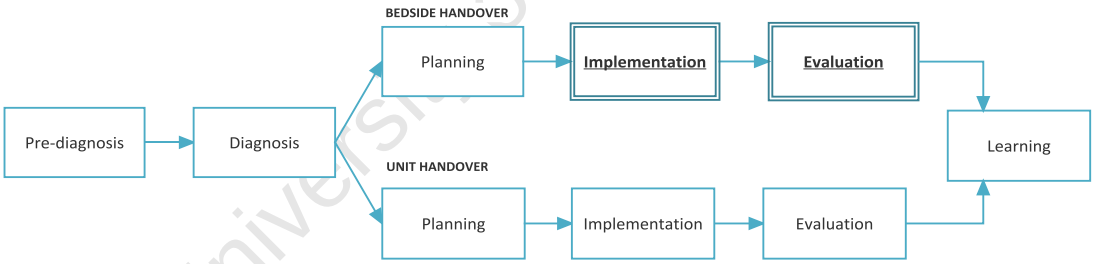


Figure 4.10: Phase location marker – implementation and evaluation phase for the handover information form (bedside handover)

4.2.2.1 Implementation

Implementation of a handover information form was the principal strategy in optimising the content of the bedside handover and the consistent use of a bodily systems approach. The first component of the implementation phase was the design of such a form.

During the meeting on 2 November 2012 we decided that I, in my facilitator role, would produce the first draft of the handover form using the content spider diagrams produced to aid the data analysis of the content of the outsider-participant observations. Also suggested for inclusion was:

- A place for the day's goals to be written so to address the concern that handover exhibits a lack of nursing care planning
- A place for the incoming and outgoing RN to sign to indicate a transfer of responsibility and serve to identify the author of the nursing process entry
- An indication of a completed safety check to promote identification of error and missing equipment and to encourage the incoming RN to become actively engaged.

These were all strategies identified from the literature as being potentially beneficial (Bone et al., 2008; Chaboyer et al., 2009; Cheung et al., 2010; Triplett & Schuveiller, 2011). The first draft of the form was presented at a meeting held on 3 December 2012. From there, small review cycles were conducted to clarify and modify the form until a final version of the form was agreed by all (Appendix 0). This review process stands as an example of democratic validity.

The form was then implemented and evaluated using a method detailed by the IHI. They suggest gradual implementation; first testing the change strategy repeatedly on a small scale, then implementing it with a larger group before finally spreading the change to an organisational level (IHI, 2011c). During the testing stage, they promote the use of reflective cycles to ensure that outcomes from the tests are noted and that consequently the change strategy is refined. It is thought that in this manner, the testing itself can prepare the setting for a wider implementation and provide an assessment of the change strategies potential impact (IHI, 2011d). In contribution to the process validity of the study, two 'tests of change' were implemented, the implementation and evaluation of which will now be described (IHI, 2011d) .

4.2.2.2 First 'test of change'

As the first 'test of change' for the handover information form, one of the participants volunteered to test the form with a real patient handover, not instead of writing her usual nursing process entry but complementing it. The form would therefore not remain as part of the nursing documentation. We considered that having already modified the form a number of times, further revisions would probably only be identified if applied in a real practice situation. We also thought that this test would serve to evaluate the form against existing practice.

Her evaluation of the form was fed back at a meeting of core participants held on 19 December 2012. She described how, following completion of both the form and her usual entry into the nursing process, she examined what she had written in each. She evaluated that

the handover form facilitated the capture of information that would previously not have been communicated verbally. Secondly, she commented that for the one patient, the time it had taken to write the nursing process had been approximately double the time needed to complete the handover form. She also reported that she found the requirement to document the events leading to and key event of the admission particularly useful. She advocated for minor revisions and formatting to the form.

In conclusion, she communicated that:

> "Participant 2: *Generally, the impression that I….it's almost a feeling that I get it that I am missing that, the story telling, but if you actually look objectively to it, then you just give as much information on this as I did in my progress report. Facilitator: If not more on some levels*.
> Participant 2: *Actually, ja!"*
> [Participant 2 and facilitator, meeting held 19 December 2012]

4.2.2.3 Second 'test of change'

The positive outcome of the first 'test of change' acted as a springboard to a second, in which four of the core participants were asked to test the form. Their enthusiasm and good ideas throughout the study made them good candidates for this second test. Evolving from the first 'test of change', these forms would replace the usual writing in the nursing process. Four forms were given to each participant along with verbal and written guidelines as outlined in Table 4.8.

Table 4.8: Guidelines given to the core participants implementing the handover form

Each participant will:
• Complete the form for four different patients on four different shifts • Write the nursing process entry as normal at the start of the day • Write appropriate interim reports in the course of the day as the need arises • Complete this form in full near to the end of the shift • Write additional notes in the nursing process if it is felt that any aspect of care was not covered by completion of the form • Do not complete the end-of-shift nursing process entry as normal – the form will replace this entry.

On completion of the form, the participants were asked to use it as an aide memoire to their verbal handover and then, so as to gain a brief peer review, to ask the nurses to whom they handed over for their comments about the form. Photocopies were made of the completed forms together with any additional notes written at the end of the shift.

Since the form was going to remain a formal part of the nursing documentation and the usual nursing process entry would be waived, particular ethical considerations were necessary. Firstly, participants understood that they would have to sign the handover form and so would be identifiable. They agreed to go ahead anyway. Secondly, we needed to consider the ethical principle of non-maleficence. We deliberated that should the new handover form be insufficient in terms of an incoming nurse's ability to subsequently provide nursing care, a patient might be at risk. However, since the content of the form was created using the optimal-content spider-diagrams used to analyse outsider-participant observations, it was decided that it should be comprehensive enough to ensure a quality nursing handover, providing that the participant completed it in full and used it as an aide memoire. We decided that should a participant perceive that the form was not capturing a key piece of patient data, they should document it in the nursing process as normal. The potential for harm to the patients as a result of the test was ultimately viewed to be minimal.

Thirteen forms were completed between 13 March and 27 April 2013. Evaluation of this test was through examination of the completed forms and a focus group with the core participants who completed the form (focus group 6) held on 13 May 2013. All four participants were able to attend and brought with them their completed forms. Consent to take part in the focus group was understood through voluntary attendance and collective confidentiality among the participants was once again affirmed and agreed.

The focus group was conducted using a semi-structured design; discussion commenced with the general request for any comments or opinions about using the handover information form. I then used the questions in Table 4.9 as a guide to direct the conversation, so as to ensure that information was gathered to determine both the need for further revisions of the form and whether a third 'test of change' was necessary or progression to a wider implementation of the form was possible. The completed forms were also reviewed.

Table 4.9: Questions used to guide the handover form feedback focus group on 13 May 2013

1. How did you experience completing the form? How long did it take to complete? Was it straightforward? 2. Is there any part of the form that confused you? 3. Are there any information elements that you feel need to be added or removed? 4. Did you use the form as an aide memoire during handover? Was it useful? Did it work as such? 5. Do you think that using the form as an aide memoire increased the amount of information known about a patient? Do you think that it increased the amount of information delivered during handover? 6. Did the form work well as the nursing process entry? 7. What did other nurses comment about the form? Did they like the look of it?

The focus group was audiotaped and later transcribed, intelligently verbatim, into MS Word, by an external transcriber (2) who was bound by a confidentiality agreement (Appendix P). In light of the rationale of the form, analysis of both the data and the review of the forms was then performed, by subjecting the data to the following questions:

- What did the participants comment regarding completion of the form?
- Was the form efficient as an aide memoire to handover?
- Was the form efficient as a nursing process entry?

4.2.2.4 Evaluation of the second 'test of change'

Seven themes emerged from the analysis of the data from the second 'test of change'. These are outlined with the sub-themes in Table 4.10 and will be discussed individually.

Table 4.10: Themes and sub-themes produced by the analysis of the second 'test of change' of the handover information form

SUB-THEME	THEME
• Participants • Peers	**General opinion of the form**
• Increased knowledge about the patient • Time taken to complete the form • Getting used to it • Incompletion of the form • Completing the form at 04h00/16h00 • Identified the work of a nurse • Assists with the afternoon ward round presentation	**Completion of the form**
• Increased handover content • Information still omitted • Duration of handover • Signing to indicate transfer of responsibility	**Use of the form as an *aide memoire***
• Requires amendments • Cannot capture details of patient care • Daily goals	**Use of the form as the nursing process entry**
• Perceived acceptance of the form • Suggestions for increased acceptance	**Future implementation**

General opinion of the form

Firstly, the data presented a general opinion of support for the form from both the participants and their peers. Peers expressed an inquisitive desire to use it themselves:

> *"I love it"* [Participant 5, focus group 6]
>
> *"They loved the form"* [Participant 9, focus group 6]
>
> *"Where are the forms, where can I find the forms?"* [Reported as being said by a peer, Participant 9, focus group 6]
>
> *"Can we also do it?"* [Reported as being said by a peer, Participant 5, focus group 6]

Completion of the form

Participants spoke extensively about their experiences of completing the form. In consideration of the fact that the form was in part developed to facilitate the collation of information, it was encouraging to note that the participants reported that through completion of the form they did have an increased knowledge about the patients to whom they were providing care.

> *"I find it very interesting because I knew where the patient was coming from. I understood more about the patient and especially with the blood work."*
> [Participant 5, focus group 6]

> Facilitator: *"Do you feel that you would have been more likely to know if there was a problem with the pulses, having done the form, because you would have checked to be able to complete the form?*
> Participant 3: *"Yes, no, definitely."* [focus group 6]

> *"I felt more confident about knowing my patient than the normal assessment we usually do."* [Participant 5, focus group 6]

> Using a patient's fluid balance as an example: *"And at least, on the other part for me was the balance, the total balance of the patient. You find that with me, on my shift, I would do it and then balance, the same balance now, I do it now, but the balance for yesterday, not all the time it's done correctly, so you have to again do it and when you are doing it, you don't just take the end part, you want to be accurate, so go for the past and then combine it, so that you get a clear history to compare between what is here, now and yesterday."*
> [Participant 10, focus group 6]

The data suggested that this increased knowledge may in part be attributed to the fact that the participants needed to specifically look up information to complete the form, or assess the patient in a manner that they previously would not have done:

> *"You have to read the history … [and] look for specific things that maybe you didn't look for before."* [Participant 9, focus group 6].

> *"So I felt more confident about knowing my patient than the normal assessment that we usually do."* [Participant 5, focus group 6]

> *"Also going back and finding about the history, that was extra effort."*
> [Participant 10, focus group 6]

Some parts of the form, however, remained incomplete or were incorrectly completed, some commonly so. This could in part be explained by the fact that the participants reported being uncertain as to what they were expected to write, but also that they did not perceive the aspect to be related to the work of a nurse. Unexpectedly, the data suggested that completion of the form resulted in the participants developing a new understanding of nursing work. Through completion of the form and the focus group discussion, some aspects of the form, previously only regarded as being related to a doctor's work, were now recognised as also being relevant to nursing care.

In one example, one participant asked the question, "*Comments on chest [x-ray] results, like what are we going to comment about as nurses?*" [Participant 10, focus group 6]. A discussion ensued with some participants giving examples of what they had written and others describing how the awareness of that information had the potential to influence patient care:

> *"These are your two patients and you are caring for them whereas I think that a lot of people are used to just doing what we know, like but now we are looking at this and we're saying, actually this is my priority as well."*
> [Participant 3, focus group 6]

> *"Or the actual person that looks after the patient, so it's not for the doctors to only come when they come and see, 'oh this and that and this is wrong with the patient'. You see like we do with urine output, 'OK, its low, let's do something about it.' This is also part of what need to be doing, so we are looking after everything about the patient and this just reminds us that this is also our duty, it's not only…"* [Participant 3, focus group 6]

The outcome of this increased understanding of "what nurses know [and what] we should know" [Participant 14, focus group 6] was described to result in a feeling of being more "*proactive*" [Participant 10, focus group 6] and "*in control*" of their patients [Participant 3 focus group 6].

Incomplete forms could also be explained by habitual non-completion of forms. Participant 3 cautioned of the dangers of this, stating that if one person omits a piece of information, there is a tendency for others to follow, resulting "*in a stage when nobody actually knows what's going on*" [Participant 3, focus group 6].

The review of the forms also highlighted that completion of the form was on average at 04h00/16h00. The participants acknowledged that at these times there were at least three hours of the shift remaining, meaning that the patient details could change, but they explained that at that time there was a "*nothing else to do…that's like a free hour*" [Participant 3, focus group 6] and that other information could always be added later in the additional information section.

Examining the time it took to complete the form, participants had differing opinions. Some participants perceived it to be quick and others described the process as taking a long time. Completion of the past history, history prior to admission and key events sections were described as particularly adding to the time required, primarily because the information had to be intentionally sourced from a variety of different documents:

> *"It was quick and easy to fill in."* [Participant 5, focus group 6]

> *"So it takes quite a bit longer than the usual assessment just because in your head you know you've got your structure already."* [Participant 3, focus group 6]

> *"… because the most part that I feel that it took more time is where you are checking with this top part, the history of it, the key events … they take your time. They take much longer."* [Participant 10, focus group 6]

On reflection, however, participant 10 noted that "*whilst it took long for me, it made my job easier at the end of the day*" [focus group 6].

Unfamiliarity with the form was also cited as a factor influencing the completion time, explained by the fact that the form required a new way of working:

> *"Down the line … I would know what this looks like, whereas now I don't. I have to look at everything and go, what is this, whatever…."* [Participant 3, focus group 6]

> *"…Get used to the structure"* [Participant 10, focus group 6]

> *"For the first time I was writing and then, 'Oh! I need to go to my patients' – Wash hands, go back, write – 'Oh! I need to listen to the lungs' – Go back… it was back and forth all the time. But by the second time, third time, I knew, 'Ok, I have to first do my patient physically and do all these things and then I can come back and write'."* [Participant 5, focus group 6]

Once familiar with the form, however, the participants thought that completing it would become increasingly easier and possibly quicker since the information on the form could be transferred from one day to the next:

> *"It was more easier as you go along."* [Participant 9, focus group 6]

> *"Once I am used to the form and I know what this structure is, it will then be easy."* [Participant 3, focus group 6]

Finally, in relation to the completion of the form, the data showed that the participants believed that completing the form would also serve as preparation for when they were required to present their patients on the afternoon multidisciplinary ward round:

> *"It will definitely help us."* [Participant 3, focus group 6]

<u>*Use of the form as an aide memoire*</u>

The data indicated that in comparison to the pre-existing bedside handover, use of the handover form as an *aide memoire* increased the amount of information delivered. It was described how the form acted to prevent information from being forgotten or not included:

> *"It was nice because everything is here in front of me and then I could also talk about the bloods. Maybe when I was doing my chart [observations chart], then I forget all about the bloods and all that stuff, but here, it reminds me."* [Participant 9, focus group 6]

> *"Because you would know what is supposed to be happening but you don't touch everything."* [Participant 10, focus group 6]

Verbal information might still be omitted, but prior completion of the form ensured that it was documented:

> *"If there wasn't anything wrong with the pulses, I wouldn't mention it."* [Participant 3, focus group 6]

Use of the form as an *aide memoire* was felt by some participants to result in a shorter handover, while others perceived the opposite to be true. Its extending the duration of handover was not, however, viewed as a negative, rather it was rationalised as being due to having delivered a comprehensive handover:

> *"It took more time because when I went home, I felt relieved. I said **everything** about my child, everything from beginning to now."* [Participant 5, focus group 6]

Future familiarity with the form was also surmised by some to potentially have an influence on duration of handover delivery. Participants 5 and 9 believed it would ultimately result in a shorter handover since, "*You will know your chart more easily*" [Participant 9, focus group 6] and "*You will be quicker to read it*" [Participant 5, focus group 6]. Participant 3 however, explained how she thought that the time required to handover would unlikely reduce since the content of handover was not going to change.

With reference to the requirement to sign the form to indicate authorship and a transfer of responsibility, the data demonstrated that the participants welcomed this since it provided them with a sense of being 'covered' in what they had said. Their peers, however, questioned the need to sign:

> *"This form is really important on that perspective."* [Participant 10, focus group 6]
>
> *"Why must I sign now?"* [Reported as being said by a colleague, Participant 10, focus group 6]
>
> *"What are you going to do with this?"*
> [Reported as being said by a colleague, Participant 5, focus group 6]

One participant provided an example of how she explained the need to sign to her peers and another participant explained how she thought that nurses only receiving handover may be more reluctant to sign to indicate receipt of information, compared with those who had been previously introduced to the form and had signed to both in receipt and delivery:

> *"I just said, it just says that you take responsibility and that you acknowledge that this actually happened, I handed this over to you."* [Participant 3, focus group 6]

Use of the form as the nursing process entry

With regard to the forms acting as a nursing process entry, the focus group data and review of the forms revealed that some simple additions and minor formatting were required to improve the volume and clarity of the information recorded. For the list of suggested additions and formatting, see Table 4.11.

Table 4.11: List of suggested additions and formatting to the existing handover information form

Additions and formatting to be made to existing handover information form:
1. Add an 'R' and 'L' to the body diagram
2. Add a place to comment on the most recent arterial blood gas result
3. Remove place to write the BP and MAP and add an additional line to enable more space to comment
4. Add a place to write the weight
5. Add a place to write the gastric losses
6. Create a place to document the page number front and back
7. Change 'HIV exposed' to 'HIV status_____'
8. Incident report: change box to Y/N
9. Dietician recommendation: change box to Y/N
10. Make the 'history boxes' at the top deeper
11. Change the wording in the 'history boxes' to make it clearer what should be written in each
12. Make the place to write the name in the signature box longer to accommodate long names
13. Remove AM and PM from goals
14. Add the words 'nursing and medical' prior to the word 'goals'
15. Add '=_____ ml/hr' after the fluid allowance ml/kg/day calculation
16. In the CNS section, make it clear that 'other' refers to only CNS-related medications
17. Oedema: change box to Y/N
18. Add the word 'current' to 'messages from…'
19. Add the word 'allowance' after the word 'fluid'
20. Add the capacity to document the peripheries as 'cool'
21. Remove 'position' and just leave 'comment on positioning'

With its function as a nursing process entry being noted as a considerable factor in the efficiency of the handover form, the data indicated that it lacked adequate space in which to write all the necessary information. It did not allow an RN to write a narrative of the shift. Participants rationalised that numbers alone were documented in other places, and that the nursing process entry needed to act as the place where numbers and explanations for actions, taken as a result of certain events, needed to be assimilated together. They felt that the handover form did not facilitate achievement of this:

> *"I feel like I could have said more."* [Participant 10, focus group 6]

> *"For me, it's not so much what the BP was as what the significance is of it. Like it doesn't help to write numbers, I mean what does it matter…?"*
> [Participant 3, focus group 6]

> Participant 3 felt *"like I'm just putting down the fact, but I'm not actually saying what that means."* [Participant 3, focus group 6]

> Facilitator: *"So in your nursing process, you would have normally written …'went bradycardic once in response to such and such', and it's where you write that extra information."*
> Participant 3: *"More of an explanation and what you did and whatever."*
> [Focus group 6]

Unease at not being able to write the information as they wanted was partially rationalised by one participant as being related to the need to get used to the form, accepting that it was just "*different to what [she was] used to*" [Participant 3, focus group 6]. This mirrored the feelings of participant 2 when she tested the form in the first 'test of change'; however when she compared the content of the old nursing entry with that which had been captured on the form, she realised that in reality the difference was minimal.

Pertinent to note is that despite reporting that they could have written more, review of the forms uncovered that not one of the core participants had brought to the meeting any additional notes that they had been required to write in addition to the handover form: Had they not brought them? Had they not photocopied them? Or had none been written? Also reported was that the participants infrequently wrote interim reports, citing as reasons, a lack of time due to unstable patients, a reduced prioritisation of paperwork, and events being recorded elsewhere. This, however, further contributed to the need for space to write at the end of the shift.

The data also illustrated how the handover form could impact on other documentation already in use in the nursing process. Specifically, the possibility of allowing the handover form to replace the existing daily goals sheet was suggested, since it was found to better capture the information and facilitate an evaluation of whether the goal had been achieved.

Future implementation

The final theme describes how the participants, despite feeling that the form should be implemented more widely, believed that doing so would be a challenge:

> Facilitator: *"Do you think it will be well received?"*
> Participant 3: *"No, because people don't like change…they will moan."*
> [Focus group 6]

Participant 10 indicated that this reluctance may due to a too frequent need to change practice in the PICU environment. As a 'selling point', all agreed that the benefits of the form needed to be highlighted to the rest of the nursing team (Table 4.12).

Table 4.12: Benefits of the handover information form as highlighted by the core participants

- Reduced ability to "*miss checking*" for example "*pulses*" [Participant 10, focus group 6] or miss speaking a "*critical point*" [Participant 10, focus group 6]
- The forms acts as a "*safety net*" and promotes safe and improved practice [Participant 3, focus group 6]
- The form can make you "*a better experienced ICU sister [RN]*". [Participant 3, focus group 6]
- Lessor capacity to "*feel guilty*" when nurse remembered something at home and thus feel the need "*to phone back in*" [Participant 9, focus group 6]. That this would "*save them airtime!*"[Participant 3, focus group 6].

One participant also suggested the strategy of developing of a second form that would assist with the start of shift assessment of the patient, thus saving nurses time in that time-sensitive period of the day. If designed with a similar appearance it was surmised that, through the use of that morning form, people would by proxy get used to this handover form and thus embrace change in handover practice.

Conclusion to the evaluation of the second 'test of change'

In conclusion, the data demonstrates that in addition to be being well liked, the handover information form appears relatively efficient at assisting the participants to collate the information for the bedside handover and as at acing as an aide memoire. Concerns do, however, exist about its efficiency as a nursing process entry, which is theorised to counter-impact on its capacity to optimise the bedside handover.

4.2.3 Cycle five and six – a conversation with the Manager of Nursing

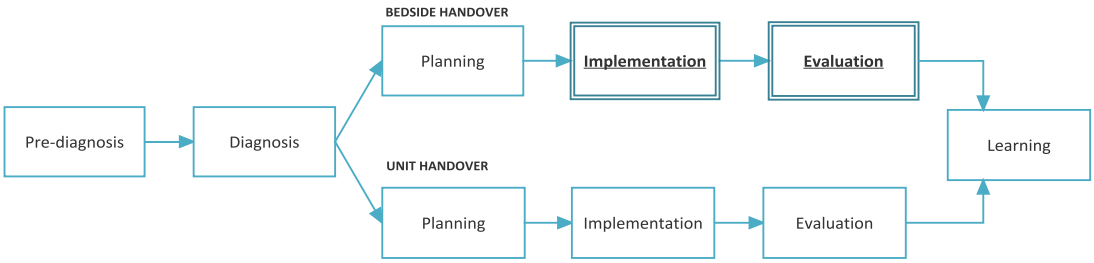


Figure 4.11: Phase location marker – implementation and evaluation phase for the conversation with the Manager of Nursing (bedside handover)

4.2.3.1 Implementation

A meeting with the Manager of Nursing to present the existing practice and to request her assistance in ensuring a protected handover window period was believed to be key to optimising the process of the nursing shift handover. Les s directly, it was hoped also to address the following existing features of the bedside handover: the 'window' of time in which handover is scheduled, compliance with the expected handover start time, and EN/ENA attendance.

The need for the meeting was then further heightened on finding that for unrelated reasons a change in nursing shift hours was already being proposed. A requirement for nurses to work an extra 30 minutes on each shift had emerged and two options had been proposed to achieve this: (1) that nurses lunch time could be reduced, or (2) that they start work earlier. Starting work earlier would allow for a substantial increase in the handover period and was envisaged to have the potential to considerably alter the practice. Nurses of the hospital were going to vote to indicate their preference but the overall decision rested with the Nursing Manager.

At the meeting on 19 December 2012, the Deputy Nursing Manager had agreed to request such a meeting and a 15-minute meeting was granted on 6 March 2013. It was attended by the Manager of Nursing, the Deputy Manager and one of the PICU OMs. Recognising that a limited amount of time was available, a very graphic MS 2010 PowerPoint® presentation was prepared. It included the study purpose, and from the data collected, the existing complex function of handover and the current situation related to handover timing. The presentation was concluded, not by asking whether the handover period could be included in the recognised and paid shift, but rather by asking, 'What impact would it have on handover if the *norm* handover time of commencement was 06h45?' The meeting was not audiotaped but notes about the discussions were made immediately after the close of the meeting.

4.2.3.2 *Evaluation and outcome of the meeting with the Manager of Nursing*

The primary goal of this meeting was not to make any practice change but to ensure that the Manager of Nursing was informed about the existing handover practice in the PICU and to involve her in the identification of a possible solution to the need for a protected handover window period. At the opening of the meeting, we were informed that a decision had already been taken regarding the change in nursing shift times. The decision was in favour of a reduction of the lunch break. The reasons for this decision were explained. The Manager of Nursing was still keen to hear the presentation, stating that she was interested in the research and would like to hear the outcome of the data that had been collected.

On completion of the presentation, the Manager of Nursing acknowledged that handover in the PICU environment is different from that in the wards and that, therefore, while the decision about the reduction in the lunch break could not be changed, it might be important to determine how better compliance to the 06h45 start time could be achieved. The Deputy Manager and PICU OMs were asked to address this, and it was suggested that education of the nurses regarding the necessity to start on time should be considered.

In conclusion, on the face of it, the conversation with the Manager of Nursing was productive in that she understood that there was a need for change. It was just a pity that it occurred after a final decision regarding the change in nursing shift hours. At the meeting's close, the responsibility to enable better compliance to the 06h45 handover start time rested with the OMs and the Deputy Nursing Manager.

4.2.4 Cycle five and six – electronic handover presentation

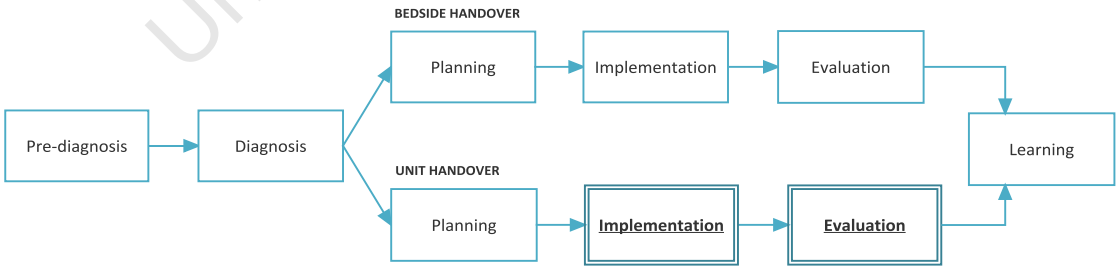


Figure 4.12: Phase location marker – implementation and evaluation phase for the electronic handover presentation (unit handover)

4.2.4.1 *Implementation*

Conversion of the existing unit handover to an electronic handover presentation located in the tea room was the principal strategy conceived to optimise the existing unit handover process.

The rationale was that, by moving it into the tea room, the information would be available to everyone on the shift and could easily be made available to all the different shifts. Compliance with the start time would no longer be an issue and it would not at all interrupt morning care activities.

Again, the IHI (2011d) concept of small 'tests of change' was used and the following details were decided collectively by the participants in the meeting on 19 December 2012:

- The first 'test of change' would run for four weeks from 7 January 2013 and an evaluation of the strategy would be performed in the fourth week. Evaluation in the fourth week would allow for the handover presentation to continue past the fourth week should wider implementation be an immediate decision.
- MS 2010 PowerPoint® would be used to create the presentation, since it was familiar to the OMs and would allow for easy programming of the slides to scroll continuously.
- A standardised template (Appendix Q) was developed by myself and then revised in collaboration with the OMs. The template would ensure that the information was displayed in an organised manner and that completion would be quick and easy.
- The template would include the instruction to direct any questions arising from the information verbally to an OM as soon as possible.
- The OMs would update the information, or delegate it to someone else, on a shift-by-shift basis. They would also save the presentation on a daily basis, using the following name '[DATE] [AM/PM] unit handover presentation'.
- Update of the information would occur prior to the start of the first tea break at 09h00.
- The researcher would provide the use of a computer.
- Support to conduct this 'test of change' would be requested from the Manager of Nursing via the Deputy Nursing Manager.
- Amendments would be made in response to feedback given over the weeks.

Implementation of the strategy was, however, delayed since the Manager of Nursing and Deputy Nursing Manager were unclear as to why the strategy had not been outlined within the original research proposal. This is an anticipated complication of an action research study in which the most appropriate change strategies only become apparent as the study evolves. This unpredictability means that the strategies cannot be described at the outset and thus sometimes re-engagement is required with administrative heads at later stages of the study.

A meeting was requested in which I could provide an explanation of this dynamic, but this too was difficult due to the full schedule of the Manager of Nursing. A meeting was finally called on 1 February 2013 between the researcher, the Deputy Nursing Manager responsible for the PICU and the two PICU OMs. The Manager of Nursing sent her comments/concerns through the Deputy Manager. The dynamic concept of action research was re-explained and support for the 'test of change' was given. The nursing management team also raised concerns about receiving acknowledgement for their involvement in the research. I reassured them that their extensive input into the project had been, and would continue to be, invaluable and ultimately would be acknowledged within the research report.

Following the meeting, the 'test of change' was planned to commence on 18 February 2013. Recognising that the change would impact on the entire PICU nursing team, the OMs took on the task of informing them during the existing unit handover, in the week prior to implementation. She outlined the practical aspects of and reasoning for the move to an electronic handover presentation.

On the first day of implementation, the researcher and both OMs worked together to input details into the template, with much information transferred from the last entry in the communication book. Further support was offered on subsequent days that week, and then tapered off over the following weeks due to the OM's clear competence. The OM was encouraged to empower other senior RNs to take on the role of updating the PowerPoint® slides. The intention was that the OM would empower the weekday shift leaders who would then update the slides prior to finishing their shift, thus ensuring that the night staff had the most current information available to them. Furthermore, empowering the shift leader working during the day on Fridays could serve to ensure that the information was updated over the weekend when the OMs were absent.

During the first week, as part of the usual Thursday nursing meeting, the OMs took the initiative and asked the nursing team for comments regarding the handover presentation. They then shared these comments with myself the following day and adjustments, where possible, to the presentation were made. Table 4.13 summarises the comments and responsive action.

Table 4.13: Summary of comments made about the tea room handover presentation by the nursing team to the OMs at the Thursday nursing meeting and associated responsive actions

Comments made by the nursing team	Action taken in response
1. Screen needs to be bigger.	No other screen available for the test but comment noted for later evaluation.
2. Presentation slides automatically advanced too quickly.	Seconds on the slide turnover increased so the slides advanced more slowly.
3. Nurses asked whether they were still able to ask questions.	Wording on the presentation template altered to make it clearer that nurses should direct any question they have to the OMs or take them to the Thursday nursing meeting.
4. Nurses asked how long the test would last.	OM explained in the meeting that it would be four weeks with an evaluation in the fourth week.

4.2.4.2 Evaluation process

A questionnaire was decided in the meeting held on 19 December 2012 as the method for evaluation for the electronic handover presentation. In consideration of the rationale for the handover presentation, it was decided that primarily the questionnaire needed to evaluate whether it had facilitated the same information to a greater number of people across a greater number of shifts, while also reducing the time spent away from morning care activities. I designed a first draft of the questionnaire, and then, through smaller review cycles, it was modified and finalised in collaboration with the OMs. Two slightly different forms were created for the day and night shifts (Appendices R and S).

The questionnaire was implemented in the PICU on Tuesday 12 and Wednesday 13 March 2013 with the nurses on both the day and the night shift. Owing to the nursing shift pattern (Table 1.1), this ensured that the greatest number of people could contribute in the shortest amount of time. A paper copy of the questionnaire was given to each nurse in the time period following initial assessment of the patient and before the start of the first break. Reasoning for the questionnaire was given and each nurse was asked to complete it if they were willing and able to spare the time. The questionnaires were collected from the nurses approximately 20 minutes later. Data collected from the questionnaires, were inputted into MS 2010 Excel®, the quantitative data subjected to a numeric analysis and the qualitative data to a thematic analysis, completed by myself in my facilitator role.

Consent to take part in the questionnaire was established through completion of the questionnaire and a number of uncompleted questionnaires were collected without question

or consequence. To ensure confidentiality, no demographic details of the nurses were requested and on completion of the questionnaire, the nurses were asked to place their paper into a generic folder, thus concealing each person's identity. In order to safeguard patient safety, nurses who expressed that they were too busy, were excluded.

On completion of the analysis, a meeting was arranged with the OMs, Clinical Mentors and Deputy Managers. This was scheduled for 15 March 2013 but delayed to 18 March due to unavoidable commitments. The first half of the meeting was treated as a focus group (focus group 5) with those in attendance asked the question, 'What did you think about the unit handover presentation?' This was to ensure that the perspective of the management team regarding the efficiency and quality of the revised unit handover practice was gathered and because the questionnaire was not designed in a manner in which their opinions could be captured. Next, a MS 2010 Powerpoint® summary of the results of the questionnaire was presented so that they gained an understanding of the opinions of the general nursing team. This combination of the questionnaire and focus group demonstrates further process validity within the study. Discussion, collating their own opinions and those of the nursing team, concluded the meeting.

The meeting was audiotaped and later transcribed, intelligently verbatim, into MS 2010 Word®, by an external transcriber (2) who was bound by a confidentiality agreement (Appendix P). A content analysis was performed by subjecting the data to the question, 'What were the experiences and opinions of nursing management with regards to the unit handover presentation?'

In addition to the questionnaire, and the focus group, the handover presentations saved onto the computer were used to evaluate the frequency and time in which the handover presentation was updated.

4.2.4.3 Outcome of the evaluation of the electronic handover presentation

Of the 101 nurses in the PICU nursing team, 53 completed the questionnaire. This included a range of RNs, ENs and ENAs. Thirty-six of the respondents added qualitative comments to their questionnaires and from these four themes were identified (Table 4.14).

Table 4.14: Themes and sub-themes of the written comments made by the participants on the evaluation questionnaire

SUB-THEME	THEME
• Liked the new handover • Encouragement of others	**Supportive**
• Reduced opportunity to ask questions • 'Tea time is my time' • Not all people visit the tea room • No time for/interest in reading	**Negative opinions**
• Bigger screen • Regular updating of information • Additional information • Animation/video	**Suggestions for improvement**
• Questions about the process of the tea room-based handover presentation	**Clarification of the strategy**

Similar themes were identified from the focus group (Table 4.15).

Table 4.15: Themes and sub-themes of focus group discussion held on 19 March 2013.

SUB-THEME	THEME
• Reduced interaction with the nursing team • Reduced information received by the nursing team • Reduced capacity to adapt when unit busy • People not present in the tea room • Not always time available to update the presentation • Reduced opportunity for the team to ask questions/provide information • Screen too small • Interrupts tea time	**Concerns**
• Can be quick to complete • Messages are heard and actioned • Increased time for direct patient care • Reached night staff	**Positives of electronic handover presentation**
• Description of the unit during the 'test of change'	**Context of the PICU during the 'test of change'**

All the forms of analysis were combined and subjected to a second level of analysis, producing the overall themes in Table 4.16. These will now be discussed as an evaluation of whether the electronic handover presentation can optimise the quality and efficiency of the unit handover.

Table 4.16: Themes emerging from the second level of analysis of the data collected from the electronic handover presentation questionnaire, the focus group and the saved presentation file review

THEME
1. Context of PICU environment during the 'test of change'
2. Information delivery
3. Reduced interaction
4. Frequency of handover presentation occurrence
5. Impact on interruptions to morning care activities
6. Future implementation

Context of the PICU during the 'test of change'

The theme that will be discussed first is that of the context of the PICU during the 'test of change', since it provides additional information related to some of the other themes.

The data highlights how during the first and fourth week of the 'test of change', both the OMs were at work full time, but that in the second and third weeks one of them, as well as the PICU clerk, were on leave. This left the remaining OM with the tasks of both these people to complete in addition to her own. Also, in week one of the 'test of change', the PICU was described as "*stable*"; whereas in the later weeks it changed to "*extremely unstable*" with a sudden increase in patient numbers [focus group 5]. The possible implications of these challenges are visible in the data and while it may have been useful to see how this strategy operated under pressure, it was unfortunate that it happened in the first 'test of change'.

Additionally, the 'test of change' fell within one cycle of the off duty, meaning that the majority of nurses were either on day shift for the whole four weeks or on night shift. This explains further why two questionnaires worded slightly differently were created for the two shifts.

Information delivery

The data revealed that the focus group participants perceived that the nursing team did not possess the same level of knowledge as when the unit handover was delivered verbally – that

with the electronic handover presentation they lacked knowledge that they would have expected them to have.

With this in mind, it is interesting to note the questionnaire respondents' perception of their level of information uptake. Just over half of the day-shift participants (n=27) believed they had adequate information (all types of information combined) compared with over 80% of the night-shift nurses (n=26) (Table 4.17).

Table 4.17: Questionnaire respondents' perception of their information uptake (separated for day and night staff)

	Respondents working the day shift (n=27)	**Respondents working the night shift (n=26)**
With the electronic handover presentation, I was adequately informed about…	(Indicates those responding either strongly agree or agree) Number (%)	
…the current situation in the unit	16 (59%)	23 (88%)
…the new PICU/hospital updates	13 (48%)	21 (81%)
…events happening in the unit and hospital	13 (48%)	21 (81%)
Average for all types of information	*52%*	*83%*

These responses of the night staff were despite the fact that they also commented that it would be better if the unit situation information were updated before the night shift started. It is also worth remembering that in the pre-existing handover practice, nurses working the night shift almost never received any unit handover. These findings are further supported by night-shift nurses' responses to the statement, 'On night shifts, I have a better knowledge of what is happening in the unit/hospital than before we had the computer' (Figure 4.13) and the day-shift nurses' responses when questioned about their perception of the benefit of the handover presentation to the night staff (Figure 4.14).

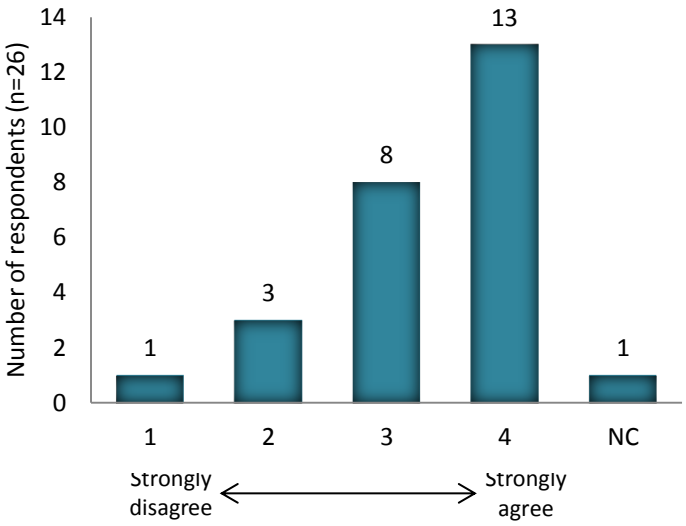


Figure 4.13: Night-shift respondents' responses to the statement, 'On night shifts, I have a better knowledge of what is happening in the unit/hospital than before we had the computer' (n= 26)

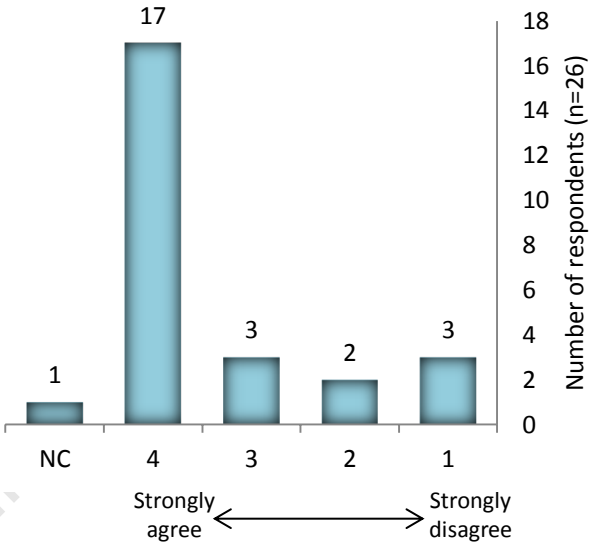


Figure 4.14: Day-shift respondents' response to the statement, 'Changing the unit handover to being on the computer in the tea room is of benefit to the sisters working nights' (n= 26)

The respondents' replies to the statement, 'I read the unit handover on the computer in the tea room on…' may also explain the information uptake of the nurses. Figures 4.15 and 4.16 display the frequency with which the respondents reported reading the handover; again the considerable difference between the day-shift nurses and the night-shift is evident. If, on the basis of the fact that in the pre-existing unit handover practice, nurses were only able to attend at maximum every other shift, responses in the questionnaire of either 'Every shift', 'Nearly every shift' and 'On approx. 50% of shifts' were considered positive, then 41% (11/27)

of the day-shift respondents responded positively compared with 65% (17/26) of the night-shift respondents.

If frequency of reading the presentation is equated with attendance at the pre-existing handover, then, in theory, with the unit handover presentation, a rate of 100% should be possible. The data, however, demonstrates that this was not achieved. While the day-shift nurses' attendance at the verbal unit handover fell from 78% on average to 41% who read the handover presentation, the night-shift nurses, from mostly having no verbal handover to attend, achieved a 65% reading rate.

Figure 4.15

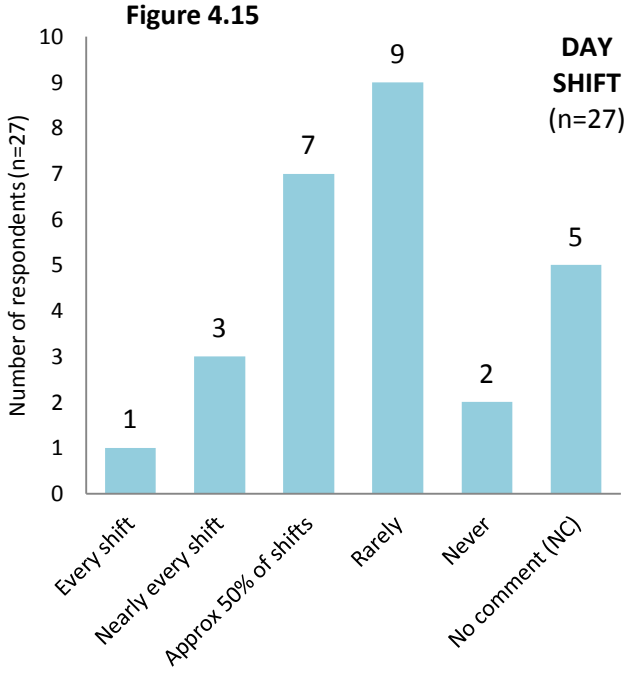
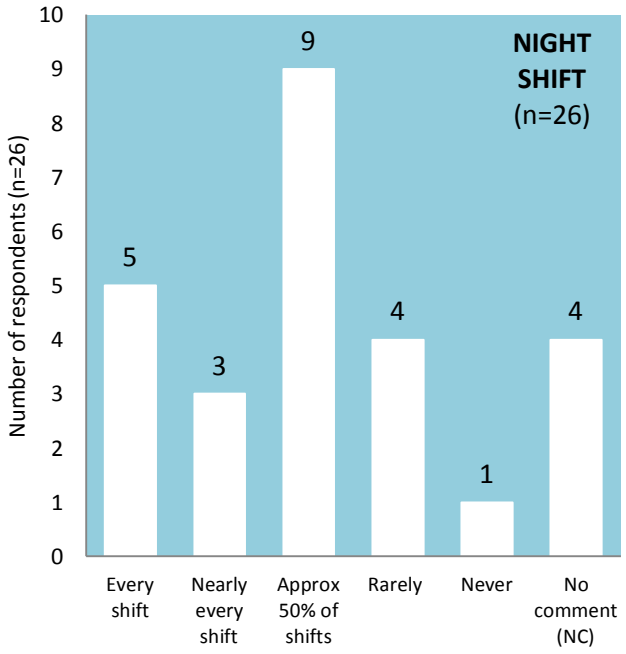


Figure 4.16



Figures 4.15 and 4.16: Questionnaire respondents' responses to the statement, 'I read the unit handover on the computer in the tea room on…' (day-shift, n=27; night-shift, n=26)

Reasons for not reading the handover presentation were found to be diverse. Firstly, the data demonstrated that some nurses do not visit the tea room during their tea break. This appears more common on a day shift than on a night shift, and is a possible reason for the difference between the responses from the two shifts:

> *"Some of them tea time, they go to their rooms so they miss out a lot. They're not in our tea room"* [Participant 11, focus group 5]

"The people staying in the nurses' home never come to the tea room."

"I used to go to my room during breaks … but will benefit now since I'm on night duty, because I stay in the tea room for my breaks"
[Both above qualitative comments in electronic handover evaluation questionnaire]

Another reason is the concept of tea time being personal time:

"Tea time is my time"

"Using tea time breaks is a socialising time, so we ignore the computer."

"Tea room is to unwind"

"The tea room is my timeout area from the unit"
[All above qualitative comments from electronic handover evaluation questionnaire]

"For me it is difficult to go to the tea room, it's like I'm invading their privacy, when I'm there then they cannot be themselves, so I stay away from their space."
[Participant 4, focus group 5]

This data was interesting in that it highlighted different expectations of tea break time and space. I believe, as an outsider to the setting, that as nurses we are responsible for keeping ourselves aware of information pertinent to our practice and that should there be an opportunity for this during a tea break at work, then it is an opportunity not to be missed. This sentiment appeared to be supported by two of the questionnaire respondents who stated, "*The staff member must take responsibility to read what's in the computer every day*", and "*We must encourage each other to participate actively*" [both qualitative comments from the electronic handover evaluation questionnaire].

The computer screen being too small was also given as a reason why reading the information was a challenge. Respondents stated that if it were bigger they would be able to read it easier:

"At least must be on big screen so that we can see clearly"

"I just wish if possible the screen must be big than the one we have now"

"The screen makes me lazy to read the information. Sometimes I don't read because of that. I think if it can be much more better if that can be improved."
[All above qualitative comments from electronic handover evaluation questionnaire]

"But sometimes the screen, they have to stand there in order to read, so it is actually far" [Participant 13, focus group 5]

A lack of time and a lack of interest were the final reasons given to explain the poor reading reports:

> *"I have got no time to read all that messages 'cause I am preparing my food, doing my business and I am eating."*
>
> *"We only have 30 minutes tea and no time to read."*
>
> *"Many people in the unit do not have interest to read"*
> [All above qualitative comments from electronic handover evaluation questionnaire]

Examples of clear information delivery were however identified in the data. The appreciation that the handover presentation could 'reach the night staff' was repeatedly spoken in the focus group. Also it was theorised that should pre-existing handover practice and the electronic handover presentation be combined, both the "readers" and the "interactors" could be satisfied [Participant 7, focus group 5]. Participant 7 simply spoke of an example when a message reached the staff:

> *"I must add that we had a problem, we… linen was left in bowls in the sluice room, and we put it on the screen, and it didn't happen again."*
> [Participant 7, focus group 5].

<u>*Reduced interaction*</u>

The removal of staff interaction was the most notable objection to the unit handover presentation:

> The handover presentation *"Lacked personal interaction"*
>
> *"Minimising communication between staff"*
> [Both above qualitative comments from electronic handover evaluation questionnaire].

One consequence of this is reported to be the reduced capacity to ask questions or clarify the details of something read in the handover presentation. 11 out of 36 respondents who made qualitative comments did so about this issue:

> *"Would like the OM to explain certain things on the computer please."*
>
> *"We still have to ask questions but we can't communicate with a computer."*
> [Both above qualitative comments from electronic handover evaluation questionnaire].

While the presentation advised the nurses to approach the OMs or save their questions for the Thursday nursing meeting, many of the respondents described how they faced challenges with both of these options:

"But on night duty there is no OM to give you any answers to questions. In the morning, we don't all drive cars, we rush for the buses or taxis to get home so it still leaves you with unanswered questions."

"If questions need to be answered have to wait for a meeting and sometimes meetings don't happen."

"Sometimes you need to clarify/discuss something on the screen and then the OMs are not there. And you then have to schedule a meeting with them which is time consuming."
[All from qualitative comments from electronic handover evaluation questionnaire]

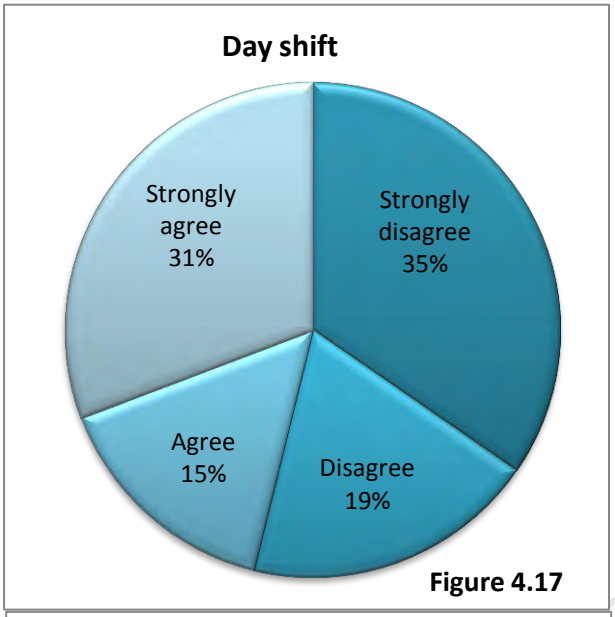


Figure 4.17

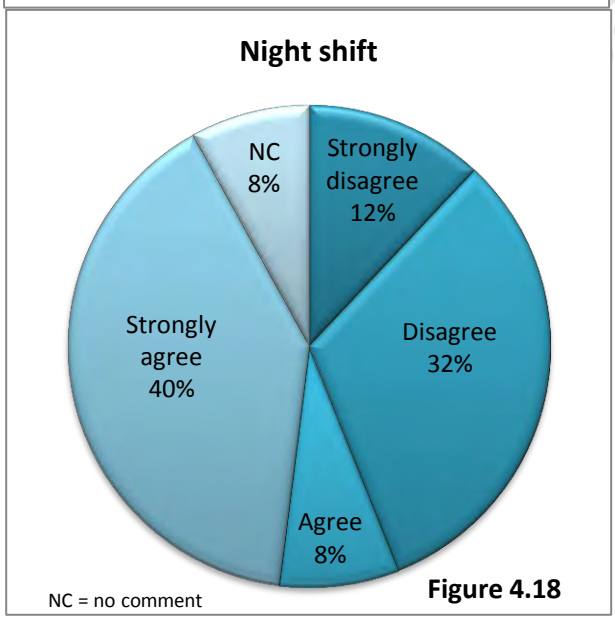


Figure 4.18

Figures 4.17 and 4.18: Questionnaire respondents' responses to the statement, 'I feel free to pose my questions to an OM or take them to the nursing meeting'

The numerical data from the evaluation questionnaire supported these opinions (Figures 4.17 and 4.18) with less than half of the respondents (day and night shift) reporting that they felt free to pose their questions to the OM or the Thursday nursing meeting. Four of the respondents simply advocated for a way of asking questions to be incorporated into the handover presentation – "*make space for comments from us the staff*" [Qualitative comment from electronic handover evaluation questionnaire]. Worth noting, is the information, gathered in the diagnosis phase, that this dialogue between staff and OMs contributed towards the extended duration of the unit handover.

The focus group participants spoke about the lack of interaction from different perspectives; they first described how pre-existing handover practice had enabled the senior nurses to immediately gather information from the staff and that having conducted the 'test of change' they were missing key information as a result:

> "The usefulness of the face to face contact, was, especially with the study leave, we would have known who applied, and now we don't … they would say 'I applied', and this one would say 'I applied', or I know that one applied, and all of us would have been informed but now we're not."
> *[Qualitative comment from electronic handover evaluation questionnaire]*

Secondly, they expressed how pre-existing handover practice enabled them to more swiftly and efficiently address problems that arose in the unit, something which the handover presentation inhibited.

Frequency of handover presentation occurrence

In consideration of the fact that ensuring regular occurrence was a feature of the unit handover identified as requiring optimisation, it is prudent to examine the outcome of the review of those files saved on the computer. Figure 4.19 demonstrates that during the four-week 'test of change', the electronic handover presentation was updated on 22 days out of a possible 28 (79%). This is a considerable increase on the average occurrence of the pre-existing unit handover which occurred on only 44% of days over a seven-month period. However, in keeping with the pre-existing handover, the six days in which the handover presentation was not updated were mostly weekend days.

February											March														
18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*		*	*		*	*		

*** indicates a day the handover presentation was updated**

[Shading indicates a weekend day]

Figure 4.19: Figure to indicate which on which days during the 'test of change' the electronic handover presentation was updated

While all of the saved presentations were titled 'AM', suggesting that the unit handover presentation was not updated for the night staff, the OM reported that she found the computer displaying the previous day's presentation on most mornings, implying that at least that had been made available to the night staff. In comparison with pre-existing handover practice, any information delivered to the night staff represents a near 100% increase.

So as to indicate whether the handover presentation was available at the start of first tea break, Figure 4.20 displays the time when each presentation had been saved onto the computer. The information is intentionally separated to indicate the weeks when both OMs were at work from those when one was absent, so to display the impact of that situation.

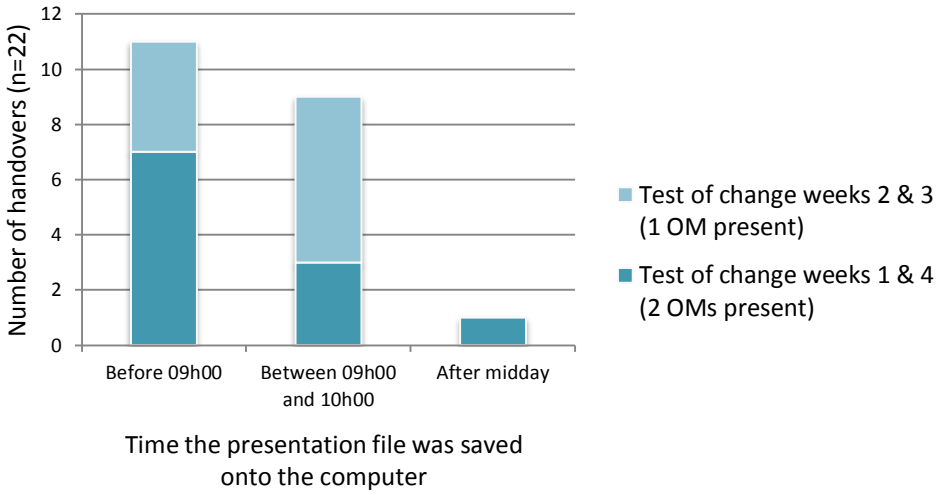


Figure 4.20: Graph to indicate when the presentation file was saved on the computer (n=22)

Data from the focus group also addressed this issue, finding that focus group participants believed that in weeks of extreme business (weeks 2 and 3 of the 'test of change') the handover presentation did not allow them to work around the needs of the unit as easily as the pre-existing handover practice allowed. They thought that the verbal unit handover could be easily moved in time so to ensure that it happened "*most* of the time" [Participant 7, focus group 5]. Not all the participants shared this feeling of adaptability. In my role of linking current discussions with analysis of previous phases and rationales for implementation, I re-voiced the findings of the diagnosis phase with regard to the infrequency of the pre-existing unit handover.

Impact on interruptions to morning care activities

The potential for the handover presentation to minimise interruptions to morning care activities was shown to be variable. Figures 4.21 and 4.22 display that while the majority either strongly agree or agree that by moving the unit handover to the tea room, they were more able to attend the multidisciplinary ward round and had more time for direct patient care, a number did disagree. The focus group data demonstrates how the participants tried to make sense of this, unable to theorise how less time or less ability to attend the ward round could be possible:

> *"I find it strange … people were more at the bedside than what they used to be."* [Participant 7, focus group 5]

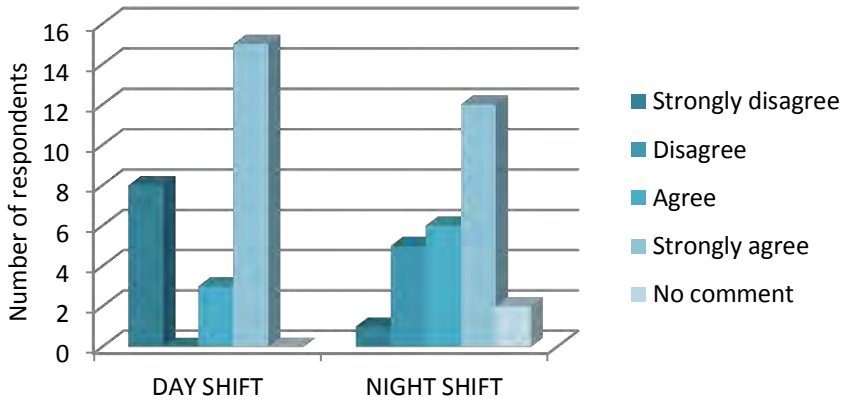


Figure 4.21: Day and night shift questionnaire respondents' responses to the statement, 'Changing the unit handover to being on the computer in the tea room has/could increase the time available for patient care' (dayshift, n=27; night shift, n=26)

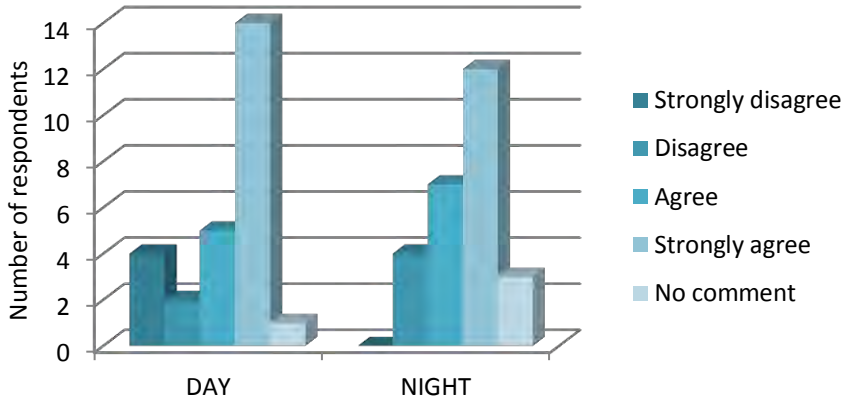


Figure 4.22: Day and night shift questionnaire respondents' responses to the statement, 'Changing the unit handover to being on the computer in the tea room has/could increase my capacity to attend the multidisciplinary ward round' (day-shift, n=27; night shift, n=26)

Future implementation

The final theme in the handover presentation evaluation was that of future implementation, and 63% (17/27) of day-shift nurses expressed that they would like the unit handover presentation to continue, with which 65% (17/26) working the night shift concurred (Figure 4.23).

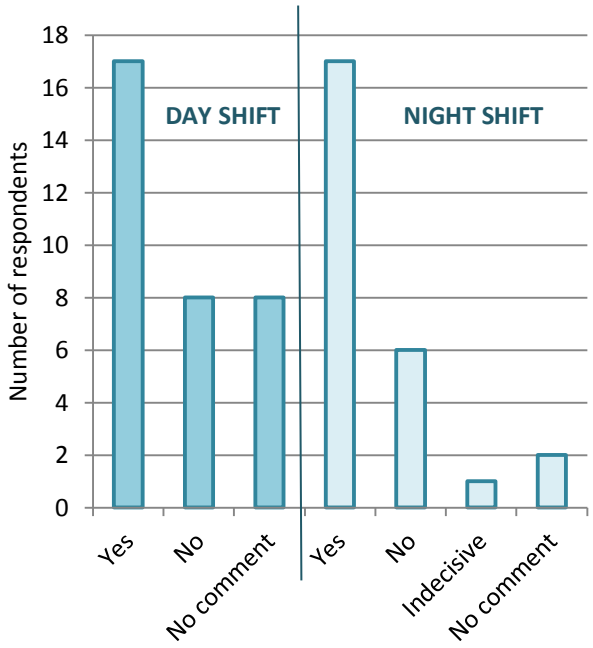


Figure 4.23: Questionnaire respondents' response to the question 'Would you like the handover on the computer in the tea room to continue?' (day shift, n=27;, night shift, n=26)

Obviously positive qualitative comments included:

> *"I like the concept"*
>
> *"Thank you!"*
>
> *"I feel that it is a good idea to handing over info"*
>
> *"It is well presented, there is nothing to be changed"*
>
> *"It's a really good idea to have the computer in the tea room, there's nothing to be changed but to continue with this system"*
>
> *"I am happy about it"*
>
> *"It's much more convenient on the computer in the tea room"*
> [All from qualitative comment from unit handover evaluation questionnaire]

In addition to the suggestion of a larger screen to improve the presentation, the respondents also advocated for animation, additional patient/unit information and in-service training for the shift leaders to ensure that they too can update it.

In summary, the first 'test of change' for the unit handover presentation was met with mixed reactions. While outlining some concerns and possible ways in which to improve, the majority opinion of the PICU nursing team was that it should be continued. This was particularly the case for the night staff, for whom the new handover presentation increased the amount of information delivered to them from nearly nothing to nearly the same as the day staff. Deep–rooted concerns were voiced in the focus group, however, regarding the decreased amount of

interaction and associated ability to deliver information to the staff. The capacity to reach the whole team was acknowledged as a considerable positive.

On closure of the focus group, the senior nurses, having heard both their own amalgamated feedback and the opinions of the PICU nursing team, decided to hold their own closed meeting to discuss what they would propose to be the best possible next step in the process. They agreed that they would let me know the outcome of the meeting.

4.2.5 Cycles five and six – writing a handover SOP

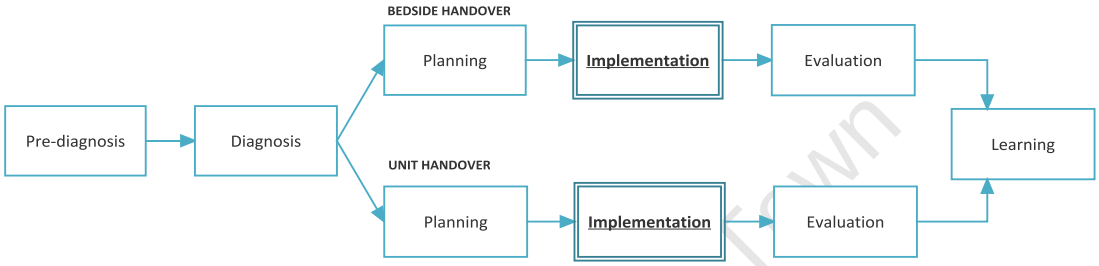


Figure 4.24: Phase location marker – implementation phase for SOP (bedside and unit handover)

4.2.5.1 Implementation

Writing the SOP was the first stage in its implementation. In the meeting held on 19 December 2013, it was decided that I, as facilitator, would write an initial draft which would then be circulated through the other core participants for comment and revision in smaller review cycles. At the point of submission of this research report, this is still in process. The first draft has not yet been circulated since the details of the SOP can only be finalised once the other optimisation strategies have been finalised.

4.2.6 Summary of implementation and evaluation phases

In summary, in the implementation phase a handover information form and electronic handover presentation were implemented using small 'tests of change'. A conversation was also had with the Manager of Nursing. Evaluation of the handover information form was conducted using a focus group and it was described how, while efficient at optimising the quality of the verbal bedside handover, the form's capacity to serve as an entry in the nursing process was questioned. Core participants however supported the form's wider implementation but cautioned that it might be a challenge. A questionnaire and focus group were used to evaluate the electronic handover presentation. Analysis of this strategy highlighted mixed opinions and the decision regarding continued implementation rests with

the PICU Nursing Management team. Events that have occurred within the implementation and evaluation phase, together with those from the diagnosis and planning phases, all contribute to the learning that has occurred throughout this study.

4.3 CONCLUSION TO CHAPTER 4

Chapter 4 described the remaining three phases of this action research study. Building on the information gathered during the diagnosis phase, this chapter has outlined how possible strategies for change have been identified, implemented and evaluated for both the bedside and the unit PICU nursing shift handovers. For the bedside handover, a handover information form was tested with encouraging evaluation and a conversation was held with the Manager of Nursing. For the unit handover, an electronic handover presentation was tested and evaluated to be beneficial alongside the existing unit handover practice. An SOP is in progress with the intention of addressing features of both the unit and the bedside handover. The outcomes of these evaluations will be carried through to further action research cycles and will be discussed in chapter 5 of this research report.

Chapter 5

DISCUSSION: Reflection and learning

Heale (2003) affirms that the fifth phase of action research is that of learning: how achievements of the study are reflected upon and how new theory that has emerged is identified. Having established that change and learning have occurred, the final part of this phase is the timely withdrawal of the facilitator from the study setting (Clark, 2000).

The aim of this study was to optimise the quality and efficiency of the nursing shift handover in the PICU, using a participative approach. Initially the existing handover practice was described by means of focus groups, observations, questionnaires and a document review. It became apparent that three handover episodes occur in the study setting, in two of which, bedside and unit handover, features were found to require optimisation. In keeping with the literature, these features could be grouped into two themes: those relating to process and those relating to content. In this setting the resultant strategies to optimise handover included a handover information form, a conversation with the Manager of Nursing, an electronic handover presentation, and a Standard Operating Procedure (SOP). Each was implemented and, where possible, subsequently evaluated.

While this study is being presented, the work is not complete; further action research cycles are intended. Meyer (1993) confirms that this is not uncommon in action research. Due to the dynamic and evolving nature of the process, there can always be additional cycles since further improvement may be possible. The situation poses a challenge for the researcher registered in an academic programme with a finite time requirement. Herr and Anderson (2005) suggest that subsequent to submitting the research report for academic purposes, the researcher continue the work until withdrawal from the setting becomes possible. Mindful, therefore, of Heale's (2003) fifth phase of action research, this report discusses the learning that has occurred so far. This forms the basis of chapter 5 and is structured around the following two questions:

- What has been learnt about the appropriateness of the action research approach to answering the research question? (section 5.1)

- What has been learnt about shifting practice and managing change in the PICU setting? (section 5.2)

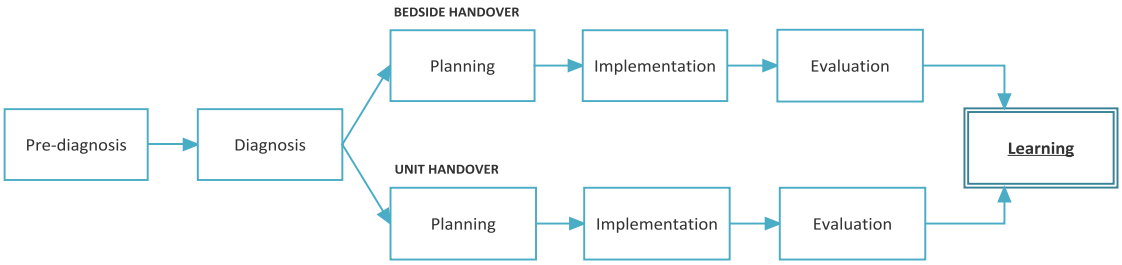


Figure 5.1: Phase location marker – learning phase

5.1 WHAT HAS BEEN LEARNT ABOUT THE APPROPRIATENESS OF THE ACTION RESEARCH APPROACH TO ANSWERING THE RESEARCH QUESTION?

"Change is an inevitable part of life yet it frequently causes problems" (Cork, 2005:42). Parkin (2009) asserts that change for both individuals and organisations is essential to preserve existence. This is particularly applicable to healthcare, where a commitment to improving health outcomes means changes to systems are inevitable, due to the wealth of new information about maintenance of health, illness and treatments that constantly emerges (Nembhard & Edmondson, 2006). Healthcare needs to be consistently aligned with most recent evidence so as to attain high-quality care and patient safety. Generating, implementing and sustaining change in healthcare has, however, been described as "an overwhelming venture" (Anderson & Mangino, 2006:114) and a "daunting task" (Kassean & Jagoo, 2005:5). Parkin (2009:95) simply states that it is "one of the hardest objectives to achieve".

The Institute for Healthcare Improvement (IHI) asserts that three components are necessary to effect change: the *will* to make the change, *ideas* of how the change could look, and the ability to make it happen (*execute)* (Nolan, 2007).

Firstly, the will to make a change is determined by a perceived need for change. Individuals or groups within a setting need to understand why the change is necessary and then be brought into a state of 'readiness for change' (Jabri, 2012). Essentially this means they need to develop a discomfort with the status quo (Nolan, 2007). This discomfort in turn creates the motivation or the will to make the change. The greater the will, the less the likelihood of resistance to the ultimate action (Nadler, 1993; Parkin, 2009). Pugh (1993) describes how establishing the will for change is effort-intensive, since what may seem an obvious need to some may not be

obvious to others. Motivation for change may come from a variety of sources – either external to the situation or as internal symptoms of a problem (Richard & Beckhard, 1987).

Secondly, change requires identification of new ideas for ways of working – "alternatives to the status quo" (Nolan, 2007:1). These ideas may come from within an organisation or from external sources, and a wide search should therefore be performed (Nolan, 2007). In action research particularly it is understood that those embedded in the practice setting are best positioned to identify ideas or solutions; the fact that they will be most appropriate to them in turn increases the likelihood that the change will be successful (Herr & Anderson, 2005).

The third component necessary to make a change is the ability to make it happen – to execute the plan. The IHI describes this as often being the "weak link" in the process (Nolan, 2007:3), a notion extensively corroborated in the literature on change management.

Action research is a recognised approach to bringing about change, and elements of the IHI 'will-ideas-execute' concept are evident within its fundamental characteristics. As action/execute was also the ultimate aim of this research, it appears prudent to evaluate the appropriateness of the approach in answering the research question.

5.1.1 Lesson one: Action research made practice visible enough to engage the will

It has been suggested that nursing practice is often invisible (Canam, 2008) and this in itself is a barrier change. If existing practice is (as aspects of the handover practice in this study proved to be) not explicit or so routine as to be ritualistic, problems with the practice are less easy to identify and thus discomfort is unlikely to be felt. It is therefore only by making the practice visible and gaining a comprehensive understanding of existing practice that the will to change can evolve.

In this setting the action research approach certainly served to make the practice visible. The need for an additional rapid appraisal to confirm handover practice, following the first four focus groups (cycle one), suggests that the pre-existing practice was not explicit. Analysis of the initial focus group data, however, allowed participants to recognise what aspects of their practice required confirmation and helped them identify ways in which supplementary data could be sought. Involvement in planning and collection of data in the rapid appraisal phase (cycle two) encouraged participants to own the data and recognise that they were describing their own practice. The sombre mood of the core participant group on considering the ultimate thick description of the existing handover practice clearly demonstrated their

discomfort with the status quo. Subsequent participation in analysis of the data (cycle three) further contributed to their will to change.

It was clear that the will to change emerged through the core participants' active participation in the initial data gathering and analysis process. In my opinion this would not have happened if an external researcher had simply arrived and told the PICU nursing team which aspects of their practice needed to be changed. They needed to uncover their own practice and identify the features that required optimisation themselves. In answering the research question 'Can handover be optimised?', the process of action research really helped the core participants to visualise their own practice and appreciate that optimisation was possible and necessary. Evidence of catalytic and demographic validity appeared throughout the discussion above.

5.1.2 Lesson two: Action research gave participants a voice and engendered new ideas

Contributing to the fact that action research makes current practice visible is the notion that the approach also helps participants to have a voice and give their opinions. This is particularly true in an environment where this may not be the norm. In this PICU setting hierarchies seemed to be based on roles and clinical experience, attributing different status to individuals, with those with perceived lower status seeming to be less able to make their voices heard.

Nembhard and Edmondson (2006) reason that an individual's perceived sense of psychological safety within a team is in part determined by their status. Edmondson described the concept of *psychological safety* as "a shared belief that the team is safe ... a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up" (1999:354), Nembhard and Edmondson (2006) explain that status can be derived from a multitude of characteristics. They describe how those with perceived higher status feel psychologically safer than those with a lower status. In this study setting, with status characteristically linked to role and clinical expertise, those higher up in the hierarchy would have a greater feeling of psychological safety. Having lower status and thus feeling less psychologically safe is recognised to lead to reduced verbal contribution, which results in organisations relying on the voices of individuals of higher status (Nembhard & Edmondson, 2006).

Nembhard and Edmondson (2006) also describe how a feeling of being psychologically unsafe leads to decreased engagement with quality improvement activities. This is particularly pertinent in this study, since the bedside RNs most engaged in the practice that requires optimisation are those who are both likely to have lower status and be aware of potential optimisation strategies. Their lower status and feeling of being psychologically unsafe could,

however, limit their desire to voice their opinions and ideas. The intrinsic stance of collaboration in action research supports this theory, and in this study active participation of the entire PICU nursing team seemed to create an atmosphere of psychological safety that enabled participants to speak and share their views.

Evidence of this increasing psychological safety was evident across the phases of the study. In the focus groups held in cycle one, 12 out of 13 of the core participants made an effort to attend and all contributed valuable information on existing handover practice. As early as focus group 3 the participants (unprompted) began to offer ideas on how the practice could be made more explicit. An example of this was when, having spoken about the attendance of the EN/ENAs at handover, participant 5 explained:

> *"I'm going to make you a tick sheet. I'm going to look at this one month, and I'm going to chart when they're there or not and then I'm going to bring it to you."* [Participant 5, focus group 3]

This quote indicates that the participant perceived the data as belonging and being useful to me, but this soon changed as the participants heard the full description of handover practice. Following this they started to refer to the practice as 'ours', and consequently developed the will to change – a demonstration of catalytic validity.

Insider participants also contributed actively to planning of the rapid review and gave advice about what would work in the clinical setting and what presented a challenge. When deciding who should collect which data in the unit, participants requested that I, as facilitator, collect some of the data to assess bedside handover content:

> *"You have to collect that – you have to stand on handovers because then you're more objective."* [Participant 2, meeting on 13 July 2012]

Ongoing participation in the study appeared to further develop a sense of psychological safety, and participants displayed increasing ability to express themselves freely. This was evident following implementation of the change strategies, when both core participants and the wider nursing team freely offered feedback. In focus group 5 this resulted in an extensive list of how the handover information form could be revised. In addition, their numerous suggestions for introducing the form to the wider nursing team were helpful and well thought out.

Similarly, in the questionnaire evaluation of the handover presentation the many additional comments written in response to the open-ended question 'How do you think that the unit handover on the computer in the tea room could be improved?' indicated that people felt psychologically safe. Although the planned and obvious anonymity of the questionnaire could

have played a role, the number and scope of comments was unexpected, and interpreted as individuals valuing the chance to offer their opinions.

On reflection however, engagement with ENs and ENAs, those with the lowest perceived status in this setting, could have been more intentional. As it was, the only route of participation for these nurses was through the three different questionnaires. They were not actively recruited to be part of the core participant group, as they were not responsible for the bedside handover. On reflection, however, considering the possible impact of the EN/ENAs not being in attendance at the handover, it is acknowledged that their input could have been valuable.

Similarly, inclusion of OMs and Clinical Mentors – probably those with the highest perceived status – could also be questioned. Nadler (1993), however, supports their inclusion on the grounds that it is crucial that leadership also develops the will to change. Without this they are less likely to be able to provide support to any implementation strategies. This was certainly the situation in this study; it was only through participation of the OMs and Clinical Mentors that they, along with the nursing team, developed an understanding of the need and the will to change. Realisation that there are effectively three handovers, one found to be primarily organised by them, consolidated the need for their active participation in the study. The possibility that their higher hierarchical status might have negatively impacted those with lower status was considered, but on reflection I realised that *status* in the PICU is determined by characteristics other than just role and hierarchy.

Clinical credibility – up-to-date, appropriate clinical knowledge and competence – seemed to be one characteristic which afforded higher status. Another two characteristics which could influence status in this study were my roles as facilitator and university lecturer. Despite working hard to establish an environment of 'co-learning' I speculate, as cautioned by Meyer (1993), that these characteristics meant that the insider-participants attributed a higher status to me than to other participants. I fervently tried to avoid this, but it was to some extent out of my control. It may also explain why the Deputy Nursing Manager (the person with highest hierarchical status) brought a fellow Deputy Nursing Manager with her to the meeting in December 2012. While portrayed as an act of collegial support, this certainly strengthened her hierarchical position and is likely to have increased perceived psychological safety. If this is true, then the OMs and Clinical Mentors may not have carried the highest status, thus levelling out the effects on psychological safety.

Although these various characteristics could have contributed to status and psychological safety, the intentional participative nature of the action research approach did successfully serve to create a place where the contributions of all were invited and welcomed. Impact of this on the study was a high level of contribution and engagement throughout, which enabled participants to develop the will to change and contribute ideas on how to optimise the practice. This strong participative stance together with capacity to develop the will and theorise ideas also demonstrates democratic and catalytic validity.

5.1.3 Lesson three: Action research allowed the facilitator role to steer the study towards action

Nolan (2007) notes that in industries other than health care, a person is often employed full-time to improve quality and safety and to drive change processes. In healthcare settings there is often the expectation that practitioners are all committed to improving care outcomes and will simply find some time within their normal working day. This is commonly a challenge, since the normal workload in a clinical setting is time-consuming enough (Herr & Anderson, 2005), meaning that "deliberate and effortful allocation of time" to a change process is simply not possible (Nembhard & Edmondson, 2006:948). Meyer (2010) also reminds us that there may be limited knowledge on research theory among clinical nurses providing direct patient care.

For these two reasons the role of the facilitator in action research is very beneficial; they are situated to ensure that the research is conducted in an organised and rigorous manner (Meyer, 2010) and ultimately results in action. In this study the role of the facilitator was performed by myself (the researcher) and, evident from the list of facilitator activities in Table 5.1, it was crucial to progression of the study. It also served to free the core participants to maintain an effective clinical service while contributing to the study (Table 5.2).This successful facilitator role in combination with my role as an outsider-participant is an indication that a collaboration based on 'co-learning' was achieved (Cornwall, 1996), and demonstrates democratic validity.

Table 5.1 Activities performed by researcher in the facilitator role

- *Raising the initial concern about handover practice*; an aspect common to the role of the outsider in action research deemed to be 'outsider in collaboration with insiders' (Herr & Anderson, 2005). It awakened interest to look at the existing practice, making it explicit enough to identify areas that needed optimising.
- *Reviewing the published literature about handover and identifying the current International interest in standardising handover practice*. My student and staff status at the university meant that I had easy access to literature search tools and library facilities. This enabled me to bring both an international understanding of handover practice to the setting and provided me with the theory to contribute and refine ideas of possible optimisation strategies.
- *Leading the process to maintain momentum*. This involved arranging and planning meetings at suitable times for the study's progress and the core participant's availability and ensuring that the process maintained momentum by checking in with the participants and producing, disseminating and collecting research paperwork.
- *Creating first drafts of the data collection tools*. This was facilitated by my ease of access to both the data and the current literature.
- *Taking responsibility for the quality of the research*, starting from the gaining of ethics approval through to carefully documenting the rigour trail that is evident within chapters 3 and 4 of this report. This is often too great a challenge for those also trying to run a busy clinical service.
- *Completing the bulk of the analysis and summarising of phase outcomes for feedback*. Being the only constant person in every meeting, meant that it made sense that this role fell to me.
- *Securing and managing funding* to cover study's costs.

Table 5.2: Role of the core participants

- Liaised with the PICU team to ensure that they were constantly informed
- Liaised with the Deputy Manager
- Provided information in the form of focus groups
- Collected data in the form of observations
- Assisted with data analysis
- Took part in cycles of review for both data collection tools and paperwork for optimisation strategies
- Tested optimisation strategies
- Took part in member checking activities

It is worth noting that Herr and Anderson (2005) project that an outsider participant may become an insider during the course of a study, and that development of a true partnership is

indicated by the outsider being able to see the insider's perspective. In this study evidence of the development of a solid partnership with the PICU nursing team is clear. I know far more of the nursing staff as a result of the study, feel far more welcome within the PICU, and also feel that my credibility as a PICU nurse has also increased. One of the OMs specifically described to me her enjoyment of us working together and expressed a desire to do so again on future projects. This could be indicative of a perception of me in more of an insider role.

Being able to see the insider's perspective, however, has not yet fully occurred. I simply do not comprehensively understand why some events in the PICU happen in the way that they do or why some beliefs exist. This is not to say that the research has not been beneficial; I perceive myself to be a far more welcomed, respected outsider than before and that the 'co-learning' that has been established is the foundation for more participative projects in future.

However, I do believe that until the work of the study is complete my new-found credibility is at risk; this serves as a personal driver to ensure that after completion of this report the work continues and optimisation of the practice occurs.

In summary, this study highlighted the benefits of having a facilitator in the action research approach. The role ensured that the study progressed, which in turn will lead to ultimate execution of a successful handover optimisation strategy.

5.1.4 Lesson four: Allowance of time contributes to the process validity in action research studies

Participatory research is claimed to be very time-consuming (Northway, 2010; Hampshire, 2000; Parkin, 2009), and certainly this study supports this claim. The research process in this study, from ethics approval up to the point of writing this report, has spanned 19 months (Figure 5.2). In a busy PICU setting this is a considerable investment of time for all participants involved. While this could be seen as too long, in action research it probably contributed to the positive aspects of the approach.

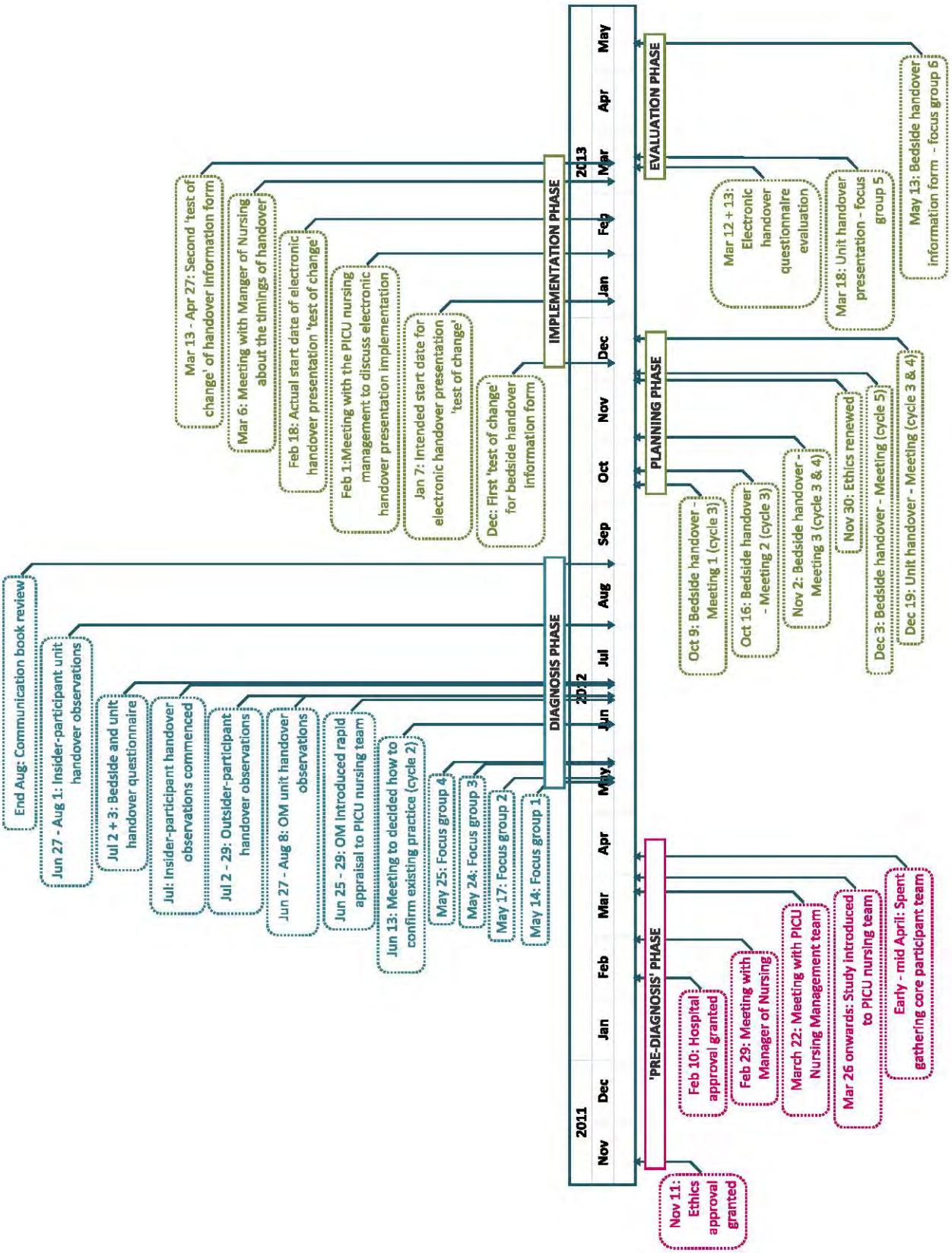
Three clearly demarcated time periods exist within this study (indicated by colour in Figure 5.2):

1. The 'pre-diagnosis' phase (Maroon) took 5 months (November 2011 – April 2012)
2. The diagnosis phase, inclusive of analysis (Blue), took 4 months (May – September 2012)
3. The planning, implementing and evaluating phases (Green) took 8 months (October 2012 – May 2013)

5.1.4.1 The 'pre-diagnosis' time period of the study

The first time period was spent gaining formal permissions for the study to be conducted, establishing collaboration with the PICU nursing team, and formulating a core participant group, all regarded as part of an action research study rather than events that must happen prior to the start, as in the case of more traditional research. In this study this time period was extended, as it spanned December and January (summer months in South Africa when people traditionally take annual leave, and when the PICU experiences increased patient admissions, leaving much less time for additional activities).

Figure 5.2: Timeline of the research process



Northway (2010) confirms that collaborations need to be given time to develop, as lack of a solid collaborative foundation can influence success and credibility of an action research study (Herr & Anderson, 2005). So while the time spent may have felt unproductive, from this perspective it was deemed very worthwhile. Despite the negotiation of access taking a protracted amount of time, the medical director was not formally conversed with. This is because my position as a nurse dictated that I follow the predominantly nursing leadership set sequence for obtaining formal permissions, and because both my supervisor and I had relied on our established relationships and informal consultation. Omission of this access point in an integrated intensivist-led PICU could have had negative consequences when the Medical Director of the PICU only formally discovered that the study had been launched when he saw a copy of the introductory summary page prepared for the nursing team.

As a result, the OM invited me to the PICU research meeting 15 minutes before the meeting where, with no prior preparation, I was expected to formally introduce my study to the medical research team. Support for the research was offered, but the whole event taught me a number of early lessons. Firstly, it was a mistake not to have organised a more formal meeting with the Medical Director prior to launching the study. Secondly, it highlighted the need for ongoing communication with the Medical Director, which on reflection could have been the role of the OM, but current communication norms did not facilitate this and so I maintained the communication throughout the study. Thirdly, on reflection, being placed in a position of having to, with no prior notice, independently defend what I already thought of as 'our' study, triggered a candid conversation with one of the OMs. I reinforced the notion of collaboration and she was extremely apologetic for having unknowingly invited me into such a situation. On the positive side, this gave me the platform to clarify that this was not *my* study but *ours*. It also demonstrates how, at the beginning of the study, achieving democratic and dialogic validity required constant effort and attention.

5.1.4.2 The diagnosis time period of the study

While the diagnosis phase was shortest, it was most input-intensive for all participants. Time invested here was invaluable and contributed significantly to development of a comprehensive understanding of existing practice and identification of the need and will for change. It allowed thorough 'fact-finding' and certainly resulted in discovering a much broader context than anticipated. Key and unanticipated findings, such as existence of three separate handover episodes and unclear expectations around what time these occurred and who actually attended, broadened and enriched the study. The research question had to be reframed and

action research cycles needed to be planned accordingly. While demonstrating outcome validity within the study, this reframing required more work and added the challenge of containing the study while not limiting the improvement or change we hoped to achieve. Northway (1988) suggests three ways to contain a study: extending resources available, limiting degree of participation and limiting the scope of the study; two were used within this study. By not extending the core participant group to include EN/ENAs, despite recognising their potential value, and by not including the shift leader handover in the rapid appraisal, containment of this study was achieved.

Triangulation of data was also a considerable factor in duration of the diagnosis phase, but is recognised as extremely valuable. Participation of the insider-participants in the data collection of the rapid appraisal conferred on them ownership of the data, which further assisted with development of the will to change.

5.1.4.3 The planning, implementation and evaluation time-period of the study

The third time period was the longest phase of the study and, at the point of writing this report, the work remains incomplete. This is partially explained by the fact that it encompasses three concurrent phases of the action research process (planning, implementation and evaluation). The implementation phase is anticipated to be lengthy because many action research cycles are often needed to identify the optimal solution to the problem (Clark, 2000). As an example, at this point two tests of change for the handover information form have occurred, but more are required. Similarly, the SOP can only be completed once other strategies have been finalised.

In summary, the time that the action research approach has required was not without benefit. Had the phase of 'pre-diagnosis' not been completed in the way it was, more challenges regarding collaboration between the facilitator and PICU nursing team might have arisen. Likewise the time spent ensuring triangulation of data and gathering a comprehensive understanding of the existing handover process substantially influenced views of the core participants and encouraged a will to change.

5.1.5 Lesson five: Action research identifies those able to lead a change

In addition to the will to change and ideas about how change should look, Beckhard and Harris (1987) assert that there is a need to gain commitment of a 'critical mass' of individuals for the change to be executed. They describe how the number of individuals required depends on the

change, but affirm that it is the active commitment of these individuals that provides the vital energy for change to occur.

Similarly, Jabri (2012) claims that execution of change does not happen spontaneously, rather that it requires the deliberate effort of an individual who acts as a change agent. Defined as "a person who initiates, stimulates, or facilitates a change programme" (Jabri, 2012:52), she reinforces that they are positioned to 'help' others through the process, and to 'help' them cope while also maintaining stability. A change agent may be one or more people, internal or external to the situation requiring change, and need not necessarily be aware that they are acting in the position.

Identification of the appropriate change agent and development of a critical mass are, however, complex tasks (Jabri, 2012; Beckhard & Harris, 1987). In this study the action research approach aided the process of establishing a core participant group, which was the first stage in identifying those who were interested in making a change and optimising handover. The phases of diagnosis through to implementation then identified those who demonstrated ongoing commitment. For example, some core participants would approach me in the PICU when I was visiting for non-research purposes, to enquire about progress of the study and offer continued participation. On the principle of '[W]ork with those who want to work with you' (IHI, 2011e), these core participants were identified as candidates for the second 'test of change' of the bedside handover study.

At the current point in the study I am confident that out of the original 13 nurses in the core participant group, there are 8 that will continue to participate actively to optimise the practice of PICU nursing shift handover. Another RN, having indicated a particular interest at a forum meeting in which I was presenting some work on handover, I believe is someone to engage in future implementation cycles. I am also under the impression that the OMs have recognised which of the RNs have shown enthusiasm and commitment to the optimisation process, and could encourage them to participate in future similar improvement work.

5.1.6 A note about generalisability.

As a final point of discussion on the appropriateness and quality of the action research approach, it is important to consider generalisability or transferability of the conclusions drawn. A number of people have stated that due to the fact that the action research approach by definition focuses on a particular problem in a specific setting, the need to be able to generalise conclusions to a wider setting is incidental (Hansen & Brady, 2011; Heale, 2003;

Kelly & Simpson, 2001; Stringer, 2007). A degree of generalisability may, however, be possible if the conclusions and study setting resonate with other individuals or settings (Heale, 2003; Parkin, 2009). Such an assessment is made easier by the rich contextual detail normally supplied in an action research report (Meyer, 2010).

In this study, while the features requiring optimisation and eventual change strategies implemented, were specific to the setting, a number of aspects could be of potential value to others conducting similar research. Firstly, I would surmise that due to the ritualistic nature of handover and the complexity of the PICU clinical setting, the practice of handover in this study is not too dissimilar from that in other PICUs. Reading this report could therefore trigger recognition, and even discomfort, in a reader concerning practice in another setting. Secondly, due to the rigour trail and detailed descriptions that are evident throughout this report, the process that was followed could encourage and guide others in use of participatory implementation research. Certainly reading articles detailing action research handover studies provided me with welcome ideas and guidelines for this research.

5.2 WHAT HAS BEEN LEARNT ABOUT SHIFTING PRACTICE AND MANAGING CHANGE IN THE PICU SETTING?

Serving as a demonstration of the change that has already occurred in this setting and thus the ongoing outcome validity, Table 5.3 details progress of the implementation process of each of the four optimisation strategies of the nursing shift handover.

Table 5.3: Summary of progress of the process of implementing each of the four optimisation strategies

Strategy	Progress of implementation process
Bedside handover information form	Expected content of handover agreed → form designed → implemented form in two 'tests of change' → evaluated by a focus group. *Outcome* – form was effective at optimising the content of the bedside handover and also raised awareness of the actual care work required and done by nurses. Not yet sufficient to replace the end-of-shift entry in to the nursing process.
Conversation with the Manager of Nursing	Meeting with Manager of Nursing arranged → presentation of data pertaining to study purpose and existing function and timing of bedside handover developed → met with Manager of Nursing and presented data and requested her assistance in ensuring a protected handover window period. *Outcome* – Manager expressed that she understood the need for a guaranteed handover window and agreed that better compliance to the 06h45 (18h45) start was necessary. Suggested that Deputy Manager and PICU OMs achieve this through education of the PICU nursing team.
Development of a Standard Operating Procedure	Outline of initial draft completed. *Outcome* – further progression of the SOP will be made once the other optimisation strategies have been finalised.
Electronic handover presentation	Content of unit handover identified and categorised → electronic template produced → computer sourced and moved into the staff tea room → implemented electronic presentation in a 'test of change' → evaluated via a questionnaire and a focus group. *Outcome* – the electronic presentation increased the frequency at which the handover was delivered, reduced the interruption of the morning care activities. Delivery of information perceived to be inconsistent, and concerns raised about the reduced amount of interaction between the nursing team. Renegotiation of strategy ongoing.

While acknowledging that progress towards optimisation has been made, full implementation of the optimisation strategies has not yet been achieved. This is in part because improvement or optimisation of practice inevitably requires change, and this remains a challenge in many healthcare settings (Nolan, 2007). Resistance to change on the part of individuals or organisations is one reason to explain this challenge. Instead of viewing it as a negative, Parkin (2009) proposes that resistance should rather be viewed as a neutral position, describing an individual or organisation's way of delaying so to ensure that the change is indeed necessary and most appropriate in the setting.

Table 5.4: Beckhard and Harris' resistance to change equation (1987)

C= [ABD]>X
C= Change
A = Level of dissatisfaction with current situation
B = Desirability of the proposed change
D = Practicality of the change [minimal risk and disruption]
X = 'Cost' of changing

If viewed in this manner, the simple change equation proposed by Beckhard and Harris as early as 1987 (Table 5.4) provides an alternative way of understanding the process of change. The equation suggests that in order for a change to occur and not be resisted, the level of dissatisfaction with the current situation [A] together with the desirability [B] and practicality of the proposed change [D] must be greater than the perceived 'cost' of the change [C]. Until the components of ABD are greater than [C], an individual or organisation may still perceive the change as unnecessary or inappropriate for the setting.

The components of this equation resonated well with my experiences and the lessons learnt when conducting this study, so I incorporate them in the discussion of the lessons learnt and progress made so far.

5.2.1 Lesson one: Ritualistic practice poses a challenge to effecting change

Handover has been widely described as a ritualistic practice within nursing (Caruso, 2007; Ekman & Segesten, 1995; Griffin, 2010; Kerr et al., 2011; O'Connell & Penney, 2001; Strange, 1996). A ritual is defined as "a series of actions or type of behaviour regularly and invariably followed by someone" (Oxford Dictionaries, 2013) and the literature reasons that rituals may exist as a means of regulating nursing practice in an environment that is constantly experiencing change (Anderson & Mangino, 2006).

Successfully changing a ritual is noted to be particularly difficult. McMurray et al. (2010:2581) report how added difficulties are faced when change "involves transforming entrenched habits grounded in professional expectations". Individuals are unable to consider that tasks could be performed differently (Kerr et al., 2011) and maintaining these rituals is preferred irrespective of a recognition of their frustrating or ineffective nature (Anderson & Mangino, 2006). Parkin (2009) likens handover to a nursing culture, cautioning that prior to being able to change any culture there is a need to comprehensively understand it. Cameron and Green (2012) describe how culture change initiatives with large numbers of people involved fall within the realm of 'complex change', and maintain that in complex change one can expect "a need for people to struggle and argue and work their way through to an unpredictable outcome" (Cameron & Green, 2012:394)

In terms of the change equation, these insights highlight the considerable challenge faced by nurses working in the study setting to develop a level of dissatisfaction great enough to counter the perceived cost of change. This reinforces the benefit of using an action research approach, but also serves to explain why further work is still required.

5.2.2 Lesson two: Healthcare is a complex system – changing one aspect invariably impacts on another

Organisations have been described as consisting of a number of different sub-systems, each with its own characteristics and functions, all working together to ensure that an overall parent system can operate (Beckhard & Harris, 1987). Failure or inefficiencies in one sub-system is likely to impact on another, and likewise changes made within one sub-system are likely to have an effect on a wider scale (Beckhard & Harris, 1987; Van Tonder, 2004). Changing one aspect of a sub-system may result in it no longer being congruent with another (Nadler, 1993). This means that the desirability and practicality of a change may therefore in part be measured by the impact on any number of different sub-systems, further increasing the difficulty of ensuring that change is not resisted.

Healthcare is an example of such an organisation – it is the parent system made up of an almost infinite number of sub-systems that must work together to ensure the delivery of quality patient care. Handover can be regarded as one of the sub-systems and it is evident from chapters 1 and 2 how inefficiencies in this sub-system do lead to inefficiencies in other sub-systems and thus increase the risk to patients.

This perspective of change assists in the understanding of the outcomes and challenges in this study in two ways: firstly, that handover is closely related to the sub-system of documentation,

and secondly, that the PICU handover sub-system can easily impact on other sub-systems external to the PICU and the hospital.

5.2.2.1 Implementation of a new bedside handover information form is linked to nursing documentation

When the decision was made to implement a handover information form as the strategy to optimise content of the bedside handover, it was wisely cautioned by core participants that it would only work if not perceived by the nursing team as adding paperwork.

So we decided to design and introduce the form to intentionally address two nursing 'sub-systems': handover and nursing documentation. Primarily, it would provide a structure for the nursing team to gather information about the patient near the end of the shift in a written format, which could then be used as an *aide memoire* in the verbal handover process. Secondly, it would serve to replace the end-of-shift entry in the nursing process.

Evaluation of implementation of the form, however, highlighted that while the form was efficient in its primary purpose, its design did not facilitate a quality end-of-shift nursing process entry. The form did not enable the nursing team to capture adequate narrative detail of the patient care provided. This is not surprising since, not being the focus of the study, an in-depth understanding of the PICU's nursing documentation was not gathered in the diagnosis phase. As a result the core participants reported that despite generally liking and appreciating the form, its wider implementation as a means of optimising handover content would be problematic as it would have to meet the dual purpose to be accepted.

This shows how making a change in one 'sub-system' can not only affect efficiency in another, but how efficiency in a secondary related 'sub-system' can be determine a strategy's success or failure in the primary 'sub-system'. With regard to the change equation, a balance is required for both sub-systems; this demonstrated how the practicality of the change in the bedside handover was not sufficient to counter the effect of decreased practicality of the form for the nursing process entry.

Refining the handover information form

Further action research cycles of the handover form are therefore required, with focus either on increasing efficiency of the form as an entry into the nursing process or increasing desirability of the form sufficiently to counter-balance additional time taken to complete it. Initial suggestions from core participants concentrated on increasing desirability by educating the nursing team on potential benefits of using the form for the verbal handover. A secondary

suggestion was made, which in consideration of the literature and data analysis from this study, I believe could have a considerable impact on the handover and nursing documentation.

Participant 3 suggested that an additional form should be designed with the intention of recording findings of the start-of-shift patient assessment. Currently RNs are required to fully assess their two critically ill patients, documenting findings in full between 07h00 and 09h00 (19h00 and 21h00). Given added pressures on their time during this period (attendance at the multidisciplinary ward round and unit handover), participant 3 described this documentation as hard to achieve. She reasoned that if a morning patient assessment form similar in appearance to the handover information form was created, simplifying the process of documenting findings and thus saving time, nurses may develop familiarity with and enthusiasm for the end-of-shift handover form itself.

Further development of this suggestion would allow a document that not only provides a place to record the patient assessment but also serves as a guide to the assessment and provides an opportunity to gather additional information. Early morning (evening) awareness of such depth of information could then direct the nursing work for the day. Development of such a form (Table 5.5) would free up space on the handover information form for narrative of the patient's care, and thus address the primary reason why the handover information form was not efficient as an end-of-shift nursing process entry.

Table 5.5: Proposed content of patient assessment and handover information forms

TWO NEW DOCUMENTATION FORMS utilising similar core principles	
1. Patient assessment form (Completed at start of shift)	**2. Handover information form** (Completed at end of shift, prior to handover)
This form would include a place to document: • Basic systematic findings from the morning patient assessment • The history of the patient* (birth, past medical/surgical/story of events leading to admission and key events during admission) • The goals of the day*	This form would: • Include all the information currently included on the handover information form (with the recommended revision made) • MINUS goals and the history • ADDITION of a section with lines for writing

* As currently featured on the handover information form

In consideration of the change equation, this proposed two-form strategy has potential to increase the desirability and practicality of the change. The structured documentation should make documentation at both the start and end of a nursing shift easier and quicker to

complete, and ensure that the handover information form is not solely viewed as extra work. As a secondary benefit, the structure also highlights specifics and aligns them with the necessary work of a nurse – the assessment, planning and implementation of patient care. This emerged from the core participants' evaluation that the handover information form enabled them to realise the extent of their nursing practice. The similar patient assessment form is likely to have the same effect.

Development of this idea occurred after focus group 6, and so will be taken back to the group as their greater knowledge regarding existing nursing documentation in this setting will enable them to give valuable insights and potentially implement and evaluate its value and acceptability.

In summary, the handover information form was primarily designed to optimise content of the bedside handover. 'Tests of change' of the form, however, highlighted that, as predicted, its successful implementation is dependent on its fit within the 'sub-system' of nursing documentation. Suggestions for revision of the form are therefore focused on improving it as an element of nursing documentation, as well as on its capacity to optimise quality and efficiency of the nursing shift handover.

5.2.2.2 Handover start time linked to other timings internal and external to the hospital

Another example of how a change made to one 'sub-system' can impact on another can be found in the findings and proposed actions related to optimisation of handover start-time. In this situation, however, combined participant knowledge of the setting's current complexity and its potential impact prevented any change from being suggested.

The meeting held with the Manager of Nursing on 6 March 2013 was arranged with the intention of presenting the existing practice as understood as a result of the study, and to request her assistance in ensuring a protected handover window period. It was however explained that formally amending the official start time of the PICU nurses was not an option at this stage for a number of reasons.

Firstly, it became clear how coming earlier or leaving later to ensure an official overlap between shifts would require amendments to the nurses' work hours and therefore to their employment contracts, immediately indicating how the handover 'sub-system' would impact on the human resources 'sub-system'. Since contracts had recently been amended to accommodate the reduced lunch period of 30 minutes, it would not be practical to amend those of the PICU staff again. Secondly, the Manager of Nursing described how many of the

nurses across the hospital share pre-booked taxis to get to and from work. If the handover start time in the PICU was different from that in the other wards, transport difficulties would arise. This is an important issue considering how many nurses do not have their own transport, and highlights how the handover 'sub-system' would act on the 'sub-system' of personal transport. She also felt that instigating different start times to that of the wards would not be conducive to a smooth-running hospital system, demonstrating the need to keep individual ward 'sub-systems' aligned with each other. It is interesting to note that during the recent revision of duty hours and lunch time, a universal decision was made for all wards.

An explanation was also given as to why a reduction of the lunch period had been chosen over altering shift start time. In changing the start of the shift by 30 minutes, nurses would have been required to be at work at 06h30 (18h30), different from other hospitals in the local area. This posed an added conflict to the transport 'sub-system' since the local public bus service timetables are aligned with all local hospital nursing shift times. Changing the shift start time only at the RCWMCH would have meant that the hospital system would have lost congruence with another system external to the hospital and healthcare field.

It was therefore evident that *officially* changing start time of the PICU handover to 06h30 or 06h45 (18h30/18h45) was not likely to happen without considerable disruption to a number of other 'sub-systems'. The practicality of the change meant that it was unlikely to be accepted.

However, it emerged from the meeting that changing the official shift start time might not be necessary if staff understood the reasons for them being expected to start at 06h45 or 18h45. Management understood that while two tea breaks and one lunch break are the current norm in a 12-hour shift, no legal requirement for the tea breaks exists in the Labour Act. Tea breaks are permitted in exchange for nursing staff arriving for a shift 15 minutes early to create a handover window. Essentially this means nurses are remunerated to arrive 15-30 minutes before 07h00 (19h00), as the accepted norm for tea breaks is 30 minutes in both the morning and afternoon.

This understanding did not appear in any of the diagnostic data and does not appear to be explicitly known by the nursing team. There was some discussion regarding official expectations in the focus groups, but this understanding was never even hinted at. The only mention was regarding uncertainty about the 'official' rule by someone who had worked in the unit for over five years. It may therefore be possible for the unit management to effect change

through the simple process of disseminating information about the formal expectation together with its rationale. This could be incorporated into the SOP.

In summary, the start time of the bedside handover is another example of how changing one aspect of one 'sub-system' can easily impact on another. In this setting this was so, that with regards the need to ensure a protected handover window period, no formal, tangible optimisation strategy could be conceived.

5.2.3 Lesson three: The unpredictability of research interventions and service needs sometimes requires re-engaging individuals outside of the study participants group

As already described in chapter 3 and earlier in this chapter, the need to gain formal permissions and build solid collaborations with individuals at all levels of the study setting is crucial to the eventual quality of an action research study, and to successful implementation of change (Herr & Anderson, 1995; Bowling, 2009). While this process takes time, it is time well spent. This study, however, highlights how efforts to achieve this made in the 'pre-diagnosis' phase may not be sufficient for all the different aspects of the unfolding study, and that additional re-engagement may be required later.

Two principal examples of this are evident in this study, both related to a need to re-engage with the Manager of Nursing following the initial meeting when the study was introduced. Both contributed to delays in the study, and reflecting on them allowed me to better appreciate lessons learnt as a result.

5.2.3.1 Unanticipated need for permission leading to delay in implementation of first 'test of change' for unit handover presentation

The decision to conduct a 'test of change' of the unit handover presentation was made in the meeting in December 2012, at which all members of the PICU management team were present. In this meeting the Deputy Nursing Manager informed us that the Manager of Nursing needed to agree to such a 'test'; this provides the first example of how an unanticipated need to re-engage with those in higher positions can lead to delays.

It was agreed by all present that the Deputy Manager, in her role closest to the Manager of Nursing, was in the best position to liaise with her. We did not foresee the Manager of Nursing challenging the 'test', since she had been informed of the study from the beginning and because the dynamic nature of action research approach had been explained. The 'test of change' was also not to be widely implemented but rather conducted over a finite period of

time. To aid with the task I, as facilitator, provided the Deputy Manager with a summary of the research process thus far.

While a collective decision had been made in the meeting to commence the 'test of change' from 7 January 2013 for a period of four weeks, this did not occur. On 2 January 2013 I was informed that the test would need to be postponed since the Manager of Nursing and Deputy Nursing Manager were unclear as to why the strategy had not been outlined within the original research proposal. The process that followed is described in chapter 4; a delay of six weeks before start of the unit handover presentation 'test of change' could not be avoided.

The impact of this was more than simply a loss of time. It resulted in the initial test for change being carried out at a time when one of the OMs was on leave for two of the four weeks, and in what is seasonally a busy period in the PICU. While it was useful to know whether these variables would impact on the outcome of the 'test of change', the IHI (2011e) asserts that the first 'test of change' should ideally be as small and as simple as possible. Unfortunately, in this study a 'test of change' minus the variables did not occur first and the outcome of the evaluation certainly reflected the added complexity. It is unknown whether absence of these factors would have resulted in different opinions and experiences of the PICU nursing team.

On reflection, this delay was heavily influenced by my assumptions about the ease of communication between the Deputy Manager and the Manager of Nursing. With hindsight, I recognise that this was an incorrect assumption, primarily because up to this point the Deputy Nursing Manager had not been consistently involved with the study, leaving her with insufficient information to communicate.

5.2.3.2 Conversation with Manager of Nursing about start time of handover

This second example was the need to re-engage with the Manager of Nursing to ensure that she was kept informed of emerging research outcomes, especially those related to our request for her assistance in finding a possible solution to the need for a protected handover window period. As indicated in chapter 4 and Figure 5.2, reported service priorities resulted in a time lapse of seven weeks before the meeting took place. This delay meant that research data from this study was not available to the Manager to inform the decision on the concurrent proposed change in nursing shift hours.

While it is crucial to constantly strive for improvement in practice (Parkin, 2009), maintenance of the clinical service always takes priority (Herr & Anderson, 2005). The two delays described above were certainly in part attributable to the continued daily demands of running a clinical

service. Relating this to the change equation, demands of clinical service combined with the need to allocate time to planning and implementing the optimisation strategy impact on how practical the change would be – quite simply, it may be less disruptive to not disturb the status quo.

It is also possible to attribute the delay to the fact that the action research approach is unfamiliar to many individuals. Dick (1995) describes this as common to the approach, with many users learning while doing it, a situation that certainly describes my own learning experience. Even in my role of facilitator/researcher, I was learning and building on my knowledge of the approach while working with the insider-participants, to guide the process throughout. This understandably adds complexity to any study, with the unpredictability of the implementation strategies presenting further complications. This is especially true in hospital settings, where experimental or exploratory qualitative research designs have pre-determined and predictable implementation strategies.

While the action research approach was explained to the PICU nursing management team in the 'pre-diagnosis' phase, it is demonstrated how time and application are needed in order to fully understand. One such situation is outlined in section 5.2.3.1 and another was questioning of the quality of the methodology of evaluation of the electronic handover presentation. On this occasion the researcher had to be ready to answer concerns about suitability of the short 'test of change' period to evaluate team opinion, the small size of the questionnaire completed (>50% of all PICU staff), the possibility that the Hawthorne effect influenced results and the notion that the anonymous questionnaire did not gather the opinions of the most opinionated members of the PICU nursing team.

In summary, the need to re-engage with those higher up in the hierarchy added unnecessary delays. However, these delays had to be accommodated and can be explained by demands on the clinical service and the complexities of the action research approach.

5.2.4 Lesson four: Change takes time and sometimes a new person has to emerge to take the lead

"Teams often learn very important lessons from failed tests of change", and so the IHI assert that there should never be hesitancy to stop a 'test' early (2011e). Similarly, sometimes it is necessary to accept that change is not going to happen immediately for a number of different reasons. On reflection this describes what I foresaw as the outcome to implementation of the electronic handover presentation.

5.2.4.1 Reason one: Extreme change can feel like a loss and need to grieve.

In this setting the shift to an electronic handover presentation rather than a face-to-face verbal unit handover is recognised as an extreme change. Nadler (1993) describes how an extreme change can be perceived by those involved as a loss, evoking feelings not that dissimilar to a death. He reminds how in these situations individuals may need to be given time to mourn for the familiar. By not allowing this time, prevention of the development of desire for the change is likely, and thus change will be resisted.

Many aspects of this study illustrate that nurses in this setting had a high need for regular social, face-to-face contact. When gathering the core participant team very few nurses used the suggested SMS route to indicate their interest, instead choosing to find me and inform me directly. Meetings and focus groups were also more effectively arranged if communication occurred face to face. I quickly realised electronic communication was less likely to get a prompt response.

Also, the daily face-to-face unit handover was introduced soon after one of the primary members of the PICU had started. Her engaging nature was she was keen to create a daily space for the team to meet face to face. The format evolved to include the current content and is quite different from that of other similar 'global handovers' reported in the literature (Parker, 1996; O'Connell & Penney, 2001; Griffin 2010; Klee et al., 2012; Brown et al., 2012; Costello, 2010; Manias & Street, 2000). They differ in practice and purpose, most serving to provide an overview of all patients, similar in content to the shift leader handover in this setting.

During the evaluation phase of the unit handover I sensed the loss associated with the lack of interaction, but at that time had not yet recognised or appreciated the importance of the social function to the unit handover. Time was therefore not factored in to enable those involved the necessary time to grieve. While more efficient in relaying information and reaching more people, the lack of interaction certainly impacted on the desirability of the change. It was interesting for me to recognise how I measured efficiency of the electronic handover based on how much time it took, what information it conveyed and to how many people, while for the insider-participants, the measure was the amount of social interaction.

5.2.4.2 Reason two: The insider-participants may have felt unintentionally coerced

Another reason why change to the electronic handover presentation was unlikely is the possibility that core participants felt they had been coerced into using this strategy. Pugh

(1993) stressed the importance of never 'falling in love' with one's own idea for change, emphasising that while it may be good, it may need refining after hearing opinions of others. With this in mind I had to consider whether I was guilty of being too enthusiastic about the idea of changing the face-to-face unit handover to an electronic handover presentation delivered in the staff tea room. It appeared to address all the features the data had identified as requiring optimisation. At the time it was suggested, few comments were offered by the PICU management team participants, and a decision to implement it was made quickly and easily. In hindsight, however, I wonder whether this team felt able to voice any concerns that they may have had.

Signs that the participants were feeling coerced, that I possibly missed, were:

1. Delaying the start of the implementation, the 'test of change'. This, however, can be counter-balanced by the fact that the OM quickly and independently arranged for an additional electrical supply when the sourced computer arrived.
2. The perception that updating the presentation was an additional task to complete during the busy morning period.
3. No mention of the time saved by not having to gather people for the verbal unit handover (a task that had previously taken up to 7 minutes).
4. Immediately reverting to the verbal unit handover once the 'test of change' period was complete.
5. Inability to recall features of the pre-existing unit handover that had led to the change strategy that was implemented.
6. Reference to 'your data' instead of 'our' data, said in response to the re-emphasis of features of the unit handover that were collectively identified as requiring optimisation.
7. Importance of the loss of interaction over the other benefits of saving time and reducing interruptions to morning care activities.

Most noteworthy an indication that the PICU management team may have felt coerced was when, having heard the outcomes of the implementation evaluation, they indicated that they would decide their way forward with the electronic handover presentation outside of the study process. The outcome of this was e-mailed to me, which was not their normal preferred method of communication. They decided to revert to the verbal unit handover, but in recognition of the fact that the handover presentation had made information available to the

night staff, reported that they would consider adopting it in future if funding was made available for appropriate equipment.

Coercion was obviously not my intention when suggesting the electronic handover presentation, and going forward I would be more mindful of participants displaying signs of discomfort. On reflection I wondered whether the PICU management team had felt coerced partly because they were still only developing as a cohesive team.

The Deputy Nursing Manager and one of the OMs were both new in their positions at the start of this study, and the second Clinical Mentor was appointed during it. While this meant all were eager to support optimisation of clinical practice, it also meant that they were still establishing their roles, ascertaining responsibilities and determining norms of communication. Never before had there been two OMs or two Clinical Mentors, and so for new appointees it was not just stepping into someone else's role; rather, all involved needed to figure out how the roles could be shared. Different strengths and individual styles of management and leadership, teaching and learning only added complexity to this process. Ultimately, as a team they were all, I suspect, trying to re-establish their own psychological safety, possibly making them even less likely or able to voice concerns.

In addition, at this time the PICU was increasingly being recognised as an academic unit, with a growing emphasis being placed on research and conference attendance. The pressure to be seen to be participating in research may have been high, resulting in the team believing they had little choice but to agree to strategies being proposed so that the study could continue.

Mindful of this context and the change equation, it may be supposed that if feeling coerced and in a state of loss, desire for any optimisation strategy would be minimal, meaning that change is unlikely to happen. Similarly, actions of the PICU nursing management team following evaluation of the electronic handover presentation may have been their way of regaining control and permitting themselves the space to grieve the potential loss of the social interaction. In response, I took this as my cue to withdraw from this aspect of the study.

Interestingly, nearly five months later, as the last part of this report was being written, I was approached by one of the OMs and informed that they were going to commence the electronic handover presentation again. A wide-screen monitor had been ordered and they planned to run the presentation using the same template. It would be run in addition to the pre-existing face-to-face unit handover.

5.3 CONCLUSION TO CHAPTER 5

In keeping with the phases of an action research approach, chapter 5 has outlined the learning that occurred throughout this study. Specifically, it has highlighted that lessons were learnt related to appropriateness of the action research approach to answering the research question, and capacity to manage change and shift practice in the busy clinical setting of the PICU. These lessons have been illustrated using examples of events and outcomes from the study, and will be consolidated further in the conclusion.

Chapter 6

CONCLUSION

The complexity of handover that emerged from this study highlights a communication flow more complicated than Chinese Whispers. In this setting handover has been identified to be a multifunctional practice that involves many different people, assorted methods and paths of communication, and varying content. As a result the potential for miscommunication is equal to (if not greater than) when playing Chinese Whispers, and the possibility of inefficiencies in the process are probably higher.

This action research study set out to answer the question 'Can the quality and efficiency of the nursing shift handover in the PICU at the RCWMCH be optimised?' This chapter presents a reflection of the research question, the key conclusions of the study and implications for practice, education and management.

6.1 RE-INTERPRETATION OF THE RESEARCH QUESTION

As this report is being concluded, it is interesting to reconsider the research question posed at the outset. Looking back, it is now possible to interpret the question in three different ways.

Firstly, the question can be interpreted in terms of *whether it was necessary to optimise the practice of handover*, and the diagnosis and planning phases of this study highlight how the answer was certainly 'yes'. The pre-existing handover practice was identified as consisting of three separate handover episodes, two of which were examined further and both found to contain features that could be optimised.

Secondly, if the question were interpreted as asking *whether it is possible to isolate optimisation strategies that are suited to this setting,* then the planning phase of this study demonstrated a positive answer. Optimisation strategies were collectively theorised and refined. As a result, four clear strategies were implemented and evaluated for use within the setting.

The third interpretation of the research question could be *whether the optimisation strategies were effective – whether optimisation of the handover practice did occur.* The answer to this would also be 'yes', but coupled with a caution that change and optimisation don't happen

either easily or quickly. While chapter 5 explores this interpretation of the question in detail, this study has fundamentally raised awareness of handover practice in this setting and that as a result the PICU nursing team has started on a path to future optimisation.

6.2 HAS NEW KNOWLEDGE BEEN GENERATED?

Considering the fourth described characteristic of action research, *the generation of new knowledge*, it is obvious that from this study, knowledge has been gained about the pre-existing handover practice in the PICU and about the potential to optimise it. Five broad conclusions can be articulated:

i. Handover in this setting is not simple – it is a complex practice consisting of three identifiably different but complementary handover episodes.
ii. There is an absolute need to make practice visible in order to be able to start an optimisation process. The action research approach was particularly effective at doing this. One of the most important aspects of this process was facilitating that the voices of those closest to the practice be heard.
iii. A dedicated facilitator in this action research study was key to effecting change and thus optimising practice. The contribution of time and knowledge as well as maintaining the momentum was invaluable in a clinical setting that otherwise has to prioritise patient care delivery over improvement of practice.
iv. Handover is a sub-system within the parent system of this healthcare setting, and by making a change in this sub-system, impact on another sub-system should be expected. In this study a link between the sub-systems of handover and documentation emerged very clearly.
v. Change towards optimisation was only possible when those in the setting were ready for change, and many different factors can influence an individual's or group's degree of 'readiness'.

While these five conclusions are related only to this study, they could be cognised by others as recommendations.

6.3 IMPLICATIONS FOR PRACTICE, EDUCATION AND MANAGEMENT

Three clear implications for clinical practice, education and management are evident from this study:

- The key implication for practice is that handover in the PICU setting needs to be recognised as a complex, multifunctional process. Such complex practice needs to be

made explicit to all those both directly and indirectly involved, and standardised to reduce the risks associated with varying individualised practice.

- The key implication for management is that an optimal handover takes time to deliver, and so a shift overlap with sufficient uninterrupted time should be planned, provided and remunerated.
- The key implication for clinical education is that handover practice needs to be taught – that a knowledge of how to handover should not be assumed.

Traditionally, implications or recommendations at the end of a study report are offered for a third party to implement. However, action research with its participative approach comes with a commitment to walk alongside participants until it is clear that the facilitator and researcher can withdraw from the setting. In this study, this point has not quite been reached, so this chapter ends with a summary of how it is planned that the work of the study continues, so as to contribute to the implications and recommendations in this practice setting:

- *Bedside handover information form*: Another focus group is planned with the five core participants who tested the form, plus any other individuals identified as possible change agents. Analysis of the data produced in the handover information form evaluation focus group will be shared and the proposed two-form strategy will be presented. If the proposal is supported by all, I envisage development of the two forms and a third 'test of change' occurring.
- *Electronic unit handover presentation*: Having heard that the PICU management team has independently commenced actioning the re-implementation of this strategy, I have offered my ongoing support and will assist where required. Repetition of baseline measures related to attendance, frequency of occurrence and interruption to morning activities could be performed in future.
- *Standard operating procedures*: Recognising that these cannot be written until other strategies are finalised, I will raise awareness of this strategy again in future.

To close, in light of the conclusions made and the future action research cycles that are envisaged, I remain confident that further optimisation of both efficiency and quality of the handover practice in the setting will be achieved. I believe that the action research process has laid solid foundations in terms of creating the will to change and the belief that optimisation is possible. The process of the study has identified optimisation strategies that simply need refining and further testing, and then wider implementation. Re-measurement of baseline rapid review data will be possible in future.

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APPENDICES

Appendix A: Thick description of the existing handover practice identified from the diagnosis phase

Appendix B: Ethics approval letter issued November 2011

Appendix C: Ethics approval letter issued December 12

Appendix D: Letter indicating permission to conduct the study at RCWMCH**.**

Appendix E: Summary of study given out to PICU nursing team at introductory meetings

Appendix F: Core participant study outline and Consent form

Appendix G: Core participant demographic questionnaire

Appendix H: Confidentiality agreement signed by transcriber (1)

Appendix I: Data collection form for insider-participant bedside handover observations – rapid review

Appendix J: Bedside handover 'Times Questionnaire'

Appendix K: Data collection form for insider-participant unit handover observations

Appendix L: Unit handover questionnaire

Appendix M: Poster advertising rapid appraisal

Appendix N: Spider-diagrams of brainstormed handover content

Appendix O: Bedside handover information form

Appendix P: Confidentiality agreement signed by transcriber (2)

Appendix Q: Template for electronic handover presentation

Appendix R: Electronic handover presentation evaluation questionnaire (Day staff)

Appendix S: Electronic handover presentation evaluation questionnaire (Night staff)

APPENDIX A: THICK DESCRIPTION OF THE EXISTING HANDOVER PRACTICE IDENTIFIED FROM THE DIAGNOSIS PHASE

Data collection methods used in the diagnosis phase of this research study produced a wealth of data (Table A.1). Analysis of the data was combined to produce Figures 3.9 and 3.10 and this thick description of the existing nursing shift handover practice in the PICU at the RCWMCH.

Table A.1: Summary of data collection and analysis of cycles one and two

	Action	Method of data collection	Method of data analysis
CYCLE ONE	4 focus groups (6:51 hours in total)	Audio + transcription	Inductive content analysis
CYCLE TWO (rapid appraisal) Bedside handover	44 insider-participant observations	Data collection form	Numeric analysis
	9 outsider-participant observations	Audio – transcribed Field notes	Numeric analysis & Inductive content analysis
	61 questionnaire respondents	Questionnaire form	Numeric analysis
Unit handover	16 Insider-participant (OMs) observations	Data collection form	Numeric analysis & Inductive content analysis
	48 questionnaire respondents	Questionnaire form	Numeric analysis
	Communication book review	Communication book	Descriptive data

As described in chapter 3, a key outcome of the diagnosis phase is the fact that three separate handovers make up the existing PICU nursing shift handover practice. The first handover at the change of the shift is the bedside handover in which the outgoing bedside RN hands over to the incoming bedside nurses. Coinciding with this is the shift leader handover, in which the outgoing shift leader hands over to the incoming shift leader. Approximately an hour and a half later, the unit handover occurs and the OM hands over important information to the nurses who have started the new shift. A more in-depth description of each of these handovers will now be given.

A.1 DESCRIPTION OF THE BEDSIDE HANDOVER

In short, the existing bedside handover occurs between the outgoing (OG) registered nurse (RN) and the incoming (IC) RN and the enrolled nurse/enrolled nursing assistant (EN/ENA). It

happens in the bed spaces of the two patients to whom the nurses have been allocated to provide care, and serves to facilitate the delivery of information about the patients. It occurs twice a day between 06h45 and 07h00 (18h45 and 19h00) during which time two patients are handed over. It is structured using a systems-based approach and is delivered in a variety of languages.

This brief description is however the intended practice of bedside handover. The analysis of the rapid review highlighted that in practice, it is more variable and challenged by a number of different factors. This thick description will describe the intended practice alongside the practice made explicit by the rapid review.

A.1.1 Function of the bedside handover

As was found in the current literature, when the focus group transcriptions were subjected to the question, 'What is the perceived function of handover?', the content analysis yielded seven sub-concepts which correlated with seven different functions: continuation of care, prioritisation of care, teaching, transfer of responsibility, emotional support, socialisation, and preparation for the ward round. These sub-concepts were then supported by data from the rapid appraisal.

A.1.1.1 Continuation of care

The primary response to the question of handover function is that handover serves to facilitate the continuation of care.

> *"To inform the next shift about the patient; what they are, the diagnosis, what to look out for, how to handle the patient"*
> [Participant 5, focus group 2]

> *"To also say about the progress of the patient; is the patient progressing well or is the patient going back now, not responding to treatment, or…"*
> [Participant 12, focus group 2]

Clear examples of RNs actively facilitating continuation of care were also evident in the outsider-participant observations, with outgoing RNs noted to communicate to incoming RNs aspects of nursing care that still required completion.

> *"So Dr prescribed us some 'blue' shampoo to wash the area with, and also clotrimazole cream, which you can also just order."*
> [OGRN said to ICRN, outsider-participation observation 5]

> *"Just ask them if we must stop the feeds tomorrow morning, well it depends on how … if you can wean, but I don't know…."*
> [OGRN to ICRN, outsider-participant observation 7]

"Can you just ask them if we must add Perfalgan?"
[OGRN to ICRN, outsider-participant observation 4]

A.1.1.2 Prioritisation of care

This function then appeared to link naturally with that of prioritisation of care and preparation for the ward round. Being responsible for two critically ill children requires that nurses are able to decide which patient requires the most and the most immediate attention, a situation that the core participants described handover assisted them to achieve.

"You can decide which patient needs my attention first – and that's why it's so important with a good handover, is that you can pretty much see then who needs your attention first." [Participant 2, focus group 2]

"Which one is more critical. Because if I know that you desaturate more than you then I'm first going to put my attention on you and sort you out before you do that" [Participant 5, focus group 3]

A.1.1.3 Preparation for the ward round

A PICU culture of 'always needing to be ready' was strongly evident in the focus group discussions (described more fully on page 34). One example of this was the need to be ready for the medical ward round, and the core participants believed handover helped them to achieve this. The participants indicated how, due to the lack of time between the start of the shift and the ward round, the quality of the handover received, determined to some extent, the amount of work required to ensure that they were ready on time.

The exact reason for needing the information, for needing to be ready, appeared to be two-fold. Firstly, they expressed how having sufficient information enables the RN to participate in the medical ward round, thus ensuring that nursing recommendations are heard and that the most appropriate treatment decisions are made.

"I think that, exactly what we said now, is that if you know what's going on with your patient, what's wrong with your patient and what's been done and what needs to be done, then you can actually be active in that child's treatment so when the round comes you can say ... they talk about whatever and then you can say 'Well what about this and that?' because you know what's going on. If you didn't know, they could come and do a round and you just go 'Fine, yes, I'll do that and that and that', so you have no base, you have no platform of questioning or recommending or… you're just going to say 'Yes, ok, because ... fine I'll take your word for it. The child needs this, Ok, fine.' Whereas if they say something and you know: 'No, they don't need it', or they need more or less or whatever. Your recommendations would just be more accurate." [Participant 3, focus group 4]

"And then you're going to suggest, 'Just ask them ... how about...?'Maybe if a child is coughing, 'How about a Valergan? How about whatsoever?', you see? On your handover..." [Participant 10] *…"So you're going to ask that person to ask the*

doctor 'Can you make the changes?'. So you're basically using that sister as a transport medium to communicate to the doctors as well"
[Participant 5, focus group 3]

"The long-term mothers, you would want to know 'How is she, is she was staying over and how she seemed like', so that you being an incoming sister preparing yourself for the morning round whether we should refer her to the social worker, or not." [Participant 10, focus group 3]

The second reason, however, was to avoid the situation of not being able to answer the questions posed by the doctors during the ward round.

"And sometimes on the doctors round, you standing there with the patient but you don't know what happened during the night…[doctor] asks this and that then you stand there and you don't know because the sister didn't hand over that and it's so important." [Participant 1, focus group 2]

*"During that time that I have to prepare for the ward round, there are things that I would miss, and then just on the round and then '*finger click* Ahh! I didn't check something', and there is no time to rectify it."*
[Participant 10, focus group 1]

"That's why I say that it depends on your answers to that consultant will be based on what was handed over to you".
[Participant 11, focus group 1]

They expressed a need to not get "caught up" [Participant 10, focus group 1] and how the fear was somewhat dependent on the doctor asking the question.

"And it also depends on who is asks; if its [name], it's ok, but if it's [name], oh my goodness!" [Participant 7, focus group 1]

The core participants described how the need to avoid the situation of not knowing prompted them to ask questions during handover, with experience guiding them to ask specific questions about certain patient groups.

"But I would, I ask questions anyway if I know that the handover is not going to give me information that I need. Like if they are just going to go according to the chart; then I will ask them like, specifically sedations, secretions, because those are the things that I know they're going to ask on the round"
[Participant 2, focus group 2]

With regard to a patient with a cardiac condition*: "And I think they also have more specific things that they…that we know they want to know on the ward round, so I think in them particularly, things don't easily get missed because we know things that need to be handed over…especially like the inotropes …."*
[Participant 3, focus group 2]

A.1.1.4 Transfer of responsibility

Also linked in the literature to the continuation of care function, is the notion that handover acts as a period of responsibility transfer. The RNs in this PICU acknowledged this function, speaking about it in an almost cathartic sense, particularly following a "*hectic day*" [Participant 2, focus group 2] in which they have had to work very hard.

> *"The personal satisfaction. Like if you relieved that you're handing the patient over, it's no longer your responsibility now. That person is going to sit with the issue that's going to happen, so you fee ..."* [Participant 5, focus group 3]

> *"The load is off your shoulder because your patient is handed over; you've given the important information so now you feel like, now you can relax."* [Participant 5, focus group 3]

> *"You can rest in the fact that you know that they will go on with what you have been doing."*
> [Participant 3's response when asked by the facilitator, 'Is that because handover is almost a sort of period of finishing up for you?', focus group 2]

When probed as to when the responsibility transfer takes place, the core participants gave mixed responses. Participant 5 explained how it is "*when it's 07h00, when you've handed over, then you feel it's your thing now*" [focus group 3]. Participant 3, however, described how it was *"when you leave, once you've said it, or once you're done really and you leave and you're not there anymore"* [focus group 4].

Participant 5 further added that "*I partially still feel responsible for the patient if I have writing still, because while I'm there that sister can still ask me questions about this patient. No, only when I leave the unit…*", but also clarified that when receiving a handover, responsibility is felt as soon as the handover is complete: "*You feel now that you're responsible; once you start your assessment then you know that it's my responsibility*" [Participant 5, focus group 3].

A.1.1.5 Using handover as a teaching opportunity

Using handover to teach emerged as another function of the practice. Participant 12 described how handover in PICU is "*totally different*" to that in the wards, and as a result participation in handover is the preferred method of teaching students and junior nurses.

> *"I would say that handover is something that is taught to you, because nobody can think it up. If I was a new person coming to ICU there's no way I'm going to know how, unless you teach me and then I'm going to go by your words. It is something that is taught."* [Participant 5, focus group 3]

"So do you think you learn from someone teaching you and you also learn from a bit of observation; listening to others."
[Facilitator, said in summary of core participants comments]

"Yeah, and every time when people are handing over to you, like you would learn new stuff" [Participant 12, said in response, focus group 3]

"I had to do handover while she listened and then I had to give her the opportunity while I listened so I could correct her if she was a bit wrong."
[Participant 5, describing how she taught a junior nurse how to handover, focus group 3]

"I see [it] as a learning opportunity, so I stop them and I say,'Wait a minute, why don't you maybe try it this way because then the chances of you missing something is less'." [Participant 2, focus group 2]

Other participants also explained how they used handover to teach nurses about other aspects of nursing such as treatments and pathophysiology.

"These days I find myself teaching a lot. So for me it's a golden opportunity, so for them I will, for example ask, 'Do you know have ... do you know why this child is on this type of antibiotic?'"
[Participant 2, speaking about how she teaches junior nurses, focus group 4]

"I am going to tell her why I am asking 'so' during that handover; 'I am asking you about the pH because of 123', 'I am asking you about the sodium because of 123', 'I am asking the correlation between these two things, it's like this' You see? It doesn't take long ….That's my opportunity to give the rationality behind."
[Participant 10, focus group 3]

"Oh, if I hand over to a junior sister, like the new comm-serve [Community service RN], I will show them. For me I don't know what they know. If I say the CVP is in the left groin, I will take them to there and show them."
[Participant 1, focus group 2]

The attitudes of the core participants regarding the use of handover to teach were, however, variable. A few expressed how they favoured and frequently adopted this function of handover, whereas others were less positive. They felt that rather than actively teaching, sometimes they simply answered any questions.

"There's not a lot of people that will teach you during handover."
[Participant 12, focus group 3]

"Not teach you, they will inform you, they will answer your question."
[Participant 5, focus group 3]

"Generally not, I think. Not unless the person is actually asking a question that demands a teaching answer, if that makes sense. Because then it has to happen because the question was asked. But I don't think that it just happens often – 'Let me teach you'."
[Participant 3, when asked if handover is used for teaching, focus group 4]

*"I tell her, 'The child was commenced on adrenaline', why, and maybe if … **if she asks**, I will just go in and give her some … So that will be like teaching"*
[Participant 1, focus group 2]

One example of teaching was observed in the outsider-participant handover observations although it fitted more in to the category of 'telling' rather than teaching, and was not performed in a supportive and positive manner.

" … and the right line was using the acet … what was … this name … N-acetyl-cys-teine; still running at 1ml/hr". [OGRN] "*On the liver programme coz that's must for the liver"* [ICRN]
[Transcription from outsider-participant handover observations 8]

Participant 5 [focus group 3] described how she opted not to teach people how to handover, explaining how, "Y*ou don't want to interfere, you feel like you're criticising the person so you don't want to do it*", and Participant 2 [focus group 4] further reasoned that "*It **is** the end of the shift"* implying that people may not want to learn having already worked 12 hours. Participant 3 [focus group 4] summarises, *"I'm not saying that it's not a good idea, but I'm saying that it's not happening."*

A.1.1.6 Handover as collegial support

The provision of collegial emotional support is the sixth function of the PICU handover. The core participants described how they often used the handover period to voice sadness about certain patient situations or to express their frustrations regarding the shift they have worked. Indeed, even while talking about it, a discussion ensued within the focus group about past patients who had passed away.

"You like share almost the … I don't want to say the burden of caring for the child, but you hear each other. You know, 'Shame, I feel for the parents', or you know, whatever. You share in that moment, even if it's just a sentence … how it makes you feel or if you find it heavy." [Participant 3, focus group 4]

"You will say, 'You know, I worked at bed number so-and-so and they shifted me here, and I had two admissions last night.' Then you will console the person and 'Ah, you know this is just ICU.' Yes, your grievances…"
[Participant 5, focus group 3]

Participant 5 said, however, that they are selective in who they speak to.

"But you won't pour it out [to] just anybody; most of the time you will pour it out to your friends. You won't say it to someone that you know is… like if you had a patient who passed away you don't just say it to just anybody. You will say 'Yes, the patient that was here passed away' and blah blah blah. But if it's your friend you'll give it more in-detail: 'I was attached to this patient, and this is what happened' and ..." [Participant 5, focus group 3]

A.1.1.7 Socialisation with handover

Finally, the data suggests that there is a *socialisation* element to handover. Pre-handover, it is described how the nurses coming onto duty arrive early and stop to have a drink and converse with friends in the tea room before going out into the unit. This is perceived to be acceptable as long as people are present in the unit at 06h45 ready to receive handover.

During handover, Participant 5 describes how it is a common occurrence to enquire after friends in a personal sense but emphasised that it should only occur following the delivery of the patient handover itself:

> *"I try to separate my business from my pleasure so I will hand over to you like I am supposed to and then afterwards I have the chat."*
> [Participant 5, focus group 3]

Other core participants, however, explained how socialisation can be an interruption, either because people try to listen to handover and socialise concurrently or because people rush the handover to create additional socialisation time.

> *"Because sometimes when you hand over and people are chatting to their friends and she will say 'keep on handing over, I'm listening' but she's talking to that side to other people, but you can't hand over because you see that she's not listening."*
> [Participant 12, focus group 3]

> *"Because if I'm busy handing over to her and then you're coming busy chatting with them while I'm busy handing over, you see? And in the case of [name] she's busy handing over to this person but this person is busy saying to her 'OK, carry on, I'm listening', but she's busy ... chatting that side…"*
> [Participant 10, focus group 3]

Post-handover, socialization can continue into the initial patient assessment period. The following socialization was noted as part of outside-participant handover observation:

> *"19h00: handover finishes … Social chat starts between the incoming RN and incoming EN/AN and the outgoing RN about 'Justine' [a beauty home order catalogue]"* [Field notes of observation 6]

Participant 2 voices her frustrations when socialization starts impacting on subsequent work; she notes that there are "*those … that walk around and greet their friends and whatever when they come on duty. And then suddenly they're overwhelmed with work because they're actually not there when they should be*" [Participant 2, focus group 4]. Furthermore, she explains how she has "*very little sympathy for someone that socialises outside of the tea room and then suddenly when the break comes then they are like, 'Oh, my work is not done!' ... 'I'm like, uh, sorry!'*." [Participant 2, focus group 4].

In summary, seven different functions of handover were identified from the focus group data, confirmed with data from the rapid appraisal. With this many functions, it is reasonable to assume that sufficient time is required to be able to achieve them all and it is this aspect of the existing bedside handover that will be explained next.

A.1.2 Time and duration of the bedside handover

The time and duration of handover were discussed at length within the focus groups; however, data analysis identified that confirmation of the following topics was required:

- The actual time bedside handover starts and finishes
- The actual length of the bedside handover
- The time people think they should be at work for the bedside handover
- The time they considered themselves late.

Confirmation was achieved through the rapid appraisal, where it was found that it was this aspect of handover that deviated most from the intended practice. To note: data were collected from morning (07h00) and evening (19h00) handovers, but since the process for both was discovered to be the same, the morning handover times have been chosen to describe the existing practice. They are also representative of the evening handover, unless otherwise stated.

A.1.2.1 Intended timings of the handover period

Figure A.1 displays the intended timing of the bedside handover, as identified from the focus group data analysis. In short, from 06h00 onwards, the outgoing RN and outgoing EN/ENA are busy completing and checking all the necessary documentation. Once complete, and if the patient is stable, the outgoing EN/ENA is permitted to go home. The incoming RNs start to arrive from 06h30 and by 06h45, are expected to be in the bed space ready to receive handover. Participant 7 makes this very clear: *"Not **coming on** duty that time, but basically be at the bedside at 06h45"* [focus group 1]. Since night shift RNs are contracted to be in the unit from 19h00 to 07h00, this creates a 15-minute handover window in which the outgoing RN communicates information about the two patients to the incoming RN and incoming EN/ENA. The expectation is that by 07h00 the outgoing RN has finished and is able to go home.

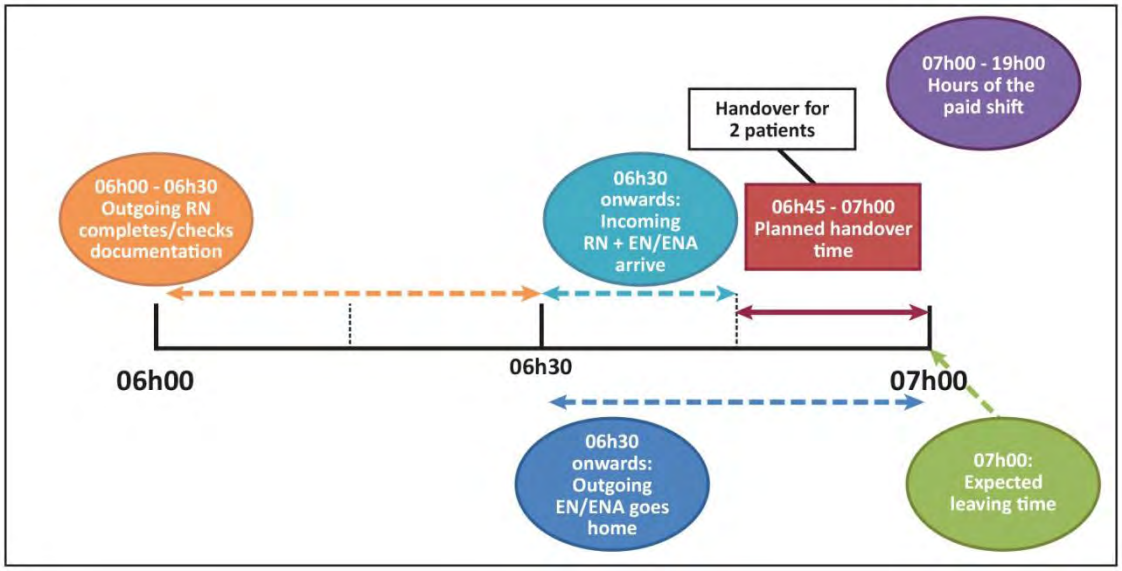


Figure A.1: Intended timings of the bedside handover

A.1.2.2 Actual timings of the handover period

In reality though, even as the core participants were describing the intended handover, they were able to point out how the intended timing design is not the practice norm. The following section will explain the similarities and differences between intended and actual practice.

Firstly, through examination of the data gathered in the outsider-participant observations, it is possible to confirm that the actual activity of all nurses between 06h00 and the start of handover together with the departure time of the EN/ENA matches the intended practice. With the exception of one handover, when the outgoing EN/ENA unusually delivered the handover of the first patient to the incoming EN/ENA, no other outgoing EN/ENA was involved in any of the bedside handovers.

Similarly, in accordance with the intended timing of handover, most of the respondents reported that they believed that 'people should be in the bed space to receive handover' at 06h45. Encouragingly, most also believed this time reflected the start of the working day, suggesting that they regard the work day as being inclusive of handover, and not that handover is something that must happen earlier.

With regard to the start time of handover, core participant 3 [focus group 2] described how she regarded a handover starting at 06h45 as "*lucky*", a perception that was supported by the triangulated confirmative data collected (Table A.2).

Table A.2: Nurse arrival times and handover start times according to the triangulated confirmative data collection

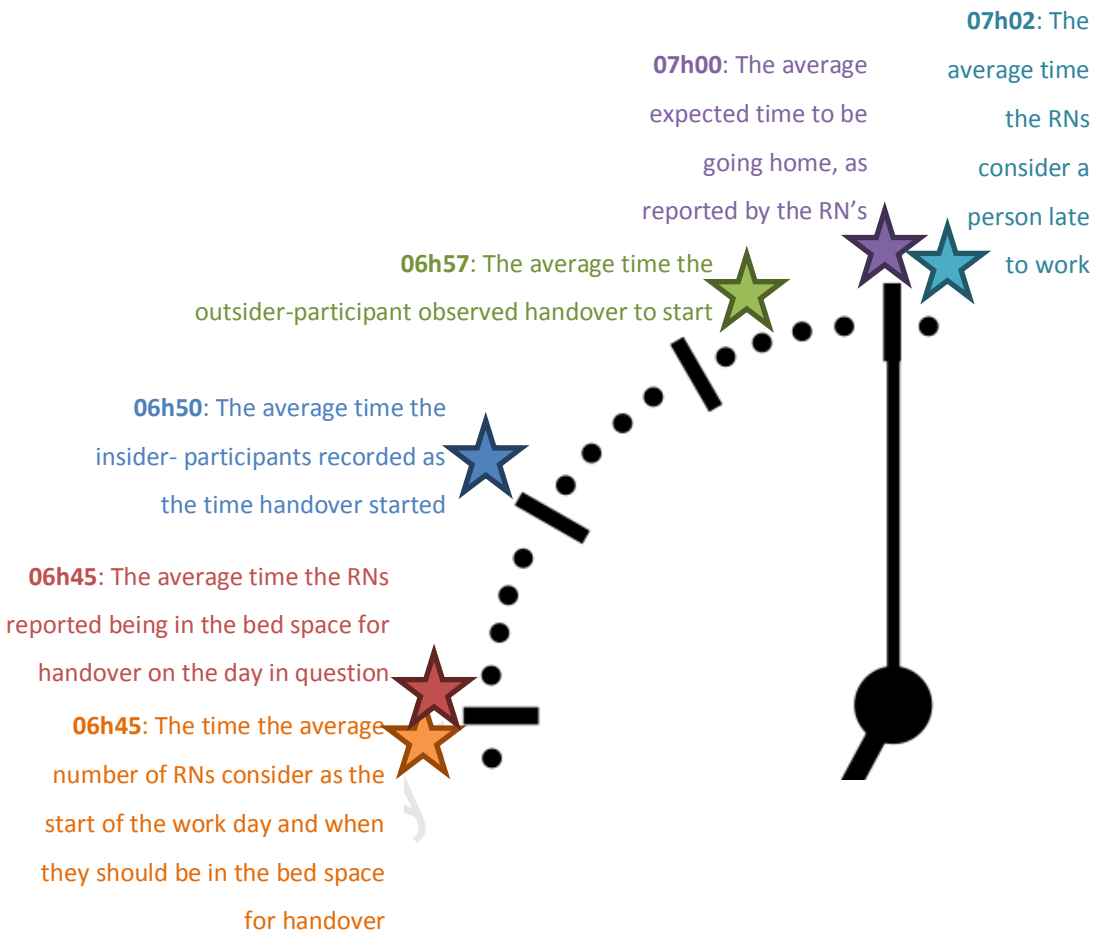
	Average time questionnaire respondents reported arriving at work	Average handover start time as recorded from insider-participant's observations	Average handover start time† as recorded from outsider-participant observations
DAY SHIFT	ENA: 06h52* (06h45 – 07h55) EN: 06h40 (06h30 – 06h50) RN: 06h45 (06h30 – 07h05)	06h50 (06h40 – 07h00)	06h57 (06h50–07h03)
NIGHT SHIFT	ENA: 18h49 (18h40 – 19h00) EN: 18h46 (18h45 – 18h50) RN: 18h46 (18h30 – 18h55)	18h52 (18h30 – 19h10)	18h55 (18h53 – 18h58)

† Handover start time was found to be synonymous with nurse arrival time.

*Calculated excluding one response by someone who due to exceptional circumstances arrived at 07h55.

Adding further context, the vast majority of respondents reported that they expected to be going home at 07h00 or earlier, but conversely the same number did not regard a colleague as being late until 07h00 or later. As regards the leaving time, participant 3 describes, "*If I can go at 07h00 that would be great, 07h15 is not cool but 07h30 is definitely … Its not ….*" [focus group 2].

Collating all this information gives raises the question, 'Where is the window of time in which to conduct handover?' Focusing solely on the registered nurses working a day shift, it is evident that a maximum difference of 12 minutes exists between the respondents' self-reported arrival time and the insider/outsider-participant's observed and recorded handover



start time. While acknowledging that the data was collected on different days and by a variety of participants, it is still suggests that a difference exists between the actual time that nurses arrive and start handover and the time they believe themselves to arrive. Figure A.2 summarises the key timings described above, making it clear that there is on average a very limited window of time for handover.

Figure A.2: Day shift RN handover timings as collated from the different data sets

A.1.2.3 Reasons for variation in start time

Considering more deeply the variation in arrival/handover start time, it is reasonable to assume that not everyone will arrive in the unit and at the bed space at exactly the same time. However, the variation around the expected norm (participants recorded a range of 06h40 – 07h00/18h30 – 19h10) led to a discussion within the focus groups. The core participants first

described how where you live and your mode of transport significantly influences the time at which you arrive at work.

> *"People are dependent on public transport. And others who have their own transport might find accidents on the road and it delays their start time."*
> [Participant 7 focus group 1]

> *"And also those who have public transport, because you go for one taxi, the taxi waits and it gets full, and 'til the other ones get full. So they may move early from home but are weighed alongside … get that kind of challenges."*
> [Participant 11, focus group 1]

This was demonstrated further in a conversation between an RN and an EN/ENA at the start of one of the handovers observed by the outsider-participant. In this situation, it was the incoming EN/ENA who was receiving the handover from the outgoing RN because the night RN from the previous night was now on annual leave, leaving no RN available to work with the EN/ENA.

> *"ICEN/ENA: I have had a nice day today, evening both of you!*
> *OGRN: What time did they come in?*
> *ICEN/ENA: I can't help it, I am travelling with transport darling. *laughing*. I don't know if I am going to have a sister, [name] is on leave and they put her on there.*
> *OGRN: Oh that's why! I was wondering. Because she was never late, not that one.*
> *ICEN/ENA: *snigger* Never late like meeee. What are you trying to imply?!*
> *OGRN: Not like you! You know what-so-ever. Always late!*
> *ICEN/ENA: Ok you can handover.*
> *OGRN: I was wondering, where is she? Because I know she is never late.*
> *ICEN/ENA: This is very bad… [facilitator unable to hear]*
> *OGRN: So now it's going to be hush-hush and go out, because I must go and..!*
> *ICEN/ENA: No, no, no Sisi, it doesn't work like that!*
> *OGRN: Yes my dear, its five minutes to now.*
> *ICEN/ENA: I am glad that you're recording this so if you get in a meeting you can sit and discuss this thing!*
> *OGRN: Yes, so that, so that… she is going to know that you must come early for a proper handover!*
> *ICEN/ENA: There's unforeseen circumstances!"*
> [Transcription from outsider-participant observation 9]

They also stated that "*individual preferences*" [Participant 7, focus group 1] and "*personal dedication*" [Participant 11, focus group 1] may lead to variation in arrival and handover start time.

> *"Some people know the value of starting early, while others… for them it might not be a value."* [Participant 7, focus group 1].

The core participants further described how the arrival time of certain individuals is to some degree predictable and this was evident in the outsider-participant observations of handover.

"Some people are just late all the time." [Participant 3, focus group 2]

"06h54: EN/ENA goes home. RN waiting patiently. A passing EN/ENA asks the RN who is relieving him, to which he replies saying a name. The EN/ENA comments, 'Oh! They come laaaate!'" [Field notes of observation 2]

"18h48: OG RN says to facilitator '[name] was meant to be here but she was changed to the shed. Now have [name]. I thought would be gone and home already … but now I must wait patient'." [Field notes of observation 1]

The time the nurses arrive may also reflect either the time when they were relieved on the previous shift or the fact that they do not receive remuneration for the additional 15 minutes.

"… and if [name] comes late, 06h55, I will make sure that I come at 18h55 tonight…you do get sometimes that can be kind of 'tit for tat'… but that's reality." [Participant 11, focus group 1]

"Now say you have one person coming on time but the other one not, so this person loses out. So now it becomes an 'OK, so I won't come early because you didn't come early' thing." [Participant 2, focus group 2]

"They know but if they take, if they come back 5 minutes late from lunch or tea breaks then the in-charges will moan. So why must they be here early if they're not getting the time back?" [Participant 1, focus group 2]

Participant 3, however, does highlight that she personally does not actually know the rules about the start time of handover; "*I know that when we were studying, 06h45 was the time that you had to be there. So I don't actually know what Red Cross's policy is about when you should be here"* [Participant 3, focus group 2].

A.1.2.4 The impact of a late start to handover

The possible impact of starting handover later than intended was also debated. Participant 11 simply summarised the impact by stating "*the later you handover, the poorer the quality*". Reasons for this include the notion that content of handover may be reduced to the highlights of the past shift.

"07h05 because you're not going to give her any information, because now you're also tired now – you know, you just give highlights now, you don't give everything." [Participant 8, focus group 2]

It is also evident that lateness lessens handover structure:

"If you rush for time, you just handover the things, you don't go according to systems." [Participant 1, focus group 2]

Lateness also has an emotional effect on the RN, which in turn has further secondary effects on quality. Words such as "*angry"* [Participant 7, focus group 1], "*agitated"* [Participant 7,

focus group 1] and "*irritated"* [Participant 3, focus group 2] were used to describe how they felt if the person taking over from them arrived late. These feelings in turn led to a decreased likelihood of them remaining in the bed space past 07h00 to ensure an effective handover was delivered and a reduced willingness of the outgoing RN to call in once they were home if they realised they had forgotten an important piece of information.

Handovers starting late also results in hurried or rushed handovers with the core participants reflecting how pressure of time may originate from either the incoming or outgoing RN. The outgoing RN may rush the handover because she herself has a need to catch her transport or not keep someone collecting her waiting. She may be tired and simply want to go home, or may rush purely because she is irritated with the incoming RN. Outsider-participant observation 7 recorded the following conversation as an example:

> *"Overheard a conversation in bed space 10 while observing in bed space 11: OGRN says to the ICRN 'Don't wash your hands'. ICRN replies, 'Why are you always in a hurry?'"* [Field notes of observation 7]

As previously indicated, this may result in a highlights-only handover which for some late-arriving RNs is sufficient but for others is not.

> *"Facilitator: So to summarise … they arrive late but they still expect a full handover. Does everybody that arrives late expect a full handover? Participant 8: Some they … some who are late, they don't mind so you give them the highlights"* [Participant 8 + Facilitator, focus group 2]

The incoming RN may also rush the outgoing RN but for different and more complex reasons; she may rush the outgoing RN as a result of feeling "guilty" [Participant 12, focus group 1] for being late, to ensure that she does not get caught being late by the OMs and because she is aware of the amount of work she has to complete before the ward round commences.

> *"If a person came late…you find out that this person is guilty because now you are the only one here and you are still busy handing over to that person. And then you find out you still [have to] hand over this patient, and she's rushing: 'Is there anything? Is there any problem with this patient?' because you see, she's the only one, she came late. And this person now is forced still waiting for her, and she is guilty now, she is looking around. The others and they are busy doing their observations already and she is the only one she is doing the handover."* [Participant 12, focus group 1]

> *"If I am late … I look as though I am early."* [Participant 6, focus group 1]

A second proposed reason is that the RN has other colleagues from the outgoing shift that she wants to chat with before they leave. Participant 7 mimics a common situation:

> *"I am taking over from [name], and I'm coming on duty on time, but I need to speak to all of them and have their personal conversations, so, 'Was there anything?' She hasn't even managed to open her mouth yet 'Anything that you want to tell me?', … because I've got to catch my buddies."*
> *[*Participant 7, focus group 1]

Finally, the core participants propose that the incoming RN may rush the outgoing RN because she perceives that what is being said is not worth listening to, and that she would rather just commence with the necessary work. This notion will be discussed further later in the description.

Interestingly, despite the questionnaire data showing that the majority only classed their colleagues as being late if they arrived after 07h00, the negative impact of handover starting late appeared to be apply prior to 07h00 as well.

> *"It depends on time. If I'm late, it will be a quick handover, but if I am there on time, say at half past or twenty to, I can expect to get a thorough handover"*
> [Participant 1, focus group 2]

Furthermore, the core participants described how a person's tolerance for lateness could be dependent on the stability of the patient, the volume of information to be handed over and their assessment of the reason for and attitude of the colleague who is late.

> *"But it also depends on the stability of the patients: if I had a patient that I had to resus three times, regularly in the night … so by that time I'm up to here already, I just want my relief to come. So I think it also depends on the stability of the patient, because if I had a stable patient and you phoned in and said you were coming at 6:55 I wouldn't mind. But if I had a patient that was very very sick and very unstable, then it's a problem … because now I'm scared the patient is going to crash again and it's the whole story over again."*
> [Participant 5, focus group 1]

> *"And I also think with a higher acuity the longer you will take you will hand over, because a lot of things happen… the lower the acuity, even if you come at 6:50 it can take over 10 minutes to hand over things completely."*
> [Participant 11, focus group 1]

> *"If somebody comes at 06h50 and it takes me half an hour to handover a patient, I'm fine with that but don't come at 07h05."*
> [Participant 3, focus group 2]

These concepts were investigated further in the insider-participant observations, with each person marking whether they were ☺ [happy] or ☹ [cross] when they started delivering the handover. Data gathered demonstrated that a third of all the handovers observed were

reported to be 'cross handovers' and, of these, three-quarters were evening handovers. When compared with the handover commencement time, it is evident that a later start increases the presence of negative emotions, with a 'happy handover' starting on average at 06h49/18h48, and a 'cross handover' on average at 06h56/18h57. Considering, however, a self-reported measure of acuity as the marker of stability, no clear association could be found between the number of 'cross handovers' and the acuity of the patient. Incorporating the concept of rushing, nearly two of every ten participant-observed handovers were recorded as being rushed, the majority again noted to be in the evening. With over half of the rushed handovers recorded when it was an insider-participant delivering the handover, it is clear that they too were not immune to the practice. Cross-checking handover start times with the rushed and non-rushed handovers, the start time for a rushed handover in the evening was on average 8 minutes later that for a non-rushed handover (18h50 and 18h58). Combining the issue of being happy/cross with rushed/non-rushed demonstrated that only one in ten happy handovers were rushed, compared with nearly four out of ten cross handovers.

In summary, considerable variations in start time of the bedside handover do exist, and for a number of reasons. Handovers starting later than what is the implicit expected norm are common, and are found to negatively affect the quality of the handover delivered.

A.1.2.5 Duration of handover

Finally, as the last aspect of this time-related description, the duration of the bedside handover will now be discussed. As has been highlighted previously, the 'window' of time allocated for the bedside handover of two critically ill patients is 15 minutes. Participant 7 indicated that she thought that this was not sufficient, claiming that "*between 15 and 30 minutes [would allow for] a proper handover*". This suggestion was met with marked surprise by another participant:

> *"Participant 3: Your first time ever meeting that patient, should be one patient 15 minutes*
> *Participant 2: 15 for one patient? 15 minutes is a long time!*
> *Participant 3: There's a lot to be said. At some patients, 15 minutes is not enough time"* [focus group 4]

No definite time was concluded by any member of any focus group; indeed, participant 10 concludes, *"I don't think I will put a time"* [focus group 1].

In reality, the average time which the insider-participant observed handover to take, was just 12 minutes, with a range of 5 – 20 minutes (Figure A.3) Average duration for the morning handover (11.48 minutes) was slightly less than for the evening (12.28 minutes). The outsider-participant recorded a similar average time (11 minutes) but noted that this included two handovers in which one or more parts of the handover had to be repeated (see section 'Attendance at the bedside handover'). Should the repeated handovers be removed the average duration is reduced to 9.3 minutes.

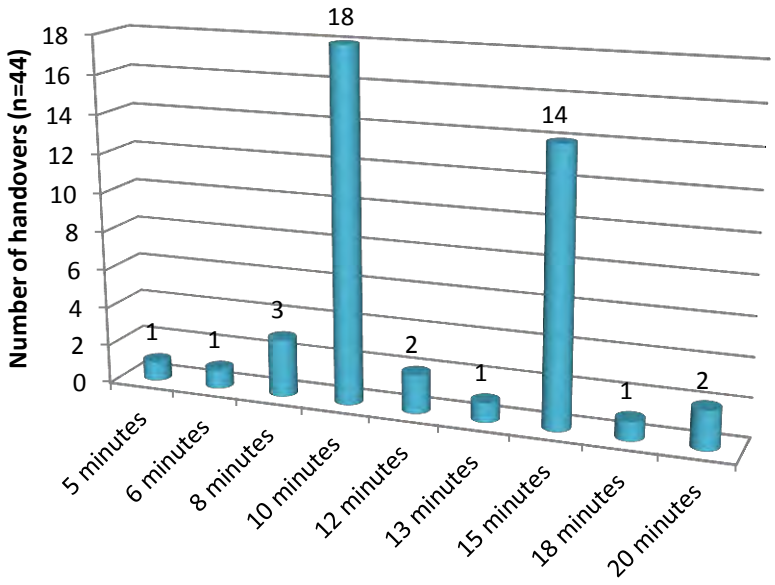


Figure A.3: Duration of the bedside handover as observed by the core participants

Two factors were highlighted as influencing the duration of handover: the acuity of the patient and whether the RNs had previously nursed them. On examining the data for evidence of this, it was found that for those nurses who had nursed a patient before, the handover was slightly shorter in duration (11.50 minutes as opposed to 13 minutes), whereas acuity of the patient appeared to make very little difference (Figure A.4).

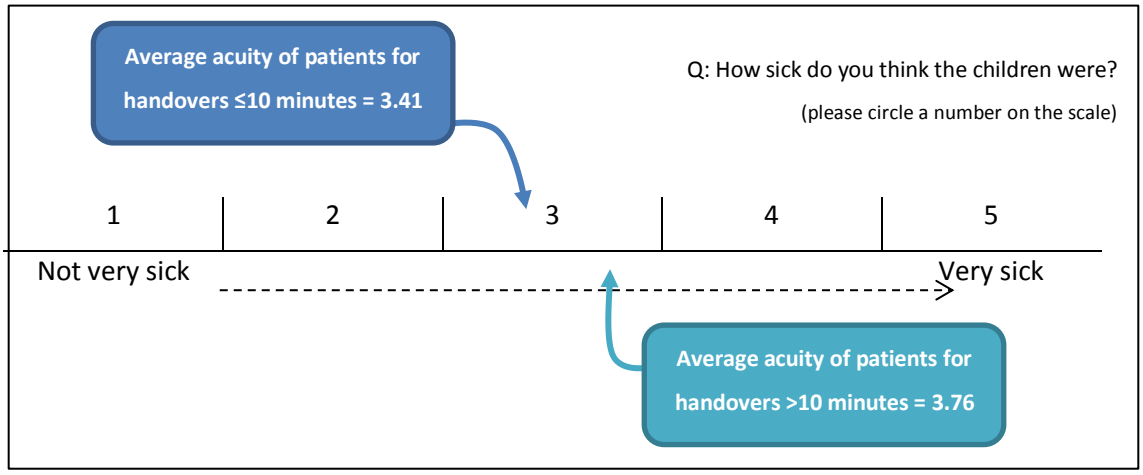


Figure A.4: Effect of acuity of patients on the duration of the bedside handover

In summary, while it is not possible to state a definite amount of time that is required for the handover of two critically ill children, it can be seen that while 15 minutes is in theory made available, a length of time some perceive as too little, full use of this time is rarely made. Are nurses simply able to deliver the handover in less time? Or are handovers shorter because they are being rushed due to late starts? Or is it because insufficient information about the patient is being delivered, meaning that less time is actually required?

A.1.3 Construct of handover

Having discussed the timing of handover, the construct of the handover process will now be described.

A.1.3.1 The allocation book

Prior to the start of the bedside handover, a nurse must establish which bed spaces she has been allocated for the coming shift. This information is in the allocation book, which is completed by the shift leader of a previous shift, taking into consideration the nursing staffing numbers and skill mix, and the patient numbers and their acuity.

Focus group discussions, however, revealed that the allocation book also unintentionally infers additional information, such as, for the outgoing RN, an indication of to whom she will be handing over. This in turn may give the outgoing RN an indication of the time at which handover may start and also whether any particular preparation of the bed space or herself is required.

> *"You're either thinking 'OK, the person who is taking over from me they are is going to be late' or 'they want the bedside this way' or…"*
> [Participant 5, focus group 3]

"Basically you that is from night, you are going to go and check who is coming to me to prepare yourselves in terms of that person; 'is he or she going to be late?' or 'this person coming over to me is a person that is very strict' or you know that you are just going to hand over and go." [Participant 10, focus group 3]

"'Let me just see who is going to be taking over tomorrow, ah, I know [name], she is so … ummm … I just know her… she is that type of a person, her professionalism is like that'….So I need to be more hands-on. Not that I was not hands on or was not more accurate, let me prepare myself enough for her, for her professionalism personally. So you also end up also preparing your handover on that perspective also." [Participant 10, focus group 1]

The facilitator's summary of one section of the focus group discussion:
"Facilitator: So some sisters, you, they are very, ummm what's the word … particular and so you make sure your bed space looks like they are going to want it. But some people that's.., you're ok with that because you know that….that person's right, what they want is probably what's right, and so you don't mind making sure that your bed space looks like that. But I'm hearing that there are others that are going to come on and are going to want it looking just so but it may not be right because they themselves…
Participant 7: Because they themselves do not keep up to the standard.
Facilitator: Sure, ok, so they want to arrive with the standard high so that they don't have to do it.
Participant 7: … so they don't have to do it"
[Participant 7 and facilitator, focus group 1]

This concept was also demonstrated in the outside-participant observations, in that some of the RNs knew whom they were handing over to, information they had gained from the allocation book.

For the incoming RNs, the allocation book serves an aid in two manners. Firstly, in addition to finding out where they are allocated, the core participants spoke about how RNs used the allocation book to discover which EN/ENA they would be working with, as it gave them an idea of the amount of support they would receive during the shift.

"Then one that is coming on duty checks basically, 'Where am I located and ***with whom****?'"* [Participant 10] *…"Yes, so you look at the nurse."*
[Participant 5, focus group 3]

"Especially the one coming on duty, you come in…first you check 'where is bed and who am I allocated with?' And that is where you will start to get to plan the rest of your day, directly from the allocation because you'll be knowing that 'eish – my partner [EN/ENA] is like this'. So you are going to start to prepare yourself right there and then on that allocation".
[Participant 10, focus group 3]

"The only time that I would want to know was if I had been to my bed space and seen how sick they are, and then I would be like 'OK, do I at least have a staff nurse, or someone experienced?' And whether I would be able to swap that or not,

it just gives me an idea of what my day is going to be like."
[Participant 3, focus group 4]

Secondly, the core participants spoke about how by looking back in the book to the previous shift, or simply looking up at the physical bed space, they ascertained from whom they would be receiving handover and thus an idea of the handover experience they could expect. They revealed how this also provided them with an indication of the state of the patient and bed space, and if there would be any outstanding work to do. (The section titled, 'Patient appearance and outstanding work' later describes this issue in more depth.)

> *"It's just, I want to see who I am taking over from. And to see … like people have different attitudes and I'm still new, so it's just want to see who it is that I am going to take over from. Because sometimes people can add different things when you are taking over, that you must do this and this and this and this, so I have to know who is that person first before I go there."* [Participant 12, focus group 3]

> *"So me I am coming on duty and look at where I'm located, and I see that it's [name] that I'm going to take over from. So the handover that she's going to give me, I don't know whether is it personal issues or what, or what so ever, at times, but if when I'm going to take over from her, I can also say to her, 'Just give me the highlights also and then go'. But, if I go, I know I see in the allocation that its [name] I'm going to allow myself to listen to her*." [Participant 10, focus group 1]

Essentially, for both the incoming RN and the outgoing RN, it was reported that the allocation book allowed a degree of physical, emotional and "*mental*" preparation, without which the RNs potentially proceeded to get "*a bit flustered*" [Participant 3, focus group 4].

A.1.3.2 Attendance at the bedside handover

The intention is that the outgoing RN, incoming RN and incoming EN/ENA are all in attendance at the bedside handover; in reality this was found to not consistently be the case. While the outgoing and incoming RNs are almost always present, there appears to be a great variability for the EN/ENA.

Participant 2 [focus group 2] describes how, "*They [EN/ENA] are usually not there*" and participant 7 proclaims that only "*some are*" [focus group 1]. Data collected in the insider-participants observations support these claims, displaying that in over half of the handovers the EN/ENAs were not present at the start of the handover in comparison with all of the RNs. Of the outsider-participant observations, fewer started without the EN/ENA in attendance, but three started without the presence of the incoming RN.

In outsider-participant observation number six, the handover commenced with only the incoming and outgoing EN/ENAs in the bed space, the outgoing RN only joining them a minute

later once the incoming RN had arrived. Outsider-participant observation number nine captured an outgoing RN handing over to only an incoming EN/ENA. This was reported, by the EN/ENA, to be because the RN who had been allocated to the bed space on the previous night was now on leave, thus leaving the EN/ENA to work alone under the guidance of adjacent RNs.

Reasons deduced for the reduced attendance of the EN/ENA are varied. Firstly, it is evident from the handover timing data above, that if the handover was to start at the planned time of 06h45/18h45, then the majority, certainly of the ENAs, would not be present. As elaborated by participant 6, *"Nurses [EN/ENA] they don't come at seven, they come past seven"* [focus group 1]. Participant 10 reasons that it is due to the clinical setting, *"Nurses [EN/ENA] are not taking over… the responsibility is not shared enough to be the same between a registered nurse and a nurse [EN/ENA]"* [focus group 1]. It is also suggested that they might be physically in the unit but not be present at the handover.

> *"You get many times the nurse [EN/ENA] that will be there but not there, like will go and chat, have a fat chat there with somebody and then comes back in the middle of the handover and then goes there and then have a chat and whatever."* [Participant 2, focus group 2]

> *"Sometimes they [EN/ENA] are there in the morning, but they are sitting in the tea room drinking coffee."* [Participant 12, focus group 3]

A similar situation was demonstrated in outsider-participant observation number 8, when the EN/ENA arrived approximately two minutes into handover but proceeded to talk to the patient and RN in bed spaces other than the one in which the handover was occurring.

Lack of EN/ENA attendance results in an occasional need to repeat the handover, a situation that the RNs describe as being frustrating and *"sometimes impossible"* [Participant 1, focus group 2]

> *"But when you start doing your… the things, she'll [EN/ENA] expect you to give handover to her."* [Participant 8, focus group 2]

> *"That's a norm that ended up being embraced, which it is not supposed to be"* [Participant 10, focus group 3]

A feeling of resignation to repeat the handover is however expressed on the understanding that there may be an effect on patient care should they decide not to.

> *"She knows that you're going to give it because of the patients".* [Participant 8, focus group 2]

"When they do come in late, you are just expected, you must just handover … because you have to speak to the person. You're going to work with them for the whole day and depend on them for their help and so you're forced to handover again" [Participant 5, focus group 3]

An example of such a repeated handover was captured in the outsider-participant observations. During observation 4, the incoming EN/ENA arrived in the bed space just at the close of handover, pausing only to put on an apron, and the RN commenced the repeated handover immediately. It seemed pertinent to continue recording and as a result the extended handover time was captured (Figure A.5). While the double handover ensured that all involved in caring for the child were fully informed, it considerably increased the duration of handover and reduced the time available to conduct necessary morning activities.

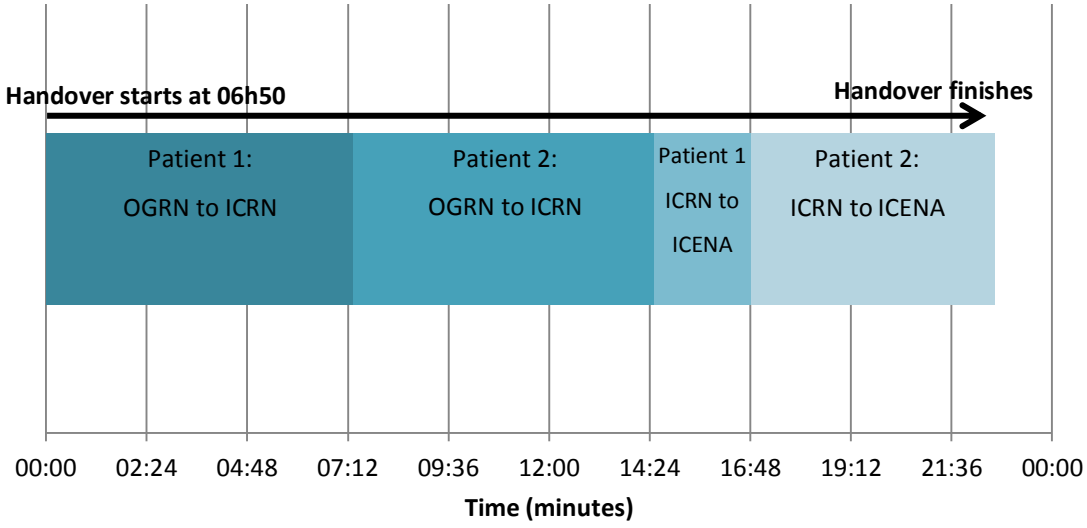


Figure A.5: Time duration of outsider-participant observed handover 4

Another outsider-participant observed handover noted not to have an RN present (observation number 2) clarifies another aspect of the existing handover practice. If the incoming RN is not present at an undetermined point in time, the outgoing professional nurse may choose to start handing over to the incoming RN in the proximal bed space, 'the incoming relief registered nurse' (ICRRN). The exact time at which the outgoing RN would proceed with this option is dependent on the individual, but in the handover observed, it occurred at 06h59. This practice is noted to be especially time-consuming for the relief nurse since following receipt of her own handover, she is required to dedicate time to both listen to the relief nurse's handover and then re-deliver it to the incoming RN on her eventual arrival. A demonstration of this time is given in Figure A.6.

Furthermore, the core participants recount how the handover to the relief nurse is "*not going to be a full one*" [Participant 2, focus group 2] and when re-delivered is likely to have reduced further still: "*Then when you handover to her you're going to give her a quarter of a quarter that was given to you*" [Participant 2, focus group 2]. This was not noted to be the case in observed handover number 2, where the second handover of patient number one was longer than the first. However, the relief nurse had cared for the patient for the previous two days, meaning that she knew him well. She was also a member of the core participant group which could have given rise to the Hawthorne effect.

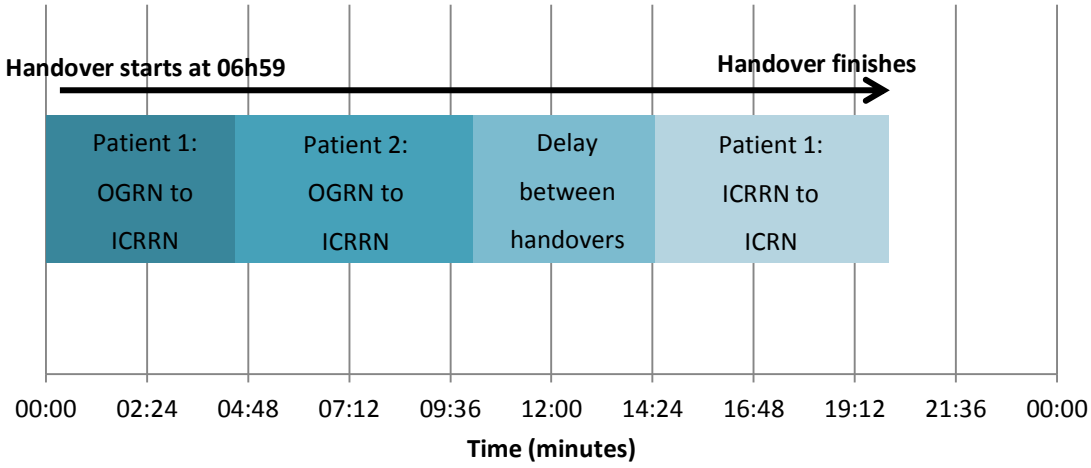


Figure A.6: Time duration of outsider-participant observed handover 2

With regard to the outgoing EN/ENAs, the norm is for them not to participate in the handover process at all. Should there be information they feel is important to handover, they would likely inform the outgoing RN who would then act as the "one spokesperson" [Assistant facilitator, focus group 1]. This was substantiated by the outsider-participant observations in which the only handover at which there was an outgoing EN/ENA present was the one in which she proceeded to lead the handover to the incoming EN/ENA.

Besides the patient, the other person who may be in the bed space during handover is the caregiver. The core participants described how her presence was most unlikely for the morning handover but marginally more likely in the evening. In terms of participation, it is report that she is commonly not involved at all;

> *"Unless they are directly asked a question during handover. For maybe the sister handing-over wanting to clarify something, or just to … or maybe the person being handed-over to, quickly want to ask about milk, or….."*
> [Participant 2, focus group 2]

This was confirmed in the insider-participant observed handovers where it was found that for 70% of handovers the caregiver was not present. Of the three outsider-participant observed handovers at which a caregiver was present, in two they were simply acknowledged with a smile and spoken about, and in the third, not at all.

In summary, ideally the bedside handover would have the incoming and outgoing RNs, the incoming EN/ENA and the primary caregiver all in attendance, each participating equally. Attendance of the EN/ENA, however, varies for a number of reasons. Late attendance of either the EN/ENA or the RN may result in the need to repeat handover to ensure that everyone is in possession of sufficient information to provide care for the patient. The need to repeat handover is both time-consuming as well as having a negative influence on handover quality. Caregivers are rarely present and less still act in a contributory role.

A.1.3.3 Type and method of handover

Confirmed through the outsider-participant observations, the bedside handover is essentially a professional verbal handover occurring between the outgoing RN who has been caring for the patient on the previous shift and the incoming RN, and possibly the EN/ENA, to whom the patient has been allocated. Specific to this PICU however, is that each RN is allocated two patients, meaning that the handover window period needs to accommodate the handover for both patients. This results in a need to remember two sets of information, which is noted as being a considerable safety concern, especially if "*you find that your two children are very similar*" [Participant 3, focus group 4].

> *"They are the same weight, the same age, both pneumonia, and you ... I know I, sometimes you start handing-over and like "Oh no, it's that one" and then you actually have to stick to the obs chart, because otherwise you're just going to make up stuff or mix stuff."* [Participant 3, focus group 4]

A.1.3.4 Language used in handover

In line with the demographics of the Western Cape, the language used in this verbal exchange is predominantly one of three: English, Afrikaans and isiXhosa. Choice of language is dictated by both personal preference and those in attendance. Some RNs preferred to speak in their mother tongue providing all those listening speak the same, whereas others chose to speak in the language in which they write their professional notes (English).

> *"RNs told me that they would normally have spoken in isiXhosa as long as the RN and EN/ENA both understand."*
> [Field notes of observation 2, handover occurring in bed spaces 7 & 8]

"Asked question at the end – incoming RN would normally conduct the handover in Afrikaans if the person speaks Afrikaans. Outgoing RN tells me that she hands over in the language she writes her nursing notes – i.e. English"
[Field notes of observation 1, handover occurring in bed spaces 9 & 10]

Interestingly, so adept were the RNs at accommodating to the language proficiency of those listening, that all except one of the outsider-participant observed handovers were conducted in English, despite the facilitator's knowledge that for many it was not their mother tongue (Of the three common provincial languages, the facilitator only speaks English.) In the one handover not conducted in English, the outgoing RN did start the handover in English for the sake of the research, but quickly reported that she found it too awkward and so switched to Afrikaans.

"Shame, let me just do it in English ... [Patient's name] was actually fine….. [facilitator's name] Sorry, it just feels very unnatural."
[Transcription of outgoing RN in outsider-participant observation 4 – translated from Afrikaans to English]

A.1.3.5 Structure of bedside handover

The intention is for the bedside handover to be delivered using the physiological systems of the body as a guide; that in addition to the diagnosis and the family situation, information pertaining to the respiratory, cardiovascular, neurological, renal and gastrointestinal systems should be given along with details of any issues related to skin and sepsis. However, data collected through the various methods suggests that this is not always what transpires.

The core participants described how the majority of outgoing RNs use the observation chart in the handover process but that they do so in two subtly different ways; one, that they handover using the structure of the systems, referring to appropriate details on the observation chart as they proceed, and two, that they effectively 'read off' the observations chart, reporting first the information on the front page and then the information on the back.

Data from both the focus groups and the observations would suggest that the first method of use of the observation chart is least common. Only three out of 44 insider-participant observed handovers were recorded as being in a true systematic format, and the core participants recalled how RNs "*read from the chart most of the time*" [Participant 5, focus group 3]. Participants 3 and 10 explained how the practice of just referring to the observation chart came with experience and participant 5 further described how, "*You want to handover in a systems approach but your chart isn't based in that way, so then you kind of like confuse yourself*" [focus group 3].

Since the observation chart is poorly designed in a systems format, handovers delivered by simply 'reading off' the chart were as a result of poor structure. This is evident in the transcripts of the outsider-participant observations and was also independently described by participant 5.

> *"So they'll speak of respiratory 10 minutes ago and then when they come to the front side, they speak of the secretions after they have done the urine output."* [Participant 5, focus group 3]

The effect of this manner of handing-over is described as being a decreased amount of detail and depth to the handover content.

> *"People just read on the observation chart, and that to me is boring in the first place; I can see what is there, I want to know in detail. I want to know how I can … if this child reacts in this way, what should I do. And what works and what comforts the child ….I can read my observation chart."* [Participant 2, focus group 2]

> *"They go off the observation chart but then you don't get a general idea, it was basically what you said…you don't get a general feeling for the patient, like exactly how the patient was during the day, you can just see the vital signs basically. And then also you lose things because then some people don't go systematically."* [Participant 3, focus group 2]

Besides the reliance on the observation chart, the outgoing RNs were also noted to use other sources of documentation, namely the medication chart, the nursing notes, specific diagnosis paperwork (GCS chart, dialysis chart) and a form titled the 'daily goals'. Each of these were reported and observed to be checked, and updated if necessary, just prior to the handover. The reason for this checking is threefold – firstly, to ensure that everything is complete for the incoming nurse so to avoid criticism for outstanding tasks, secondly, to update oneself about the patient's care, and thirdly to enable their use as an accurate prompt during the handover itself. The core participants explained how the nursing notes were written using the physiological systems as a guide, and as a result some RNs referred to them after their verbal handover to check that they had not forgotten a key piece of information.

One core participant explained how the patient themselves could also be used to convey information, a practice that was observed during the outsider-participant observations.

> *"One more thing that I've done and I see some people doing, is that they will physically go to the patient. During the handover, they will show 'this is where this line is', 'this is the problem with this limb, you can feel, feel, this one is cooler than that one'."* [Participant 7, focus group 1]

> *"07h05: RNs move to the patient's side to enable the OGRN to show the others the dressings and colostomy"*
> [Field notes of observation 5, handover occurring in bed spaces 9 & 10]

As regards the incoming RNs, they rarely made notes or used any form of documentation while receiving handover. Participant 3expounded, "*If there's something specific that needs to be done, very seldom though, I would then just make a little note somewhere to remind myself*" [focus group 2]. Interesting, however, was the fact that the core participants in the separate focus groups both immediately identified, in an almost mocking fashion, a single person who does make notes of the information being handed over, although this practice was not necessarily perceived to be negative: "*I don't say that's a bad thing*" [Participant 2, focus group 2].

Participant 7 describes how she, too, as an incoming nurse, also makes use of the patient during the handover process. She describes how she visually assesses the patient to give her "a clear picture of what is happening".

> *"For me when I take over a patient, I've got a technique of doing it. I would… I've got three things: patient, environment, patient. So I'm listening to you, but I'm also checking out my patient what I can see, I would open up my patient to also look what's happening underneath, see what's running, so then I move to the environment: check the monitors, the space; I can get a clear picture of what's happening. Once the handover is done I will ask questions because I checked the flush bag while you were talking, and I'll check that, or even just look up and see. And I will ask questions while you are busy handing over to make sure I've a clear picture of what's happening. And then in the end when you leave, I go back to my patient. So its patient, environment and patient."*
> [Participant 7, focus group 1]

This is however regarded as a "unique skill" [Participant 10, focus group 1] and not all the RNs are able to do it.

In summary, the bedside handover is conducted in a professional handover style, with the one RN handing over two critically ill children. The handover may be conducted in diverse languages and with varying degrees of structure. While intended to be delivered with a bodily systems structure, reliance on the poorly designed observation chart means that the information is commonly presented unsystematically. Two-way conversation is reported to be minimal but use of the patient to aid handover is described for both the incoming and outgoing nurses.

A.1.3.6 Content of the bedside handover

Prior to unpacking the content of the existing handover, it is thought necessary to re-explain the shift pattern of the nursing team. Nurses work a pattern of seven days on duty out of 14, essentially working two days on, two days off with a three day working weekend one week followed by three days off over the weekend the next (Table 1.1 – chapter one). The implication of this pattern on handover is that providing patient allocation does not change across the two consecutive shifts, the same nurses handover to each other for two successive days, potentially resulting in the content of handover being different on 'day one' and 'day two'.

Examining basic patient demographics (name, age, weight, diagnosis, number of days in PICU), it is clear from the rapid appraisal that this information is lacking from the handover process. This is in part similar and in part different, to the perceptions of the core participant group. The majority described how the start of handover generally included name and diagnosis. However, participant 3 expressed her feeling that "*a big lack in our handover is actually what's wrong with the patient….I find myself halfway through the handover and I'm like 'Oh, what's actually wrong with the child?*'" [focus group 2]. They explained that "*very seldom*" [participant 3, focus group 2] was age or weight given, reasoning that weight was something "*you can see*" [participant 2, focus group 2], and yet commenting that it would be useful to include, since in paediatrics, "*we work everything off weight*" [participant 3, focus group 2]. These opinions were confirmed by the data gathered during the outsider-participant observations (Table A.3).

Table A.3: Percentage of outsider-participant observed handovers that included certain demographic information

Demographic information	Included in [percentage] of all handovers observed	Included in [percentage] of all day one handovers observed	Included in [percentage] of all day two handovers observed
Name of patient included	72%	80%	63%
Age	22%	40%	0%
Weight	0%	0%	0%
Diagnosis	44%	50%	25%
Number of days in PICU	33%	50%	12%

The next important aspect of handover, as identified by the core participants, is that of the patient's history, and for the purpose of the study, this has been divided into birth history, past medical history, including previous ICU admissions, the story of events leading to this admission and finally the key events within this current admission. Birth history was observed to be never discussed, the core participants explaining that at most they may comment on a neonate being an 'ex-prem' (a baby who was born prematurely). It was identified that just less than a fifth of all handovers (first and second day) included any mention of the patients' past medical history, with core participants reasoning that while it ought be mentioned, it is only done if "*it's there…on the doctors notes*" [Participant 10]. Participant 2 proceeds to describe a patient experience that illustrates the clear effect of this absence of information:

> *"It's like a perfect example of a child that I've looked after these last two days. The child was there for pneumonia, but if you go and look in his history… the child is, has an ASD, a VSD with severe pulmonary hypertension. It's an inoperable cardiac – they're not going to operate on him. This child has oesophageal atresia which they repaired and now has stenosis of his oesophagus with reflux and he's got a candida in his oesophagus. So, I mean nobody said anything about that, and he's got VACTER, so but nobody… that handover to me is that 'this child has got pneumonia'… and I mean 'quite a different picture, suddenly'…*
> *… So now we are stood there, we extubate this child, this child is struggling. So now we're there and now one consultant comes and says 'Um, this child's for intubation.' And then I actually went to them and I said to them 'Listen, what are we doing here? Because this child is inoperable, this is the third admission to ICU, we're just going to reintubate him and keep him on the vent for however long. I think we should start thinking about palliation here. Don't you guys think?' But someone that only knows about the pneumonia would say 'Ja ja, this child's struggling, lets intubate him'."* [Participant 2, focus group 4]

With regard to the history of events leading to the PICU admission, the opinions of the core participants varied. Some communicated that a *"full history"* – *"when the patient came in, where they came from, what their diagnosis is, was there any immunisations given, is it up to date, is the mom booked in the mothers' room, is she staying/going home"* [Participant 5, focus group 3], "*How did the patient come in here. Social history"* [Participant 10, focus group 3] – would be delivered on every 'first day' handover. Others explained how they would first check whether the incoming RN knew the patient, or explained how they always gave a reduced detail summary. Some participants, however, believed that this level of detail would only be given on the first handover after admission and not on any subsequent occasion. One reasoned how once the first handover post admission was completed, the detailed story of events became *"not* irrelevant *information, but … not current"* [Participant 3, focus group 2].

The outsider-participant observations revealed how only a fifth of handovers included the story of events leading to the PICU admission with even fewer outlining the key events since admission. In the focus groups, core participants were indifferent as to whether these keys events were commonly spoken during handover. Participant 2 argued that they were rarely spoken about but participant 5 gave an example of what she might have said:

> *"Because I sometimes get to, a lot of the times, I get to a bed space and I ask 'Was this child ever ventilated?' Let's say for instance, I see he's day 15 in ICU and is on CPAP, I want to know whether this child was ventilated and then the answer is 'I don't know'. So that's why I'm saying that it's very seldom that history gets transferred."* [Participant 2, focus group 2]

> *"Also maybe like the patient came in, was intubated, and extubated two days ago and now on bubble CPAP."* [Participant 5, focus group 2]

This lack of an account count of the key events, thought to be due to its omission by the previous RN, means that in order to inform the subsequent RN, the outgoing RN is required to source this information herself. Some describe how they *"dig back"* [Participant 10, focus group 3] into the patient's notes, while participants 5 and 2 both commented on how they regarded listening to the medical handover or reading the medical notes as being very beneficial. They recognised that these contained a comprehensive summary of the full history, which participant 2 [focus group 4] described can lead to *"Lightbulb moments: 'Wow, OK, now this makes sense!'"* and participant 10 perceiving it to allow her *"To prepare myself on how to communicate with the parents"* [focus group 3]. Participant 10, however, stressed that it was a particularly *"time-consuming"* exercise [Participant 10, focus group 3].

Considering the isolated physiological systems-based information, the rapid appraisal depicts varying levels of inclusion. Figure A.7 demonstrates the frequency of inclusion of the vital signs.

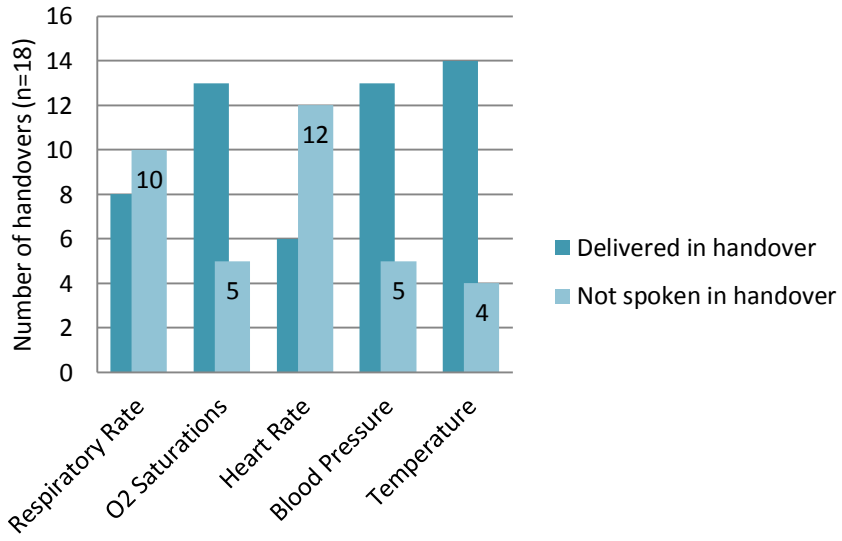


Figure A.7: Frequency of vital signs included in the outsider-participant observed handovers

Specifically in terms of the neurological system, half of the handovers comprised a description of the patients' capacity to move and three-quarters commented on both the sedative and analgesic medications the patient was receiving. Very few described the use of any non-pharmacological methods of pain relief, or advised about how to nurse the patient to ensure that they were comfortable.

Considering the respiratory, cardiovascular, gastrointestinal and renal system, Figure A.8 provides an indication as to how often a comment was provided about certain key pieces of information. Specifically, of those patients intubated, only one handover gave details of the endotracheal tube size and length, but two-thirds described both the ventilation mode and the amount of oxygen being delivered and nearly all provided the ventilator settings.

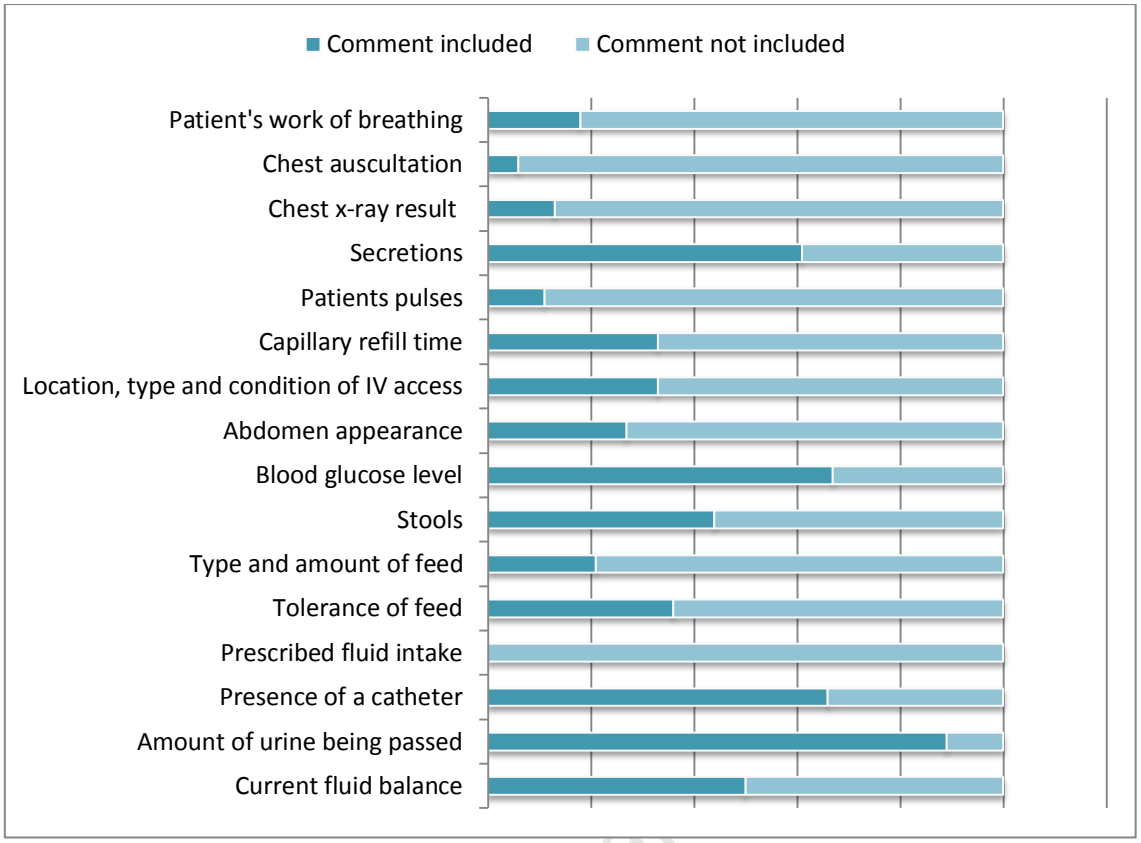


Figure A.8: A depiction of how often a comment was provided about certain key pieces of information

Sepsis was identified by the core participants as being an important component of the bedside handover. However, as participant 3indicates, "*We don't hand over, or seldom, unless it's like the biggest infection you can get*" [focus group 2]. This is supported by the outsider-participant observation data which illustrated that while two thirds of the patients where on antibiotics, for no patient was an indication of their infective agent provided. Similarly, relaying blood test results appeared to be uncommon, reserved for *"if there was a major issue"* [Participant 2, focus group 4] or "*if they received blood*"[Participant 3, focus group 4]. For certain patients, blood results were described as being documented on the observation chart, however this did not equate with an apparent certainty that they would be spoken. Figure A.9 two depicts the frequency with which the information was provided. It was alluded to that interpretation and action related to the blood results and matters of sepsis were the concern of the medical team and not a nursing role.

> *"Well, they [the doctors] still also use the systematic way and they go as extra as ... what is it? Sepsis, and bloods, yeah ... investigations that are being done, investigations to be done, whereas ... whereas we as nurses … phew …"*
> [Participant 10, focus group 3]

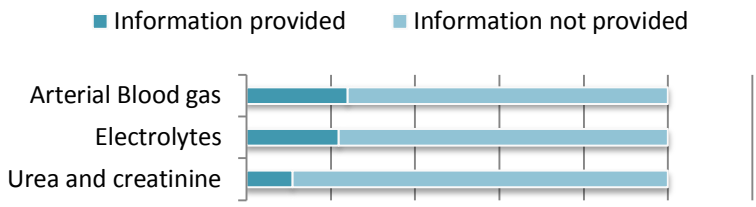


Figure A.9: A depiction of how often a comment was provided about certain blood results

Also within the realm of content, it is important to discuss the social history of the patient and their caregiver. Participant 3 provided a summary of her opinion as to the type of information and the degree to which this information is included in handovers:

> *"I think we're generally quite good with the social stuff …we usually give a good impression or feeling of where the mother is at or where, especially with extended family or whatever what the setup is, and who to allow, or who to say what to and not to say what to, or whatever."* [Participant 3, focus group 2]

The outsider-participant observations concurred with her opinion, finding that in nearly three-quarters of handovers the caregiver was mentioned, although reference to their psychological/physical health was only mentioned in one-quarter of the cases. To note, the core participants enthused that they were far more likely to speak such information than to write it in the patient's nursing notes.

Having outlined the information that is commonly included in the handover, it is noteworthy that during the process of inputting the outsider-participant observation data into MS Excel®, it became apparent that information is sometimes conveyed through omission; that simply by not mentioning a piece of information indicates that for that patient there is nothing to say, that everything is satisfactory. For example, if nothing is reported about the condition of the skin on a baby's bottom, it is normally an indication that the patient does not have nappy rash, or no mention of gastric aspirates is due to the fact that they were not abnormal. This impinges on the numerical data reported above, since for a percentage of the elements, non-reporting of information could simply mean that, in the opinion of the outgoing RN, there was nothing to report.

Similarly, the core participants described how the first-day handover will be more detailed than the second-day handover, the second day being more a report of *"highlights"* [Facilitator, focus group 1], *"issues"* [Participant 6, focus group 1] and *"problems"* [Participant 7, focus group 1], together with the patient's responses to the implementation of doctor's orders. This

too could affect the responses given, since there was a near 60/40 split between first- to second-day handovers.

Reflecting whether it was the norm to have insufficient or incomplete information at the close of handover, the core participants concluded that this did occur *"most of the time"* [Participant 1, focus group 2], that in *"99%"* [Participant 2, focus group 2] of handovers they were left *"to still have to find that information out"* [Facilitator, focus group 2]. In the participant observations, insufficient information was reported by a quarter of the incoming RNs, with another quarter offering no comment. The core participants indicated that they felt that this was not due to the information not being available but rather that it had just not been spoken or that outgoing RNs *"just don't know it"* [Participant 2, focus group 4].

In summary, the content of handover was found to be less than the participants had expressed to be necessary during the action research process. All aspects of the content were lacking to some degree; the insider-participants expressed particular concern about a lack of diagnosis and issues related to sepsis, while the outsider-participant was most alarmed by the exclusion of basic demographic details and the medical history of the patient. On reflection they agreed that essentially the handover consists of a report of the activities conducted within the previous 12-hour shift. It was also identified as being purely fact- based, meaning that it lacks the details that provide a real comprehension of how to nurse the patient.

A.1.3.7 Questions and relationships within handover

The bedside handover is described as being primarily a one-way report from the outgoing RN to the incoming RN; an *"I'm going to speak, you're going to listen"* situation [Facilitator, focus group 1]. Enhanced involvement of the incoming RN is then reported to be dependent on the relationship between them.

Incoming RNs asking questions is a regular event; three-quarters of the incoming RNs in the insider-participant observations were recorded as having asked questions. Such questions are reported to be prompted by a suspicion that they are unlikely to receive sufficient information to enable them to contribute in the later ward round, a need to guide a more junior nurse in her handover style, or as a result of their visual inspection of the patent during handover prompting a need for clarification. Questions, however, are asked with caution since they are not always well received.

> *"So it's good to ask questions during the handover, but not all of us are taking it on the positive."* [Participant 1, focus group 1]

"Some people just have attitude." [Participant 3, focus group 2]

"Some of them, you are going to see them, they get agitated during the handover, and it's like 'Hey, why are you…you should be listening now. You should be just listening, and then I am telling you, and then I am gone'"
[Participant 10, focus group 1]

A dislike for questions being asked by the incoming RN, is explained as being the result of a feeling of intimidation in the outgoing RN which leads to a lack of confidence, and a preference for the incoming RN to not ask any necessary questions.

"And that the outgoing sister can find questions quite intimidating and people regard it as a sort of critique of their work and that this can affect their confidence." [Facilitator in summary of participants' discussion, focus group 3]

"Irrespective of their seniority, because even with some of our seniors, coz there was one senior that I've asked during the round whilst she was busy handing over….. I could see that she was busy getting worked out, getting red, whilst she was handing over and then she just left." [Participant 10, focus group 3]

"But then to a senior sister, if I'm trying to [ask a question], then that's an intimidation, they don't take it well. [Participant 10, focus group 3]

"…. The attitude, sometimes you, the way you handover and the attitudes, you don't feel like asking them [a question], you will just rather read and do your thing for the day, and see from there." [Participant 1, focus group 3]

Insider-participant observations data, however, shows that the majority of incoming RNs reported that they had felt able to ask questions, and despite the core participants implying that day two may be more of a two-way conversation with questions, it was found that slightly more questions were asked on day one. To note, the average duration of handover was almost equal on day one and day two: 11.43 minutes on day one and 12.36 minutes on day two.

The seniority levels of the two RNs handing-over also impacts on the amount of colleague engagement. When reflecting on the situation of a junior RN handing over to a senior RN, participant 1 comments, *"I just get the general feeling that they are a bit scared"* [focus group 2]. Participant 11 simple states that *"There's a lot of undermining"* [focus group 1]. This effect is confirmed by participant 8, who implies that junior nurses may forget information due to anxiety secondary to other people's reported experiences, and participant 3 explains how senior nurses can appear unapproachable and thus prevent questions from being asked.

"And I think that question of yours about juniors; when we are coming in a new place we become more nervous. You don't know what she expects from you and you don't know whether you're telling her the right things, you are putting it the right way. You don't know what question she's going to ask. You are scared. And maybe you have heard some other thing has happened and now you are so

scared. And sometimes you give … miss important things because you are so nervous doing your handover." [Participant 8, focus group 2]

"I can remember when I was a junior there were certain people that intimidated the living daylights out of me. Well, not intimidated, but they just ….you can't actually ask them something because then you're nosy or 'Who are you? You're still a junior, why do you ask me this question?' And that's a big thing, so if you are unapproachable it can be a distraction." [Participant 3, focus group 2]

Lastly, the closeness of the relationship between the incoming and the outgoing RN can also influence handover. Participant 7 describes how if the two conversing RNs are close friends and not just colleagues, the outgoing RN is likely to ensure that she delivers a more comprehensive handover.

"If I'm handing over to my buddy, there's a more detailed report."
[Participant 7, focus group 1]

This suggestion is associated with the handover function of 'preparation for ward round' since an outgoing RN is unlikely to want to leave her close friend not knowing all the patient facts and at risk of being unable to answer a question in the round. This perception was supported by many of the core participants, some of them adding that handover between friends is more of a two-way conversation, with the incoming RN feeling able to ask her friend questions.

A.1.4 Patient appearance and work outstanding

Significant to the handover period is the core participant's depiction of the 'ICU culture'. They describe how when working in PICU there is an expectation for you to be quick, always busy, and getting stuff done so that you are permanently ready for the next event or person. At handover, therefore, they describe how the incoming RN expects that there will be no outstanding tasks and that the patient will be stable, tidy and safe. Following the morning handover, this then permits the incoming nurse adequate time to fully assess the patient and thus be prepared for the impending ward round. The consequence of this not being the case was expressed strongly by the core participants.

Essentially, when taking over a patient, the bed space and patient are judged and if deemed to be *"completely disorganised"* [Participant 7, focus group 1], incoming RNs are left feeling *"agitated"* [Participant 7, focus group 1], *"angry"* [Participant 7, focus group 1] and *"irritated"* [Participant 3, focus group 2].

"It is that suddenly something looks quite daunting if you have this mess in front of you … then it's like…'oh my word!'" [Participant 2, focus group 2].

These reactions are documented to have a potential impact on the handover in a number of ways. Firstly participants describe how sometimes they then choose not to listen to the handover;

> *"Sometimes you don't even listen because you're angry"*
> [Participant 6, focus group 1]

> *"I must confess, I think I then don't actually want to listen to what they say, because I think if this is what the patient looks like then maybe what you're going to tell me is not worth while listening to. And it's not … it's bad for me to think that way, but …."* [Participant 3, focus group 2]

Others describe how they are unable to listen because they are distracted by their own thoughts of how to fix the *"mess"* [Participant 2, focus group 2], that they would rather *"start fresh"* [Participant 1, focus group 2], and therefore regard all the time they spend in handover as time away from the 'fixing'. This in itself can lead to the incoming RN rushing the outgoing RN to complete handover as quickly as possible, encouraging them to only provide the highlights and not a comprehensive handover.

> *"It distracts me because I start fixing as I'm taking over from them."*
> [Participant 7, focus group 1]

> *"…You're building things in your mind, thinking of what I have to do, and I must also do that and you're not listening to her."* [Participant 1, focus group 2]

> *"So you're actually irritated while they're handing over because you're like, 'I just want to start now.'"* [Participant 3, focus group 2]

Secondary to the incoming RN not listening and rather 'fixing', is the fact that the outgoing RN may find these actions themselves distracting, thus leading to a decrease in her concentration and the quality of her handover.

> *"I find it extremely frustrating when you can see that that person is not listening to a word that you are saying."* [Participant 2, focus group 2]

> *"But it influences and affects the person handing over, because I have already been told once 'please stop fiddling, because you are affecting me, I cannot, you're disturbing my train of thought.'"* [Participant 7, focus group 1]

> *"So you then start fixing and they then get distracted. So you're not listening to whatever they're saying but also what they're saying isn't as of good quality because you're fixing."*
> [Facilitator in summary of participants' discussion, focus group 1]

The extent to which the judgement produces the effect being described is however dependent on the RNs involved. Discussions clarified how for some incoming RNs their tolerance of the situation is higher if the outgoing RN is relatively junior or if the patient is very acutely ill,

meaning that the shift would have been particularly busy. For others, as regards to the junior/senior relationship, the reverse is true:

> *"You know because ... and [name] is my senior, I would be more cautious to tell [name], 'you didn't mix that', but I will lash out on a junior."*
> [Participant 11, focus group 1]

> *"So whereas my politeness … if it was another senior then she wouldn't get that politeness; she was going to be getting rough …"* [Participant 10, focus group 3]

The mere knowledge that the judgement may be made, is sufficiently stress-inducing. For some, it increases anxiety at the start of handover and affects their ability to handover effectively. Participant 3 comments that this is particularly true for those nurses who are *"perfectionist … if they* want *to get everything done and they just couldn't"* [Participant 3, focus group 4]. However, she also expresses little sympathy for those who have had opportunities to complete tasks that they are aware will lead to judgement and potentially affect their handover, but have chosen not to take them.

> *"Most of the time I won't ask questions if I can really see that this was a hectic night. But those times that I do ask the question, 'Why is the syringe not changed?' is those times I come on duty and the person is sitting."*
> [Participant 3, focus group 4]

Examples of many of the practices of handover described within this section, were visible in one of the outsider-participant observations, one that was described in the field notes as being "*a true example of hostility between the incoming RN and EN/ENA and the outgoing RN*" [Field notes from outsider-participant observation 8]. Firstly, an example of the need to have completed all tasks was demonstrated by the incoming RN as she remarks to the outgoing RN:

> *"You didn't mark, didn't mark … your labels … 'coz you must!"*
> [IC RN to the OG RN, outsider-participant observation 8]

Secondly, at the start of the second patient's handover, the following field note was taken;

> *'18h59: Moves to start handover in bed 16 … Immediately the [incoming] EN/ENA starts to talk to the patient whilst handover is happening, asking him if he would like the 'pillow' behind his head removing. Patient indicates yes, and so the EN/ENA does this. This visibly distracts the OG RN in her speech. OG RN looks uncomfortable doing handover. The IC RN and IC EN/ENA look bored and like they are not really listening. The patient starts to talk to the ICRN and she engages with him.'* [Field notes from outsider-participant observation 8]

This is followed two minutes later by the next note:

> *'19h01: Shift leader handover comes to bed 15 (takes a few seconds) and then moves to bed 16. The OG shift leader is talking about the patient whilst walking –*

never really stops, is looking at me whilst talking and IC shift leader is engaging with everyone around her. The two shift leaders and not talking to each other at this point. Again the OGRN appears distracted and almost upset.'
[Field notes from outsider-participant observation 8]

The incoming RN, described in the field notes as looking "*disgruntled and has arms folded*", then noticed a change in the feeding pattern on the observation chart of the second patient and queries it with the outgoing RN.

"ICRN: Did you write this?
OGRN: Uhuh – no. That, the nurse [EN/ENA] *wrote it.*
ICRN: Nooooo man – This is actually awkward now – we don't feed like this. This is awkward. We cannot feed 19h00 because we come on duty at 19h00. She doesn't need to write like this. We don't feed at that time! We don't just come and feed. Can you see? [Directed to the IC EN/ENA] And who wrote this? We don't feed like this!" [Outsider-participant observation 8]

The handover then finishes two minutes later, when ongoing field note comments were recorded:

"19h05: ICRN asks the OGRN a question about the N-acetylcysteine for the patient in bed 15. OGRN from bed spaces 17+18 appears to answer the question. The conversation is in Xhosa away from the bed space, but the OGRN of bed spaces 15 and 16 is not really part of the discussion. OGRN proceeds to label N-acetylcysteine on the syringe."
[Field notes from outsider-participant observation 8]

*"19h07: ICEN/ENA tells the OGRN that she is not going to clean up after her every night *gesturing to a mess behind the bed space*. ICEN/ENA seems pissed off. OGRN tidies up the space."* [Field notes from outsider-participant observation 8]

So in summary, handover evidently serves an additional function of judging each other's practice. Nurses are expected to handover tidy patients with no tasks outstanding and if this is not achieved, the handover may potentially be less effective. From the side of the incoming nurse, it means that handover may be rushed, not listened to, or not given the appropriate attention, whereas from the opinion of the outgoing nurses, the potential for or visible judgment may be a considerable distraction that leads to the forgetting of information.

A.1.5 Distractions during handover

The final issue relevant to the bedside handover is that of the capacity for distraction. Analysis of the data highlighted four categories of distractions: the PICU environment, the patients, the nurses, and other healthcare professionals.

The following discussion in focus group two outlines a number of possible distractions evident in the PICU environment:

"Facilitator: … Something you said [name], you can be quite simply distracted during handover and that can mean that you forget something ... are distractions…..what sort of things are distractions and are distractions common?
Participant 8: Mmm [indicating agreement]
Many participants: Mmm [indicating agreement]
Participant 3: Very common. Because it's a big unit so there's a lot of traffic, if I can put it that way. You might have an admission coming in, people wanting to know where the patient is going, or a doctor is coming to quickly just ask "Where do I find this or that?", or ...
Participant 2: Alarms.
Participant 3: Alarms going off, or the phone rang, 'It's for you', or ... a number of things really" [focus group 2]

In corroboration of these comments, and with specific reference to the alarms, the following three situations were recorded in outsider-participant observations:

"Throughout the first handover, there is a commotion occurring in bed 8. The patient has been extubated and appears to be requiring adrenaline nebs, is coughing lots and crying and vomiting. Many nurses present, attending to the patient. ?A distraction"
[Field notes of observation 7, handover occurring in bed spaces 11 & 12]

"06h59: …Immediately after they start, the alarms in bed 6 sound and since her EN/AN is not yet in the bed space, the RRN leaves to attend to that patient. Once baby settled, RRN returns to handover in bed 7.
07h00: Bed 6 baby now crying a lot and so RRN glances across at the bed space.
07h01: RRN leaves to attend to the crying baby in bed 6."
[Field notes of observation 2, handover occurring in bed spaces 7 & 8]

"19h05: Patient in bed space 11 desaturating – Drs called and commenced hand ventilation. HFO alarming as disconnected"
[Field notes of observation 1, handover occurring in bed space 9 & 10]

These excerpts demonstrate how both unsettled patients and the associated alarms can easily act as a distraction to a handover in progress. In the case of observation 7, 'bed 8' was on the opposite side of the unit but the 'commotion' resulted in even the outside-participant herself struggling to concentrate on the action of observing the handover. With regard to the possibility of the telephone being a distraction, the outside-participant observed that this could equally be the nurse's private cell phone or the unit landline.

In contrast, stable and non-sedated patients were also noted to be a distraction. Handover observation 8, in which one of the two patients was a 2-year-old with Guillain-Barre syndrome, was a good example of this;

"18h54: EN/AN arrives in bed space 16 (handover started and continues in bed space 15) and starts to chat to patient in 16 and the RN in 17 who is not yet handing over.

18h55: ICRN stops handover to turn the TV down in bed 16. IC EN/ENA moves to bed 15 to listen to the handover.
18h57: Shift leader comes to talk to the patient in bed 16 and the ICEN/ENA leaves handover to join in.
18h59: Moves to start handover in bed 16. Immediately the EN/ENA starts to talk to the patient whilst handover is happening, asking him if he would like the 'pillow' behind his head removing. Patient indicates yes, and so the EN/ENA does this. This visibly distracts the OGRN in her speech. OGRN looks uncomfortable doing handover. The ICRN and ICEN/ENA look bored and like they are not really listening. The patient starts to talk to the ICRN and she engages with him."
[Field notes from observation 8].

This demonstrates how some patients, and activities designed to entertain and distract them, can actually act as a distraction to the nurses. Nurses appeared to want to interact with the patient, prioritising it, on occasion, over the need to participate in handover itself.

In addition to the patients and physical attributes of the PICU environment, the incoming nurses themselves can also be a distraction.

"No interest from the other person is a big distraction."
[Participant 2, focus group 2]

"Or maybe sometimes ... you….say you're busy with the central nervous system and they would ask a question but about something completely different. Then it takes your attention there. Say it's a very sick child, so now you started here, they asked a question because they see something on the patient, then they ask a question there, then you forget where you left there. So maybe you go on to the next system and miss out half of what you were saying." [Participant 2, focus group 2]

"I can remember when I was a junior there were certain people that intimidated the living daylights out of me. Well, not intimidated, but they just….you can't actually ask them something because then you're nosy or, 'Who are you? You're still a junior, why do you ask me this question?' And that's a big thing, so if you are unapproachable it can be a distraction." [Participant 3, focus group 2]

The presence of other people, not directly related to the handover, either in or entering the bed space during the handover period, also provides an opportunity for distraction and many examples of this were witnessed;

"07h08: Person comes to the bed space and ask if anyone has the keys. ICRN comments no." [Field notes of observation 2, handover commenced at 06h59]

"06h50: Planned to start in bed 21 but the doctor was still writing noes and so proceeds to start in bed 22 instead … felt like it was very out of the ordinary but not really a problem." [Field notes of observation 4]

"06h52: OGEN/ENA interrupts handover to say goodbye"
[Field notes from observation 4, handover commenced at 06h50]

"07h02: Another EN/ENA arrives in the bed space and proceeds to stand behind the handover conversation looking at her phone. ?waiting to speak to someone. Leaves after 30 seconds. Clinical technician arrives in bed space 9 – talks to the patient before moving to bed space 10 to take away the transport sats probe."
[Field notes of observation 5, handover occurring in bed space 9 & 10, currently handing-over patient in bed 10]

"07h00: Another EN/ENA uses the sink between the two bed spaces having a loud conversation with someone outside of the bed spaces."
[Field notes of observation 5, handover commenced at 06h57]

"19h03: RN comes into the bed space to hand a calculator to the ICRN."
[Field notes of observation 7, handover commenced at 18h55]

"19h01: Shift leader handover comes to bed 15 (takes a few seconds) and then moves to bed 16. The OG shift leader is talking about the patient whilst talking – never really stops. Is looking at me whilst talking and IC shift leader is engaging with everyone around her … Again the OGRN appears distracted and almost upset." [Field notes from observation 8].

The sheer number of examples available to demonstrate this point, highlights both the frequency and variety of professionals that have the potential to distract from the practice of handover.

So in summary, the number of possible distractions during handover appears to be prolific and composed of physical attributes of the unit, the patients themselves, the actions of the incoming registered nurse and simply the presence of other professionals within the team.

A.2 DESCRIPTION OF THE SHIFT LEADER HANDOVER

The description of the shift leader handover transpires primarily from the focus group data. The rapid appraisal did not address the shift leader handover due to constraints of both time and permitted size of the research project. Inclusion of the description of this handover in the thick description is therefore to provide context only. Brief observations of the shift leader handover in progress were witnessed during the outsider-participant observations and where possible notes from these will be included in the description.

In short, the shift leader handover is one in which the outgoing shift leader hands-over a brief amount of information about each of the patients to the incoming shift leader. This occurs at the same time as the bedside handover, in the morning and the evening. In addition to the shift leaders, the OMs and clinical managers attend on an irregular basis and only at the morning handover.

It is a walking handover, with the two shift leaders speaking about a patient as they arrive at their bed space. Evident from the outsider-participant observations, the amount of time dedicated to each patient is very little, an estimated 15 seconds to a maximum 2 minutes.

The core participants described how the content of the handover is gathered over the day by the shift leader while conducting their rounds of the patients.

> *"P3: You also do your own rounds, so you did the ward round and then you would go from bed to bed asking 'Was there any changes, anything new?' Maybe if they gave orders in the morning, or if there was a problem on the round in the morning, you would ask 'Is this better, has it changed? Is it the same?' So you basically ask, focused specifically to that patient."* [Participant 3, focus group 2]

> *"For me who has just started, what I do, I go rounds and write down whatever they have said; what are their plans for that patient. Then when I come later and I check it what has it done, and not done, and why. Then I know."* [Participant 8, focus group 2]

The information is then summarised to only the problems or "*flags*" [Participant 3, focus group 2] and then presented to the incoming shift leader. Essentially, the content of the resultant handover is described as being:

> *"It won't be observations and things. If there was a problem with the like urine output, things like that, then we would..."* [Participant 1, focus group 2]

> *"And the infections."* [Participant 1, focus group 2]

> *"Facilitator: And if they were particularly sick, if they were on the oscillator ... that sort of information?*
> *Many participants: Hmmm* [agreement]*"* [Focus group 2]

> *"Or if it's like, we're going to withdraw on this patient, something … those kind of information."* [Participant 2, focus group 2]

> *"Or specific information about the family; if you need to help them out in any way, if we need to sort something out like I don't know what …"* [Participant 3, focus group 2]

> *"You don't want to give too much information in the handover, so basically just the problems."* [Participant 3, focus group 2]

In summary, the shift leader handover is conducted to ensure that key information about each of the patients in the unit is handed-over from the outgoing to the incoming shift leader.

A.3 DESCRIPTION OF THE UNIT HANDOVER

In short, participants described the unit handover as one that provides the incoming nurses with an overview of the upcoming shift together with other information pertinent to the PICU

or hospital environment. It is delivered by one of the OMs and is planned to occur every weekday at 08h30 in a spare bed space in the unit. It is expected to last for 15 minutes.

As with the bedside handover, the intended norm of this practice is different from the actual practice. Data gathered from the unit handover questionnaire and observations confirmed the actual unit handover process, which will be discussed in greater detail in the sections that follow.

A.3.1 Time and necessity of the unit handover

Initially the core participants described how the unit handover starts at 08h30 and lasts for 15 minutes. On later reflection, however, they clarified that it often lasts a full 30 minutes through to 09h00. They reasoned this to be due to the volume and type of information discussed, the frequent need for dialogue resulting from the content and the need for nurses to voice their grievances. Otherwise, on the rarer occasions when it does finish after only 15 minutes, they described how, particularly the EN/ENAs, often remain in the handover location for social conversation.

> *"Sometimes it's meeting is over but then the nurses [EN/ENA] all in from the shed are still talking to this one and that one, before they go back."*
> [Participant 1, focus group 2].

In addition, examination of the unit handover observation data suggests that the unit handover more commonly begins after the intended start time of 08h30 (Figure A.10). It also indicated that it took an average of 7 minutes to gather the nurses together prior to the unit handover commencing.

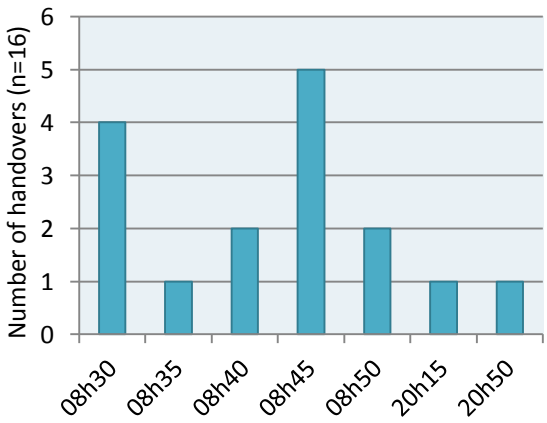


Figure A.10: Observed unit handover start times

Although not discussed within the focus group, it was noted that twice the unit handover had been conducted on the night shift and once on a Saturday. The communication book review, however, depicted that these two night shift unit handovers accounted for two out of only three occasions in the whole seven-month period that the unit handover had occurred at night. The weekend handover only occurred once in the seven months, thus suggesting that the unit handover had possibly been slightly affected by the Hawthorne effect. The start times of those two night unit handovers differed greatly from each other (Figure A.10).

In terms of duration, the unit handover observation data recorded that the handover took an average of 13.6 minutes to complete, a figure that increased to 14.15 for the day shift unit handover if separated from the night shift unit handovers. A slight link between start time and duration was identified, with a later start time leading to a shorter handover (Figure A.11: day shift unit handover only).

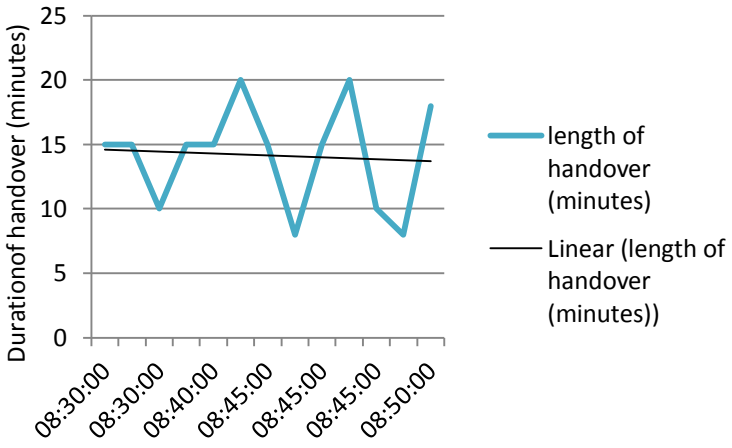


Figure A.11: Link between duration of day shift unit handover and time started (minutes)

Opinions about the time and length of the unit handover were prominently voiced within the focus groups. One participant said:

> *"It's probably the most inappropriate time **ever** to have that meeting; I **never** go to that meeting."* [Participant 2, focus group 2].

Many shared the opinion that 08h30 is not the most appropriate time for a unit handover and when the wider PICU nursing team was questioned, only a quarter agreed with the statement 'I feel that 08h30 is a suitable time of the day for a unit handover' (Figure A.12).

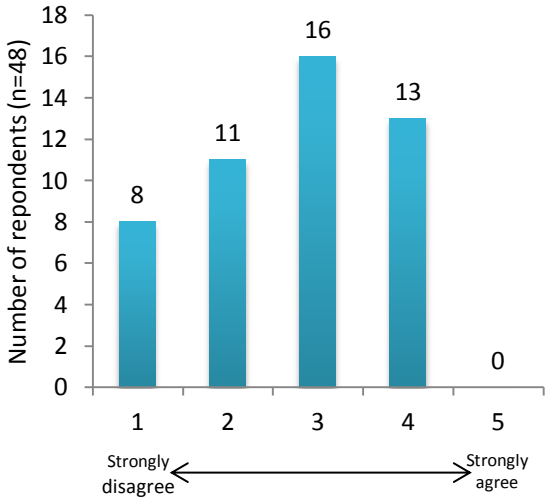


Figure A.12: PICU nursing team's responses to the statement: 'I feel that 08h30 is a suitable time of the day for a unit handover'

The reasons for these opionions centred around a theme of handover taking time away from direct patient care. One participant also comments that there are "too many meetings" [Participant 3, focus group 2] and others explain how other activities occur at the same time of the day as the unit handover, particularly so for some patient groups.

> *"Working with the cardiacs, so now you're leaving the shed, you go to another unit, you're not there, the cardiac ward round usually lasts until 8:15 so…and the ward round starts at 7:30. So you just spent basically 30 to 45 minutes in the shed on a round so that means that you didn't spend any time with your two patients and now you have to go to that meeting... I'm like 'What! Is this ridiculous or what?' Because no, I'm sorry, because then it's 9:00 then it's tea time which means you're coming back at 9:30 so then suddenly you have to take out drains, do x-ray's, take out lines, put up new lines, get this patient out to the ward, receive the next cardiac by 11:15 and give your medication. I mean, no, that doesn't work, so I never go to that meeting."* [Participant 2, focus group 2]

Another participant re-iterates how it often clashes with the medical ward round, resulting in a doctor's request for a nurse to leave the unit handover to participate in the round.

> *"And also it's close to doctor's rounds ... and sometimes you're sitting there and they're asking questions about your patient, now they will call you, like 'Come'."* [Participant 12, focus group 3]

Furthermore, 09h00 is the time when the 'first tea' break starts, so if the handover lasts a full 30minutes, nurses are more likely to not return to their bed space before taking their break, resulting in them having been absent from their patient for an extended period of time.

"That time, it's close to tea time, so then you don't go back to your bedside, because now its 0905 and you go to your partner and say 'I'm going to tea now' and you're leaving her to do observations and the other things to do."
[Participant 5, focus group 3]

In contrast, however, when questioned, only one-quarter of respondents agreed with the statement: 'I worry about the amount of time spent away from the bedside attending the unit handover' (Figure A.13) and only a few regarded 15 minutes for the unit as being too much (Figure A.14). Note that nearly half chose the intermediate answer of option three (Figure A.14).

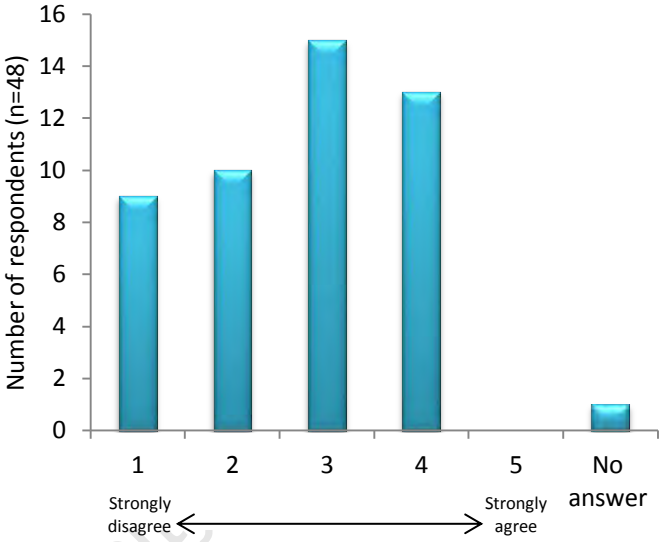


Figure A.13: PICU nursing team's responses to the statement, 'I worry about the amount of time spent away from the bedside attending the unit handover'

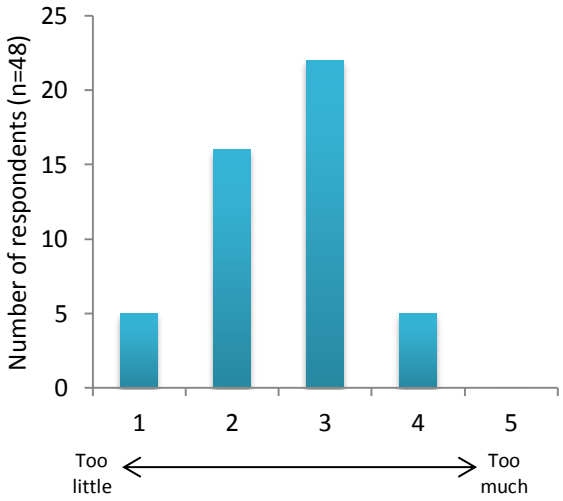


Figure A.14: PICU nursing team's responses to the statement: 'I feel that the 15 minutes spent on the unit handover is…'

In summary, one participant philosophically comments,

> *"Well on my perspective I would say that as much as it's a good initiation, I don't think that there ... I wouldn't pick a specific time to say this is the best time, because in ICU the whole shift is just busy, you see? Even if we would say 'ok after two', there is always something. There is always an adrenaline in ICU."* [Participant 8, focus group 3]

A.3.2 Attendance at the unit handover

Those RNs and EN/ENAs who are allocated to 'first tea'[12] are expected to attend the unit handover each day. This means that approximately half of all the nurses on duty should be present at the handover which, when adequately staffed, should equate to approximately 10 individuals. In addition to this, the Clinical Mentors and the OM not delivering handover are invited to attend.

It was highlighted, however, that while the EN/ENAs can attend easily, the RNs find it more of a challenge. Participants describe how unstable patients may render a RN too busy to attend, a situation more common for a senior RN than a junior.

> *"If you have got stable patients, like I don't have any problems and a steady patient then I do go but if I'm busy then I don't go."* [Participant 8, focus group 2]

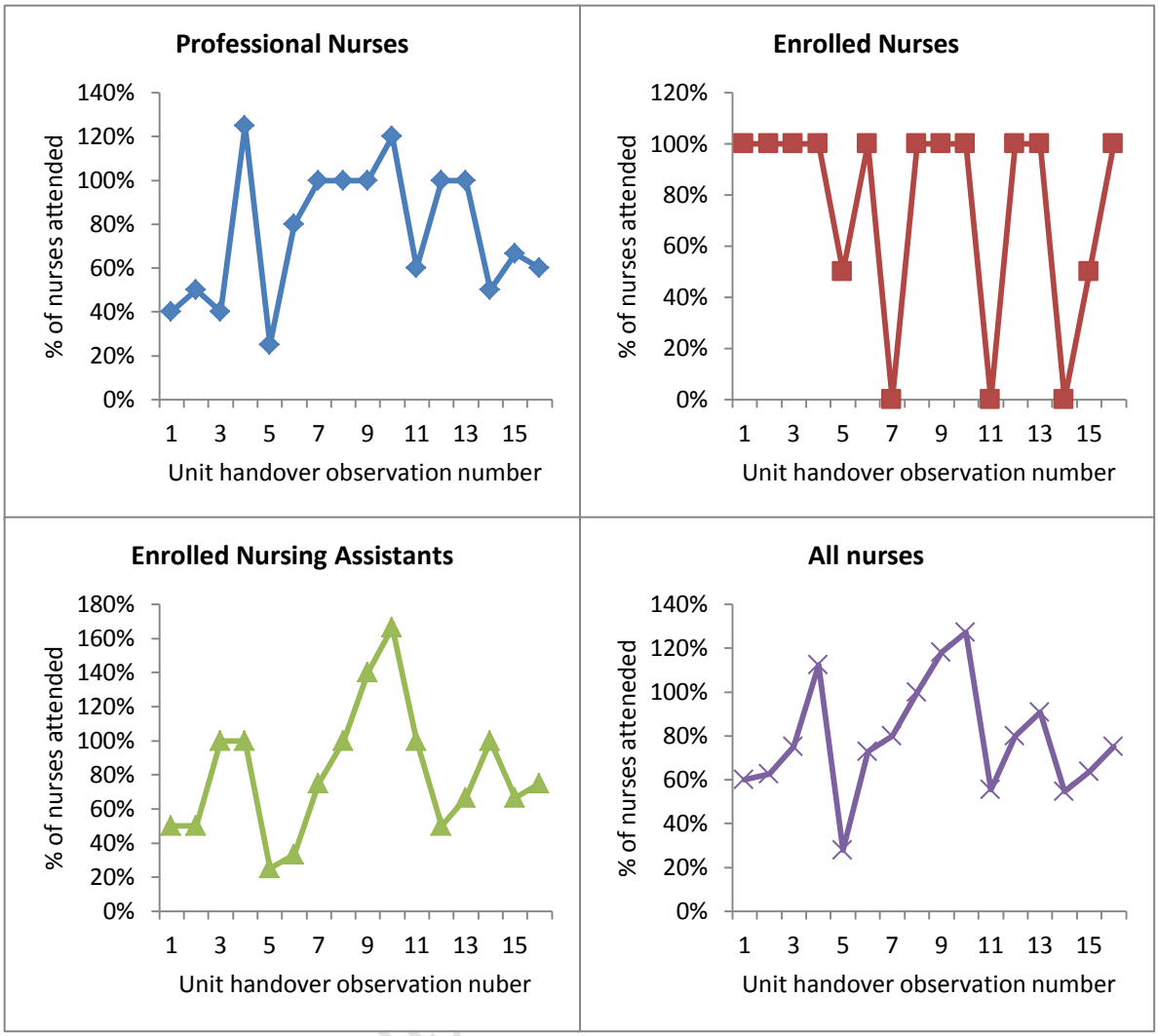
[12]'First tea' and 'second tea' is seen as a way in which to separate the nurses on duty into two different groups. Essentially it dictates that those on 'first tea' go between 09h00 and 09h30 with 'second tea' starting at 09h30, but also provides groupings for other activities as well such as unit handover attendance.

> *"The reality … is that the more senior people like us, we get the sicker patients, so it very, very seldom happens that we get stable patients to actually free youup to go to that meeting."* [Participant 2, focus group 2]

> *"The nurses [EN/ENAs] are great and they usually tend to attend the meeting quite well."* [Participant 2, focus group 2]

When comparing this description with the findings of the unit handover observations, concurrence is clear. Referring to Figures A.15 – A.18, the percentages depicted represent the actual nurse attendance in comparison with the expected attendance. Average attendance for the three grades of nurses was not substantially different, yet the frequency at which they achieved 100% attendance showed a marked difference. The RNs and ENAs only achieved 100% attendance in two-fifths of handovers, whereas the ENs achieved it almost two-thirds of the time. An attendance of less than half was found in five handovers for the RNs and four for the ENAs.

It is, however, important to note that there are fewer ENs employed in the unit than any other, resulting in a situation where in just over one-third of the observations only one EN was expected to attend, which she did, in all but one day.



Figures A.15 – A.18: Attendance at unit handover

A.3.3 Frequency of occurrence of the unit handover

The communication book review revealed that over the course of seven months, the unit handover was predominantly a weekday day-shift activity. As previously described, its occurrence on night or weekend shifts was extremely limited. Figure A.19 depicts the frequency at which the unit handover was conducted during February to August, the lower line representing the overall occurrence, and the upper line only the weekdays. In essence, irrespective of the weekend days, during the seven-month period the unit handover never every day in a week; at best it occurred on only three-quarters of days and at least only on only a third.

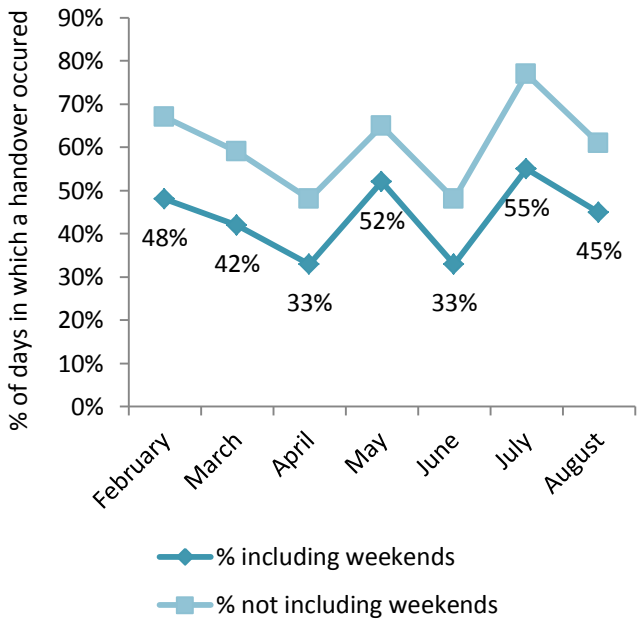


Figure A.19: A depiction of how often the unit handover occurs

Variance in frequency of occurrence was also evident between the days of the week. Figure A.20 clearly highlights how a unit handover was less likely to occur on a Tuesday. Core participants explained that this was due to the overrunning of the shift leader meeting which is from 08h00 to 08h30 on a Tuesday morning.

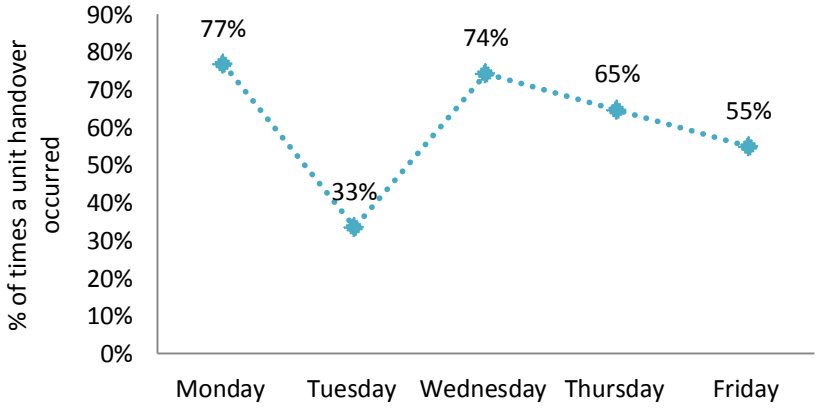


Figure A.20: Occurrence of unit handover by weekday

A.3.4 Content and worth of the unit handover

Progressing to discuss the content and worth of the unit handover, Participant 8 [focus group 2] describes how overall the unit handover gives *"a clear, like a guide of what's going to happen for that day … some clarity"*. Probing deeper, other participants give more precise details of the content of the unit handover:

> *"Unit stats and new things that are being done on the unit, and what is going to be happening and the new information, government information…and our unit*

manager at times tries to twist her arms in some things that she wants the unit to do." [Participant 10, focus group 3]

"It's happenings for the days, and also if there's meetings from [name], things that we need to inform staff about and things [name] is, he is not satisfied with, we just handover there what he wants us to do." [Participant 1, focus group 2]

The analysis of the content of the unit handover observations supported these descriptions, identifying that four categories of information exist: current unit statistics, messages related to clinical practice, messages related to administration, upcoming events (internal and external). Current unit statistics could be further divided into sub-categories of the total number of patients, the number of professional and enrolled/assistant nurses on duty, possible discharges, expected admissions/surgeries and the number of open beds, although it was noted that not all of these elements were spoken of in every unit handover.

With regard to the value of receiving such information, the questionnaire results demonstrated how the nursing team were not consistent in their opinion. When asked to respond to the statement: 'I feel that it is useful to be informed about the situation in the rest of the unit', the majority answered 'Agree' (Figure A.21), but not one answered 'I strongly agree'.

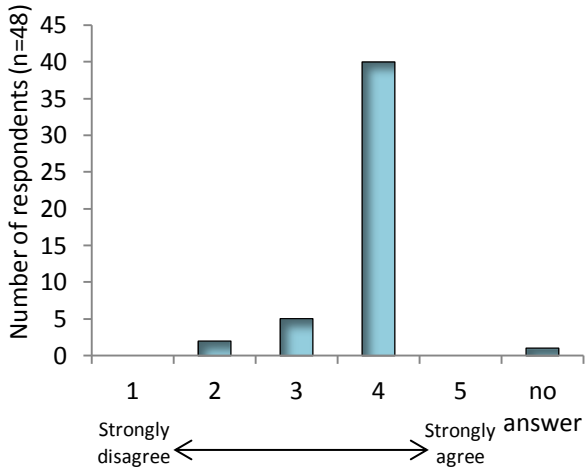


Figure A.21: PICU nursing team's responses to the statement: 'I feel that it is useful to be informed about the situation in the rest of the unit'

Their answers, however, to the statement: 'I feel that the unit handover is an appropriate time to inform us about new PICU, hospital or national nursing policies/information', were far more diverse (Figure A.22). Indeed, 50% of the nurses believed that such information should be delivered in the Thursday Nursing Meeting, despite only 27% of nurses reporting that they attended the Thursday meeting 'frequently' or 'always'.

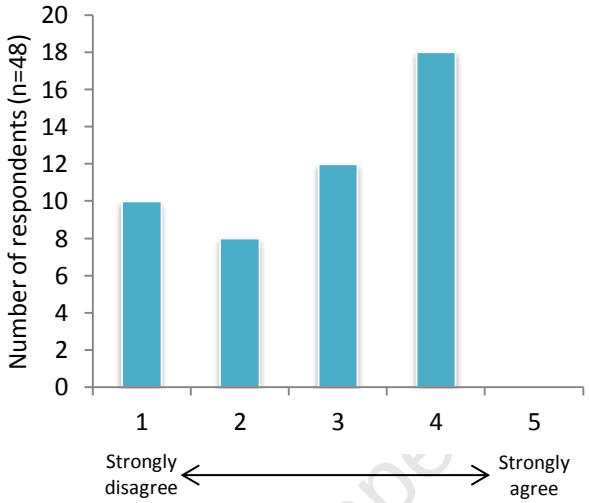


Figure A.22: PICU nursing team's responses to the statement: 'I feel that the unit handover is an appropriate time to inform us about new PICU, hospital or national nursing policies/information'

Remarks on this issue were made within the focus groups, with the core participants also adding comments as to the importance of the handovers location.

> *"I feel that it is necessary that we should be given that short handover…and even if we are having a red box, we are in the unit, we are close to the bedside during that time."* [Participant 10, focus group 3]

> *"I think it's great, it's a good way of communicating stuff that goes on."* [Participant 2, focus group 2]

In summary, analysis demonstrates that the actual content of the unit handover reflects the intended content, but that different worth is attributed to the different categories.

A.3.5 The communication book

Absence from the unit handover for half of the nursing team is to be expected, since only ever half of the team is allocated to attend. This, however, does not mean that those not attending do not need the information being delivered. Messages related to clinical practice, administration and upcoming events can be heard the following day, when they are allocated to attend. However, the unit statistics change daily and may contain information that is pertinent to their patient.

In light of this, the core participants describe how, firstly, the shift leader is required to ensure that all important information is passed on to those who need to know. Secondly, the OM is known to write in a 'communication book', both the content of the unit handover itself together with the names of the people who attended, next to which the individual nurse then signs.

The communication book review, however, highlighted that some inconsistencies between the book and the handover observations existed. It was noted that on the days when unit handover observations had occurred, the number of nurses recorded on the data collection sheet to have attended the handover, did not match the number detailed in the communication book. Further, the recording of unit handover content within the book was found to be not overly efficient. The documented version of the content was very brief, commonly limited to one or two words. Participant 10 confirms this, describing how the information "*it's not in detail*" [focus group 3]. This leaves the wording open to individual interpretation. During one conversation with an OM, both she and myself, in my facilitator role, read the same entry in the book: 'No OT on leave'. I interpreted this message to mean, 'No occupational therapist as they are on leave', whereas the operational manager said that the correct interpretation was that no nurse was allowed to work overtime while they were on leave.

These findings therefore raise questions about the efficiency the book at making information available to those unable to attend. To this issue, a conversation between one participant and myself in a focus group, adds a pertinent point;

> "Participant 2: The only time *I read that book is when I have super stable children, I just … really when there is nothing else to be done … but I mean there is always something to be done.*
> *Facilitator: So if you can't get to the meeting because your patient's too unstable, then chances are you're not going to get time to read the book either?*
> *Participant 2: No."* [Participant 2 and facilitator, focus group 4]

Participant three supports this and offers further comment;

> *"I find the nurses read it more than the sisters for some reason, I don't know why. They love reading that book … I never read that book."*
> [Participant 3, focus group 4].

A.4 SUMMARY OF THE EXISTING PICU NURSING SHIFT HANDOVER PRACTICE

To conclude, the existing nursing shift handover practice in PICU consists of three handovers: the bedside handover which coincides with the shift leader handover; both are succeeded by

the unit handover. Existing practice norms, certainly for the bedside and unit handovers, differ considerably from what is the intended practice and, to some degree, the understanding of what is currently happening.

APPENDIX B: ETHICS APPROVAL LETTER ISSUED NOVEMBER 2011

UNIVERSITY OF CAPE TOWN

Health Sciences Faculty
Human Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6338 • **Facsimile** [021] 406 6411
e-mail: shuretta.thomas@uct.ac.za

11 November 2011

HREC REF: 531/2011

Ms C Davis
c/o A/Prof M Coetzee
Paediatrics
Child Nurse Practice Development Initiative
Red Cross War Memorial Children's Hospital

Dear Ms Davis

PROJECT TITLE: OPTIMISING NURSING SHIFT HANDOVER IN PAEDIATRIC INTENSIVE CARE.

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year till the 28 November 2012.

Please submit a progress form, using the standardised Annual Report Form (FHS016), if the study continues beyond the approval period. Please submit a Standard Closure form (FHS010) if the study is completed within the approval period.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC. REF in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, HSF HUMAN ETHICS
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

s.thomas

APPENDIX C: ETHICS APPROVAL LETTER ISSUED DECEMBER 2012

HUMAN RESEARCH ETHICS COMMITTEE
11 DEC 2012
HEALTH SCIENCES FACULTY

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

FHS016: Annual Progress Report

HREC office use only (FWA00001637; IRB00001938)			
This serves as notification of annual approval, including any documentation described below			
☑ Approved	Annual progress report		
☐ Not approved	See attached comments		
Expiry date	30 NOV 2013		
Signature Chairperson of the HREC		Date	12/12/12

Principal Investigator to complete the following:

1. Protocol information

Date	28th November 2012
HREC REF Number	531/2011
Protocol title	OPTIMISING NURSING SHIFT HANDOVER IN PAEDIATRIC INTENSIVE CARE
Protocol number (if applicable)	
Principal Investigator	CLARE DAVIS
Department / Office Internal Mail Address	CHILD NURSE PRACTICE DEVELOPMENT INITIATIVE, DEPT. OF PAEDIATRICS, ICH BUILDING, RED CROSS HOSPITAL

1.1 Does this protocol receive US Federal funding?	☐ Yes	☑ No
1.2 Has sponsorship of this study changed? If yes, please attach a revised summary of the budget.	☐ Yes	☑ No

2. List of documentation

3. Protocol status (tick ✓)

☐	Open to enrolment

APPENDIX D: LETTER INDICATING PERMISSION TO CONDUCT THE STUDY AT RCWMCH.

Western Cape Government
Health

MANAGER: MEDICAL SERVICES
REFERENCE:
ENQUIRIES: DR TA BLAKE
EMAIL: THOMAS.BLAKE@PGWC.GOV.ZA

Ms Clare Davis
Lecturer Practitioner: Child Critical Care Nursing
Child Nurse Practice Development Initiative
School of Child & Adolescent Health, UCT

Dear Ms Davis,

Request for permission to conduct research in PICU at RCWMCH

Your application has been considered and approval to proceed is hereby granted.

DR T A BLAKE
MANAGER: MEDICAL SERVICES
RED CROSS WAR MEMORIAL CHILDREN'S HOSPITAL

DATE: 10 February 2012

Klipfontein Road, Rondebosch, 7700
Tel: +27 21 658 5788 fax: +27 21 658 5166
Private Bag X5, Rondebosch, 7701
www.capegateway.gcv.za

APPENDIX E: SUMMARY OF STUDY GIVEN OUT TO PICU NURSING TEAM AT INTRODUCTORY MEETINGS

PICU handover study

Thank you for taking the time to listen to us today, and I hope that you have been interested by what you heard!

I really hope that you would like to be involved in the handover study but ask you to read through this information once more before you get in touch.

Why are we looking to optimise our PICU handover?

Having read lots of literature about nursing handover, four things are clear:

1. That handover is done differently by different people, in different specialities, in different settings and for different reasons. None of these practices are best but rather that they are right for each individual or place!
2. That handover takes time and is regular and important occurrence in a nurses' day
3. That the quality of handover can considerably affect patient care and patient safety
4. That internationally, there has been a call to improve handover and make them as efficient as they can possibly be!

So what are we going to do?

A research study to help us make the practice of handover here in PICU at Red Cross War Memorial Children's Hospital (RCWMCH), the best that it can be within our setting.

The research report will be submitted as part of my Masters in Nursing but this will be our study, and not mine – you are being asked to be ACTIVE participants, and I will act as a facilitator.

Who can be actively involved?

If you are either...

a) A registered nurse with a specialist qualification in child critical care nursing
b) A registered nurse with a specialist qualification in adult critical care nursing
c) A registered nurse with a keen interest in this subject

...then please get in touch!!

What will we actually need to do?

The study will happen in three stages:

1. Describe what the current practice of handover is in the PICU at RCWMCH.
2. Establish what would be a quality handover in PICU at RCWMCH.
3. Develop a handover approach that will optimise the efficiency and quality of handover in this setting. Trial and evaluate this approach.

Exactly how we will do this, I cannot tell you at the moment. We will use an Action Research methodology – this essentially means that the outcome of each stage will help us to decide how to do the next stage! I can tell you about stage one....

Stage one will be in the form of **focus groups**, which will be held at a **time suitable to you**, here **at the RCWMCH**. They will be approximately **2 hours** long. I ask that everyone try to attend the first focus group but recognise that as the study develops, it will be possible that due to nursing shifts and personal lives that everyone may not be able to attend every activity, so only that you attend when you can. I hope that the data collection phase of the study, and therefore your direct involvement, will be **finished in June/July.**

How will this benefit you?

I hope that by the end of the study,

- We will have developed a new approach to handover that is efficient, making your handover easier and your patients safer.
- You will have enjoyed being involved in the study and maybe even be motivated to become involved in nursing research again!

A couple of things I must tell you...

1. The only costs to you will be your time and possibly travel costs. To ensure that these are both kept to a minimum, I plan to hold any meetings at times suitable to you, but also in consideration of the service need. I also have the capacity to reimburse you for any journey you make outside of your normal costs of travelling to work and will supply tea and eats when we meet!
2. I also can assure you that all data collected will be kept in a secure, locked place, and that anonymity can be assured in the final research report.
3. Your participation is totally voluntary and that formal consent to participate will be taken.

Having read this information, if you are interested in being involved in the study or have any further questions, then please send me an SMS stating your name to 0713433028, by Monday 2nd April.

APPENDIX F: CORE PARTICIPANT STUDY OUTLINE AND CONSENT FORM

Dear all participants,

Re: Optimising nursing shift handover in paediatric intensive care

Firstly, can I thank you for expressing an interest in participating in this research study. To introduce myself, my name is Clare Davis. I am a paediatric critical care clinical nurse, a critical care child lecturer-practitioner and am currently undertaking my Master of Science in Nursing at the University of Cape Town.

The title of the research is 'Optimising nursing shift handover in Paediatric Intensive Care.'

The purpose of the research is twofold;

- ✓ Firstly and most importantly, it will address the practice of handover, an area of nursing practice that I believe could be optimised, resulting in safer patients and possibly easier working lives for nurses!
- ✓ Secondly, it will serve as the dissertation for my Masters.

Why is it important to do this research?

- ✓ We know, that the process of handover is a key part of a nurses' day.
- ✓ It ensures that all information about and responsibility for a patient is passed from one nurse to another. This allows for continuous, safe and appropriate patient care to be planned and implemented.
- ✓ We know that handover takes up lots of time in a nurse's day and that the quality of handover varies between nurses. The quality affects a nurse's ability to provide care and to ensure the safety of the patient.
- ✓ Lots of research has been carried out to describe the process of handover, but interestingly few of these studies looked specifically at the practice in a Paediatric Intensive Care setting. Other literature suggests that often handover practice is not all the same and that it varies in terms of how effective it is. Many strategies for improving handover have been described and evaluated in other settings.
- ✓ Across the world it has been recognised that handover time puts patients at significant risk and so many the World health Organisation has recommended that all healthcare settings improve their practice.

The aim of this research is:

The aim of this study is to optimise the quality and efficiency of nursing shift handover in the PICU at the RCWMCH, Cape Town, South Africa, by using a participative approach.

Specifically **the objectives** are:

1. To engage the nursing and medical leadership of this unit in a participative change process
2. To recruit a core group of registered nurse participants from the PICU
3. Together with the core group to describe the existing nursing shift handover in the PICU
4. To collaboratively identify features of the existing handover requiring optimisation
5. To collaboratively identify, develop and implement strategies to optimise the existing nursing shift handover
6. To evaluate the implemented strategies for optimising the quality and efficiency of the nursing shift handover
7. To make a timely withdrawal from the study setting.

What is the anticipated outcome of the research? What are the benefits to you?

This research is going to be conducted in a manner that truly engages the nurses actually working clinically in the setting. You know best what your handover practice is and what would make it better. The research is not about describing the negative side of handover in PICU at RCWMCH, but rather listening to your knowledge and experience and for us together to come up with a plan of to optimise the practice.

Once the research is completed, I anticipate that there will be a standardised approach to handover that can be permanently implemented into PICU at Red Cross Children's Hospital, and that it will as a result improve patient care and safety. I also plan to publish the results of the research since this will contribute to the international gap in the literature concerning nursing handover in PICU.

In terms of benefits to you, I hope that you enjoy this research process. Previous researchers using similar methods report that participants believe the method empowered them and made them more motivated in their job!

Criteria for participants

You have all been asked to participate in the research because you are registered nurses:

- ✓ With a child critical care nursing qualification,
- ✓ With a registered nurse with a keen interest in the topic OR
- ✓ Part of the PICU nursing management team

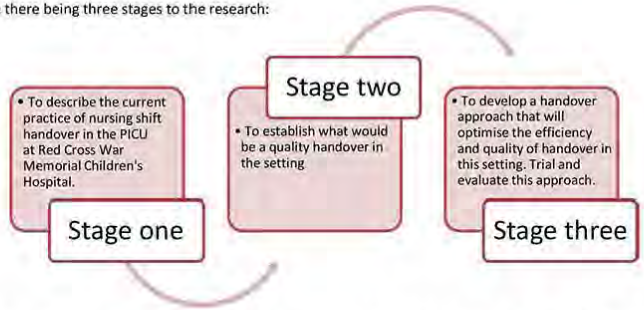
! Your participation is very much appreciated but I must reassure you that it is completely voluntary and you are not obliged to take part.

If at any time you change your mind and no longer wish to participate, you can withdraw; no explanation will be requested and no consequences will result.

So what will you actually have to do?

The research will be conducted using an action research approach. This simply means two things: 1) That you will play an equal role in the research and change process – your knowledge, experience and ideas are what will guide the whole process. 2) Exactly what the research entails will become clear as the research develops.

I foresee there being three stages to the research:



We will start with stage one, and the outcome of stage one will guide us as to how to do stage two. Likewise, stage two will guide stage three. Unfortunately, I therefore cannot tell you exactly what you will be required to do, but I can give you a guide to stage one.

The active 'data collection' phase of the study will run from May to July/August, and I ask that you are involved as much as possible as and when your nursing and personal commitments permit.

Stage One (to be held mid-May):

- Focus groups
- Maximum 2 hours long
- Will be audio-taped
- Held at RCWMCH at times suitable to you
- Tea and eats supplied!
- Travel to and from the hospital, *if outside of normal nursing shifts*, will be reimbursed with an amount of R20 each way.

Ethical considerations

This research has both ethical approval from the Health Sciences Faculty, Human Research Ethics Committee and site permission from the RCWMCH, Manager of Medical Services.

Consent: This letter will serve as the consent giving process, and I must assure you again that your participation is voluntary and you are able to withdraw at any time with no consequences to yourself.

Confidentiality: In written reports that I write, I assure you that words you said will remain confidential at all times; I will use pseudonyms and allow you to read the report before it is published outside of the university. Information provided in the demographic questionnaire, and other documented conversations will be captured on my computer and kept in a file that is only accessible by password. Tapes from any audio-taped conversations will also be kept in a secure locked place known only by myself. I will destroy all data three years after the research has been completed.

For conversations had within the focus groups, I ask that respect each other's confidentiality and not repeat anything outside of the groups. I will remind you of this collective confidentiality at the start of each meeting. I also ask that whilst discussing handover practice in this setting, if you want to give an example, you do so without referring to colleagues outside of the group by name.

Fairness: All meetings will be scheduled at times to suit as many of you as possible, and re-imbursement of R20 each way will be granted if required to travel outside of normal working hours. Through liaison with PICU nursing management, provision of a nursing service in the setting will be maintained at all times.

I hope you are eager to start the research, but should you want any more information or have any questions at any stage, then please feel free to contact me at:

Clare Davis – 0216585379/0713433028 – clare.davis@uct.ac.za

Or my supervisor:

Minette Coetzee – minette.coetzee@uct.ac.za

Or the head of the Ethics Committee:

Professor M Blockman – Marc.Blockman@uct.ac.za – 021 406 6338 (Research Ethics Committee)

Thank you and see you at the first focus group!

Clare

Clare Davis

Student Number: DVSCLA006

Consent form

Facilitator: **Clare Davis** (student number: DVSCLA006)

Research study for Master of Science in Nursing at the University of Cape Town

Title: **Optimising nursing shift handover in Paediatric Intensive Care**

I _____ have read the Information Sheet. I understand what is required of me and I have had all my questions answered. I do not feel that I am forced to take part in this study and I am doing so of my own free will. I know that I can withdraw at any time if I so wish and that it will have no bad consequences for me.

I understand that total confidentiality cannot be assured by the researcher alone and so agree to maintain collective confidentiality within the group of participants. I understand the additional methods that the researcher will operate to ensure my confidentiality in written/audio format.

Signed:

_____ _____

Participant Date and place

_____ _____

Facilitator Date and place

_____ _____

Witness (if necessary) Date and place

APPENDIX G: CORE PARTICIPANT DEMOGRAPHIC QUESTIONNAIRE

Participant Demographics Questionnaire

Thank you for consenting to be a participant in this study. Please complete the following short questionnaire as accurately as possible.

The results collected from this questionnaire will be used in the final report to purely describe the demographics of the participants to the reader. You are therefore not required to give your name anywhere on the form.

Please tick the appropriate box or write where necessary.

How many years have you worked in RCWMCH Paediatric Intensive Care Unit?

1 – 2 years		**10 – 15 years**	
2 – 5 years		**15 – 20 years**	
5 – 10 years		**20+ years**	

How many years have you been qualified as a professional nurse?

1 – 2 years		**10 – 15 years**	
2 – 5 years		**15 – 20 years**	
5 – 10 years		**20+ years**	

In addition to your general nurse training, what are your additional nursing qualifications?

Child Critical Care nursing	**Yes**		**Adult critical care nursing**	**Yes**	
	No			**No**	

Paediatrics/ Child nursing	**Yes**	
	No	

Other, please write details...

If you have a Postgraduate Diploma in Critical Care Child Nursing, what year did you graduate?

2011		**2008**		**2005**	
2010		**2007**		**Earlier**	
2009		**2006**			

What is your age?

20 – 29		**40 - 49**		**60 +**	
30 – 39		**50 – 59**			

Thank you, Clare

APPENDIX H: CONFIDENTIALITY AGREEMENT SIGNED BY TRANSCRIBER (1)

Statement of confidentiality

Confidentiality of translation/transcription for the UCT research study titled 'Optimising Nursing Shift Handover in Paediatric Intensive Care' (HREC REF: 531/2011)

I, Sasha-Lee Hendry confirm that I understand the principles of data protection and thus the importance of maintaining the confidentiality of participants involved in research projects. In my role as a translator and transcriber of audio data for the above mentioned research project, I ensure full confidentiality of all information passed to me by the researcher. I agree to keep the audio files in a secure place, and to password protect the transcribed word documents throughout. On completion of the audio transcribing, I agree to delete all files from my computer once I have received confirmation to do so from the researcher.

Signed by:

Translator/Transcriber	1.6.2012 Date and place
Researcher	5 June 2012 Date and place

Agreement between Clare Davis (UCT student, DVSCLA006) and Sasha Hendry

PICU Handover rapid appraisal:
Confirming the Bedside Handover

(tick the boxes where applicable)

Are you giving or receiving this handover?	☐ Giving handover ☐ Receiving handover
When did this handover happen? (Please circle)	Mon Tues Wed Thurs Fri Sat Sun Morning OR Evening

How sick do you think the children were? (please circle a number on the scale)					
Child One:	1	2	3	4	5
	Not very sick ----------→				Very sick
Child Two:	1	2	3	4	5
	Not very sick ----------→				Very sick

Time of handover

Please be specific with the times!

What time did the handover for child one start?		What time did the handover for child two finish?	
Please circle the face that best describes how you feel about the time this handover started.			

Did this handover feel rushed?	☐ Yes ☐ No

People present at handover

Who was present at handover?	Incoming Sister	Present at the start? ☐ Yes ☐ No	Present throughout? ☐ Yes ☐ No
	Staff/Nursing Assistant	Present at the start? ☐ Yes ☐ No	Present throughout? ☐ Yes ☐ No
	Caregiver/ parent	Present at the start? ☐ Yes ☐ No	Present throughout? ☐ Yes ☐ No
	Anybody else present? Please state who.		

Relationship between the sisters

Who is the more senior sister?	☐ Outgoing Sister ☐ Incoming Sister ☐ Equal
Would you describe the sisters as being good friends?	☐ Yes ☐ No

Had the incoming sister nursed the patient before?	☐ Yes	☐ No

Structure and outcome of handover

How was the handover structured?
Please tick the box of the most appropriate option

☐ **Systems approach**	☐ **Read the observation chart**	☐ **Combination of the two styles**	☐ **Neither**
(Handover given by presenting the systems of the body individually, eg. CNS, Respiratory, CVS, GIT, Renal etc)	(Handover delivered by 'reading the observation chart' from top to bottom, page one then page two)	(Read from observation chart but grouping the information into systems)	please give details: _____ _____ _____ _____ _____

Outcome of the handover

Did the incoming sister ask questions?	☐ Yes ☐ No		
If you are the incoming sister, did you feel able to ask questions?	☐ Yes ☐ No	Please explain:	
If you are the incoming sister, did you feel like you were given sufficient information?	☐ Yes ☐ No	Please explain:	

APPENDIX J: BEDSIDE HANDOVER 'TIMES QUESTIONNAIRE'

PICU Handover Rapid Appraisal – Bedside handover 'times questionnaire'

Question one: What time do YOU think the work day starts?

Question two: What time do YOU think people should be in the bed space to receive handover?

Question three: What time do YOU consider a person late to work?

Question four: What time do you expect to go home?

Wednesday day

Question five: What time did you get here this morning?

	Registered Nurse (RN) Enrolled Nurse (EN) Enrolled Nursing Assistant (ENA)	Answer to question one	Answer to question two	Answer to question three	Answer to question four	Answer to question five
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

APPENDIX K: DATA COLLECTION FORM FOR INSIDER-PARTICIPANT UNIT HANDOVER OBSERVATIONS

PICU Handover Rapid Appraisal – Confirming the Unit (08h30) Handover

1. What **time were people called to the unit handover** today?	
2. What time did the unit **handover start** today?	
3. What time did the unit **handover finish** today?	

4. Attendance – **number allocated** to first tea vs. **number attended** unit handover

Sisters		Staff nurses		Nursing Assistants	
Allocated to 1st tea	Attended unit handover	Allocated to 1st tea	Attended unit handover	Allocated to 1st tea	Attended unit handover

5. Please write below a list of the **information you PLAN to give** during the unit handover today
6. Next put a tick next to each piece of **information you ACTUALLY spoke** about in full.
7. Note down any **extra information spoken** that you did not plan to discuss during handover today.

□ **Tick here** if no extra information was given to that which was planned.

APPENDIX L: UNIT HANDOVER QUESTIONNAIRE

PICU Handover Rapid Appraisal – Unit (08h30) handover questionnaire

Dear Sister, Staff Nurse or Assistant Nurse,

Please can you complete this questionnaire to help us further our knowledge of the current practice of handover in PICU. Your replies are anonymous and so please be honest!

Thank you from the PICU handover research team

To answer, you just need to CIRCLE THE MOST APPROPRIATE NUMBER in reply to the following seven questions.

Q1: **I feel that 08h30 is a suitable time of the day for a unit handover**

1	2	3	4
Strongly disagree	→		Strongly agree

Q2: **I feel that the 15minutes spent on the handover at 08h30 is:**

1	2	3	4
Too little	→		Too much

Q3: **I feel that it is useful to be informed about the situation in the rest of the unit (e.g. staffing, other patients and anticipated movement)**

1	2	3	4
Strongly disagree	→		Strongly agree

Q4**: I feel that the handover at 08h30 is an appropriate time to inform us about new PICU, hospital or national nursing policies/information**

1	2	3	4
Strongly disagree	→		Strongly agree

Q5: **I worry about the amount of time spent away from the bedside attending the handover at 08h30**

1	2	3	4
Strongly disagree	→		Strongly agree

Q6**: I feel that the Thursday nursing meeting is an appropriate time to inform us about new PICU, hospital or national nursing policies/information**

1	2	3	4
Strongly disagree	→		Strongly agree

Q7: **When I am on shift, I attend the Thursday nursing meeting:**

Never	Rarely	Occasionally	Frequently	Always

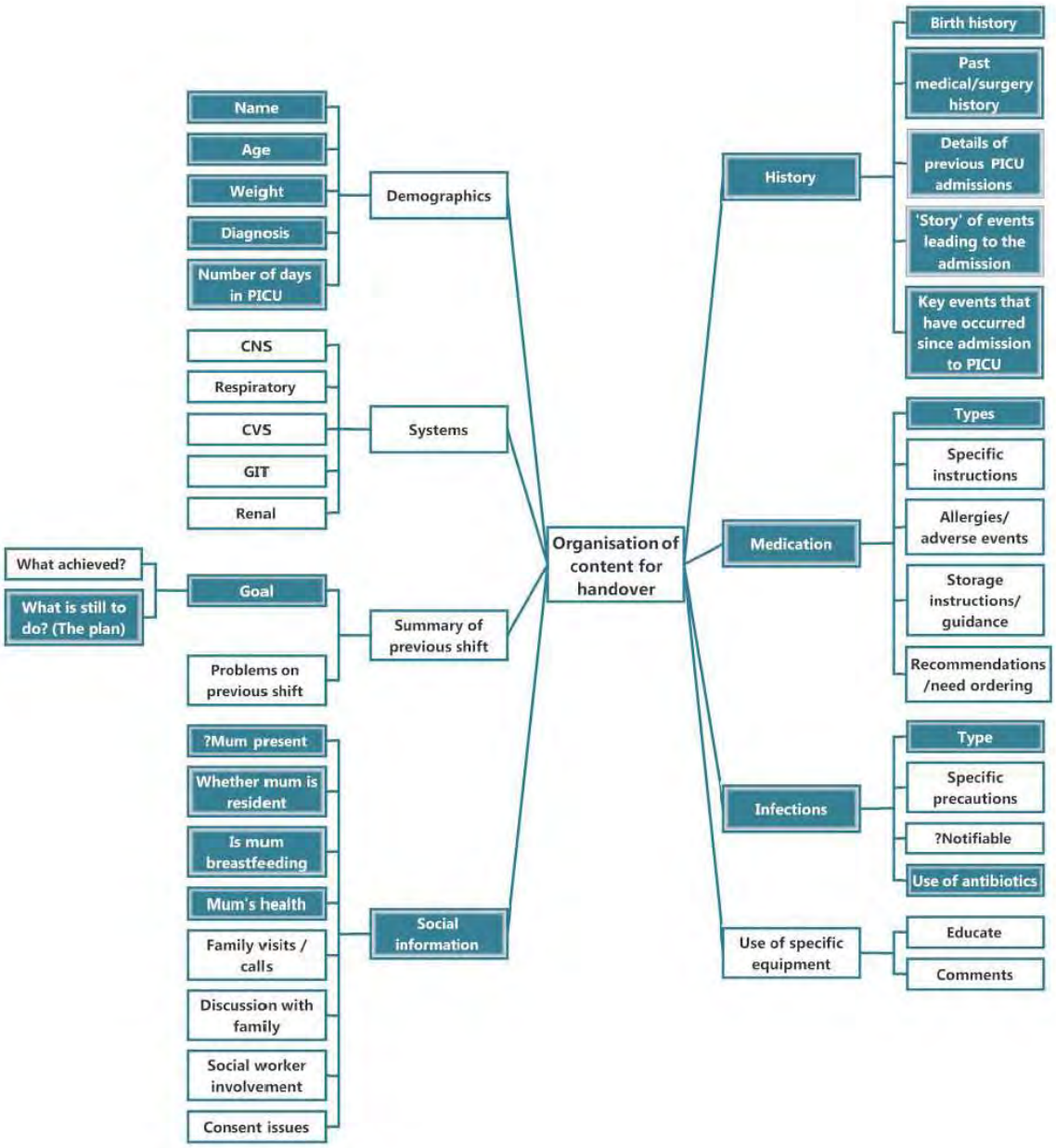
APPENDIX M: POSTER ADVERTISING RAPID APPRAISAL

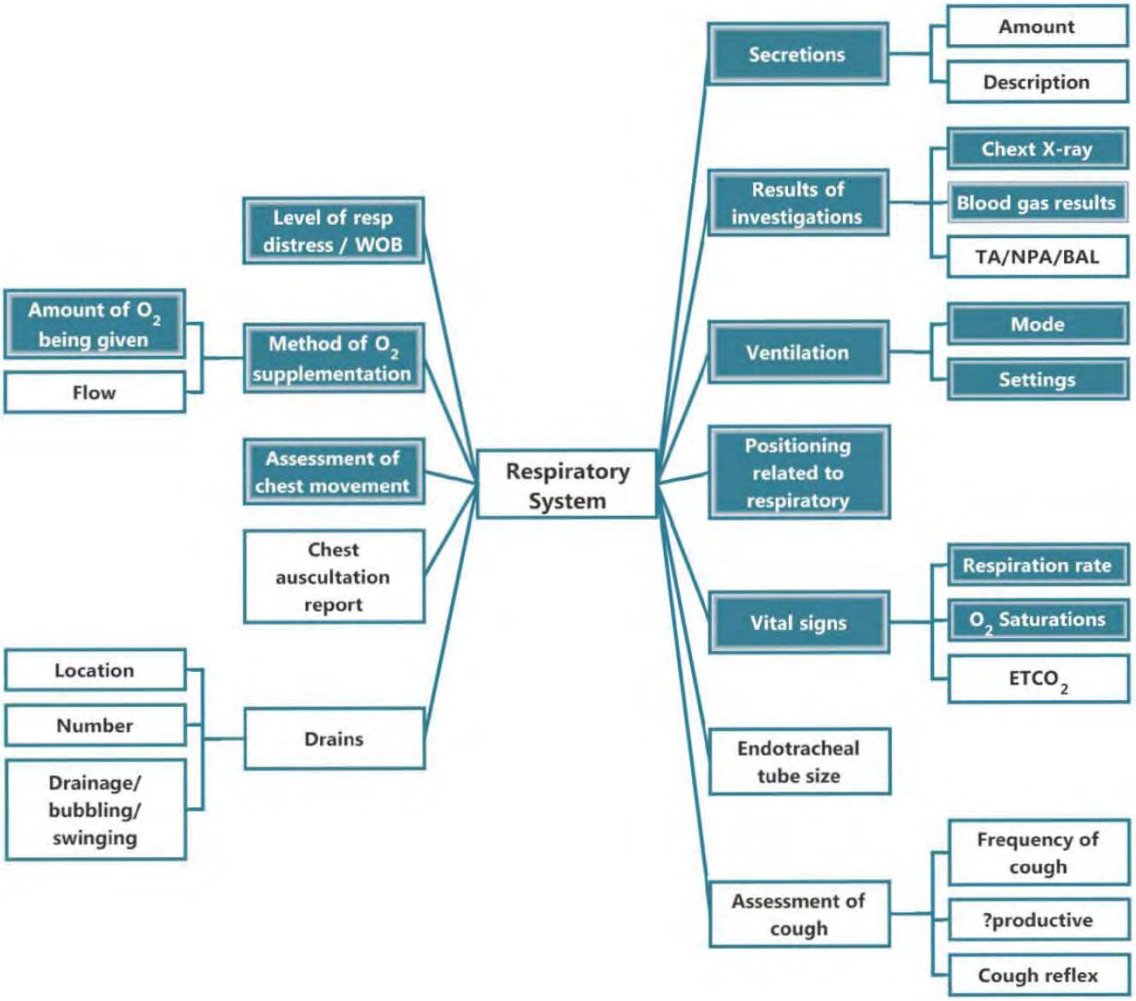
Help us look at what we are doing well!

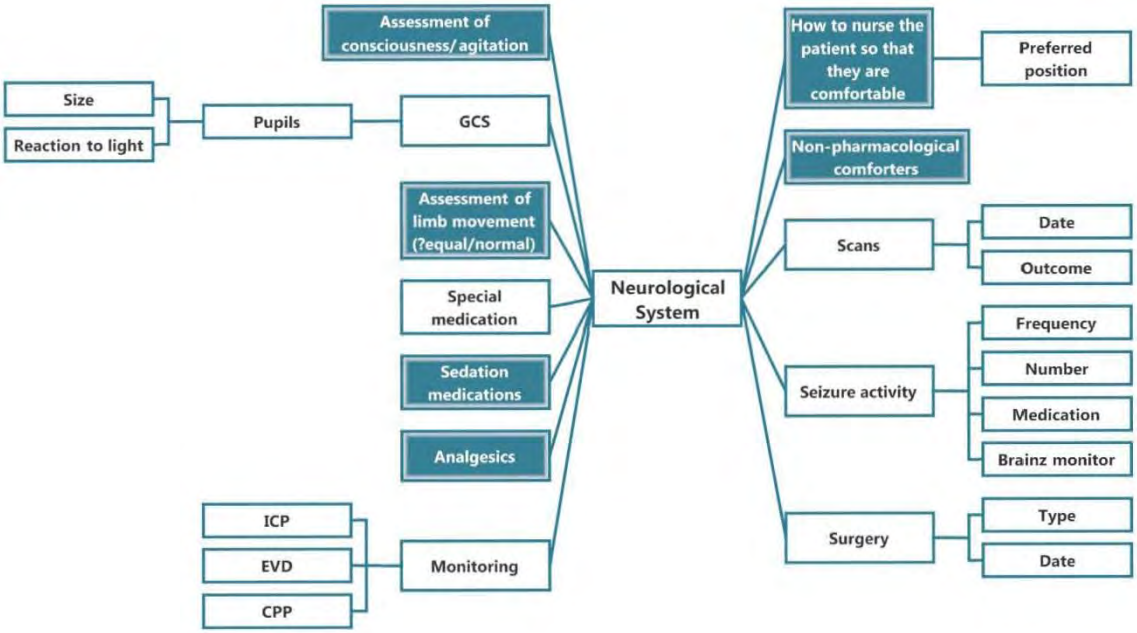
From 25th June onwards, a **rapid appraisal of existing handover practice** will be happening in the PICU.

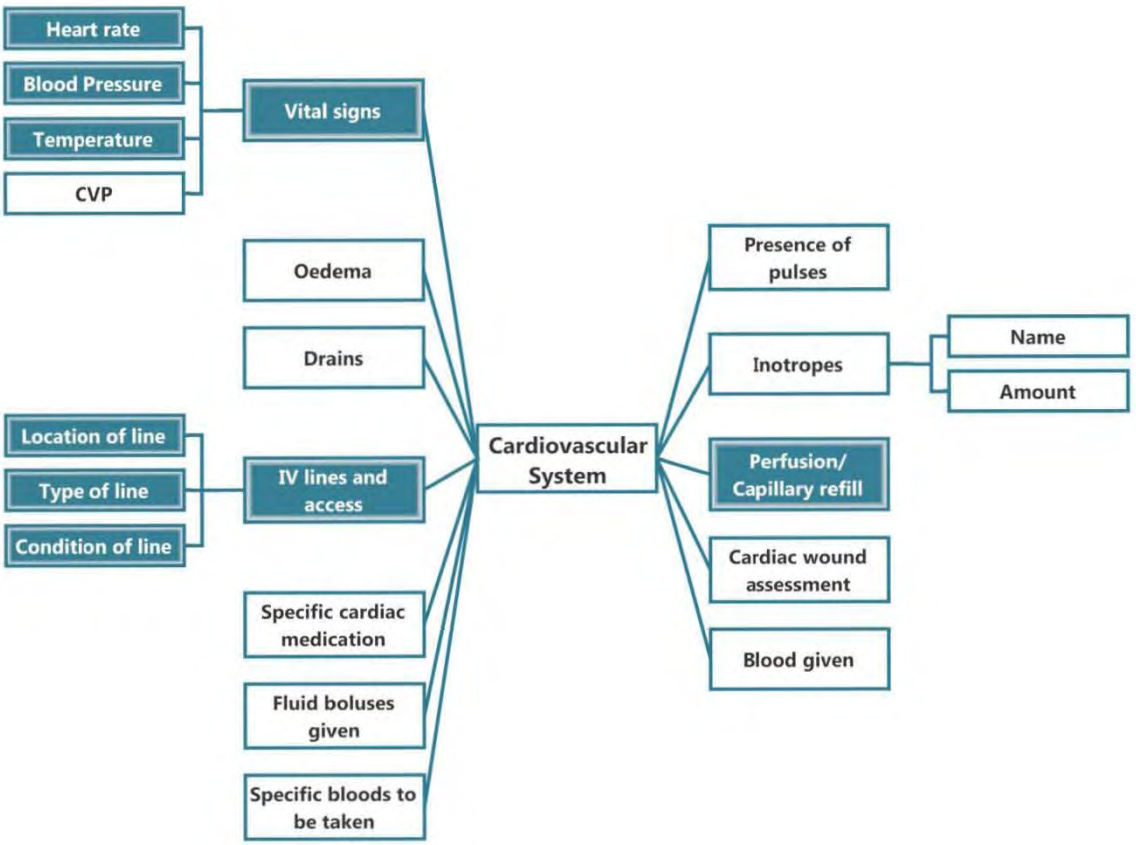
Please participate as much as possible so that we can make our handover the best that it can be!

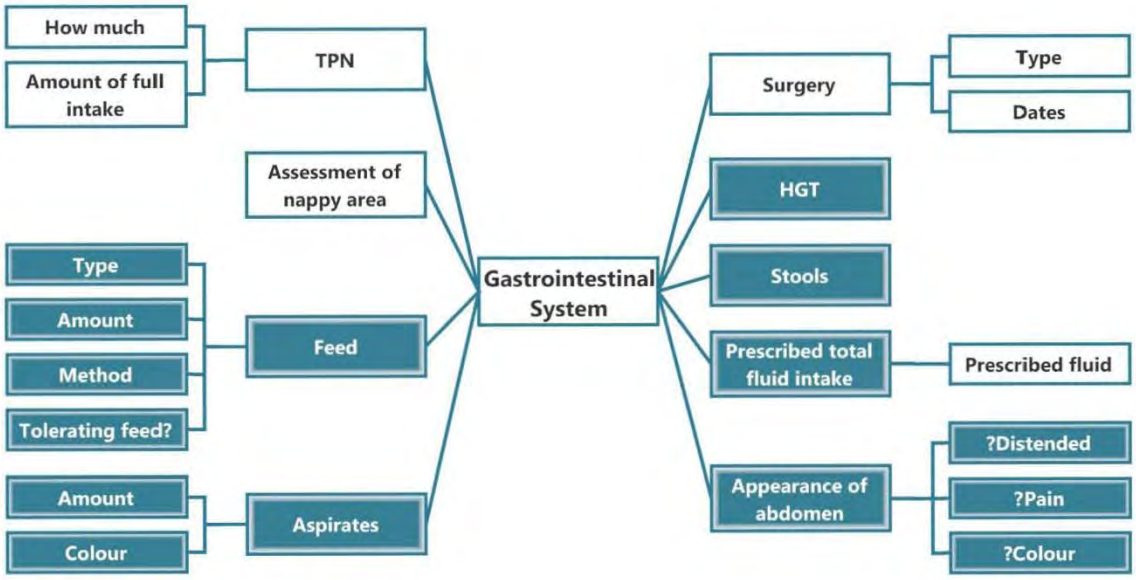
APPENDIX N: SPIDER-DIAGRAMS OF BRAINSTORMED HANDOVER CONTENT

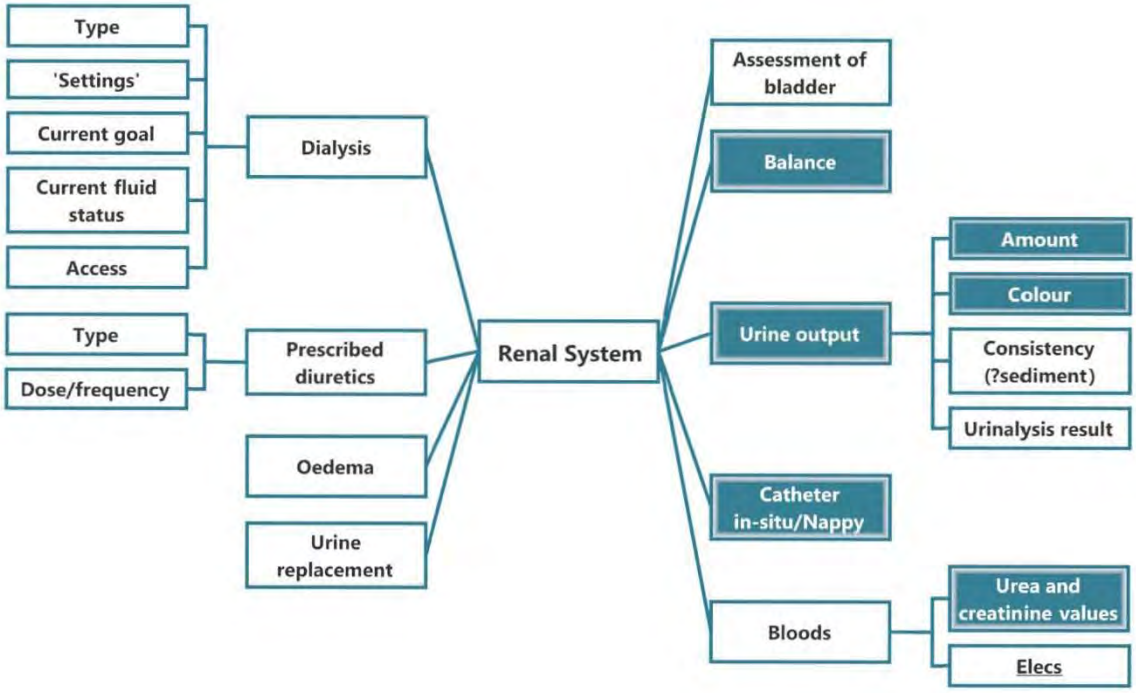


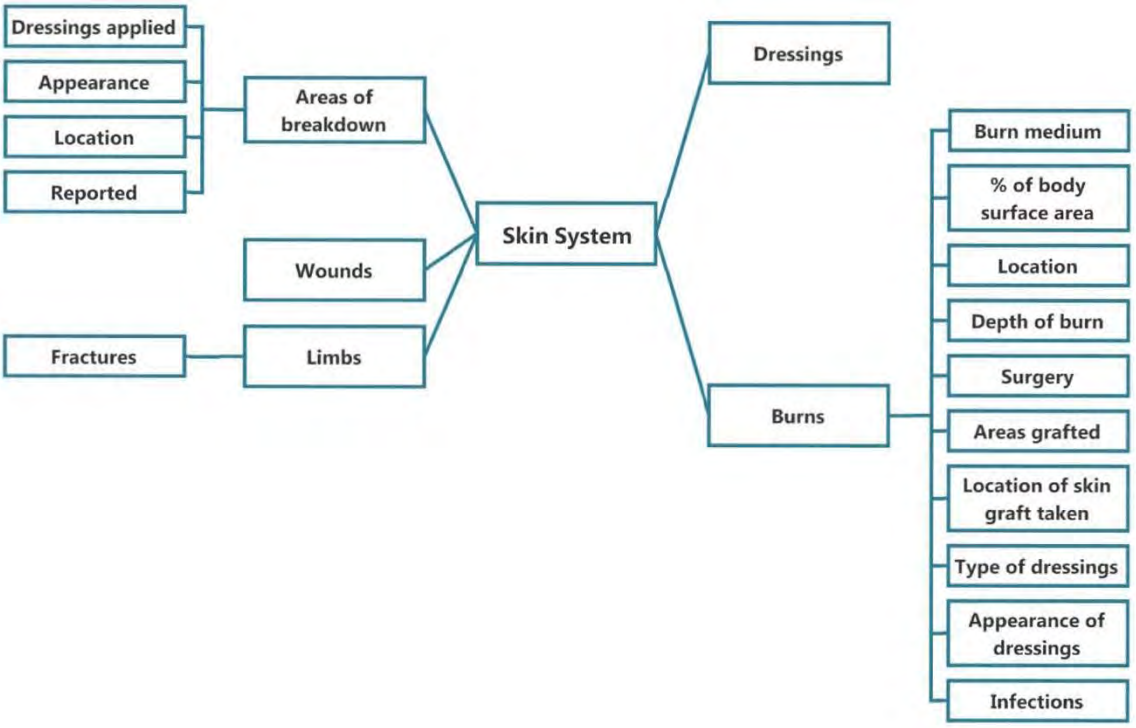

Respiratory System
Secretions
Amount
Description
Results of investigations
Chext X-ray
Blood gas results
TA/NPA/BAL
Ventilation
Mode
Settings
Positioning related to respiratory
Vital signs
Respiration rate
O_2 Saturations
$ETCO_2$
Endotracheal tube size
Assessment of cough
Frequency of cough
?productive
Cough reflex
Level of resp distress / WOB
Method of O_2 supplementation
Amount of O_2 being given
Flow
Assessment of chest movement
Chest auscultation report
Drains
Location
Number
Drainage/ bubbling/ swinging


Neurological System
Assessment of consciousness/ agitation
Pupils
Size
Reaction to light
GCS
Assessment of limb movement (?equal/normal)
Special medication
Sedation medications
Analgesics
Monitoring
ICP
EVD
CPP
How to nurse the patient so that they are comfortable
Preferred position
Non-pharmacological comforters
Scans
Date
Outcome
Seizure activity
Frequency
Number
Medication
Brainz monitor
Surgery
Type
Date


Heart rate
Blood Pressure
Temperature
CVP
Vital signs
Oedema
Drains
Location of line
Type of line
Condition of line
IV lines and access
Specific cardiac medication
Fluid boluses given
Specific bloods to be taken
Cardiovascular System
Presence of pulses
Inotropes
Name
Amount
Perfusion/ Capillary refill
Cardiac wound assessment
Blood given


How much
Amount of full intake
TPN
Assessment of nappy area
Type
Amount
Method
Tolerating feed?
Feed
Amount
Colour
Aspirates
Gastrointestinal System
Surgery
Type
Dates
HGT
Stools
Prescribed total fluid intake
Prescribed fluid
Appearance of abdomen
?Distended
?Pain
?Colour


Type
'Settings'
Current goal
Current fluid status
Access
Dialysis
Type
Dose/frequency
Prescribed diuretics
Oedema
Urine replacement
Renal System
Assessment of bladder
Balance
Urine output
Amount
Colour
Consistency (?sediment)
Urinalysis result
Catheter in-situ/Nappy
Bloods
Urea and creatinine values
Elecs


Dressings applied
Appearance
Location
Reported
Areas of breakdown
Wounds
Fractures
Limbs
Skin System
Dressings
Burns
Burn medium
% of body surface area
Location
Depth of burn
Surgery
Areas grafted
Location of skin graft taken
Type of dressings
Appearance of dressings
Infections

APPENDIX O: BEDSIDE HANDOVER INFORMATION FORM

PICU End of shift summary and handover report **Date:** _____ **Time:** _____ **Page No.:**_____

PLACE PATIENT STICKER HERE

Diagosis: _____ **No. of days in PICU:** ____

_____ **Date of admission:**

Past medical/surgical history:

HIV exposed ☐

History prior to this admission

Key events during admission

Scans:

Theatre:

Central Nervous System

GCS: / E= V= M=

Description of the patient's alertness:

_____

_____

_____

Pupil size and reaction to light: L= R= ***For every patient***

Medication:

Morphine: _____ mcg/kg/hr

Midazolam: _____ mcg/kg/min

Valoron ☐ Paracetamol ☐

Chlondine ☐ Perfalgan ☐

Valium ☐ Gabapentin ☐

Other _____

Pain assessment: _____

_____

_____

Monitoring:

ICP: _____ [Document the

$BrainO_2$: _____ range for the past

CPP: _____ 12 hours]

EVD level:_____cm Clamped/not clamped

Colour of drainage: _____

Seizure activity: Brainz on: ☐

Description: _____

_____

_____

Actions taken to ↑ICP:

_____

_____

_____

Respiratory

Resp rate: _____bpm O_2 Sats: _____%

Signs of respiratory distress:

Alar Flare ☐ Dyspnoea ☐ Head-bob ☐

Tachypnoea ☐ Recession ☐

Grunting ☐ Stridor ☐ Wheeze ☐

Auscultation: _____

_____

_____

Date intubated:

Date extubated:

ETT size: _____mm @ _____ cm

ETT marked? ☐ **at the nose / lips**

Ventilation mode: _____

PIP/PEEP: _____ Set rate/Freq.: _____

[HFO]Amplitude: _____ MAP: _____

FiO2: _____

Synch with vent? ☐ Triggering the vent ☐

O_2 delivery method: NPO2 ☐ Face Mask ☐

Other _____

Flow: _____ FiO2: _____

Description of **secretions:** _____

_____

_____

Comment on **CXR result:** _____

_____

_____

Position: Prone ☐ Supine/side lying ☐

Comment on positioning: _____

_____

_____

Cardiovascular System

IV access: [Location, function + condition of site]

A-line:

CVP line:

Peripheral lines:

[Document the range/trend for the past 12 hours]

Heart rate: _____ Temp: _____oC

CVP: _____ LAP/PAP: _____

BP: _____ MAP: _____

Comment on BP: _____

_____

_____

Capilary refil: <2 secs >2 secs >4 secs

Peripheries: Warm ☐ Cold ☐

Oedema present? ☐ Where? _____

Active cooling ☐ or warming ☐

Presence of pulses: [please tick if present]

	Right	Left		Right	Left
Radial:			Femoral:		
Brachial:			Pedal:		

Intropes: Indicate if ↑, ↓ or = over the shift)

Adrenaline: _____ mcg/kg/min

Milrinone: _____ mcg/kg/min

_____: _____ mcg/kg/min

_____: _____ mcg/kg/min

_____: _____ mcg/kg/min

Fluid bolus'/blood products given:

What?	How much?	Time
	ml/kg	:
	ml/kg	:

Gastrointestinal system

Description of abdomen: _____

_____

_____

_____

Bowel sounds present: ☐ Yes ☐ No

Feed method: Oral ☐ TPN ☐ NG ☐

NJ ☐ Gastrostomy ☐ **NG/J marked?** ☐

Feed type: _____ EBM Exclusive?☐

Feed amount: _____mls/hr

Dietician recommendataion: _____ml/hr

of _____ Achieved? Yes ☐

Tolerating feed: Yes ☐ No ☐

Last stool: Today ☐ Yesterday ☐ _____

Stool description:_____

Last HGT: _____ @

Fluid

TFI: _____ml/kg/day

IV fluids:

Type: _____

Amount: _____ml/hr

Renal

Catheter ☐ Nappy ☐

Urine output: _____ml/kg/hr (for last 4 hrs)

Balance NOW: _____mls

Balance yesterday: _____mls

Urea: _____ Creatinine: _____

Na^+: _____ K^+: _____

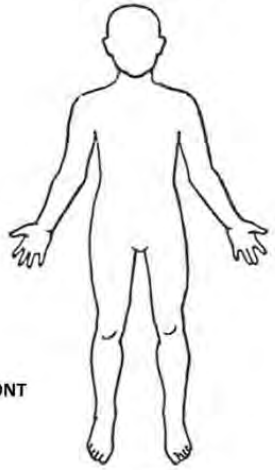
Mg^+: _____ Ca^+: _____

Diuretics? ☐ _____

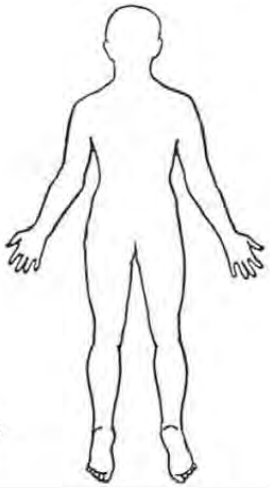
Paperwork on trial as part of the PICU nursing shift handover research: Legal part of the patient notes - DO NOT DISCARD

Skin

Mark any skin breakdown, wounds, fractures or burns. Add a desription of appearance and dressings applied.



FRONT



BACK

Infections [Tick box at end of row if A/B is empirical]

Type of infection	Where grown:	A/B prescribed	
			☐
			☐
			☐
			☐
			☐

Are the infections notifiable? Yes ☐ No ☐
Has the infection been notified? Yes ☐ No ☐

Messages from physio / OT / Dietcian / or others

Additional information
e.g. drains, pacing, open chest/abdo, dialysis, nitric oxide, feeding issues, urine dipstick, immunizations given, replacements (urine/gastro)

Did an incident occur on this shift ☐ Report been completed? ☐

Burns
% of body surface burnt: _____%
Location of burn_____
Method of injury: Fire / Scald / Electrical

FORMAT of HANDOVER
1. Introduce child and caregiver to incoming RN and EN/AN
2. **State the name, age & weight of the child**
3. **State the diagnosis, date of admission and PICU day number**
3. Using headings on this form, give a systems-based handover
4. Give caregiver and incoming RN/EN/AN the chance to ask questions
5. RN's to complete the safety check **together**
6. **Both RN's sign** to acknowledge transfer of responsibility

Goals for the day

AM	PM
①	①
Done ☐ Still to do ☐	Done ☐ Still to do ☐
Details/comment:_____	Details/comment:_____
②	②
Done ☐ Still to do ☐	Done ☐ Still to do ☐
Details/comment:_____	Details/comment:_____
③	③
Done ☐ Still to do ☐	Done ☐ Still to do ☐
Details/comment:_____	Details/comment:_____
④	④
Done ☐ Still to do ☐	Done ☐ Still to do ☐
Details/comment:_____	Details/comment:_____

Social
Mum booked into mothers room: Yes ☐ No ☐
If no, describe her location?_____
Is mum breastfeeding? Yes ☐ No ☐ Maxalon given? ☐
Additional social info:_____

SAFETY CHECK COMPLETED? Yes☐

I, _____ _____ sign to say that I have handed over this patient to the best of my ability.

_____ _____

I, _____ _____ sign to say that I accept responsibilty for this patient

_____ _____

Paperwork on trial as part of the PICU nursing shift handover research: Legal part of the patient notes - DO NOT DISCARD

APPENDIX P: CONFIDENTIALITY AGREEMENT SIGNED BY TRANSCRIBER (2)

Statement of confidentiality

Confidentiality of translation/transcription for the UCT research study titled 'Optimising Nursing Shift Handover in Paediatric Intensive Care' (HREC REF: 531/2011)

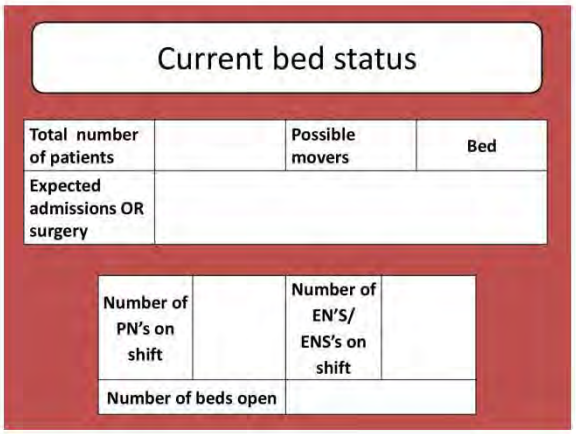
I, Elaine Grobbelaar confirm that I understand the principles of data protection and thus the importance of maintaining the confidentiality of participants involved in research projects. In my role as a translator and transcriber of audio data for the above mentioned research project, I ensure full confidentiality of all information passed to me by the researcher. I agree to keep the audio files in a secure place, and to password protect the transcribed word documents throughout. On completion of the audio transcribing, I agree to delete all files from my computer once I have received confirmation to do so from the researcher.

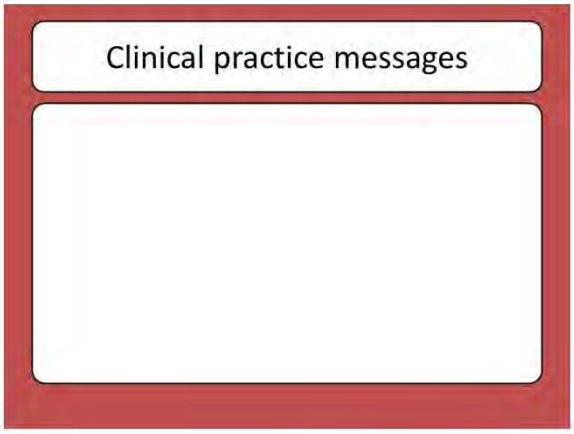
Signed by:

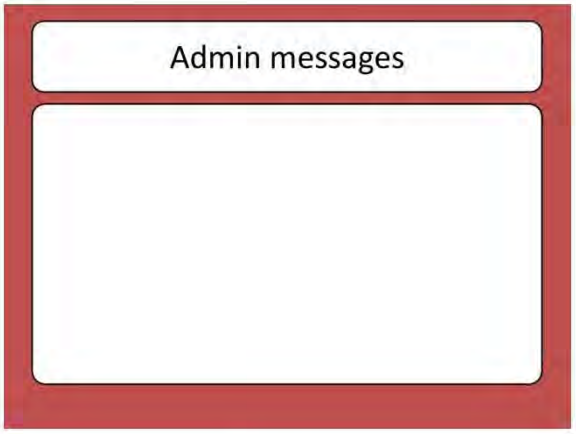
Translator/Transcriber	10/06/2013 Cape Town Date and place
Researcher	12/06/2013 Cape Town. Date and place

Agreement between Clare Davis (UCT student, DVSCLA006) **and Elaine Grobbelaar** (On Time Transcribers CC. (Tel: (021) 553 4409 / 076 606 4266 / Fax: 086 618 4861
Email: ottranscribers@gmail.com

APPENDIX Q: TEMPLATE FOR ELECTRONIC HANDOVER PRESENTATION







APPENDIX R: ELECTRONIC HANDOVER PRESENTATION EVALUATION QUESTIONNAIRE (DAY STAFF)

PICU Handover electronic handover evaluation questionnaire

Dear Sisters, Enrolled nurses and Assistant nurses,

Three weeks ago the unit handover changed format. Instead of being conducted in the unit at 08h30, it is now delivered on a scrolling MS 2010 PowerPoint® presentation in the tea room. The PICU handover research team would like to hear your opinions and evaluate the success of this change and so we ask you to please answer the questions below.

Your replies are anonymous and so please be honest!

To answer, you just need to CIRCLE THE MOST APPROPRIATE ANSWER in reply to the following statements.

Q1: I read the unit handover on the computer in the team room on

Every shift	Nearly every shift	On approx. 50% of my shifts	Rarely	Never

Q2: Changing the unit handover to being on the computer in the tea room:

	Strongly disagree → Strongly agree			
Has increased the time available for patient care	1	2	3	4
Has increased my capacity to attend at the ward round	1	2	3	4
Is of benefit to the sisters working nights (enables them to gain same information as those working on days)	1	2	3	4

Q3: With the unit handover being delivered on the computer in the tea room:

	Strongly disagree → Strongly agree			
I feel adequately informed about the current situation in the unit (e.g. staffing, patient numbers, movers and admission)	1	2	3	4
I feel adequately informed about the new PICU, hospital or national nursing updates (clinical and admin messages)	1	2	3	4
I feel adequately informed about events that are happening in the unit and in the hospital	1	2	3	4
I feel free to pose my questions to an OM or taking them to the nursing meeting.	1	2	3	4

Q4: Would you like the unit handover to continue to happen on the computer in the tea room?

Yes No

Q5: How do you think that the unit handover on the computer in the tea room could be improved?

_____

_____

_____

_____

_____

Thank you from the PICU handover research team

APPENDIX S: ELECTRONIC HANDOVER PRESENTATION EVALUATION QUESTIONNAIRE (NIGHT STAFF)

PICU Handover electronic handover evaluation questionnaire

Dear Sisters, Enrolled nurses and Assistant nurses,

Three weeks ago the unit handover changed format. Instead of being conducted in the unit at 08h30, it is now delivered on a scrolling MS 2010 PowerPoint® presentation in the tea room. The PICU handover research team would like to hear your opinions and evaluate the success of this change and so we ask you to please answer the questions below.

Your replies are anonymous and so please be honest!

To answer, you just need to CIRCLE THE MOST APPROPRIATE ANSWER in reply to the following statements.

Q1: I read the unit handover on the computer in the team room on

Every shift	Nearly every shift	On approx. 50% of my shifts	Rarely	Never

Q2: Changing the unit handover to being on the computer in the tea room:

	Strongly disagree → Strongly agree			
Has increased the time available for patient care	1	2	3	4
Has increased my capacity to attend at the ward round	1	2	3	4
Is of benefit to the sisters working nights (enables them to gain same information as those working on days)	1	2	3	4

Q3: With the unit handover being delivered on the computer in the tea room:

	Strongly disagree → Strongly agree			
On night shifts, I have a better knowledge of what is happening on the unit/hospital than before we had the computer	1	2	3	4
I feel adequately informed about the current situation in the unit (e.g. staffing, patient numbers, movers and admission)	1	2	3	4
I feel adequately informed about the new PICU, hospital or national nursing updates (clinical and admin messages)	1	2	3	4
I feel adequately informed about events that are happening in the unit and in the hospital	1	2	3	4
I feel free to pose my questions to an OM in the morning or taking them to the nursing meeting.	1	2	3	4

Q4: Would you like the unit handover to continue to happen on the computer in the tea room?

Yes No

Q5: How do you think that the unit handover on the computer in the tea room could be improved?

_____

_____

_____

_____

_____

Thank you from the PICU handover research team