Nursing Observation and Assessment of Patients in the Acute Medical Unit

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Acknowledgements

My career in nursing has spanned more than twenty-five years. I have been inspired by some of the incredibly talented and dedicated nurses that I met during that time. In times of adversity, inspiration is critical for nurses to continue to deliver the very best care that they can, and I am thankful to have met and been inspired by those individuals.

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Abstract

Title: Nursing Observation and Assessment of patients in the Acute Medical Unit

Objectives: To generate knowledge and understanding of the observation and assessment of patients in the acute medical unit, where patient acuity and activity is unpredictable and length of stay for patients is brief.

Background: Time and temporality pose challenges for the nursing observation and assessment of patients because unlike other hospital wards, the acute medical unit is a dedicated acute short-stay facility, admitting patients with highly complex medical illness on a 24-hour basis. Over the past fifteen years, political drivers for improved efficiency of hospital beds, combined with recent austerity measures, have resulted in shorter length of stay in hospital for patients. The implications of these for nursing practice and the observation of patients have not previously been investigated.

Method: An ethnographic approach was applied to explore the nursing observation and assessment of patients admitted to an acute medical unit. Data were collected from seven nurse participants using participant observation and qualitative interviews over a six-month period. A thematic analysis was undertaken.

Results: The brevity of nurse-patient relationships combined with a problematic ward layout resulted in adaptations to practice to ensure safe monitoring of patients, including frequent visual and verbal assessments of patients. Nurses observed for facial colour, expression, appearance and verbal response. Nurses employed explicit, tacit and intuitive knowledge to interpret observations of patients and safely managed highly complex care despite the challenge of limited time. Nurses demonstrated expertise despite having limited experience.

Recommendations: Layout of the acute medical unit must consider ease of visibility for patient observation and impact upon nursing workload. Recognition of nurses' ability to safely observe patients is essential, rather than relying upon the use of paper-based observation tools. Acute medical nursing must be recognised as a distinct specialism, with appropriate standardisation.

Glossary of terms

UKGCE	United Kingdom council for graduate education
AMU	Acute medical unit
MAU	Medical assessment unit
HCA	Health care assistant
DH	Department of health
RCP	Royal College of Physicians
RCN	Royal College of Nursing
NMC	Nursing and Midwifery Council
UKCC	United Kingdom Central Council
PhD	Doctor of Philosophy
DProf	Professional doctorate
HSMR	Hospital standardised mortality rate
NICE	National institute for health and clinical excellence
NPSA	National patient safety agency
NCEPOD	National confidential enquiry into patient outcome and death
EWS	Early warning score
IRAS	Integrated research application system
NRES	National research ethics service
NIPPV/NIV	Non invasive positive pressure ventilation
CPAP	Continuous positive airways pressure
BP	Blood pressure
CDM	Clinical decision making
ECG	Electrocardiograph
ICU	Intensive care unit
HDU	High dependency unit
ABG	Arterial blood gas

Chapter 1

Introduction and Research Purpose

Patients admitted into hospital as a medical emergency are at risk of deterioration in their clinical condition due to their altered physiological state. The majority of acute illnesses develop gradually over many hours and are associated with the early presence of abnormal vital signs in the patient. These abnormalities reflect failing cardiovascular, respiratory and neurological systems which are known precursors to a critical event (Gwinutt, 2010). If physiological abnormalities are not recognised, corrected quickly or supported sufficiently, the patient's condition may progress further to critical illness or death. However, the nurse is ideally placed to identify patients through nursing observation and assessment in the period preceding critical illness, and to intervene at an early stage preventing further decline (Higginson & Jones, 2009).

When a patient is admitted to hospital with an acute medical illness, their safety is a prime concern for healthcare professionals. However, a number of studies published over the last two decades have demonstrated that significant unintentional harm is caused to patients through nurses' failure to recognise the signs of clinical deterioration (see section 1.6). Changes in the patient's physical

condition result in haemodynamic instability as the critical bodily functions start to fail and may be detected through observation and recording of the patient's physiological vital signs of respiratory rate, heart rate, blood pressure and temperature, which gradually become more abnormal with the progression of deterioration. The effective nursing observation of patients is therefore crucial to patient safety and outcome since this is the first step in identifying signs of clinical concern. Despite significant attention given to the observation of patients and the publication of national guidance to clinical staff, the issue of unrecognised clinical deterioration of patients in hospital continues to be a significant problem.

This professional doctorate thesis presents an exploration of the practice of nursing in the AMU and how this influences decision making in the nursing observation and assessment of patients. The thesis argues that the findings are expedient and provide valuable insight into areas of clinical importance which impact upon the patient, including the nursing observation and assessment of acutely ill patients, supplementing the existing evidence base in this area, and the practice of nursing in an AMU, an emergent area of nursing which has received minimal prior investigation and where nursing time with patients is limited due to the short duration of patient stay in the department. The impact of time is explored further in section 1.9 and identifies a dearth of evidence specific to nursing in the AMU. The literature review in chapter 2 identifies fifteen studies which have explored the nursing observation of acutely ill patients in hospital, thus demonstrating limited investigation into this fundamental element of practice and

drawing attention to the need for an evidence base for nurses practicing in the AMU setting.

This chapter provides the context for this timely research and explores the recent drive to improve patient safety and mortality through improved nursing observation. An outline of the personal and professional motivations to undertake the research is provided, presenting the rationale for selecting the Professional Doctorate route. The general research question is presented in the subsequent sections, with the structure for the remainder of the thesis.

1.1 Context for the research

Fundamentally, the nursing observation of patients has included the measurement and recording of vital signs, including temperature, heart rate, respiratory rate and blood pressure. Over the past decade, vital signs measurements have been used to develop protocol based early warning observation tools (EWS) which aim to detect clinical deterioration in the patient at an early stage; thus allowing timely medical intervention. Despite significant attention given by the Royal College of Nursing (RCN, 2009), Royal College of Physicians (RCP, 2012) and government agencies to improving patient outcomes in hospital through the endorsement of EWS tools for use in practice (National Institute for Health & Clinical Excellence, 2007; National Patient Safety Agency, 2007), the mortality of acutely ill patients in hospital continues to pose a serious dilemma (RCP, 2012; Francis, 2013), suggesting that EWS tools are unreliable.

In an attempt to improve patient mortality and outcomes, national evidence based guidance from both professional and nursing regulatory bodies has strongly advocated the use of protocol driven EWS tools for the monitoring of vital signs in hospitalised patients, but have failed to appreciate that there is no single standardised, validated tool in use (RCP, 2012). Furthermore, the EWS tools in use focus on the collection and interpretation of objective measurements, taking insufficient account of nursing intuition which is known to provide a legitimate source of knowledge in relation to the deteriorating patient (Benner, 1984; Cioffi 2000; Cioffi, 2000b; Minick & Harvey, 2003) or of the cues identified by prior research which alert nurses to a potential change in the patient's condition (Cioffi 2000a; Cioffi, 2000b; Cox et al., 2006.) A detailed examination of early warning observation tools is provided in section 2.1, with their limitations explored in more detail in section 2.2.

There is scarce research into the nurse's role in acute medicine, resulting in poor comprehension of nursing practice in this field. Furthermore, appreciation of the skills and knowledge required by nurses to care for acutely ill patients is not well understood. The challenges facing researchers who may wish to enter the AMU as a field of study is also deficient and in need of additional research. The research will be valuable to nurses in providing insight into the practice of nursing observations and assessment in areas delivering acute, short stay care and may be used to further develop existing EWS tools and improve patient outcomes. The subject of acute patient care is high on the political agenda both nationally and

internationally with attempts to improve the mortality of patients in hospital; likewise the focus is important to the international acute nursing body.

1.2 Personal and professional motivations for the research

Whilst practicing as a consultant nurse in the AMU, improving safety and outcome for acutely ill patients admitted to the hospital was a key objective and personal motivator. During the eight years in post, the poor mortality of acutely ill patients in hospital received significant national attention resulting in the development and implementation of early warning observation tools such as the Early Warning Score or EWS (Subbe et al., 2001). An incentive for the research came from personal experience of implementing an EWS tool in practice.

Whilst not essential for the consultant nurse role, reading for a doctorate provided a framework in which to place a study that would scrutinise the nursing observation and assessment of acutely ill patients, with the aim of providing an evidence base to inform professional practice. The professional doctorate (DProf) had to meet the corporate political agenda, and since patient mortality and improving outcomes was a prominent topic, full funding was obtained. The DProf route embraces the value of professional practice, enabling students to continue in their employment whilst studying, thus catering for professionals to critically reflect on professional competencies and then aim to achieve higher academic qualifications through the development of transferable skills (Sarros et al., 2005; Scott et al., 2004). The professional doctorate allows the student the opportunity

to continue to develop themselves within a specific field of expertise whilst contributing to their professional body of knowledge. Thus, the professional doctorate programme and the expert practice of the student are fundamental to each other. The concept that the DProf student remains immersed within their field of professional work is endorsed by Gregory (1995), who offers the definition of a professional doctorate student as a scholarly professional. Lester (2004) concurs with this perspective, arguing that there is a clear distinction between the researching professional and the professional researcher, reflected by the variations in doctoral programmes available. Therefore, the DProf route was ideally suited to the consultant nurse role, which is embedded in expert clinical practice and would facilitate achievement of both professional and personal objectives.

1.3 Structure of the thesis

The thesis is presented over six chapters. The introductory chapter provides an overview of the research subject, the general research theme and presenting the personal and professional motivations for undertaking the DProf. The chapter provides the background to the study, describing the political and professional drivers leading to the development of acute medicine and nursing in this speciality in the United Kingdom (UK). The challenges for nursing in the field of acute medicine are identified and refer to increasing patient acuity, increasing emergency demand, limited time with patients and the rise in hospital mortality. This chapter considers the existing approaches taken to address these challenges. Chapter two reviews the existing literature relating to the nursing

observation of acutely ill patients, providing a detailed analysis of nursing knowledge and existing nursing observation tools employed in the detection of clinical deterioration in hospitalised patients. The chapter identifies the gaps in nursing knowledge relating to the nursing care of patients admitted to the AMU and the nursing observation and assessment of these patients, concluding with the question to be addressed by the research inquiry. The research methods are presented in chapter three. The chapter introduces the intention to employ a qualitative ethnographic approach to the research, and offers evidence to demonstrate that ethnographic principles were upheld. The chapter provides an overview of the research setting and offers justification for the purposive sampling strategy and methods for data collection, which included participant observation and qualitative interview. Section 3.8.3 provides the personal experience of field work. Chapter four reviews the process of thematic data analysis, data management and thematic development. The findings and limitations of the study are then presented in detail in chapter five. Chapter 6 presents the original contribution made by the research and offers recommendations for practice.

1.4 Subject of the research investigation

The context of the research discussed in section 1.1 and the personal motivation identified in section 1.2 directed the development of the general subject for investigation within the thesis. The research is concerned with the nursing observation and assessment of acutely ill patients in the context of an acute medical unit. The thesis provides an original theoretical contribution to the body of professional nursing knowledge by developing understanding of nursing practice

in the evolving specialism of acute medicine which has a limited existing knowledge base.

1.5 The origins of acute medicine in the United Kingdom

Prior to the recognition of acute medicine as a distinct speciality, patients admitted to hospital as a medical emergency were admitted to the ward of the physician on call and were cared for by nurses practicing across a range of disciplines. Hospital physicians were expected to be competent in the diagnosis and management of any presenting medical illness and as such were referred to as general physicians responsible for the care and management of patients with general medical illness in the speciality of general internal medicine (Dowdle, 2004). Their wards were thus referred to as general medical wards, caring for patients with general medical illness. Over the past decade, most acute hospitals have seen an inexorable rise in the number of patients admitted to hospital with a medical emergency, combined with a reduction in overall hospital bed capacity and bed occupancy rates greater than 85% (Scott et al., 2009). The contributing factors for this apparently endless increase in demand are the changing demographic towards an ageing population, improvements in medical technology and increased expectation from the public of medical capability (Jones, 2009). This has implications for nursing as patients admitted to hospital are more elderly, with more complex care needs, whilst the cost burden of care provision will mean that the ratio of nurses to patients will reduce and nurses will have less time to spend with individual patients, which is discussed further in chapter 2.

The exponential rise in emergency demand in medicine meant that patients were being admitted into any available bed once the admitting physician's ward base was fully occupied. Managing patients admitted as a medical emergency in this manner caused significant inefficiency for the medical team since the patients were scattered across the hospital. The issue of hospital capacity management was further compounded by the publication of the 'Reforming Emergency Care' (DH, 2001) publication which introduced the infamous 98% target for 4-hour patient waits in the emergency department, which tasked hospitals with admitting or discharging 98% of emergency patient presentations within four hours of arrival to the A&E. The 4-hour performance target inevitably led to a growth in emergency admissions units, where new admissions were assessed within the target time frame before being moved to a speciality area within the hospital. Medical admissions units were also commonly known as medical assessment units or MAU, more recently referred to as AMUs, with the recognition of acute medicine as a distinct area of specialism.

Medical staffing for the AMU was provided by an 'on call' general physician and team of middle grade and junior doctors, who were relieved of their primary ward duties for a clearly defined period (e.g. 24 hours) to manage patients admitted as a medical emergency. However, as most hospital physicians were systems-based specialists in a particular field of medicine such as gastroenterology or respiratory, there were concerns among the medical staff that the necessary skills and knowledge to manage acute patients' presentations was lacking and would result in poorer outcomes for patients (RCP, 1998). Similarly, it was argued that nurses

caring for the acute medical admissions were also deficient in the necessary skills and knowledge, since patients in the acute stage of their medical illness require prompt management in order to prevent complications or deterioration in their condition (Jayawarna et al., 2010). Acute medicine began to gain momentum as a speciality in response to these challenges (RCP, 2008). Exponentially however, the growth of acute medicine did not lead to a subsequent growth in a nursing research base examining the effectiveness, the challenges faced or the limitations of nursing in this field of practice most recently highlighted by the Francis Inquiry (Francis, 2013).

The AMU facilitated the growth of acute medicine as a speciality in its own right as it gave rise to a focus for acute medicine, being the hub of activity for patients during the initial stages of their admission and whilst at their most unstable. The focus on a designated department within the hospital was originally recognised by the royal colleges in 1998 with their report on the future management of medical admissions (RCP, 1998) and subsequently, the role of the acute physician, a consultant specifically trained to manage patients during the acute phase of their medical illness (Federation of Royal Medical Colleges, 2000). This report recommended that all hospitals should develop specific areas to receive patients admitted as a medical emergency and that these departments should be referred to as acute medical units (AMU). Patients admitted into hospital with an acute medical illness should be admitted into an acute medical assessment unit, intended to provide the rapid assessment, investigation, diagnosis and

management of these patients by a team of medical and nursing experts, prior to their onward referral to a speciality ward area.

1.6 The drive to improve patient outcomes: the historical perspective

The safety of acutely ill patients in hospital has received particular attention over the last fifteen years. A number of reports, publications and recommendations have established that this client group are at risk from receiving sub-optimal management. Yet, there is clear evidence (NCEPOD, 2005; NCEPOD, 2007, Francis, 2013) that this patient population requires careful management. Failure to provide optimal care for acutely ill patients can have dire consequences, resulting in sequential deterioration of the clinical condition, resultant admission to critical care, and possible death (McQuillan et al.,1998; Francis, 2013), illustrating the close relationship between nursing observation, clinical judgement, clinical decision making and patient safety.

In 1998, McQuillan et al. published the results of their inquiry assessing the quality of patient care prior to an admission to an intensive care unit (ICU) in the UK. One hundred consecutive critical care admissions were thoroughly investigated. The report concluded that 80% of the admissions to ICU had received suboptimal management prior to admission. Hence, the early signs of deterioration in patients were either not recognised or not escalated sufficiently prior to a point of critical decline, resulting in the need for intensive care support. This finding is significant for nursing, since nurses are in a prime position to identify subtle changes in a

patient's clinical condition at an early stage. Patients included in the study had a higher rate of mortality and the admission to ICU could have been avoided in 41% of the admissions reviewed. The alarming results presented by McQuillan et al. (1998) prompted further research, generating further evidence that critically ill patients in hospital were being poorly managed (McGloin et al.,1999; Seward et al., 2003). The study by McQuillan et al. (1998) is still considered a seminal piece of work, regularly cited by other prominent authors because of its importance in alerting health care professionals to the number of avoidable admissions to ICU and the associated high levels of mortality for acutely ill patients (Robson et al.,2007; Massey et al., 2009). However, it is apparent that little has changed since the seminal work of McQuillan et al (1998), since the Francis Inquiry suggests that patient safety and outcomes are directly related to the early identification of patients in a state of clinical decline.

As early as the 1990's, a study into UK hospital standardised mortality rate (HSMR) failed to offer any reasonable explanation into the wide variations in numbers of hospital deaths, concluding that it might suggest variations in the quality of care (Jarman et al., 1999). The HSMR uses statistical models to produce a ratio of observed-to-expected death-rate for a given hospital population; adjusted for factors such as age and co-morbid disease and tracked over time. This figure is then multiplied by 100. The national average is set at 100, so that it is easy to see whether hospitals have a higher or lower level of mortality than expected (Bottle, 2011). This enables hospitals to improve their overall mortality data by allowing them to focus on areas of care where mortality is highest. The

early work by Jarman et al. has evolved into an important public resource where individuals can access information online relating to their local hospital. The information provided enables the public to make comparisons of mortality and morbidity rates among hospitals nationally in a league table format (Doctor Foster, 2011). In the ensuing decades, the HSMR has been used as a way to explore disparity between hospitals; patient safety in hospital has come under considerable scrutiny and is a major challenge for risk management within healthcare settings and, in particular, the National Health Service (NHS). The critical nature of mortality data has now been escalated following recent events, with recommendations to hospital Trusts made by the Francis Inquiry that annual quality reports should include statistics on mortality and other patient outcomes.

1.7 Purpose of the acute medical unit

The AMU is designed as a dedicated short stay, hospital facility to receive and manage all patients admitted to hospital with acute medical illness such as a stroke, a myocardial infarction or breathing problem, with the purpose of providing rapid access to diagnostic investigations and senior clinical decision makers, thus improving early medical management, patient outcomes and safety. There is a wide variety of clinical work within the speciality including the immediate management of life threatening emergencies; the initial assessment, diagnosis and management of all medical presentations as well as the provision of ambulatory care for day patients (NHS, 2012). As such, the purpose of the AMU is to improve the flow of patients presenting to the A&E and has a close interface with critical care units and speciality medical wards. The AMU operates on a

seven days per week, 24-hours per day basis, with the acute physician performing two daily ward rounds. The majority of patients admitted to hospital require medical care, meaning that the AMU is one of the busiest hospital departments in terms of patient acuity, levels of dependency and patient flow. The AMU provides a period of intense investigation and management for the patient during the first 24-48 hours of their admission which is considered to be the acute phase. The quality of care during this period is considered fundamental to the outcome for patients (RCP, 2007).

Following a report by the acute medicine task force in 2009, acute medicine received full speciality status. The report considered the changes needed to develop and improve the care of patients with an acute medical illness, making a number of recommendations which were considered to be best practice in the management of medical emergencies. The report considers that provision of acute medical care by hospitals in an AMU setting is the gold standard, ensuring that the patient gets the right treatment in the right place, first time (RCP, 2007). Furthermore, it sets the benchmark for minimum standards within an AMU in terms of dedicated medical and multi disciplinary staffing, bed capacity, numbers of monitored beds and embedded level 2 high dependency beds. The report clearly makes a number of significant recommendations aimed at improving the safety and wellbeing of patients admitted to hospital as a medical emergency but does not address the key role of the nurse or the educational requirements for nurses practicing in the AMU.

Despite the AMU concept being well established in the UK, an audit of AMUs in the north-west found significant variation in the types of facilities available and in the levels of dedicated staffing (Jayawarna et al., 2010). AMU standards were set in order to improve outcomes for patients and improve mortality, and whilst the implementation of standards for AMU is not mandatory, patient outcomes will continue to have wide variability across the country, exposing the public to the potential for increased mortality and complications.

Although there are nationally defined benchmarks and clear purpose for the establishment of the AMU within a hospital; to date there has been limited research into the role and function of the practicing nurse within the AMU setting. Decisions regarding the standards for nurses in acute medicine are made by individual hospital trusts, usually in response to locally driven objectives and are made with little consideration for the future direction of the speciality (Lees & Myers, 2011). However, it is apparent that the increasing acuity of patients, reductions in junior doctors' hours and faster flow of patients demands the acquisition of a specific set of skills for AMU nurses, which include certain competencies for staff involved in the care of critically ill patients in order to ensure that patients are safely managed and that nurses are able to identify those patients who begin to deteriorate.

The AMU nurse plays a pivotal role in the observation and assessment of patients in order to identify those at risk of deterioration and to intervene at an early stage

in the process. In spite of this, there are significant gaps in existing knowledge relating to the specific practice of nursing in the acute, short-stay context of the AMU. The thesis aims to improve the knowledge base relating to the practice of nursing in the AMU and how this influences decision making in the nursing observation and assessment of patients.

1.8 Nursing in the AMU

Of the limited literature available, recent valuable insight is offered by an ethnographic study which explored the nurse's role on an acute medical unit (Griffiths, 2010). The study highlighted the nurse's focus on rapid assessment and management with the need to maintain a flow of patients from A&E through the AMU, whilst managing patients who were potentially unstable and often critically ill. In terms of the levels of patient acuity, dependency and activity, nursing patients in the AMU is very different to nursing practice in a general ward. Griffiths (2010) identified that the level of demand for acute medical hospital beds and the weight of clinical work in the AMU resulted in 'superficial and short lived relationships between patients and nurses' (pg 250). This finding is borne out within my own study and is discussed further in section 5.1. Limited time with patients has a negative impact upon the ability of experienced nurses to make decisions about patients which ultimately has a bearing upon patient outcome (Thompson et al., 2009). This has particular relevance to nursing in the AMU, given Griffiths (2010) findings which highlight the short term nature of nurse patient relationships in this domain and considering of the subsequent impact of limited time upon nursing practice.

There has been minimal research into the impact of time (time spent with patients) temporality (life experiences bounded by time) and tempo (speed of nursing activity), resulting in poor understanding of the impact of time upon practice. The majority of research that has been conducted is outdated and has focussed on linear models of time measured by the clock and calendar. The sociologists Frankenberg (1992) and Zerubavel (1979) compare and contrast the time experiences of doctors and nurses, providing insightful portrayal of medical time, but demonstrating a poor grasp of the realities of nursing time which, when examined, is looked at from the perspective of the linear monochronic model. This portrayal of time fails to recognise the potential for chaotic and disordered nursing environments (Waterworth, 2003) which are arguably found within acute care environments such as the AMU and does not recognise that comparisons across the two disciplines are incompatible, since medical and nursing practices are distinct from one another and will be affected by time in various ways. Although it has relevance for nurses, patients and commissioners, Jones (2010) argues that there is no common understanding of the concept of time within the field of nursing. Nurses need time to provide care and must manage time accordingly; the patient experience will be affected by the time spent in a care setting and the time afforded them for the provision of care, whilst commissioners paying for care will look to ensure that time used effectively and efficiently, seeking to save time and eliminate waste (Jones & Yoder, 2010). Jennings et al. (2011) offer valuable insight from their ethnographic study conducted on a medical and surgical ward, which explored how administration of medication impacted upon nursing time. They reported that much of the nurses' day was spent in the preparation and administration of medication and was complicated by the demands and availability

of technical devices used to administer the drugs. With no clear start and finish to the essential task of administering medication, nurses adapted their practice to incorporate the constant demands of this function with the delivery of nursing care. Settings within the hospital with high volumes of admissions, high levels of activity and patient acuity such as the AMU are referred to by Jennings (2008) as turbulent, meaning that there may be sudden and unpredictable changes to the workload at any given time during a shift consequently affecting the time available to nurses to provide care. Where insufficient staff numbers are available to cope with demand, interventions may be missed, ultimately affecting patient outcomes. Jones (2010) argues that it is therefore important to understand 'what nurses do' in the time available to them. Haigh & Ormandy (2011) reported similar findings in a mixed methods study which evaluated the organisation and delivery of nursing care and the effective use of nursing skills and resources in a UK district general hospital. Haigh & Ormandy (2011) reported that adequate nurse staffing was the single, biggest issue affecting the organisation and delivery of care, and also found that nurses identified lack of sufficient time in the working day to deliver the necessary care to patients. Nurses perceived some of their non clinical duties, such as answering the telephone and other interruptions, to negatively impact upon time available to give patient care. Patients with high dependency needs, having more serious illness, required more of the nurses' time which was supported by the findings within my own study, presented in section 5.4. Whilst Haigh & Ormandy (2011) highlight the nurses' perceptions of insufficient time, the findings presented within the thesis help clarify how nurses in the AMU adapted their practice to allow for the impact of limited time on nursing practice.

Acute Medicine is a relatively new medical speciality and therefore a new area for nursing practice. Consequently, there is a paucity of published material relating to nursing practice in this field. Whilst some parallels might be drawn from nursing in similar acute or critical care environments, it is argued that the AMU is unlike any other department or ward in the hospital, given the high ratio of patients to nurses, the diversity and increasing acuity of patient care combined with unpredictable levels of activity. The nature of daily clinical work in the AMU demands a high turnover of patient admissions, discharges and transfers during a 24-hour period, in order to meet the increasing demand for medical beds and to maintain the flow of activity from the A&E.

The AMU typically comprises a number of acute care beds for patients with serious illness requiring in-patient care, an ambulatory care area where patients may attend daily and return home between visits, a short stay area where care is provided for patients expected to remain up to 24 hours and accommodation to manage patients with critical illness requiring level 2 (high dependency) type monitoring and nursing care (RCP, 2007). The AMU nursing workload is unpredictable and complex due to the diverse and challenging patient needs, presenting a high-paced and often stressful working environment (Lees & Myers, 2011). Patients in the AMU who have Level 2 (high dependency) care needs require a significant amount of nursing attention, intervention and frequent patient monitoring (RCP, 2007). The ratio of nurses to patients in the AMU is not standardised in the United Kingdom and there is no mandate to have higher ratios of nurses for monitored beds in general ward areas or acute medical units. There

is clear evidence that the levels of nurse staffing influence patient outcomes, and that where ratios of nurses to patients were higher, the outcomes were improved in terms of patient mortality (Rafferty et al., 2007). The RCN has published guidance on safe staffing levels and sought unsuccessfully to have this enshrined in law when the House of Lords voted against an amendment to the Health and Social Care bill in 2011. Similarly, the society of acute medicine published guidance on its website for standard nurse staffing levels for an AMU which called for higher ratios of nurses to patients, and specifically around high dependency and monitored beds (Lees & Myers, 2011). In a typical shift on an AMU, nurses managing eight beds may admit, assess, treat and transfer or discharge up to twelve patients. In part, this high turnover might be due to an insufficient AMU bed capacity, forcing patients to be moved swiftly on to a general ward. This persistently high level of unpredictable, acute activity has implications for nursing practice and the ability to maintain patient safety given that there are currently no statutory minimum standards for the level of facilities, the staffing levels or minimum educational preparation for nurses within the AMU and is particularly pertinent following the recent publication of recommendations made by the Francis Inquiry (Francis, 2013).

There is clearly an expectation and understanding that a percentage of patients admitted to the AMU will have critical care needs, since the RCP (2007) describe the typical AMU as having capacity to manage patients with level 2 high dependency needs (appendix viii). However, there is no regulation around the level of education and competency required for nurses to practice within the AMU

environment, since it is not considered to be a critical care area. Instead, the AMU is regarded in the same way as other general medical or surgical wards in terms of the staffing levels and professional qualifications required for practice. Despite Department of Health guidance that all qualified nurses should possess critical care skills, concerns have been raised that general nurses are not equipped with the skills and knowledge to care for critical care patients adequately (DH, 2000b; O'Riordan et al., 2003) and there is significant evidence that patients admitted to intensive care had sub optimal management prior to their decline to critical illness, which might have been prevented with adequate assessment and timely intervention (NCEPOD, 2007). Lack of sufficient nursing skill in the care of critically ill patients may in part be due to lack of consensus as to what the essential specialist skills should be (Higginson & Jones, 2009), but may also be affected by the amount of time available to nurses for patient observation and assessment and for the significant other nursing work that must be completed during a shift.

The acute nursing workload in the AMU must be combined with the provision of fundamental nursing care such as nutrition, hydration, administration of medications, personal hygiene, elimination, health promotion, mobilisation and pressure area care. Yet the emphasis is on the rapid assessment, investigation, diagnosis and management of the patient's presenting complaint in order that a senior clinician can decide upon the appropriate medical management for the patient. Nurses practicing in the AMU must acquire and develop skills to rapidly observe and assess the patient, interpret and evaluate the patient assessment

and make sound clinical decisions based upon clinical judgement. Carroll (2004) recommended a specific skill set for nurses practicing within an AMU which reflected the nature of nursing practice and the specific requirements of nurses to work in this field. The skills were primarily task focussed and reflected the acuity of patients being nursed in the AMU such as possession of competency in arterial blood gas sampling, venepuncture, venous cannulation and interpretation of the electrocardiogram. In addition, Carroll (2004) found that competency in physical examination skills and interpretation of results was considered an important skill for senior nurses in AMU.

Thus far, specific standards for the educational preparation and requisite competencies for nurses practicing in the AMU setting have not been addressed by the professional nursing and regulatory bodies. Given that all acutely ill medical patients are initially nursed and stabilised in the AMU, and that levels of patient acuity and demand are rising exponentially, recognition must be given to the need for specialist nursing skills and competencies in order to care safely for patients. The issue of nursing time is critical in the acute care environment, where patients are at their most vulnerable and at risk from clinical deterioration. Whilst time has been found to impact upon decision making ability (Thompson et al., 2008), there is no understanding of how time constraints might impact upon nursing practice within the AMU. These combined factors suggest that the facets of nursing observation and assessment necessitate further inquiry, in order to improve knowledge and understanding of the intricacies involved, the influencing factors

and to recognise the implications of these for nursing practice and ultimately the impact on patient safety.

1.9 Conclusion

The establishment of AMUs in the UK has been driven primarily by two factors. Firstly, the politically driven need to reduce waiting time for patients in A&E to less than four hours and secondly, by the recognition that patients were presenting to hospital in greater numbers and with more serious illness, requiring access to a dedicated hospital area and team of staff where care could be expedited. These two drivers have resulted in the rapid growth of the AMU, which provides care to patients whilst in a vulnerable clinical state but moves patients though the department at a rapid rate. In this sense, it is argued that a new area of nursing practice, acute medical nursing, has been imposed upon the nursing profession, without due diligence given to the scope of practice or preparation for nurses in this setting. Nurses in the AMU have a pivotal role to play in the early recognition of clinical deterioration, though there is a limited evidence base and a paucity of published material relating to this field of nursing practice. Several papers have raised concern on an international level about the safety of acutely ill patients in general wards (Gao et al., 2007; NICE, 2007; Chaboyer et al., 2008; Francis, 2013) with deterioration in the clinical condition being ascribed to failed monitoring of vital signs (McQuillan et al., 1998; Goldhill, 2005). However, the thesis will show that nursing assessment and observation of patients involves a multiplicity of skills and knowledge, far greater than the sum of their parts.

It is argued that knowledge of how nurses observe patients in the AMU setting is essential, given that the AMU is the primary place of care for patients in their most vulnerable clinical state. The AMU is a short stay, acute care area where nurses are expected to provide care for patients with a diverse range of clinical problems, often requiring high levels of nursing and medical support. Additionally, this care is provided in the face of increasing emergency demand placing extreme pressure on AMU staff to provide rapid assessment, diagnosis and initial treatment for patients before discharge or onward transfer. Given that limited time with patients is correlated with less favourable patient outcomes, the critical nature of patient observation in the AMU is apparent and thus necessitates investigation. The existing evidence base relating to the nursing observation and assessment of acutely patients in hospital is explored in the following chapter, which examines the development and limitations of EWS tools, clinical decision making and sources of nursing knowledge, ultimately defining the research question to be addressed within the thesis.

Chapter 2

Literature Review

Introduction

Chapter 1 demonstrated that there is limited knowledge of nursing practice in the AMU setting, but argues that it is essential to gain knowledge and understanding of the ways in which nurses observe and assess acutely ill patients in the AMU department. Nurses employed in this emergent speciality conduct their practice in the face of high levels of activity, acuity and limited time. In order to identify patients at risk of clinical deterioration, it is argued that nurses must observe and assess their patients rapidly, interpret the observations and make sound clinical decisions using clinical judgement.

The following chapter will review the literature in relation to the nursing observation and assessment of the acutely ill patient in hospital. Section 2.1 considers the development and implementation of early warning observation tools which were introduced in an attempt to formalise nursing observation of patients using objective measures. Section 2.3 explores other approaches to the assessment patients with acute illness in hospital. Models of clinical decision

making are explored in section 2.4, followed by consideration of the influence of intuitive, tacit and explicit knowledge. Section 2.7 provides a critical analysis of published literature specifically related to the nursing observation and assessment of the acutely ill patient in hospital. The chapter concludes with the identification of gaps in the existing nursing knowledge base relating to nursing practice within the AMU setting and the ways in which nurses observe and assess acutely ill patients, thus leading to identification of the research question.

2.1 The development of early warning score observation tools

A number of seminal studies during the late 1990's established that in-hospital cardiac arrest, or decline in the patient's clinical condition to a critical point, was generally preceded by a period of time when the physiological status of the patient was abnormal. This could be seen in the measurements of respiratory rate, blood pressure, heart rate and temperature (McQuillan et al., 1998; McGloin et al., 1999; Goldhill et al., 1999). Following this, a number of patient observation tools were developed (Morgan et al., 1997; Subbe et al., 2001) which used simple scoring of physiological vital signs measurements to identify patients at risk of deterioration. The tools were introduced to improve the safety of acutely ill patients in hospital by improving the ability of nurses to recognise clinical deterioration (Donohue & Endacott, 2010) and have continued to gain momentum in their implementation (NICE, 2007; NPSA 2007) and development (RCP 2012). The tools are generally referred to as early warning scores or track and trigger tools.

Undoubtedly, one of the key skill sets for any nurse working in an acute environment is the ability to measure, interpret and monitor the physiological vital signs of the patient. These include respiratory rate, blood pressure, heart rate and temperature. The monitoring of vital signs is critical in the early recognition of clinical deterioration in the patient. A subtle move away from the normal parameters for each of the vital signs may provide an early indication of deterioration in the patient (Subbe et al., 2001). Recognition has been given to the fact that the monitoring of vital signs in the patient is essential in the identification of the deteriorating patient, with the emphasis on the collection of objective, measurable data. In 2007, both the National Patient Safety Agency (NPSA, 2007) and the National Institute for Health and Clinical Excellence (NICE, 2007) published recommendations for the monitoring of patients in hospital using track and trigger tools, now more commonly referred to as EWS. Additionally, in 2010 the European resuscitation council included the use of EWS in the guidelines for resuscitation, including it in the first link in the chain of survival (Nolan et al., 2010), reflecting the significance of recognising deterioration in patients at an early stage and responding quickly to avert further decline in the patient's condition.

The EWS document replaces the traditional nursing observations or bedside observations chart, commonly referred to as the TPR (temperature, pulse and respirations) chart. There are many EWS tools in use around the UK with no standardisation currently applied. Whilst in the role of consultant nurse, one of the objectives of the role was to develop and introduce an EWS tool to the medical directorate in the hospital. At that time, gaining consensus across the various

directorates was an enormous challenge since at any one time there were three adult EWS tools in use. Eventually, these were developed into a single nursing observation tool for adults (see appendix i).

The RCP (2012) argue that there is a lack of consistency in approach to patient monitoring using these tools, which are very different and incompatible with each other. This leads to confusion for staff when they move between clinical areas employing dissimilar tools, different scoring, triggers and medical response measures in operation. The EWS tools are generally comparable in their design, based on a simple scoring system applied to the measurement of the patient's vital signs and generally include the respiratory rate (per minute), systolic blood pressure, heart rate (per minute), temperature and level of consciousness. A numerical score is applied to each vital sign, with higher scores applied where measurements fall further outside the normal parameters expected. The scores are then added together and documented on the EWS chart. If the score reaches a trigger point, the nurse is alerted to a predetermined course of action, which may be to increase the frequency of observations or to call for medical review (Goldhill, 2005). As such, the EWS is intended to identify subtle physiological changes in the patient's clinical status over time, but dictates a set response, thus disregarding the nurse's clinical expertise in patient observation. Whilst the EWS tool involves the simple adding of numerical values to generate the EWS score, studies have found significant failings in the correct application of the tools in practice (Donohue & Endacott, 2010) demonstrating the limitations of such tools in practice, which oversimplify the complexities of assessing acutely ill patients.

2.2 Limitations of early warning score observation tools

Considerable emphasis has been given to the implementation of EWS tools in the UK and Australasia, in an attempt to improve outcomes and mortality for acutely ill patients in hospital (NICE, 2007; Chaboyer, et al., 2008; Kyriacos, et al., 2011). However, these tools have significant limitations which appear to have been overlooked by those endorsing their application. Few EWS tools have been formally validated (Kyriacos et al., 2011; RCP, 2012) and there is no single validated tool which can be applied across clinical disciplines or conditions (Goldhill, 2005; Bell et al., 2006; RCP, 2012).

Huge variation in the EWS tools used across the UK risk confusion among nursing and medical staff when working in different areas. The array of EWS tools currently employed applies a variety of physiological parameters to derive their score. This means that staff must appreciate local variations in approach and be taught how to use the local EWS tool whenever moving hospital, and sometimes even if moving between departments in the same hospital, as the scoring systems may differ. To compound this problem further, the monitoring of vital signs is often undertaken by a nursing support assistant, as opposed to a Registered Nurse (Wheatley, 2006), having differing levels of knowledge and understanding which may impact upon the timeliness of intervention. Nurses have been found to fail to respond to abnormal signs (Odell et al., 2009) and to fail to adequately report signs of deterioration to medical colleagues (Andrews & Waterman, 2005; Odell et al., 2009). EWS tools focus largely on the measurement of objective data using routine measurements of vital signs, with little if any reference to the use of visual

or qualitative nursing observations of the patient. However, EWS tools generally provide a caveat to allow for clinical concern, a subjective finding, which strongly suggests that these observations are considered significant (see appendices i and x for examples of EWS tools).

Increasing awareness of nurses' failure to recognise patient deterioration has seen widespread implementation of EWS tools. Georgaka et al. (2012) argue that evidence for the clinical effectiveness of these tools is limited, yet they have been widely adopted among the acute NHS hospital trusts and endorsed by government agencies (NPSA, 2007; NICE, 2007). The EWS, when applied effectively, uses objective measurable data to track patients' progress and to trigger a response when vital signs become significantly abnormal. However, concerns have been raised that EWS are measured infrequently and that measurements of vital signs are incomplete and inaccurately recorded (Chellel et al., 2002, Goldhill, 2005; Endacott et al., 2007). Furthermore, Cuthbertson et al. (2007) argue that although the physiological variables included in early warning scoring systems *'seem clinically intuitive and rational, they include best-guess physiological variable ranges and cut points and lack clinical validation'* (p 403). Personal experience of using an EWS tool found that there were often patients who presented with abnormal vital signs but which were considered safe and normal for that particular individual despite 'triggering' on the EWS tool parameters. This would commonly occur in patients with chronic obstructive airways disease which affected the respiratory rate and those with underlying cardiac complaints affecting the heart rate and blood pressure.

Gao et al. (2007) argue that the structure, model and effectiveness of scoring systems vary, that hospitals have developed their own scoring systems and that evidence of reliability, validity and utility is lacking. A systematic review of 25 published early warning observation tools stated that the specificities and negative predictive values of these systems were found to be acceptable, but that positive predictive values was found to be unacceptably poor (Gao et al., 2007). More importantly, some have argued that these types of early warning observation tools are inadequate predictors of hospital mortality, cardio-respiratory arrest, and admission to critical care (Oakey & Slade, 2006; Gao et al.,2007), suggesting that a new approach to the nursing and observation of acutely ill patients is needed.

EWS tools continue to be scrutinised and refined, with recommendations from the RCP for the implementation of single, standardised, validated tool across the NHS (RCP 2012). The RCP National Early Warning Score (see appendix x) incorporates additional scores for supplemental oxygen therapy and for oxygen saturation, which when added together provide an overall score to gauge the physiological status of the patient. The tool itself is used in the same manner as other EWS tools. This strongly suggests that the current approach of locally derived EWS tools has failed to impact sufficiently on patient outcome. The RCP (2012) argue that early detection of acute illness is only one of a triad of determinants of clinical outcome for patients. In isolation, monitoring of the EWS score is ineffective. Timeliness and competency of clinical response are deemed to be equally important in the recognition of the acutely ill patient. An obvious difficulty with this is determination of what constitutes a timely and/or competent

clinical response since many hospitals do not have access to critical care outreach services or medical emergency teams (RCP, 2012).

The professional nursing body has accepted and contributed to the development, implementation and evaluation of existing EWS tools but has thus far failed to take ownership of this fundamental element of nursing practice which has been largely driven by critical care. It is argued that nursing expertise and opinion is essential to further determine the direction of nursing observation of patients and that ownership of this must be brought back to the clinical face of nursing practice. Furthermore, the complexities involved in the nursing observation of patients cannot be captured or replicated by an objective measurement tool, since elements of nursing observations are largely unquantifiable and are informed by various sources of knowledge. This is borne out by the literature discussed further in sections 2.4, 2.5 and in the findings, presented in section 5.2.

2.3 Assessment of the critically ill patient in hospital

In contradiction to the EWS, when nurses and medical staff undertake assessment of a critically ill patient in hospital, they are generally taught to follow the ABCDEfG approach. This is a pneumonic taught in acute illness management and resuscitation training, in order to prioritise actions that will preserve life (Smith, 2003; Resuscitation Council UK, 2013). The ABCDEfG approach provides clinical staff with a systematic approach to assess the patient:

A- Airway: patency, ability to breathe unaided.

B- Breathing: rate, pattern, respiratory effort, efficiency and oxygen saturation

C- Circulation: blood pressure, heart rate, capillary refill time

D- Disability: neurological status using Glasgow Coma Scale of AVPU score

E- Exposure: top to toe assessment for other physical signs

fG- Glucose: blood glucose measurement

(Smith, 2003).

The application of the ABCDEfG pneumonic is recommended in the assessment of the sick or deteriorating patient (Smith, 2003; Resuscitation Council UK 2007; Lees & Hughes, 2009; Gwinutt, 2010) and clearly requires measurement and observation of both objective and subjective data, yet EWS tools fail to incorporate subjective observation findings into the assessment of patients other than including a caveat to allow for clinical concern (RCP 2012). The tool provides a framework for nurses and doctors to make a detailed assessment of the patient's physiological status, subject to them possessing sufficient level of skill and knowledge and has been implemented in at least one AMU (Lees & Hughes, 2009), where it was argued that the AMU staff require a more rigorous approach to the assessment of patients than is provided by the use of the EWS.

EWS observation tools alone have failed to impact sufficiently on patient mortality. The RCP has stated that EWS monitoring is only one determinant of patient outcome and that the tools themselves have significant limitations (RCP 2012). Significant emphasis has been placed upon the measurement of objective

measurements in patients in all recent national guidance (NICE 2007; NPSA 2007; NCEPOD 2007; RCP 2012). This guidance has arguably neglected the significance of subjective data from nursing observations in the recognition of deteriorating patients, which clearly has a role within the recognised ABCDEfG framework (Smith, 2003).

Goldhill et al. (1999) recognised more than a decade ago, the importance of respiratory rate in predicting cardiac arrest or admission to intensive care in the patient. The respiratory rate is a highly sensitive indicator of the patient's condition and is one of the first physiological signs to change when a patient first begins to deteriorate (Parkes, 2011). Respiratory failure can be caused by various underlying conditions and is the most frequent cause of critical illness (Kennedy, 2007). It is therefore fundamental for nurses working in acute care environments to possess skills and knowledge in the performance of a complete respiratory assessment, and not just the measurement of breaths per minute (Kennedy, 2007; Higginson & Jones, 2009). The rate of respiration alone does not provide the nurse with a complete assessment of the patient's respiratory function. In order to obtain a more complete understanding of this, the nursing assessment should include the effort of breathing, the rate and rhythm of breathing, the use of accessory muscles, chest expansion and auscultation of the lung fields (Higginson & Jones, 2009). This demonstrates the significance of subjective observations in making a complete assessment of the patient, and does not place on over reliance on the use of early warning observation scores, which have not been thoroughly validated and which fail to value the tacit or intuitive knowledge of the expert

nurse. Based upon this synopsis, consideration must be given to the range of other factors which influence the ability of the nurse to make patient assessments. One consideration is the ability of the nurse to make a clinical decision based upon the interpretation of their nursing assessment, incorporating underpinning knowledge to provide a rationale for the decision. The patient assessment is a complex process and is fundamental to nursing practice. It is therefore essential to consider the concepts of knowledge and clinical decision making in the wider context.

2.4 Clinical decision making

Nurses working in the AMU face an increasingly complex, clinical environment due to the changing patient demographic and year on year rise in acute medical admissions to hospital (Lees & Hughes, 2009). The role of the nurse has grown significantly over recent years due to changes in health policy, enabling the nurse to take on far greater levels of responsibility, such as independent nurse prescribing. On a daily basis, nurses are required to make decisions in relation to the care that they provide and how they manage their individual workload (Banning, 2005). Clinical judgement is considered to be an essential skill (Tanner, 2006) and is fundamental to nursing in the AMU, where levels of patient complexity, acuity and turnover are known to be high but where there is currently a lack of any research evidence base for nurses in practice.

Nurses now have far greater independence over their decisions in clinical practice due to the changing policy context. However, this level of autonomy brings increased responsibility to the nurse who will be judged on the decisions made and be held accountable for his or her actions (Thompson, 2001). Clinical decisions may be based upon various types of knowledge, utilising explicit knowledge (see section 2.6) and incorporating intuitive (section 2.4.2) and tacit knowledge (section 2.5), the sources of which have been the subject of considerable philosophical enquiry. The quest to understand the different types of knowledge within nursing continues on the basis that there remains much to be discovered about the nature of nursing knowledge.

The ability to identify the signs of decline early in patients is fundamental to nurses, who then have an opportunity to take remedial action which may prevent further decline (Minick & Harvey, 2003). This requires the use of a multiplicity of skills: patient assessment, the application of knowledge, interpretation of information and ultimately clinical decision making, which lies at the heart of clinical practice. Clinical decision making is recognised as critical to the delivery of safe and appropriate health care, ultimately impacting upon outcomes for patients, yet there is little known about this element of practice in the AMU. Given the pressure of limited time in the AMU and the complex presentation of patients, nurses must adapt their practice accordingly in order to safely prioritise care for patients hence an argument for knowledge and understanding of nursing practice in the short stay, acute care context of the AMU.

Clinical judgement is fundamental to making safe decisions about the delivery and prioritisation of care, and is based upon the accurate interpretation of observed cues from patients. A number of authors have identified that the nurses ability to make an accurate assessment of the patient is central to clinical judgement (Cioffi, 2000a; Hancock & Durham, 2007; Maharmeh, 2011) which ultimately underpins the decision making process. However, there is no published material specifically relating to decision making in the AMU, though other studies involving critical care nursing have identified that decision making is a crucial aspect of the nursing role (Hancock & Durham 2007; Maharmeh, 2011). These authors argue that the process of clinical decision making is more complex for nurses working in critical care settings due to the increase in technology and changes in health care delivery (Aitken et al., 2008). Consequently, the thesis argues that nurses practicing in the AMU setting face complexity in their decision making due to the demands of patient acuity and pace of work explored earlier in section 1.9. Furthermore, it is argued that the AMU poses additional challenges to nurses since the workload is unpredictable, time with patients is limited and ratios of nurses to patients are low. When combined, these factors impact upon the ways in which nurses practice and provide care for their patients. Nurses must therefore adapt to the changing AMU environment in order to maintain patient safety.

The context of nursing in the AMU raises pertinent issues relating to the concept of knowing the patient due the limited time patients spend in the department and the acute nature of their presenting clinical condition, as discussed in chapter one. Knowing the patient is an essential nursing skill which allows understanding of the

patient's needs, expectations and preferences, ultimately influencing the planning and delivery of holistic nursing care (Radwin & Alster 2002, Finfgeld-Connett 2008a, 2008b, 2008c; Suhonen et al., 2010). Knowing the patient is also recognised as fundamental to maintaining safety for the patient, since this knowledge informs clinical judgement and decision making (Tanner et al., 1993; Beyea, 2006; Macdonald, 2008). Limited time with patients has been shown to impact on the ability of the nurse to know the patient and consequently to identify deterioration (Thorne et al., 2005; Macdonald, 2007; Macdonald, 2008), although there is a dearth of published material which addresses the issues of nurses knowing the patient in the context of restricted time and contact. Since limited availability of time will have some bearing on the practice of nurses in the AMU and subsequently knowledge of the patient, consideration must be given to clinical decision making in this context. The findings presented in chapter 5 provide valuable insight in this regard, generating understanding of the ways in which nurses overcome the challenges of the AMU to know their patients and maintain safety through rapid observation and assessment.

Clinical decision making (CDM) is a highly complicated process, not yet fully understood, but which is arguably reliant upon the combination of theory and practice (Blum, 2010). Shaban (2005) identified considerable debate relating to the constructs and definitions of CDM in the literature, suggesting that is reliant upon the possession of knowledge in its variant forms and is widely accepted as a critical component of professional nursing practice. Furthermore, a variety of terms referring to CDM are used interchangeably within the literature, demonstrating a lack of consensus and confusion. For example, Maharmeh (2011) found that

clinical judgement, CDM and clinical reasoning are phrases used interchangeably to discuss and describe similar activity. Buckingham & Adams (2000) argue that there is a confusing array of theory, opinion and terminology relating to the decision making process. Whilst a definition for CDM varies among authors, Thompson & Dowding (2004) suggest that there is some agreement that the process of CDM involves a deliberate choice between a range of options and acting within this choice. Shaban (2005) suggests that nurses make a clinical decision based upon their initial assessment of a situation, using prediction to gauge the likely impact of that decision in the future and are responsible and accountable for their decisions. The initial assessment relies upon the gathering and interpretation of patient data by the nurse using sophisticated cognitive processes, which ranging between highly analytic (Anderson, 1991) to highly intuitive (Dreyfus & Dreyfus, 1986), to produce a communicable account of the patient's condition. A decision can then be made based upon the judgement made at the time. Accurate assessment and judgement are therefore critical to effective decision making. This research question addressed within the thesis provides insight and understanding into the ways in which nurses observe and assess patients in the AMU, thus generating better understanding of clinical judgement and CDM in the AMU and acute nursing context where current knowledge is deficient.

There have been are two prominent models discussed in the literature which relate to decision making in clinical practice and which have been demonstrated in nurse research (Luker et al., 1998; Offredy, 1998), although there have not been

any studies conducted which explore CDM by nurses in the AMU. The two leading models are the information processing model, being highly analytic, and the intuitive model, being highly instinctive. Each attempts to understand, explain, guide and optimise decision making processes to varying degrees adopting opposing approaches which will now be examined in greater detail.

2.4.1 The information processing model

The information processing model draws on the principles of prescriptive theory, which relates to how decisions ought to be made (Gallanter & Patel, 2005). Models based on this logic are historically rooted in medical decision making, whereby decisions are made using a systematic, step by step process to gather and interpret information, using deduction and the generation of hypotheses (Buckingham & Adams, 2000). The hypothetic-deductive model approach to CDM comprises several information processing steps, the first of which is cue recognition. This is followed by cue interpretation, hypothesis generation and hypothesis evaluation (Tanner et al., 1987). The nurse gathers patient related clinical information during a patient assessment and immediately begins to generate tentative hypotheses using the information collated. The cues and information initially gathered are then interpreted by the nurse and used to either confirm or reject the original hypothesis.

Nurses have subsequently adopted this highly influential, hypothetico-deductive approach using a decision tree structure, which helps the nurse to consider all

possible outcomes for decisions (Padrick et al., 1987; Tanner et al., 1987; Banning, 2005). Each possible outcome is assigned a numerical value ultimately producing an overall probability. The clinical decision tree becomes more complicated with increasing patient complexity and increased clinician experience, since the number of possible decisions increases accordingly. This approach benefits from permitting the inclusion of clinical guidelines and protocols which may direct the nurse's decision and may also allow for the patient's opinion to be incorporated into the decision making process, which is necessary for the delivery of evidence based care. However, Minick & Harvey (2003) suggest that the hypothetico-deductive model of CDM which considers decision making in practice is flawed in its lack of appreciation for the complexity of clinical situations, since it is designed as a linear decision-making process, suggesting that patient problems are isolated and clearly defined.

The traditional linear decision making structure does not allow for the countless ambiguous variations and complexities in patient presentation. The model has been criticised as it assumes that nurses possess accurate existing knowledge and does not allow for the possibility of resultant inaccurate decisions (Banning, 2005) or as Shabban (2005) argues, for the considerable number of potential outcomes which might arise in practice. Another criticism of this concept is that the information required to make a sound decision may not be available to the nurse at the time, for example in emergency situations where information about the patient may be limited and the environment potentially chaotic. This model fails to address the complexities of decision making in these circumstances, where prior

knowledge or experience is not in place, demonstrating an overly simplistic view of a highly complex process. For this reason, it is not a model suited to the inexperienced nurse who may not possess the knowledge required to make precise decisions. Higgs et al. (2008) concur with this opinion, arguing that to make an efficient decision, the decision maker should have a great deal of knowledge and experience in a specific field. Yet other authors (Benner, 1984) have found that junior nurses are more likely to adopt this model in their decision making, suggesting a high level of ambiguity in the development of accurate hypotheses which poses risk to patients. Close mentorship of students and newly qualified nurses is extremely important to allow for corroboration in the decision making process.

Practice decisions made in authentic clinical environments will always contain an element of ambiguity. Nurses have to take account of this, be aware of the potential consequences and be able to rationalise their decision making. Understanding of clinical decision making processes has grown considerably over the past two decades, allowing the development of more appropriate models for clinical decision making and better understanding of these models in relation to nursing practice and recognising the influence of other sources of knowledge. This is particularly relevant to the practice setting of an AMU, where little is known about the patient and where there is a limited existing research evidence base for practice. Hence, intuitive models of decision making have emerged, which will now be explored more thoroughly.

2.4.2 The intuitive model

A widely accepted and popular alternative concept for how nurses make decisions in practice is the intuitive model, which concentrates on the use of intuition in practice and how this informs clinical decision making. It relies on knowledge gained experientially as opposed to an objective source of knowledge acquisition and has gradually increased in prominence over the past twenty years, drawing considerable attention and debate in the literature (English, 1993; King & Appleton, 1997; Effken, 2001; Rew & Barrow 2009). There is no single definition of intuition within the literature since the notion of intuition is difficult to comprehend (Nyatanga & de Vocht, 2008), but is generally associated with terms such as ‘immediate,’ ‘sensing’ and ‘unconscious thought.’

Carper (1978) drew upon early work by Polyani (1962) to identify intuition as a way of knowing within nursing practice. Since that time, there has been a growth in the number of publications referring to intuition in nursing. Rew and Barrow (2009) argue that studies have largely been concerned with the use of intuition in practice, which Benner (1984) identified more than two decades ago, and have thus far failed to address the issues of prevalence, utility or efficacy of nursing intuition.

There is no doubt from the large number of studies published that intuitive knowing is fundamental to expert clinical decision making (Benner & Tanner, 1987; Rew,1988; MacCormack,1993; Offreddy, 1998; Cioffi, 2000a; Andrews &

Waterman 2005; Rew & Barrow, 2009), although it could be argued that the knowledge base in this area has not increased substantially since Benner (1984) first determined that intuitive decisions were associated with expert nursing practice.

Whilst Benner's (1984) theory has received significant support, others such as Scott & Bruce (1995) have completely rejected the idea that intuitive knowledge can have any status in nursing theory, since it has no scientific basis. English (1993) demonstrated that the concept of intuitive knowledge was not always valued with his argument that it had limited applicability in nursing since it could not be empirically and unequivocally validated. Whilst English made his comments more than twenty years ago, more recently Hek & Moule (2006) have argued that intuition in nursing is not viewed as a phenomenon for scientific study, due to a lack of objectivity and rationale behind decision making processes involving the use of intuitive and tacit knowledge. However, there is sufficient recognition within nursing literature to demonstrate that intuition holds an important position in nursing decision making, despite the apparent challenges in being able to quantify its prevalence or efficacy. Lack of scientific reasoning to support intuition in decision making has led to considerable criticism of the intuitive model, since it is not based on the use of objective knowledge and therefore does not utilise rational thought. Further, it disregards the opinion that practice ought to develop from a sound evidence base upon which significant emphasis is placed within the healthcare environment (Shaban, 2005). However, intuitive reasoning plays a vital role in situations where there are high levels of risk and uncertainty, which is the

overriding strength of the intuitive model and has been closely related with expert levels of practice (Benner et al., 1999). According to Lyneham et al. (2008), the expert nurse may act appropriately in a given situation, without conscious thought, trusting their intuition completely. Schon (1983) argued this point, suggesting that expert practitioners do not consciously consider their knowledge base when confronted with an issue in practice, instead reacting to an overall intuitive sense of the situation. Lyneham et al. (2008) state that Benner's model has been criticised for its lack of clarification for the expert stage, which requires a more detailed enquiry and analysis, since Benner's concept suggests that intuition is unique to expert practice. It is critical then to identify a definition for the expert nurse and what constitutes expert practice, since numerous studies have identified the role of intuition in nurses' decision making. If intuition lies solely within the realms of the expert nurse, then other sources of knowledge must inform the CDM of less experienced nurses, who must rely on this knowledge to maintain patient safety.

There is a lack of consensus for understanding the concept of intuition. Benner & Tanner (1987) say that intuition is understanding without a rationale, while Rew (1988) argues that it is knowledge independent of the linear reasoning process. However, I prefer the definition offered by Gerrity (1987) who considers intuition as 'the sudden perception of a pattern in a seemingly unrelated series of events...beyond which is visible to the senses' (pg 65). This definition clearly identifies the knowing as something which does not require the gathering of visual cues or other processing of information by the nurse, suggesting an altogether

extrasensory or unconscious ability. This is an important consideration, as authors such as Benner (1984) and Cioffi (2000) confuse the term intuition with tacit knowledge. The two types of knowledge are distinct and ought not to be used interchangeably. Herbig et al. (2001) support this argument by proposing that many of the phenomena summarised under the heading of 'intuition' in fact refer to the use of tacit knowledge. Tacit knowledge has been identified as another critical source of information for nurses in clinical decision making and may be employed more frequently than is currently recognised, perhaps being mistakenly identified as intuitive knowing. What this suggests is that nurses often rely on tacit rather than intuitive knowledge to make decisions in practice, but that they are unable to quantify or articulate their decision making that this can be sufficiently identified and this will be explored further in section 2.5.

It is argued that there must always be some element of conscious and/or unconscious thought given to a clinical decision and for that decision to be based upon some defensible rationale, particularly given the NHS requirement for clinical decision making to be based upon valid and reliable evidence (Welsh & Lyons, 2001). Whilst there may not always be an evidence base available to underpin the decision, the nurse surely gives consideration to any action based upon his/her existing personal knowledge and experience. While this thought process may not be linear or sequential in nature or currently understood, no action occurs without some level of forethought, be that on a conscious or subconscious level. Nyatanga & de Vocht (2008) support this view in their contention that the intuitive reasoning often experienced by nurses is in fact due to unconscious thought, where the brain

processes information so rapidly that the individual is unaware of the thinking. The speed of decision making necessary in these types of circumstances requires the skill of the unconscious brain, which can work more rapidly, where the brain has access to prior learning in the memory. Nyatanga & de Vocht (2008) contend that use of conscious thought to consider complex issues tends to slow the brain down and that conscious thought is more suited to straightforward tasks and decisions.

2.5 Tacit knowledge

Tacit knowledge appears to function in much the same way as unconscious thought being reliant upon prior experience, bound to the person and is context specific (Herbig et al., 2001). Most nurses involved in clinical practice can probably offer examples of using tacit knowledge in practice situations (Moule & Goodman, 2009). Tacit knowledge becomes so embedded in the unconscious brain that it defies attempts to define the particular knowledge through language. Smith (1988) conducted a study of nurses in critical care to characterise the phenomenon of deterioration in patients. The nurses commonly reported a sense of knowing that there was something wrong with the patient. These findings were congruent with those of Benner & Tanner (1987) since both studies identified pattern recognition by the nurses. However, the nurses were unable to quantify their meaning. The pattern recognition however, points to the existing possession of knowledge in relation to the individual cues which were stored within the memory. The difficulty for researchers is in making tacit knowledge explicit. As Eraut (2000) points out, there are many conundrums associated with tacit knowledge which currently defy our understanding. These include whether tacit knowledge refers to knowledge

which is *not communicated* or which *cannot* be communicated, which Eraut (2000) suggested may relate to an attribute of the individual that only some are able to communicate or an attribute of the knowledge itself or alternatively, a combination of both. Currently, conclusions have not been drawn in terms of what might be unconscious thought, intuitive knowledge or tacit knowledge. Much of this knowledge remains unknown and not yet understood. What is becoming evident with time is that these sources of knowledge are authentic and are gaining recognition for their significance.

Clinical decision making is fundamental to the daily practice of nurses. Whilst the use of a scientific evidence base is advocated by Government agencies such as the National Institute for Health and Clinical Excellence (NICE) and the National Patient Safety Agency (NPSA), there are practice based situations where evidence based guidelines do not currently exist. In these situations, there are no clear answers for the nurse. In areas of nursing practice where an evidence base is limited, such as the AMU, the nurse may manage situations by drawing upon legitimate sources of knowledge to make decisions about patient care as identified in section 2.6. Both intuitive and tacit knowledge are legitimate sources of knowledge upon which clinical decisions can be based. However, these are not easily rationalised and further research is required to gain a deeper understanding of the cognitive processes engaged in the utilisation of these important sources of information.

2.6 Explicit knowledge

Each individual possesses different types and levels of explicit knowledge and applies their knowledge uniquely in any given situation. Most explicit knowledge is technical or academic in nature and described formally in manuals which can share the 'know-what.' Smith (2001) explains that explicit knowledge refers to that which has been historically written down and taught, using language to document what is known. Explicit knowledge thus develops from individual education developing from school and developing through higher courses of structured education. This knowledge is employed by the individual in their life and work environment, combined with other knowledge sources which may support the decision making process.

2.7 Nursing observation and assessment of the acutely ill patient in hospital

A review of the literature was performed to identify previous research and expert opinion relating to the nursing observation and assessment of acutely ill patients in hospital. This identified prior investigations and expert opinion relating to the subject matter, and positioned the proposed study within the existing body of knowledge. Having previously designed and implemented an EWS tool, there was a significant body of literature relating to the development, implementation and evaluation of EWS tools that had been reviewed whilst practicing as a consultant nurse. However, there had been no prior review of the literature pertaining to nurses' role in the identification of physiological deterioration.

2.7.1 Search strategy

The literature review was conducted as a systematic process beginning in January 2009 and completing in January 2013, allowing the identification of research published throughout the course of the study. Computer based electronic searching was employed to access the library databases and search all online nursing and medical journals and books published between 1998 and 2013. 1998 was selected as the end parameter for older published work as this was the year that McQuillan et al. (1998) published their seminal study identifying sub-optimal patient management prior to emergency intensive care admission.

The search terms used both separately and combined were nurse recognition of acute/critical illness, nursing observation, patient deterioration, and recognition of sepsis, clinical emergency, early warning scores and acute medical nursing/acute medical unit. The electronic databases searched included Cinahl, MEDLINE (Ovid), Science Direct, Psych INFO (Ovid), Applied Social Sciences Index and Abstracts, Sociological Abstracts and the Cochrane Database. The British Library online thesis search engine (EthOS) was regularly accessed to identify whether any similar doctoral theses were available. Professional journals were hand searched for relevant literature using reference lists and citations made in key publications and attempts were also made to obtain any relevant grey literature (unpublished material).

2.7.2 Inclusion and exclusion criteria

All primary research of any design published between 1998 and 2013, which explored the nursing observation of patients in non-critical care areas was included for review. Studies conducted in dedicated critical care areas were excluded, as these were not comparable in terms of nurse to patient ratio, access to medical staffing and the type of electronic monitoring. Studies focussing on the design, implementation, evaluation or validation of an EWS tool or other rapid response system, or with the association between mortality and abnormal observations were excluded since these were not concerned with nursing observation of patients. Papers which were not available in English were rejected on the basis that funding was not available for translation.

2.8 Results of the literature search

The literature search identified a total of twenty-five studies. Ten of these were excluded, whilst fifteen were considered relevant and meeting the quality appraisal criteria. A summary of included studies can be found in table 1. Of the excluded studies, five were specifically concerned with measuring the effects of EWS on mortality and patient outcomes (Subbe et al., 2001; Subbe et al., 2003; McBride et al., 2004; Buist et al., 2004; Goldhill, 2005) whilst one explored how the design of an early warning observation chart affected errors in the recording of vital signs and trigger scores was also excluded (Preece et al., 2012). Two studies which explored the recognition of sepsis in patients were excluded as they did not include any nurses in their samples (Poeze et al., 2004; Fernandez et al., 2006). A

qualitative study by Carroll (2004) explored the practical skills needed for nurses practicing in medical assessment units. This study was excluded on the grounds that it was not concerned in any way with the observation of patients.

2.9 Quality appraisal of identified studies

There is considerable debate in the literature surrounding the need for rigour and credibility in qualitative research, and whilst no consensus has been reached, there is a general agreement that qualitative research should be scrutinised for veracity in the research design, analysis and interpretation of data using a quality assessment framework (Silverman, 2008; Dixon-Woods et al., 2004; Hannes, 2011), with no less rigour than a quantitative study. Despite the emergence of various frameworks that can be applied to the appraisal of qualitative studies, there is little commonality to be found, leading to a confusing array of suggested criteria. One reason for this is that qualitative research is not a unified field (Dixon-Woods et al., 2004). The diverse range of qualitative disciplines is not suited to appraisal from a simple set of applied criteria, as there are few features that are shared by all. This raises the problem of how to assess the quality of studies identified by the literature search and which ought to be included in the review. The Critical Appraisal Skills Programme (CASP) has developed a range of appraisal tools to guide researchers with the careful and systematic examination of studies to make judgements about their trustworthiness, relevance and value. Since the literature search had identified a number of studies adopting different designs and approaches to data analysis and interpretation, specific quality appraisal tools were required. The CASP tools were selected to appraise the

strengths and weaknesses of all existing published research identified by the literature review.

2.10 Review of included studies

On completion of the quality appraisal, fifteen studies were identified for critical analysis. These studies are identified in table 1 and included ten qualitative studies, two quantitative studies, one study which used a mixed methods approach, an audit and a systematic review of the literature. The themes that emerged from the literature review were broadly identified as the role of the nurse in the AMU, the observation and assessment of the hospitalised patient, the detection of clinical deterioration in the patient, the possession of explicit knowledge and the escalation of concerns to a doctor.

Table 1 Summary of studies included in the literature review				
	Author /Year/Title	**Study design**	**Key Findings**	**Comments**
1	Andrews, T & Waterman, H (2005) Packaging: A grounded theory of how to report physiological deterioration effectively.	Grounded theory using interviews and observations. Explored how ward staff packaged information relating to Early warning scores during referral to Doctor.	Information packaging needs to be communicated in a credible format to Doctors. Nurses spot deterioration through intuitive knowing.	Study not conducted on Acute medical units, but relevant in terms of findings: intuitive knowing identified and the late escalation of deterioration by nursing staff. Points out that medical staff prefer quantifiable data in a hand over.
2	Cioffi,J (2000a) Recognition of patients who require emergency assistance: a descriptive study.	Qualitative study which used interviews of nurses to describe their experiences of calling the medical emergency team (MET) to patients who they had concerns about.	Nurses called the MET when concerned about a patient, using observations of the patient colour and state of agitation, a sense of knowing that something was wrong.	This study focussed on the reasons nurses called the MET. However, the findings demonstrate that nurses used visual cues to identify concerns. They also reported intuitive knowing to alert them to a problem.
3	Cioffi,J (2000b) Nurses' experience of making decisions to call emergency assistance to their patients.	Descriptive study of nurses experiences in calling for emergency assistance.	Nurses used a sense of 'knowing' to call for help. 5 main categories which prompted calls for help identified.	This is possibly the same data as previous study, with findings reported in a different format. The study focus was largely related to the factors which prompted nurses to call for help, but identifies the importance of intuitive knowing.
4	Cooper, S. et al. (2011) Managing deteriorating patients: Registered nurses performance in a simulated setting.	Exploratory quantitative performance review of 35 nurse participants using MCQ and simulation scenario assessments.	Vital signs recording incomplete. Average score 50.4% on simulated scenarios. Average score of 67% on questionnaire.	This study identified that nurses were lacking knowledge in the signs and symptoms of deteriorating illness. Performance scores reduced during the simulations demonstrating the impact of environment on decision making.

	Author/Year/Title	Study Design	Key Findings	Comments
5	Cox, H et al. (2006) The experiences of trained nurses caring for critically ill patients within a general ward setting.	Exploratory, descriptive study using questionnaire and interview of qualified nurses on a medical ward. Aimed to explore factors which influence the experience of nurses in caring for critically ill patients in a general ward setting.	5 key themes identified including environment, professional relationships, patient assessment, nurse's feelings and education.	Study sample and ward area similar to that presented in the thesis. Retrospective interview used with participants is a potential limitation of the findings.
6	Donohue,L.A. & Endacott , R. (2010) Track, trigger and teamwork: Communication of deterioration in acute medical and surgical wards.	Study using critical incident technique with retrospective semi structured interviews with nurses who had referred a patient to the outreach team.	Knowing the patient and identifying visual trends considered important. MEWS used infrequently but tools useful for inexperienced staff.	Sample includes only cases where patients actually needed critical care outreach intervention. Knowledge of the patient found to be key in monitoring the patient. Limitations of EWS tool identified.
7	Endacott, R et al. (2007) Recognition and communication of patient deterioration in a regional hospital: A multi methods study.	Case study design used to identify the cues that ward nurses and doctors use to identify patient deterioration.	Reliance on vital signs identified as the route for initial identification of deterioration in a patient.	Inadequate communication and delayed referral identified by the authors. Level of consciousness absent on all patient records reviewed by the study. Staff were unable to identify the parameters for concern from charts.
8	Griffiths, P. (2010) A community of practice: the nurses' role on a medical assessment unit.	Ethnographic study to explore the role of the nurse in an acute medical unit.	Themes identified: organising the clinical space, professional knowledge and ability to work under pressure.	The only study identified which focussed on the AMU in its own right. Findings relevant in view of the AMU context providing insight into the working environment.

	Author/Tear/Title	Study Design	Key Findings	Comments
9	Hogan, J (2006) Why don't nurses monitor the respiratory rates of patients?	Qualitative design using focus groups to explore the reasons for incomplete recording of baseline observations in patients.	Found that respiratory rate was not recorded in 50% of cases. 4 major factors identified for this.	This study demonstrates that there are inadequacies in the recording of vital signs which ultimately impacts upon recognition of deterioration. May also suggest that nurses do not understand the value of physiological objective measures.
10	Minick, P. & Harvey, S. (2003) The early recognition of patient problems among medical-surgical nurses.	Interpretive phenomenology using group interviews of medical-surgical nurses to explore early recognition of problems in patients	Three themes identified: knowing the patient, knowing the patient through family and knowing something is not as expected.	This study identified that knowing the patient was key to the identification of subtle changes. Pattern recognition was also used to know when something was wrong. The conclusions drawn are weak.
11	Odell, M et al. (2009) Nurses' role in detecting deterioration in ward patients: systematic literature review.	Systematic review of the literature pertaining to the nurse's role in detecting deterioration in ward patients.	14 studies identified which met the inclusion and quality criteria between 1990 and 2007. Intuition found to be highly important and this is supported by the use of vital signs to validate intuitive feelings.	Identification of qualitative and quantitative studies and included the use of EWS tools. Considered the range of studies published over a 17year period. Nurses frequently detect patient deterioration through intuitive knowing and knowing the patient. The authors identified that recognition of deterioration was a complex process.
12	Robson, W. et al. (2007) An audit of ward nurses knowledge of sepsis.	Audit of nurses' knowledge of sepsis. Questionnaire to assess knowledge of standard sepsis definitions.	Many nurses not aware of the signs of sepsis in the patient. Deficits in knowledge identified relating to infection.	Quantitative work suggesting lack of underpinning knowledge in nurses of sepsis and altered physiology suggesting the need for improved education for nurses.

	Author/Year/Title	Study Design	Key Findings	Comments
13	Tippins, E. (2005) How emergency department nurses identify and respond to critical illness.	Mixed methods exploratory study of 23 nurses working in A&E department, using 2 written scenarios with questionnaire and semi structured interview.	Nurses used pattern recognition, physiological signs and symptoms and the use of intuitive knowledge to identify critical illness.	Scenarios were designed by the author. No validated tools were used. The nurses were all highly experienced in the department and had all had significant post registration education which might account for the high scores achieved.
14	Thompson et al. (2009) Nurses critical event risk assessments: a judgement analysis.	Qualitative multi centre study of 245 nurses assessing judgement, risk assessment and interventions using 50 computer based scenarios.	Wide variation in nursing judgement which affected estimation of risk where there was no prior experience in critical care. Nurses used non linear reasoning to make decisions and decisions were largely inaccurate.	Large sample of nurses with wide variance in clinical experience. 50 scenarios is considered excessive. The information given to the nurses was minimal and presented in textual format. However, the findings suggest a poor underpinning knowledge of physiological processes leading to deterioration in the patient.
15	Wheatley, I (2006) The nursing practice of taking level 1 patient observations.	Ethnographic study using participant observation and semi structured interviews to determine the practice of recording baseline observations in general ward patients.	Experience of staff found to be important in detecting deterioration in a patient. The role of measuring basic observations has been delegated to support workers and there appears to be a reliance on electronic monitoring equipment.	Study using similar methodology to that in this thesis. The study focus is on the practice of recording of vital signs observations which is seen as a task delegated on a routine basis to support staff. Recording of the vital signs observations was frequently interrupted and incomplete.

There was one study identified for review which was concerned entirely with the role of the nurse in the AMU, demonstrating the dearth of published research into this field of nursing practice. Griffiths' (2010) adopted the principles of ethnography to explore the role and practice of nurses in a small fourteen bedded AMU located in a district general hospital in Wales. Conducted over approximately six months, Griffiths (2010) collected data from a purposive sample of patients (n=6), doctors (n=4), nurses (n=7) and paramedics (n=2), using part time participant observation (200 hours), followed by semi-structured interviews. This was arguably a mini-ethnography since the data collection period was short and intermittent, which may impede the researcher in becoming immersed in the customs of the AMU nurses. Concerned with the culture of the AMU, Griffiths (2010) found that the management of bed capacity and demand were key elements of the nurses' responsibility. It was the responsibility of the co-ordinating nurse to ensure that sufficient bed capacity was created to allow for the number of admissions over the 24-hour period, with the challenge of a 99% bed occupancy rate. This may have been related to insufficient bed capacity within the hospital, but this is not acknowledged. Griffiths (2010) identified that the speed of admissions and transfers impacted on the relationships that nurses had with their patients, which were described as 'superficial,' although the nurses demonstrated skill and knowledge in the care and management of the acutely ill, complex patients, despite having no formal preparation for their role. Griffiths (2010) argued that specific knowledge and skills were recognised by the nurses as prerequisite to work in the MAU, although Griffiths (2010) does not make explicit what these skills and knowledge ought to be. The nurses remarked that a broad based medical knowledge and possession of critical care skills were considered essential, which

Griffiths (2010) argued was acquired through experiential learning through practice, despite the apparent risk to patients. The findings of this study confirmed that the AMU environment poses unique challenges for nurses practicing in this field, which as yet have gone largely unrecognised and which deserve further enquiry, given the rapid growth in acute medical nursing as a field of practice.

One systematic review of the literature was identified for inclusion, which was conducted by Odell et al. (2009) and included studies published between 1990 and 2007. The studies related to the nurses' role in detecting deterioration in ward patients and included all primary research evaluating nursing observation of ward patients was included in the review, regardless of research design or language. Studies conducted in HDU, ICU, A&E, paediatrics, obstetric or psychiatric wards however were excluded, although no rationale was provided for this decision. Their initial search was conducted by a single researcher who identified a total of 740 papers, which was reduced to sixteen included in the final review following screening. Nine of the papers were qualitative and the remainder were quantitative studies. A weakness of this review which could be levied at Odell et al. (2009) is the use of a single reviewer for identification of the literature. CASP recommends two reviewers working independently of each other for any systematic review screening (Critical Appraisal Skills Programme, 2010). The studies included in the review were all quality appraised. However, a single reviewer was responsible for the identified quality appraisal and data abstraction in this study which may have generated reviewer bias. The systematic review identified four themes: recognition, recording and reviewing, reporting and

responding and rescuing and concluded that intuition was the most prominent process by which nurses recognised deteriorating patients. Recording and reviewing of vital signs was reported to be either routine, or stand alone measurements instigated when deterioration was suspected. Routine delegation of the vital signs monitoring was identified, and had become ritualistic in nature. Vital signs were often missing details or performed on an infrequent basis. Equipment played a key role in the recording of vital signs but was found to reduce contact time with patients and was often damaged, with missing parts and not properly maintained. Odell et al. (2009) concluded that nurses were having difficulty in detecting and managing deterioration in patients due to lack of experience, lack of skill and excessive workloads. Where critical care support systems were available, they were used inconsistently and required skilled use of language. Odell et al. (2009) also argued that the routine monitoring of vital signs is unlikely to be the way that deteriorating patients are identified on general wards. Intuitive judgement by nurses was considered to be the most common means of detecting deterioration identified within the studies they reviewed. Having reviewed all the literature available for the identified period, Odell et al. (2009) stated that the existing research was limited and of dubious quality, but argued that routine vital signs monitoring was not effective and that nurses ought to be trained in more advanced assessment. However, they fail to expand on this recommendation. Odell et al. (2009) argued that nurses were able to identify changes in the patient's condition and behaviour intuitively. However, they then contradict this by stating that this may also be achieved through pattern recognition, which would suggest that tacit or explicit knowledge was used by the nurses. The systematic review is weakened by the flawed use of a single reviewer

and also in the contradictory evidence given to support the argument for the use of intuitive knowledge by nurses in recognising deterioration.

Five studies included in the literature review identified patient assessment as a key theme in the early recognition of patients at risk from clinical deterioration in hospital wards, with missed clinical markers being identified as a pertinent issue for nursing practice (Cox et al., 2006; Hogan 2006; Wheatley, 2006; Endacott, et al., 2007; Donohue & Endacott, 2010). Cox et al. (2006) conducted an exploratory descriptive study of nurses' experiences of caring for critically ill patients in general ward settings, using a purposive sample of seven qualified nurses identified from a medical ward in a district general hospital. Retrospective semi-structured interviews and a semantic differential questionnaire were used to identify five themes. The study found that the patient assessment process was complex, and involved the use of variable methods. Whilst some aspects of the assessment process were quantifiable, such as the use of vital signs recordings, others were reported as intuitive. Although the nurses confirmed that vital signs were measured and documented, they often verified what had been intuitively suspected. Other themes identified included clinical environment which briefly explored the impact of the clinical environment on the patient assessment affecting the ability to assess the patient and to take remedial action when necessary. Cox et al. (2006) identified that nurses were often nursing level 2 patients and using specialist continuous positive airways pressure ventilation (CPAP) and bi-level positive airways pressure ventilation (BiPAP) equipment

which they were uncomfortable with due to lack of formal preparation, thus hindering the assessment process.

Other themes that were identified by Cox et al. (2006) included professional relationships, feelings and education. These considered nurses were able to communicate their concerns about a patient and the value they placed upon the critical care outreach service as a means of clinical support. Feelings identified the range of emotions experienced by nurses when caring for a critically ill patient whilst education was identified by the nurses as crucial to their understanding and clinical skills development. The study was conducted in a similar setting and gave consideration to factors which were relevant to the proposed study. Whilst retrospective use of interview enabled the nurses to reflect upon their experiences, there is the risk that elements of the experience may have been forgotten due to the lapse in time.

Visual assessment of the patient was identified in the literature as a means used by nurses to identify problems in the patient (Minick & Harvey, 2003; Donohue & Endacott, 2010). Using semi-structured interviews, Donohue & Endacott (2010) examined ward nurses perceptions of critical care management in the ward setting. They used Critical Incident technique and retrospective semi-structured interviews to investigate how nurses identified physiological deterioration in the patient and also to explore the actions of staff when a patient was found to be deteriorating. They recruited eleven nurses with a range of clinical experience from either a medical or surgical ward, all of whom had referred a patient to the critical care outreach team following identification of a clinical deterioration. They

found that nurses looked for trends over time in the visual assessment of patients to identify deterioration, although it is unclear how much ‘time’ was needed to ‘know’ the patient. Results found that nursing staff relied heavily on their visual assessment of the patient, were not systematic in the approach to patient assessment and did not look for trends in the EWS measurements. Donohue & Endacott (2010) conducted the interviews with staff between two and three weeks after the critical incident where a patient needed critical care outreach referral. It is argued that this protracted interim period is too long for conducting the interviews and is an inappropriate methodology. A time lapse of this length will have affected the ability of the nurses to provide full and accurate recall of the events. Donohue & Endacott (2010) stated that visual assessment was referred to by seven of the nurses interviewed, but did not provide substantive evidence of this from the data, other than to say that nurses reported changes in the patient’s colour, breathing and conscious level prior to them becoming more unwell but found no consensus in the nurses’ descriptions of the visual assessment. This may be due to the lengthy delay of 2-3 weeks between the critical incident event and the actual interview being conducted. The study established that EWS was used infrequently, too late and was not communicated properly during escalation of care.

Interpretive phenomenology was adopted by Minick & Harvey (2003) to investigate the early recognition of patient problems by a group of fourteen med-surgical nurses practicing in an urban, American hospital. Retrospective focus group interview was used for data collection. The study demonstrated consensus opinion

from the nurses in their study, stating that repeated observations of the patient's skin colour and facial expression over an eight to twelve hour period facilitated the recognition of subtle changes in the facial colour, expressions and behaviour of the patient. This suggests that nurses could identify signs of concern after knowing the patient for relatively short time periods. In addition, this study found that nurses were able to identify when the patient's progress did not follow the expected trajectory and argued that unexpected pain in the patient was identified as an alarming sign. The authors interviewed their participants retrospectively either individually (Donohue & Endacott, 2010) or in a focus group (Minick & Harvey, 2003). Whilst it is argued that data accuracy may have been affected by the lapse in time between then incident and the interview, the use of retrospective interview and focus group also permitted the participants an opportunity to reflect upon their thoughts, decision making and actions.

Track and trigger tools, such as the EWS, have been found to be effective in monitoring patient's vital signs by the detecting trends over time and were identified as being heavily relied upon when assessing patients for deterioration by Endacott et al. (2007). These trends provided an objective account of the patient's history which may be used to justify escalation of the nurse's concerns to a doctor (Andrews & Waterman, 2005; Odell et al., 2009). Conversely, a number of authors have identified that the practice of vital signs observations is often inadequate (Hogan 2006; Endacott et al., 2007) and has become ritualistic in nature, with a heavy reliance by nurses on digital monitoring equipment (Wheatley, 2006; Hogan 2006, Cox et al., 2006). Cox et al. (2010) argued that

reliance on monitoring equipment was to the detriment of the patient assessment, leading to reduced contact time with patients and inadequate patient assessment. Furthermore, EWS tools are often used inappropriately, with observations inaccurately recorded, or alarmingly, not recorded at all (Endacott et al., 2007;Donohue & Endacott, 2010). In particular, respiratory rate was frequently not recorded (Hogan, 2006; Endacott et al., 2007), although nurses recognised that abnormal breathing in the patient was an alarming sign and highlighted that abnormal respiration was commonly the first indication of a deteriorating patient (Cox et al., 2006).

Endacott et al. (2007) conducted a mixed methods case study of seventeen admissions to intensive care, retrospectively interviewing the doctors and nurses involved in the patient's care whilst on the ward. They stated that all participants identified level of consciousness as the primary cue to identify a clinical problem with the patient, yet this assessment was rarely documented in the patients' charts. These findings contradict those of Minick & Harvey (2003) and Donohue & Endacott (2010), who found visual assessment to be the primary method of patient assessment. Endacott et al. (2007) also found that staff relied primarily on the monitoring of vital signs when observing patients for signs of deterioration, yet none of the vital signs charts audited during the study was found to be complete, with temperature (10/17) and respiratory rate (9/17) being the most frequently omitted in the records. They contended that the value placed upon visual assessment of the patient was low, and that nurses relied upon changes to the level of patient mobility to alert them to a problem. Whilst data collection occurred

within seventy-two hours of the ICU admission, it is argued that full and accurate recollection of thoughts experienced by nurses in practice cannot be thoroughly explored retrospectively.

Hogan (2006) conducted focus group interviews with homogenous groups of nurses, student nurses and nursing support workers to explore values and beliefs around patient monitoring following introduction of an EWS tool to the acute general wards of a hospital. She argued that lack of formal educational preparation was one reason why nurses failed to accurately record respiratory rate in patients, compounded by lack of time and the need to measure the respiratory rate manually, as opposed to having digital recording equipment. However, it is not clear from the research design where the sample of nurses was drawn from. If the nurses were employed in an outpatient or other non-acute area, this may have affected the response. Other authors suggest that the recording of vital signs in patients is frequently delegated to a nursing support worker and has become task orientated. This was demonstrated by Wheatley (2006) who completed a study of nurses and health care support workers recording of patient observations. Wheatley (2006) conducted an ethnographic type study using participant observation and semi-structured interviews to obtain the data over a two month period. A purposeful sample of eight staff was identified. Twenty observations were performed in an acute medical and acute surgical ward, and were supported by eight semi-structured interviews. These proved to be problematic in practice. Initial plans for interviews of one hour duration were not possible due to the demands on nursing time, limiting the data gathered. The study found that due to

demanding workloads, the fundamental practice of recording vital signs observations was routinely delegated to a nursing support worker, who had only a very basic level of training and education to undertake this responsibility. In addition, there was a heavy reliance on digital equipment to make the recordings, with limited 'hands-on' assessment of patients. Furthermore, recording of the respiratory rate was routinely missed, even in patients who were clearly unwell. This theory is supported by Hogan (2006) who found that patient observations were part of the daily 'ritual', suggesting a task oriented approach, and that the problems nurses face with increasing workload have led to the delegation of patient observations to the support worker. This is despite the fact that it would be the nurse's responsibility to call for help in the case of decline in a patient's condition. Donohue & Endacott (2010) also highlighted serious problems with incomplete and inaccurate recording of patient observations, but did not make any recommendations as to how this matter should be addressed.

In addition to the use of visual assessment, nurses reported a 'sense of knowing' in the detection of a problem with the patient (Cioffi 2000a and 2000b; Minick & Harvey, 2003; Andrews & Waterman, 2005; Cox et al., 2006Odell et al., 2009), which was a finding identified within my own study (section 5.2.1). The literature identified nurses' intuitive knowing when there was a problem with the patient through the recognition of subtle cues to a change, which were difficult for them to quantify (Cioffi, 2000a; Cioffi, 2000b, Minick & Harvey, 2003; Andrews & Waterman, 2005; Cox et al., 2006). However, these subtle cues suggest that nurses were not referring solely to the use of intuitive knowledge, but potentially

other knowledge sources, although these are not identified or discussed by the authors.

Hogan (2006) identified that decision making was influenced by both quantifiable assessment measures and intuitive knowing, which the nurses would use to make decisions about the frequency of observations, delegation of responsibility for measuring observations and the prioritisation of care. My own findings support those of Hogan (2006) in that nurses made decisions about the use and frequency of quantifiable measurement of vital signs in patients (see section 5.1.3), but that this was not their primary method of observation.

An exploratory descriptive study to describe the experiences of nurses calling the medical emergency team (MET) to a ward patient was undertaken by Cioffi (2000a). Thirty-two registered nurses from a range of clinical practice settings were interviewed retrospectively about their experiences of calling the MET. Cioffi (2000b) used the same data to explore and describe the characteristics observed by nurses in patients that they had serious concerns about. Cioffi (2000a and 2000b) found that nurses often felt a sixth sense about a patient that they had been caring for. Indeed the process of recognising deterioration was found to be largely due to nursing intuition supported by gathering additional information through observation and assessment. Studies have shown that doctors place little value of the visual assessment of patients in assessing for signs of a problem, whereas nurses place great significance upon the cues observed during visual

assessment to provide them with a wealth of holistic detail (Cioffi 2000a; Cioffi 2000b; Cox et al., 2006). Patients would indicate they felt unwell or different which might prompt the nurse to examine their situation in more detail. Alternatively, the nurse might suspect a change in condition based upon the patient's behaviour or appearance. The nurses referred to knowing the patient over time, but it is not clear how long nurses spent caring for patients prior to recognising an acute problem warranting attention. However, the nurses were able to draw upon their experience to recognise specific patterns suggesting the onset of a problem. This is suggestive of tacit knowledge rather than intuitive knowing, since the nurses were drawing upon prior knowledge and experience to identify problems.

Lack of explicit knowledge to recognise patients in transition to critical illness was a key finding of the audit conducted by Robson et al. (2007), who compared the knowledge of sepsis definitions in seventy-three ward nurses against standard definitions. The nurses all practiced in medical, surgical or orthopaedic wards and had a range of experience and were asked to complete a questionnaire to assess their knowledge of sepsis. Only 22% of respondents believed that a temperature of below 36 degrees Celsius was an indicator of sepsis, compared with 97% of respondents for a temperature of higher than 38 degrees Celsius. Similarly, there was a lack of knowledge relating to signs of organ dysfunction in patients and other indicators of severe sepsis. Whilst the questionnaire used was not a validated tool, the findings identified a lack of basic knowledge relating to the signs and symptoms of sepsis in patients, which could lead to delayed diagnosis and treatment for patients, which Endacott et al. (2007) found to be an issue in their

case study of ICU admissions. Wheatley (2006) also determined that patient assessment was affected by a lack of formal educational preparation for nurses, which was identified by Griffiths (2010) as common for the AMU nurses in her study, who had no formal educational preparation for the role. Nurses indicated that they were not taught how to make conceptual links between clinical findings and underlying physiology in the patient until they had completed additional education, which is crucial if nurses are to have confidence in their assessment of patients and escalation of concerns to a doctor. Andrews & Waterman (2005) agree that nurses should be educated to use a systematic approach to patient's assessment. Cox et al. (2006) argue that this must not be simply task orientated, but ought to incorporate sensory data collection using a look, listen and feel approach. Once nurses have the ability to make comprehensive patient assessments, they will gain the necessary confidence to refer the patient to a doctor when they have concerns.

A prompt response from a doctor was generated through the use of credible, quantifiable information during the patient referral process in Andrews & Waterman's (2005) grounded theory. Forty-four interviews were conducted with nurses, doctors and nursing support workers on one medical and one surgical ward of a university teaching hospital. A core theme of 'making credible' was identified which was underpinned by the subcategories of intuitive knowing, grabbing attention and contextualising. Doctors prioritised patient care based upon the quantifiable information presented to them which nurses recognised when escalating concerns about a patient. However, subtle or intuitive changes were

difficult for the nurses to articulate, causing them to delay a referral for fear of ridicule from the doctor. The use of language was found to be an important consideration when discussing concerns about a patient. The use of non-medical language was found to be a disadvantage when escalating concerns. Doctors preferred quantifiable information. The introduction of an EWS tool was found to give the nurses credibility in their reporting of concerns, providing a systematic framework for assessment which was easily articulated and obtained the desired response for the doctor.

Three of the studies included in the literature review used simulation scenarios to explore nurses' ability to recognise patients at risk of deterioration. Tippins (2005) conducted a study of twenty-three registered nurses from the A&E department of a large teaching hospital in London; 65% of the participants had been qualified for more than five years and 48% had practiced in the A&E for more than five years. 52% had post registration qualifications in critical care whilst 74% had completed advanced life support training. It is not clear whether the sample was randomly selected or representative. Tippins (2005) used a mixed methods approach, incorporating questionnaire and semi structured interview to assess the nurses' response to two simulated patient scenarios. The tools used were not validated and the scenarios were devised by the author. Tippins (2005) reported very high scores for both scenarios, with a mean of 91.6% being achieved. This may be due to the overly simplistic scenarios presented, or to the fact that the sample used was well educated and highly experienced. Nurses recognised patterns of deterioration, abnormalities in physiological signs and symptoms and also

reported the use of intuitive knowing. The results contradict those presented by Thompson et al. (2009) and Cooper et al. (2011), who found in both studies that there was wide variation in nurses' knowledge relating to the signs of patient deterioration. Both studies used simulated scenarios to assess nurses' ability and judgement in recognising deterioration in patients. Thompson et al. (2009) conducted a large, multi-centre study quantitative study with a randomised sample of 245 registered nurses working in medical, surgical, intensive care or high dependency areas. The study centres were based in the UK, the Netherlands, Australia and Canada. Research participants had been qualified on average 11.6 years and had worked in their current speciality for an average 8.8 years with 64% having more than twelve months' critical care experience. Despite this, Thompson et al. (2009) found that the critical care experience did not have a significant impact upon the judgement analysis. Nurses were presented with fifty simulated scenarios and were asked to make three judgements on the information presented to them. The nurses were found to use non-linear reasoning in their decision making, which was largely inaccurate and widely variable across the sample, with no statistical significance awarded to critical care experience. Nurses were inaccurate in their assessment of risk, weighting of clinical information and decision to intervene, grossly underestimating the importance of information presented to them in the scenarios.

Similarly low scoring from nurses was identified by Cooper et al. (2011) when using simulated scenarios to identify knowledge of deterioration. A non-randomised sample of thirty-five Australian nurses from the medical/surgical ward

were enrolled to partake in an exploratory quantitative performance review using a validated multiple choice questionnaire, two simulated patient scenarios and an Observed Structured Clinical Examination assessment (OSCE). Of the nurses included in the study, 75% had been qualified for more than three years and 43% had post registration qualifications. The scenarios were presented in a simulated ward setting using professional actors. Cooper et al. (2011) reported average scores of 50.4%, finding that respiratory rate was rarely recorded and that capillary refill was not seen to be measured by any of the nurses in the sample. The paper based questionnaire found scoring to be marginally improved with an average score of 67%. However, the practical skills assessment demonstrated that this knowledge was not applied in the scenarios, which might suggest that decision making is influenced by the clinical environment and the distractions therein.

The study by Thompson et al. (2009) is limited by its use of computer based scenarios which presented nurses with minimal data and with an excessive number of scenarios (n=50). The methodology employed by Cooper et al. (2011) presented the nurses with a more realistic situation in which to assess their response. However, whilst beneficial as a learning exercise, this is not considered the ideal mode of assessing nursing response or the ability to recognise deterioration in the patient since the nurses were not examined in an authentic patient environment. This would have impacted upon the nurses' actions and is a limitation of any findings. However, it is interesting that the simulated scenarios had similar findings to other studies, in the failure to fully and accurately record observations of the patients' vital signs. Furthermore, despite their level of

experience, nurses were found to make poor and inaccurate judgements about deteriorating patients and failed to intervene in a timely manner suggesting insufficient knowledge and understanding relating to physiological decline. Additionally, the findings suggest that failure to recognise the deteriorating patient is an issue for nursing on an international level and is not limited to the inexperienced or junior nurse. Given these findings, it is argued that further research is necessary to gain knowledge and understanding of the processes involved in nursing observation and assessment of patients in the authentic practice setting, in order to gain clarity around the clinical judgement and decision making of nurses when observing acutely ill patients.

2.11 Conclusion and research question

The current literature has identified that nurses rely heavily on intuitive knowing in their observation and assessment of patients and in the recognition of clinical deterioration, despite the widespread implementation of protocol based observation tools such as EWS. However, the literature also identifies that nurses refer to knowing the patient and to recognising specific cues as ways in which they recognise a potential problem. Identification of specific cues suggests that tacit knowledge plays a significant role in recognising the deteriorating patient although this has not been established within the nursing literature. The nurses' ability to identify the cues that signal deterioration generally relate to having known the patient over time. There is no published research which considers the impact of limited time on knowing the patient or the subsequent ability to recognise clinical deterioration. The literature has also identified that nurses frequently make

inaccurate decisions and fail to appreciate the level of risk to patients despite the significant drive to formalise the patient assessment process through the introduction of EWS tools, and greater attention given to vital signs monitoring. However, there is evidence to show that the EWS tools currently in use vary in both their structure and model of scoring and that evidence of reliability, validity and utility is unconvincing, yet the application of these tools has been advocated by professional and government agencies who ordinarily demand a strong evidence base for practice. It is argued that there is an over reliance on the use of EWS tools to observe, assess and identify clinical deterioration in patients, which have thus far been unable to demonstrate positive predictive values in this regard. Furthermore, the literature shows added limitations of EWS tools in practice. The measurement and recording of patients' vital signs are commonly delegated to a nursing support assistant, suggesting a lack of appreciation from nurses as to their significance (Wheatley, 2006) and identifying an area of significant risk to patients, since unregistered nursing support workers are inadequately educated to understand human physiology. In addition, the literature has identified repeated failings in the recording of vital signs (Endacott et al., 2007; Cooper et al., 2011); with no consensus on the frequency and type of monitoring that patients ought to receive (Odell et al., 2009). Whilst nurses have been found to acquire substantial knowledge and skill through experiential learning (Griffiths 2010), other studies identified a basic lack of educational understanding in relation to abnormal clinical findings and underlying physiology (Endacott et al., 2007, Cooper et al., 2011). Additionally, there appears to be deficiencies in nursing knowledge relating to the recognition of sepsis and sepsis management (Robson et al., 2007) and also in

the ability of nurses to recognise patient deterioration when presented with physiological abnormal vital signs (Thompson et al., 2009; Cooper et al., 2011).

The existing evidence base for nurses practicing in the AMU is lacking, with particular regard to the role and practice of nurses involved in the observation and assessment of acutely ill patients in hospital, where practice is influenced by the limited time available for nurses with patients. The published research relating to the nursing observation and assessment of patients is weighted towards methodologies using retrospective interview of participants, where the passage of time will impact upon the ability of the participants to recall events accurately. Furthermore, given the intricacies of patient assessment, there may be aspects of the nursing assessment which are performed unconsciously. If not witnessed by the investigator in context, it is not possible to explore the process fully. Reliance on the participants' historical account places serious limitations on the findings. Additionally, studies to date have been performed in ward areas where nurses have opportunity to know patients over time. There is no published material which has conducted research in a short-stay acute care environment with similar staffing, acuity and pace to the AMU. Therefore, it is not possible to know whether earlier findings are relevant to nurses practicing in the AMU.

There is acknowledgment within the literature that the observation and assessment of patients is a highly complex process, combining numerous facets, which have yet to be fully defined and understood and which remain unanswered

by existing research knowledge. In particular, there is no published research evidence which informs nursing practice about patient observation and assessment in relation to the context of the AMU where the impact of limited time prevents knowing the patient. It is clear that the observation and assessment of the acutely ill patient in hospital remains something of an enigma, warranting greater attention and investigation since EWS tools have failed to address the persistent problem of failure to recognise patient deterioration in hospital. Thus, the gaps in current nursing knowledge have guided the development of the research question to ask how the practice of nursing in the AMU influences decision making in the nursing observation and assessment of patients.

Chapter 3

Methods and Methodology

Introduction

The literature review has demonstrated deficiencies in the current knowledge and understanding relating to the nursing observation and assessment of acutely ill patients with particular regard to nursing practice in the acute medical unit. The thesis aims to address some of the deficiencies identified. This chapter presents the research methodology and methods selected for the research inquiry. Section 3.1 will make the aims and objectives of the study explicit. Section 3.1 will proceed to provide a personal philosophical overview which has influenced the choice of an ethnographic approach, discussed in section 3.3. The chapter will then demonstrate how the principles of ethnographic research were met during the research phase. Experience of entering the field and the process of field work from a personal perspective is presented in section 3.9.3.

3.1 Aims and objectives of the study

The primary aim of the study was to address the gaps in nursing knowledge identified from the literature review in chapter 2 with the following objectives:

- To generate knowledge and understanding relating to the nursing observation and assessment of patients in the AMU setting
- To generate knowledge and understanding of nursing practice in the context of the AMU, where high levels of patient acuity and activity influence the amount of time available for nurses to spend with individual patients.

3.2 Philosophical rationale for the research

The research question is fundamental to the choice of an appropriate methodology and method. The direction the research takes is often largely influenced by the personal position of the researcher in relation to their beliefs about scientific knowledge and truth. In order to select an appropriate research method for the study, it was first necessary to consider my personal philosophical position in relation to research, evidence and knowledge. Easterby-Smith et al. (1997) argue that this is an important consideration in the process for three reasons: It enables the researcher to select the most appropriate methodology to conduct the investigation, allows the evaluation of other methodologies helping to avoid any inappropriate selection and unnecessary work, and finally it may encourage the researcher to go beyond their prior level of experience to try new

approaches to their research. Proctor (1998) supports this view by stating that consistency between the objectives of the research, the research questions and methods selected and the personal philosophy of the researcher is fundamental to any research project. Indeed the researcher must primarily possess a robust knowledge and understanding of the two opposing philosophical extremes: positivism and post positivism. In addition, Miles & Huberman (1994) point out that knowing what it is you want to find out leads inexorably to the question of how to obtain the information. This chapter will therefore examine the positivist and post positivist philosophical points of view and will demonstrate a rationale for the selected methods. According to Carter & Little (2007), it is impossible to engage in knowledge creation without having tacit beliefs around the nature and formulation of knowledge.

In the health care professions, a great deal of leverage is placed on the supremacy and objectivity of quantitative research since this provides assurance of robust, reliable, valid data which can be generalised to a larger population. This type of data has informed and developed the medical profession, elevating itself to the top of the hierarchy of evidence (Evans, 2002). However, whilst necessary for the demonstration of efficacy and effectiveness of a particular drug or therapy, this evidential hierarchy is not always useful in the fields of nursing, social science or complimentary therapies, where the analysis of important practice related issues requires qualitative approaches. Qualitative studies allow an interpretation or insight into significant areas of enquiry (May, 2008; Silverman, 2008), for example studies exploring the lived experience of the cancer patient undergoing chemotherapy, or those which seek to understand how skills and knowledge are

acquired. These studies are of significant bearing in order to inform clinical practice in these areas. Therefore the hierarchy of ‘evidence’ is of no significance in such areas of investigation.

The need for knowledge which informs practice in these types of areas is equally important to those which study efficacy and effectiveness of therapies, although the approach required clearly has to be tailored to the objective of the study. Gradually, qualitative research is challenging the domination of positivism (Grbich, 1999; Carpenter & Suto, 2008). As a health professional, the complexity of health care has allowed an appreciation of the benefits associated with the quantitative (positivist) and qualitative (post positivist) stances. Furthermore, whilst positivist and post positivist points of view have opposing stances, they are often used in conjunction for mixed methods studies (Crossan, 2003).

Since the period of Enlightenment and its search for knowledge of the universe, Positivism has been considered the ‘scientific’ approach to research, based on the belief of a single objective reality. Quantitative research, rooted in the positivist philosophy, can be traced back to modern philosophers with Descartes’ classic work, ‘Discourse on Method’ asserting the significance of mathematics and objectivity in the search for ‘truth’ (Descartes, 1637). Comte (1853) later argued that all meaningful knowledge should be borne of the observed objective reality: that which is objective, discernible and measureable. From this assured position, scientific laws were formulated, hypotheses produced and tested and results generalised. Positivism seeks to eradicate speculative points of view using formal logic and measurement and assumes that an objective reality exists, independent

of human behaviour (Crossan, 2003). Belief in objectivity continues to dominate the current approach to medical research, whilst nursing and the social sciences have embraced other concepts.

It was the publication of Kant's work, Critique of Pure Reason (Kant, 1781), which saw the evolution of qualitative thinking, eventually leading to the development of the interpretivist paradigm which has influenced the research presented within the thesis. Kant proposed that perception was more than that which could be observed and measured. Human knowledge, being based upon understanding, required rationality. Kant's critique recognised the essence of individual perception and cognitive processing, allowing the emergence of epistemologies which transcended the limits of empirical inquiry, such as subjectivism, relativism and idealism (Kant, 1781). The Kantian perspective therefore, in relative conflict with the objectivist stance, must take account of the researcher influence in the generation of knowledge. However, it is only in the last fifty years or so that the health care professions have embraced the advantages of qualitative research, following the remonstrations made in the mid twentieth century by Karl Popper (1959) and others such as feminist (de Beauvoir, 1949) and Marxist researchers (Hebdige, 1979) against social injustice. Notions of alternative social opinions challenged the doctrine of positivism which held a position of supremacy in the world of health research at that time, arguing that there is no scientific method which is the benchmark of knowledge. Popper (1959) introduced the concept of falsifiability in his philosophical criticism of the scientific method, insisting that even when a scientific principle had been tested repeatedly, it did not necessarily follow that it was true. Thus a new philosophy emerged (Hughes & Sharrock, 1997;

Crossan,2003; Nicholls, 2009). The legacy of Popper's work in relation to quantitative research saw the testing of the null hypothesis which remains critical in experimental research.

Positivism assumes a clear and confident qualitative approach to the study of phenomena. On the other hand, qualitative approaches are arguably lacking in such clarity and conviction (Hughes & Sharrock, 1997). However, as Weber said in 1949:

> There is no absolutely objective analysis of our culture-or perhaps more narrowly but certainly not essentially different for our purposes- of 'social phenomena' independent of special and 'one sided' viewpoints according to which- expressly or tacitly, consciously or subconsciously-they are selected, analysed and organised for expository purposes...All knowledge of cultural reality, as may be seen, is always knowledge from particular points of view.
> (Weber, 1949 pg72).

Weber (1949) strongly supports the post positivist point of view here, explaining that the study of social observations is subject to the interpretation of the individual who can never be truly objective. Any interpretations made are merely a social construct (Cheek, 1996) reflecting a singular point of view at a singular point in time, and influenced by our prior knowledge, experience and culture. Weber (1949) emphasises the point that there can be no single objective reality.

Whilst being embedded in both medical and nursing culture, there is understanding and acceptance that the generation of knowledge requires both qualitative and quantitative approaches. Both are essential to inform and develop

practice and as such produce knowledge which has practical application and is therefore valuable (Khanlou & Peter, 2005). Taking a critical position, there are many problems with the positivist viewpoint. Primarily it presumes some sort of permanence about the world which allows generalisations to be made. It is not possible to make such generalisations when studying human beings, given their uniqueness and ever changing environment. Whilst quantitative studies are concerned with reliability and validity, qualitative research concentrates on authenticity and trustworthiness (Denzin & Lincoln, 2005). From a nursing perspective, one needs to consider that multiple realities compete and there can never be a truly objective, controlled study. All research is influenced in some way by the variables involved. Variables can never be completely controlled. However, through reflection, knowledge and interest are united in an interactive process to produce robust qualitative outcomes. This is reflected in the writings of Habermas (1987) who determined that knowledge is conceived from three cognitive domains: work knowledge, practical knowledge and emancipatory knowledge. Habermasian theory argues that the three domains define areas of interest and subsequently establish how knowledge is produced and verified, each domain being grounded in different fields of social existence. In concurrence, and for the purposes of this study, a qualitative research perspective was taken. A qualitative research perspective is congruent with my personal philosophy, but more importantly is suited to meet the objectives of the study and has influenced the selection of research design and methods, which will be presented in the remainder of this chapter.

3.3 Research design

As this research sought to understand a particular phenomenon in a cultural context, an ethnographic approach was deemed appropriate. Whilst ethnography is generally associated with fieldwork lasting many months or years, contemporary approaches have seen ethnographic principles applied to shorter ethnographic studies, generally referred to as micro or mini ethnographies. Spradley (1980) defined this type of study as being short and focussed, taking place over a number of weeks or months. Mini-ethnography was ideally suited to the investigation presented here, given the restrictions of time associated with completion of the thesis and has been successfully employed by other nurse researchers (Wheatley, 2006; Storesund & McMurray, 2009). A qualitative study employing the principles of ethnography was selected as the research design.

Ethnography is defined by Brewer (2000) as the study of people in their natural settings, capturing their daily activities and social meanings through the systematic collection of data with direct researcher involvement in the setting, typically using a combination of observation, participation and interview (Sim, 1999; Lambert et al.,2011; Van Maanen, 2011). It is considered one of the principal research methods of the social sciences, which Van Maanen (2011 pg 219) states is focussed on the ‘how’ and ‘why’ rather than the ‘how much’ or ‘how many’. Ethnography is gaining popularity in the study of health related social and cultural processes (Zaman, 2012), and in particular as the method of choice in nursing research (Gerrish, 2003; Allen, 2004). Ethnographic principles may be applied to a diverse range of social and organisational situations, in order to gain insight and

understanding of cultural processes and work experiences, making it particularly suited to the study of hospital settings.

Ethnography has a convoluted history, dating back to the early 1900's, when researchers such as Malinowski used anthropological study to understand and describe remote tribal communities (Malinowski, 1922). Later, the Chicago School of Sociology adopted the traditions of anthropology to study western cultures (Lambert et al., 2011). More recently, ethnography has seen diverse application across a range of disciplines, including medicine (Zaman, 2012), education (Siraj-Blatchford & Siraj Blatchford, 2001) and nursing (Griffiths, 2010). As opposed to its original interest in the exotic, Lambert et al. (2011) argue that contemporary ethnography is concerned with the study of cultural behaviours, activities and beliefs whereas Brewer (2000) asserts the intent of ethnography to capture real life experiences of institutional, organisational and social groups, placing ethnographies of work in organisations centrally in the genre.

Critics of ethnography as a method of naturalistic inquiry argue that it fails to meet the canons of natural science methods as applied to social life (Goldthorpe, 2000). In particular, the role of the researcher has caused particular concern. Borbasi et al. (2005) argue that ethnography has been traditionally associated with the observation of cultural minority groups, presenting an ethnographic account on behalf of the informants which may not necessarily present the realities of the observed group. Cheek (1996) concurs with this, arguing that any presentation of

reality or meaning on behalf of another can only ever be considered as constructed reality. This limitation in ethnographic approach has been addressed by incorporating a 'methodological self-consciousness and a concern for reflexivity' (Van Maanen, 1995, pg7), ensuring that personal experiences and contexts inform the research process and are recognised as having some influence on the research outcome.

Borbasi et al. (2005) contend that the researcher presence is now understood to influence both the data and the setting, and suggest that no single interpretation is guaranteed. The researcher influence is central to the research process, with the issue of 'self' in the research addressed using reflexivity to provide methodological rigour. The raw data, context of the setting combined with personal context of the investigator provide an audit trail which ought to provide transparency of process. Whilst the literature has explored some of the ethical dilemmas faced by investigators conducting ethnographic research (Gerrish, 2003; Roberts, 2007) and the issues raised by familiarity and distance (Borbasi et al., 2005; McGarry, 2007), Allen (2004) suggests that understanding of fieldwork practices is vague. Van Maanen (2011) accepts this claim, but argues that fieldwork is a trademark of the ethnographer, with each investigation having unique biographical and contextual variations which is 'largely definitional of the trade' (pg 219).

Whilst it would appear that there is no singular understanding of ethnography, Lambert et al. (2011) argue that when employing ethnographic techniques, it is

imperative to consider their trademark features. These are identified as naturalism, requiring the study to be conducted in the real life or natural environment, which is identified as the AMU setting; contextualisation: this reflects the belief that human behaviour cannot be studied in independently of its environment or the context within which it occurs, hence the decision to study the nurses whilst in practice; focusing on small numbers of participants, thus the purposive sample and gathering rich data from key individuals, employing multiple modes of data collection: primarily observation, participation and interview as the means to collect data; presenting multiple perspectives: this takes account of the value of both emic and etic perspectives; and finally, giving consideration the ethical implications of the ethnographic research and how these are addressed by the investigator. Evidence for how each of these hallmarks was confronted is provided within the sections of this chapter.

3.4 Setting for the study

In keeping with the tenets of ethnographic inquiry, the study was conducted in the natural setting of an acute medical assessment unit (AMU) in a Foundation Trust hospital in the North West of England. The hospital did not have a critical care outreach service. The AMU incorporated separate male and female ward areas, comprising a total of 70 beds. The individual ward designs are represented in figures 1 and 2 (pg 102 & 103). An ambulatory care area was housed in a discrete location off the AMU female ward area.

The AMU is a hybrid environment, bearing some similarity with general medical wards in terms of design, patient accommodation and routines such as meal times and visiting hours. However, in contrast to a general ward, the AMU provides care and accommodation for patients admitted to hospital with a medical emergency, having exceptionally acute care needs more similar to those patients admitted to the A&E department. However, the AMU is neither an emergency department (which has specific areas for triage and resuscitation with high levels of nursing and medical staffing), nor is it comparable to a general hospital ward, where patients may be cared for over a number of days once the acute phase of their illness has passed. The AMU is a distinct department within the hospital having specific characteristics which have influenced the development of acute medical nursing as a field of practice and which played an influential role in the ways that nurses made their observations of patients.

The AMU was split into separate male and female ward areas, each with a very different design. Since there was no purpose built area for the AMU, it was housed within existing hospital accommodation which had been constructed many years earlier. The male AMU had originally been designed as a rehabilitation and physiotherapy suite, providing enclosed bays of 4 beds with additional single room accommodation, ideal for the independent patient and affording high levels of privacy to patients. However, this ward layout proved to be an adverse environment for nurses making observations of acutely ill patients. In contrast, the female AMU was housed within a traditional open plan ward with beds placed in a linear formation, offering a clear line of sight from one end of the ward to the other

and affording nurses an environment conducive to patient observation. However, in contrast to an A&E department, neither of the two AMU wards provided designated beds for patients with critical illness, nor were these patients cared for in a designated area of the ward or with dedicated nursing staff. Whereas in A&E these patients would be cared for in a designated resuscitation area with high ratios of staffing, in the AMU patients with varying severity of illness were managed side by side by a single nurse supported by an HCSW. For example, it was not unusual to see a patient with a stroke being nursed alongside patients with pneumonia, myocardial infarction and septicaemia.

The AMU had an ambulatory care area referred to as the GPAU (GP assessment unit). This was a distinct area directly accessible to the female AMU via a link corridor. The AMU operated 24-hours a day, 7 days per week basis, meaning that patients might be admitted, discharged or transferred at any time in the 24-hour period. This was essential to facilitate the flow of admissions from the accident and emergency department. The average number of admissions in to the AMU was 50 per day. The ratio of nurses to patients was generally 1:8. The split of qualified nurses to unregistered staff was 50:50. A nursing support worker usually assisted each nurse. However, the support worker would be responsible for ‘portering’ duties on a frequent basis, thus spending considerable lengths of time away from the ward transferring or escorting patients between departments, fetching notes or busy on other errands.

Generally, each shift would have a ‘ward co-ordinator’ on duty, whose responsibility it was to supervise the staff and to ensure that the flow of patients through the department was co-ordinated and efficient. This role tended to be allocated to the most senior nurse on duty (usually a band 6 or 7 ward sister) and was heavily focussed on the movement and allocation of patients to and from the ward area, highlighting the emphasis given to meeting the A&E target. The ward co-ordinator was available to assist the other nurses if necessary but had no patients allocated to them for the shift.

The AMU wards had a set ‘order of the day’ which was visible from the observational data, some of which was inherited from the routine of a general ward such as meal times for example. In stark contrast with general medical wards the doctors' rounds took place twice daily, when a team of medical staff and allied health professionals arrived to review each patient in turn. These rounds generally took place between 8-9am and again at 4-6pm and lasted approximately two hours. The objective of the ward round was to see every new patient as it was imperative to make an early diagnosis, commence treatment and to expedite the patient’s management plan. Patients would then be discharged or transferred to the most appropriate destination; hence the AMU ward rounds were different to those conducted in other wards and usually included attendance by an occupational therapist, physiotherapist and pharmacist. These were extremely busy times of the day for the nurses, who were expected to attend the round but were also busy giving out meals and drinks to patients, administering medications, making beds, helping patients to bathe or go to the bathroom, dealing with

telephone enquiries, making documentary entries, as well as admitting, transferring or discharging patients.

At the start of the shift, handover took place at the bedside between the two nurses finishing shift and commencing the shift, since there was no time to have a shift handover with all staff present. The two nurses would discuss the presenting complaint of each patient, any concerns and any outstanding investigations. The focus for the nurses was on speed and efficiency in completing the outstanding management plan actions in order to allow onward transfer of the patient and to release the bed for the next patient. The ward co-ordinator liaised with the nursing staff regularly during the shift regarding the patients' diagnoses and management plans. It was the co-ordinator's job to prioritise patients for transfer to other wards. Despite the very different ward designs of the male and female AMU, the ward staffing, ward rounds and duties were allocated and performed in a similar fashion. The impact of the differences in ward environment is explored in chapter 5.

Nurses spent significant periods of time completing various pieces of documentation which included laboratory requests, admissions proforma, risk assessments, patient menus and nursing records, and ensuring that all patients had been 'processed' for admission. The admissions process involved having various blood test obtained, an ECG recorded and often a chest X-Ray performed. Drug preparation and administration also occupied long periods of the nurses' time.

The AMU environment was constantly busy and noisy, due to the high levels of activity and the equipment in use. In the main, beds were surrounded by various pieces of equipment, including cardiac monitors, drip stands with infusion pumps, and other electronic kit such as the bed or mattress. Many patients were receiving infusions, had catheters, chest drains or receiving oxygen and were highly complex in that each patient had different yet multifaceted care needs. Often, patients would need a higher degree of nursing and medical support for organ failure, such as respiratory failure. Patients often needed specific support with their breathing using non-invasive ventilation (NIV) equipment, or monitoring of the ECG for a cardiac complaint. Unlike a general medical ward, Level 2 high dependency care was a regular feature of nursing work in the AMU. Irrespective of their medical diagnosis or level of care, patients were allocated to the next available bed. In contrast to an A&E department where critically ill patients would be triaged to the resuscitation area for close monitoring, the AMU had no designated level 2 care beds.

The majority of patients admitted to AMU were over 65-years of age and also had mobility difficulties and other age related co-morbidities. The nurses cared for patients with a diversity of undifferentiated and undiagnosed acute medical illnesses, responding to the specific needs of the patient as well as providing interventions specific to the presenting complaint. Patients presented to the AMU with cardiology, respiratory, gastroenterology, gerontology, oncology, endocrine, renal, hepatology and neurological complaints as well as general medical illnesses.

Figure 1

Plan to show layout of the Acute Medical Unit: Male ward

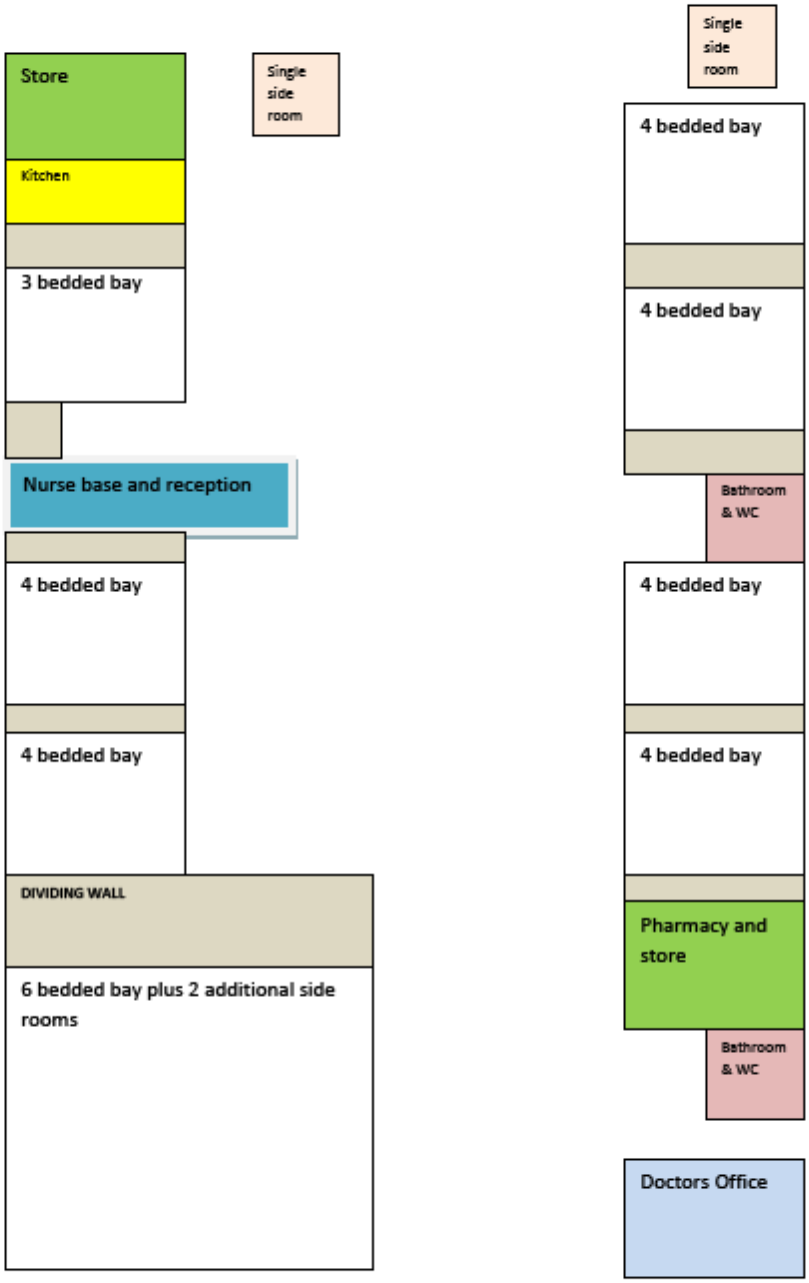
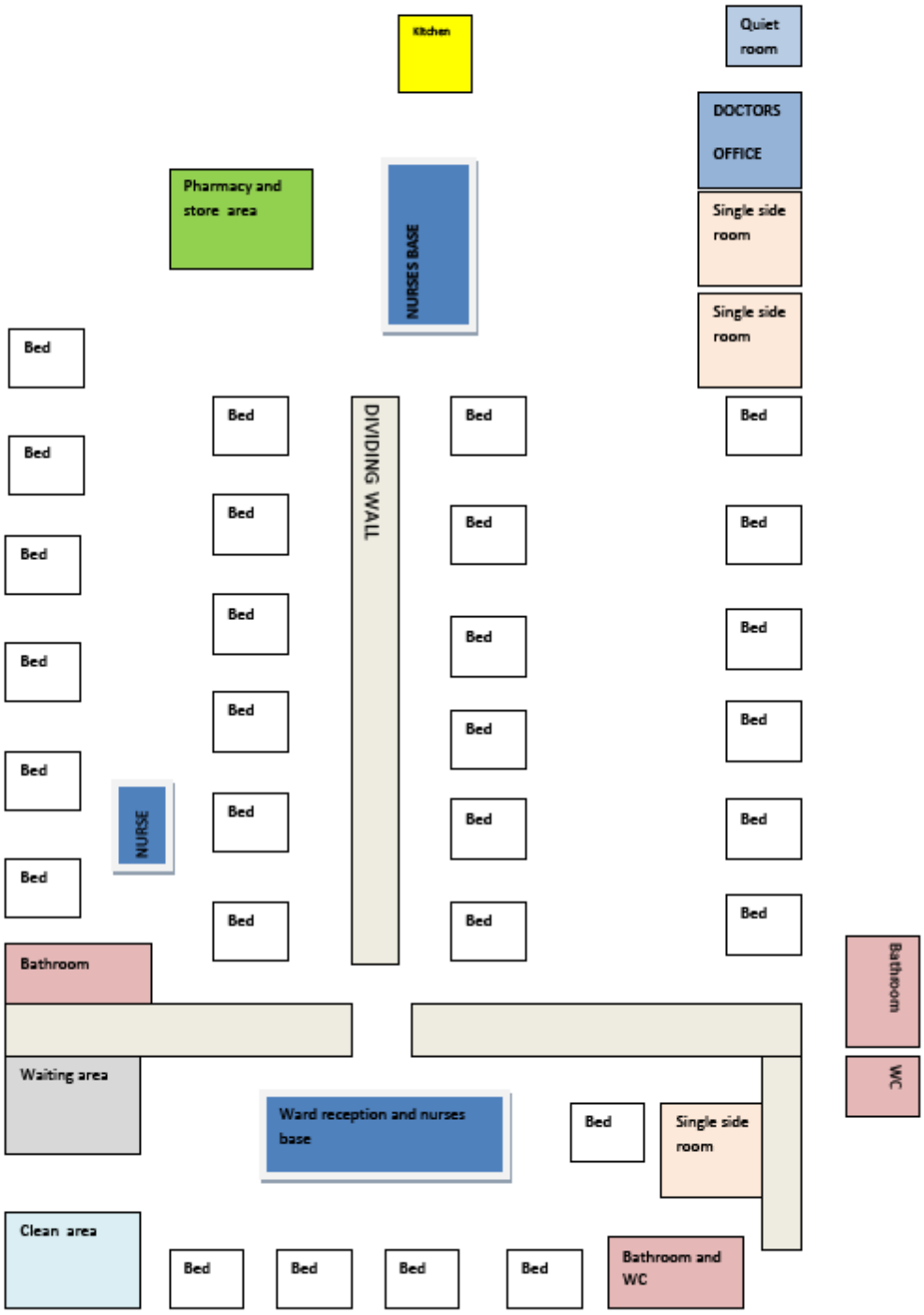


Figure 2
Plan to show layout of the Acute Medical Unit: Female ward, Nightingale Layout.



3.5 Sampling method

A purposive sample was identified as most appropriate for the objectives of the study. Of the broad sampling strategies associated with qualitative research, the purposive or judgement sampling approach is the most common (Marshall, 1996) and encompasses all other sampling strategies (Patton, 2002). A purposive sample facilitates the selection of participants who display a specific feature or characteristic necessary for the research outcomes (Silverman, 2008). As the inquiry adopted ethnographic principles, the sample was drawn from within the natural setting, which in this situation was the AMU. The participants were therefore nurses working in acute medicine who were familiar with the assessment of acutely ill patients and could share insight into this area of nursing practice, which was of central importance to the study objectives.

Purposive sampling is a non-randomised approach, which is not concerned with reproducible or generalisable findings but instead aims to produce a sample that is information-rich (Patton, 2002). Since qualitative ethnographic enquiry is concerned with the thorough investigation of a specific situation or culture, and there is no desire to determine incidence, prevalence or statistical significance in the findings, a small sample size was acceptable. Miles & Huberman (1994) argue that a small sample size is preferable in qualitative enquiry in order to investigate phenomena in sufficient depth and detail, provided that the sample is representative of the population under study (Teddlie & Tashakkori, 2003) and is able to provide sufficiently rich data (Grbich, 1999).

3.5.1 Identification of the participants

A purposive sampling strategy was adopted to identify the participants for the inquiry. The inclusion criteria for the case were only that the nurses were registered nurses, were employees of the Trust, were willing to participate and were practicing on the acute medical unit. Therefore student nurses, temporary staff, nurses who were working as agency or locum staff were excluded.

The sample was drawn from a number of registered nurses working in an acute hospital care setting in the north west of England. Letters of invitation were sent to all the registered nurses employed on the AMU, explaining the purpose of the study and inviting expressions of interest to participate. A period of three weeks was given for potential participants to respond by email, letter or telephone. A total of fifteen responses were received. An appointment was then made with each of the respondents to discuss the research in more detail and to obtain written consent. However, the final sample comprised only seven of these nurses, selected at random from the fifteen nurses who offered to participate. None was deliberately excluded from the study. All nurses included in the study were female and all had been qualified for at least one year, ranging from fourteen months to twelve years and four months. All had worked on the AMU for at least one year. Additional participants were identified to provide some flexibility in the size of the sample if deemed necessary. The reason being that it might have been difficult to co-ordinate periods of observation with the participants' duty rota; for example, if they were rotated onto night duty or had to take extended leave. The demographics of the participants are summarised in table 2. The table has

headings to provide a description of the participant, including the number of years qualified and the length of time practicing in the AMU. The table documents whether the nurse had any formal post registration qualifications or education and totals the time spent observing each of the participants.

3.6 Ethical considerations

Local and NHS research ethics committee approval were applied for using the online integrated research application system (IRAS). Approval for the study was obtained from the North West 10 research ethics committee on 12/08/2010 (see appendix ii). Approvals were also obtained from the hospital research and development department (approved on 08/09/2010, see appendix iii) and from the University of Salford ethics committee (approved on 24/09/2010, appendix iv). Obtaining these approvals was a lengthy process and one which had not been anticipated. The study did not propose direct contact with patients and there was no invasive procedure or physical risk to the participants. In addition to the IRAS application, there were additional requirements from the university ethics committee and from the research office at the hospital. The application was duly processed and heard by the local research ethics committee, who required some clarification and minor adjustments to documentation prior to the issue of approval to commence the research. Copies of the approval letters, consent form, participant information sheets parts 1 and 2 and site access authorisation and can be found in the appendices (see appendix ii-vii respectively).

Nurse	Total minutes of observation Hours/episodes	Length of time qualified	Time on AMU	Post Registration Experience & Education
A	510 (8.5)/ 5	15 months	15 months	AMU since qualification. No post registration qualifications. Underwent Acute Illness Management training day and Immediate Life Support day.
B	295 (4.9)/3	20 months	20 months	AMU since qualification No post registration qualifications. Has undertaken Acute Illness management training day.
C	565 (9.4)/6	26 months	20 months	Working in AMU for 20 months. Did a short spell in orthopaedics prior to joining the AMU team. No post registration qualifications. No additional formal education in acute medical nursing.
D	212 (3.5)/3	6 years 6 months	12 months	Previous acute medical experience in another hospital. Also worked in emergency department elsewhere. No post registration qualifications No additional formal educational preparation.
E	215 (3.6)/3	14 months	14 months	AMU since qualification No post registration qualifications. No further formal education in acute medical nursing.
F	270 (4.5)/4	12 years 4 months	14 months	Varied nursing background. Trained and worked abroad up until 4 years ago. Worked in the UK for 4 years: elderly care, then acute medicine. No post registration qualifications.
G	170 (3)/2	3 years	3 years	AMU since qualification. Acute Illness Management training day No post registration qualifications.

Table 2 Participant demographics and summary of observation periods

Participants were given written information in line with IRAS requirements, outlining the purpose of the study, their rights as a participant to withdraw at any time and details regarding contact information with any enquiries or complaints regarding the conduct of the research. After providing written and verbal information to participants, signed consent to be included in the study was obtained. The consent forms were carefully filed in a locked cabinet in my personal office and accessible only by me. All data were anonymised by giving each participant a unique identifier and a pseudonym. Data were stored securely and will be destroyed twelve months after the thesis is completed using a specialist company. Any computerised data were password protected and accessible only by the principal investigator.

During the field work, consideration had been given to the actions required should an observed practice be deemed unsafe. In this situation, the intention was to highlight this immediately to the participant and if necessary, to escalate any practice concerns to the line manager. However, there were no concerns raised during the study in regard to practice standards. Research participants were informed of these governance measures at the outset and were also notified about of the possibility of future publication and presentation of the study findings.

As a participant observer in the field, there were occasions where close patient contact was involved. It was not possible to seek written, informed consent from these patients, many of whom were too ill or distressed to be approached. Clinical judgment was used before approaching any situation where a patient appeared to be very unwell and a decision made as to whether the observation would be too

intrusive or might compromise care. The dilemma in this type of situation was the possibility that a valuable opportunity to collect data in relation to nursing the most unwell patients could be lost. le May (2008) discusses the challenge for researchers in obtaining written consent when using particular study designs and argues that this is particularly difficult in observational studies. However, she contends that there must be balance between the duty of care and the need to generate a body of knowledge in areas of practice known to pose difficulties. Griffiths (2008) experienced a similar dilemma in her study. Her research proposals to the various ethics committees had stated that informed written consent would be obtained from participants during her ethnographic study on an AMU. However, it soon became apparent to Griffiths (2008) that obtaining this consent was not always possible due the serious condition of the patient at the time. Since this was not her usual place of practice, these difficulties had not been predicted. She therefore had to adjust her approach to consent. Long (2007) has also argued that rigid compliance with the principles and practice of obtaining informed consent is not always practical in the field. Similarly, while retrospective consent is sometimes an alternative (Denscombe, 2002), in the AMU this is again impractical since patients spend a relatively short stay on this type of unit. Griffiths (2008) considered this but found that patients had often moved on to another ward and on occasion had sometimes died. Madjar & Higgins (1996) experienced similar impracticalities whilst conducting their case study of residents in a nursing home, where obtaining written informed consent was virtually impossible due to the physical frailty of the participants. They argued that it was appropriate for researchers to exercise discretionary judgment in the field, informed by the ethic of care and concern for the well being of participants.

le May (2008) states that Griffiths' (2008) ethical methodology is both contentious and courageous. However, Griffiths (2008) argues that researchers should not rely completely on deontological ethical principles, since these may negatively influence the researcher to reject alternative ethical approaches. The strict code of conduct which demands the standard of written informed consent has a clear role in the protection of participants, particularly in experimental research. However, these standards were not written for the qualitative researcher. It is argued that qualitative researchers ought to produce a code of conduct which considers the moral and ethical duties of the researcher and the rights of participants, but which balances this with the need to understand complex clinical situations, thus benefitting future generations.

Having considered this, the approach in the field was to use discretionary judgement and introduce myself verbally to the patient and relatives and explain my purpose briefly. Verbal consent to proceed was then obtained. Where my presence might cause any disruption to the care of the patient, I did not proceed. At all times, the best interests of the patient were foremost in my mind.

3.7 Research governance

Following exposure of poor research practice, the Department of Health (DH, 2005) published a research governance framework applicable to anyone involved in the conduct of clinical and non-clinical research in the UK. The framework acts to safeguard individuals involved in the research process by improving the quality

of research, improving public safety, minimising risk, ensuring that ethical principles are followed and that data are safely managed (Howard & Kneafsey, 2005).

Attendance on a study day entitled ‘good clinical practice in research’ provided a research governance framework and guidance for conducting the study. It clarified the research standards, the relevant legislation and responsibilities of the researcher in ensuring that the study was conducted in a safe manner, to the highest possible standards and the documentary evidence that the researcher must keep for the duration of the study. Throughout the duration of the study, the dignity, rights, safety and wellbeing of the participants were considered. Personal conduct was continually monitored using reflective notes to ensure that the participants’ rights to confidentiality were preserved and to ensure that the study was not impacting upon the participants’ ability to provide patient care. Researchers have a responsibility to ensure that standards for the conduct of research are adhered to and are accountable for the conduct of the study.

In keeping with good research governance practice, all data accumulated during fieldwork were anonymised and stored securely in a locked cabinet, accessible only to the principal investigator and will be shredded by a specialist company twelve months after completion of the study. A file was maintained during the conduct of the study which contained copies of the written approvals from the research ethics committee, the University ethics committee and the NHS site specific research officer. The file was held on the AMU and was available for

inspection at any time. The file also contained copies of the participant information and the contact details of the principal investigator and the research supervisor.

3.8 Methodological rigour

The necessary rigour and trustworthiness of the study was established by understanding the influences exerted by myself as the investigator (Koch, 1994). Considered to be one of the pillars of critical qualitative research, Fontana (2004) states that it is essential for the researcher to recognise and identify the intentional or unintentional influence of self on the data at an early stage through reflexivity. This was achieved by accepting and openly accounting for personal and professional assumptions, influences and impact on the data through the use of a reflexive approach and the acknowledgement of personal impact upon each aspect of the study from initial design through to the analysis, findings and conclusions.

Recognising the potential for personal bias upon the study, there was an attempt to be reflexive at all stages of the research process in order to provide academic rigour. This was achieved by recording emotions, thoughts and feelings as they occurred, providing authentic accounts within the thesis of the difficulties encountered as a researcher and a nurse during the research process, and in particular where there was conflict between the roles of researcher and practitioner. This is intended to signpost the reader to what happened during the

research for them to decide whether the written account is plausible and believable (Pellatt, 2003).

Without doubt, research is always affected to some degree by numerous variables over which there can be no absolute controls. Within a quantitative study, researchers attempt to distance themselves from the research in order to preserve objectivity and provide validity (Breuer et al., 2002). Within a qualitative study, the impact of the researcher is far more obvious, since there are no attempts for the researcher to be independent of the findings, particularly when employing 'close-up' data collection methods such as field work. On the contrary, engagement and subjectivity are embraced within qualitative enquiry and are accounted for through the use of reflexivity (Freshwater, 2005). This process requires the researcher to scrutinize and record the impact of self on the research in order to recognise where areas of bias are evident, since this is considered by many authors as inevitable within any research, regardless of the paradigm (Finlay, 2003; Freshwater, 2005; Mantzoukas, 2005).

Whilst the researcher themselves may not fully appreciate or recognise the extent of their individual biases, reflexivity encourages transparency from the researcher in asking them to look beyond their usual introspective focus to also contemplate the wider impact of social and political influences (Freshwater & Rolfe, 2001). I have attempted to be reflexive in my approach to the study firstly by recognising the influence of the past upon my current position (chapter 1) and also by acknowledging areas of personal bias within the text of the thesis. As the main

body of the study is now presented, reflexive comments are included in order to provide the transparency required of a reflexive researcher.

Methodological rigour was optimised by ensuring a transparent and robust process of data analysis, which is described in section 4.1 with the objective of making explicit the connections identified within the data and the resultant themes identified. The process of data analysis was judiciously executed in order to produce an audit trail which could be externally scrutinised and demonstrate the validity and trustworthiness of the findings. Further validation of the data analysis and findings was obtained from the participants and from the research supervisors.

3.9 Data collection

The primary method of data collection employed within the study was participant observation, which represents the hallmark of cultural anthropology (Spradley, 1980). Field notes were used to record the observations and were supported by participant interviews conducted in the context of the observation. Field notes and interviews were recorded by hand during the activity or immediately following a period of observation, which Holloway & Wheeler (2002) argue is the most important task for the researcher. As nurses, Mulhall, (2003) suggests that observational skills are routinely employed in clinical practice. However, Silverman (2008) argues that when it comes to using observation in research, there is a reluctance to use what we ‘see’ as data. He argues that the context of the observation is fundamental to the quality of the observation. For example, facial

expression, gestures, movements are all key observational data. These types of observations were recorded and used to interpret situations as they arose. Mulhall (2003) further identifies that important observations should include the physical environment and space which may impact upon the research participants. The field notes documented the observations of nursing activity, whilst also capturing perceptions of the AMU environment such as noise and activity. In this way, the use of observation provided a holistic view of the AMU and the nurse participants.

3.9.1 Participant observation

As an ethnographer, a unique opportunity prevailed in which to participate in the daily life of the AMU and observe and chart the sociological datum within the organisation. Therefore, participant observation was selected as the most appropriate method of data collection. A continual and dynamic activity, observation allows the researcher to capture the actions, behaviours and use of language in a given situation and is particularly suited to research within nursing since it aspires to expose the reality of a given situation (Borbasi et al., 2005). Gold (1954) explored the dimensions of field observation in his original work, enlightening the researcher as to the potential investigative roles available, ranging from that of complete observer through the options of participant observation and finally the complete participant. However, Gold (1954) recognised and warned of the many potential pitfalls associated with the use of observation in the field.

All types of observation have disadvantages in fieldwork. For the novice participant- observer, this includes the risk of over identification with the informant, challenges in maintaining objectivity and being able to portray both emic and etic perspectives (Watson, 1996; Roberts, 2007). This was of particular concern, given the nature of my existing relationship with the AMU nursing team. As a familiar presence in the proposed research setting, acquaintance with the department and staff would have permitted the use of complete participation to collect data for the study meaning that staff would remain completely unaware of the researcher role whilst in the field (Babbie, 2000). However, a covert approach would have meant deceiving the participants and would prevent the use of other data collection methods. It would prevent the verification of observations with any form of questioning and would limit the interpretations of data. Gold (1954) describes the complete observer role as one illustrated by eavesdropping, suggesting a rather dishonest approach. Kirby & McKenna (1989) and Robson (2011) support this point of view, saying that covert research is generally not acceptable and may be considered underhand, whereas Mays & Pope (1995) argue that in certain situations, covert observations can be warranted. For example the study of gang culture would justify the need for a covert investigator. However, the need to deceive the research participants would require strong justification and raises many ethical dilemmas for the researcher. The role of complete participant was not warranted to achieve the research objectives and therefore, this option was discounted.

A feasible alternative to being the complete participant is the participant-observer role (Babbie, 2000). Both Robson (2011) and Babbie (2000) argue that the role of

true participant observer is rare, though there was strong potential to fulfil this role during the fieldwork, due to the established professional relationships and position held within the proposed setting, creating a unique opportunity to adopt this role in the true sense. The role and experience of the participant observer is explored further in section 3.9.3.

The importance of self in the research was identified by Gold (1954). Others have subsequently considered the problem posed by 'self' in the research and the impact that both 'role and self' play on the research (Brewer, 1994; Roberts, 2007). The importance of 'self' is widely recognised in the research fraternity (Brewer, 1994; Etherington, 2004; May, 2011) and is accounted for through reflection and reflexivity during the course of the study. Whilst early positivist arguments suggested that the researcher should maintain a sense of detachment from the research subject in order to preserve objectivity during fieldwork (de Laine 2001), the current opinion is that contemporary fieldwork requires a closer degree of personal and emotional involvement from the researcher (Savage, 2004). The tenets of the naturalistic paradigm argue for researcher interaction and involvement in observation, asserting that the influence of 'self' within the fieldwork is integral to the process (Mulhall, 2003). Furthermore, the role of 'self' within the research has generated a considerable amount of literature (Roberts, 2007), suggesting that it is of considerable consequence. Cheek (1996) contended that the 'reality' contextualised by a researcher in the field is a constructed reality, composed of a number of alternate viewpoints. The written testament of the researcher represents a reality framed by the researcher, the research participants and the reader of the textual account. Thus, the researcher can only present their

personal interpretation of the situation and that this must not be assumed to be authentic. There has been much attention paid to this dilemma in the literature over recent years (Coffey, 1999; Borbasi et al., 2005), which in itself supports the argument that the role of 'self' is of considerable significance. There is an understanding that qualitative studies are shaped not only by the researcher's participation in the field but also by their use of reflection on the data, by their cultural background, experiences and beliefs (Van Maanen, 1995). The use of reflexivity allowed an opportunity for me to recognise and accept and account for the influence of self on the research. Recognising that my personal interpretation and representation of realities might not symbolise those of the participants, validation of personal perceptions was sought from the participants. Additionally, memos were recorded during periods of observation to document personal reflexive comments.

Other disadvantages of observation include the substantial time commitment required in order to gather sufficient data of robust quality for analysis by the researcher (Robson, 2011). Additionally, many periods of observation may be required in order to generate meaningful themes. This had been given consideration prior to submission of the research proposal for ethical approval and a decision made to extend the number of observation periods if necessary. The initial research strategy was to spend approximately thirty minutes observing one of the participants in practice. The short duration of the observational periods was intentional because of the extremely busy and clinically demanding nature of the department upon the participants' time. This type of research can cause internal conflict for the researcher (Gerrish, 2003; Cudmore, 2007; Robson, 2011).

Deciding to research one's own setting is not an easy option, as was suggested by Johnson (2004). However, Roberts (2007) argues that insider research is fraught with challenges which require great skill to overcome. Accurate portrayal of the experiences and understanding of the participants was something which I had to grapple with, remaining objective so that personal interpretations did not obscure the participant's reality. Gerrish (2003) supports this, explaining the difficulties that a participant observer faces in maintaining objectivity when involved in the subjectivity of participation. Adler & Adler (1994) stipulate that the participant observer must find equilibrium between involvement and indifference, familiarity and strangeness, and familiarity with remoteness. Lincoln & Guba (2000) assert that the human instrument requires extensive training and exposure to function adequately in the research setting. Robson (2011) underlines this opinion, arguing that as the research instrument, the observer must possess great sensitivity and personal skill to obtain meaningful data. Bonner & Tolhurst (2002) identify the potential for role conflict during the research as a further disadvantage for the inside researcher. The researcher may feel conflicting emotions related to the insider-outsider perspective of researching within a familiar setting. As a participant observer, it may be difficult to separate the two roles, sacrificing one for the other through the sheer effort of trying to do two things at the same time (Kite, 1999). This was certainly found to be a personal dilemma during the field work, requiring flexibility in alternating the roles of nurse and researcher as discussed further in 3.9.3.

Other nurses have successfully demonstrated the use of participant observation to collect data. Gerrish (2003) used this approach in an ethnographic study of

nursing. As a nurse, I was able to articulate the advantages and disadvantages of the parallel status of a nurse and a researcher. Living simultaneously in the two worlds of participation and research was one of the greatest challenges to be overcome during the experience of fieldwork due to the constant challenge of immersion in the moment which might influence what was captured from the observation.

The recording of the observational data were given much consideration. The writings and documentation of events were critical as this was an observational study. However, Emerson et al. (2007) argue that the researcher must be aware that too much time spent writing notes can negatively impact the ability to become immersed in the experience. The how, why, where and when to write field notes is considered by Mulhall (2003), who provides a schema for researchers to contemplate. It was felt that a preferred strategy for this would emerge once the field work began in earnest. However, the initial plan was to make simple notes of the observations in real time and to add detail as soon as possible afterwards. In order to maintain simplicity, there were no predetermined set of codes devised. Field notes would be recorded using a pad and pen. Each field note would be maintained separately from the others, and would have a set layout with the day and date, and the pseudonym of the participant. The time and general environmental observations would also be recorded. Other such points of interest included the general amount of work pressure, ward layout and number of patients per nurse. It is believed that all of these observations would be valuable and play a role in the overall context of analysis. These were the only ‘rules’ regarding field notes that were made for before entering the field.

3.9.2 Qualitative interview

Unstructured qualitative interviews were planned as the secondary method of data collection which would support the observational data. Good questions in qualitative interviews should be open ended, neutral, sensitive, and clear to the interviewee (Patton, 1987). Consideration was given to the six types of questions that can be asked during an interview: those based on behaviour or experience, on opinion or value, on feeling, on knowledge, and sensory experience. According to Britten (1995) it is possible to collect data through interview even in stressful circumstances, making the interview a suitable tool for the AMU environment. Interviews with participants were intended to be conducted immediately following a period of participant observation, and were expected to last approximately fifteen minutes. Recognised as providing rich data and insights into people's experiences (May, 2008), interviews were used to clarify observations, verify understanding and to encourage the nurses to discuss their thoughts and perceptions of events.

Potential difficulties for interviewers include interruptions and distractions during the interview. In the AMU environment these 'pitfalls' became apparent immediately. The nurses were under considerable time pressure and their workload was unpredictable. Participants were unable to afford the planned time for interview. This challenge had to be accepted and dealt with by adapting the interview technique. These adjustments are discussed in greater detail in section 3.9.3.

There are various ways of recording qualitative interviews: notes written in context, notes written in retrospect, and audio taped (Britten,1995). Each has advantages and disadvantages. For example, hand written notes may cause loss of detail while audio taping requires transcription, which is time consuming and can be expensive. I opted to document the interviews by hand immediately, using key words and phrases and to also make a record of any hesitation or uncertainty, body language, confidence or other subtle gestures which could be used during the analysis later. Recording of interview data could have been achieved using digital recording equipment, which releases the researcher's time to focus on the conversation and allow recording of body language. However, this was not felt to be appropriate in the context of an AMU environment where the presence of recording equipment might impede the spontaneity of conversation. Furthermore, the noisy surroundings might produce poor quality recordings and the loss of essential data. It was therefore decided that written records of the interviews would be made. Wheatley (2006) also decided to opt for hand written notes of interviews during his mini-ethnograpy since staff were reluctant to have their interviews digitally recorded.

Other authors have explored a similar research question to that proposed within the thesis and have employed similar methodology, although the majority identified in the literature review (section 2.10) utilised retrospective interviews with the participants. Whilst enabling the conduct of the interview in a quiet place without interruption, this was rejected as an option as the capture of participant perceptions 'in the moment' was considered to be a critical element of the study. Interviews were planned to take place immediately following a short period of

observation, away from the bedside, but not removing the nurse from the clinical area. Interviews were planned to last for approximately fifteen minutes each and would focus on asking questions relating to the observed activities. Other authors have identified challenges with this approach, since interview time with participants is greatly reduced if conducted within working hours (Wheatley, 2006). However, in order to meet the objectives of the study, long periods of time between observation and interview were not considered ideal. A decision was made to continue with plans to interview participants in the context of the live practice environment.

After obtaining the necessary ethics committee approvals, the study commenced in November 2010. A purposive sample of seven qualified nurses was identified as the participants. Their written consent to participate was obtained, in accordance with National Research Ethics Committee requirements. All data were collected by the author as the sole investigator and research instrument and took six months to complete.

Twenty-six participant observations were conducted totalling 37.3 hours. The observation sessions were performed on various days of the week and at different times of the day, although participant observations were not performed overnight. In part, the decision for this was to not interrupt sleep for the patient by discussing observations with the nurse participants. As a consultant nurse, there had never been a commitment to working the night shift. To work a night shift would have been unusual, and may have influenced the behaviour and responses of the nurses. Most importantly, the ratio of nurses to patients was greatly reduced

overnight. It was considered inappropriate to conduct field work which may have impacted upon the time available for nurses to provide care. This may be considered a limitation of the study and is discussed in section 5.5. Time allocated for participant observations was dependent upon personal work commitments and on the day to day pressures in the department for the nurse participants. Interviews with the nurse participants were conducted in context.

3.9.3 In the field

As a novice in the field, the researcher role had been prepared for in various ways; rehearsing how to introduce myself to the participants in the field, considering how the data would be collected and documented. Significant attention had been given to preparing for the researcher role during the taught element of the doctoral programme, leading to the assumption that the process would be straightforward. On the contrary, once involved in actual data collection, it became clear that data collection has many demanding challenges, as pointed out by Borbasi et al. (2005). The researcher needs to plan ahead, blend in to the environment, develop a relationship with the participant, juggle clinical and researcher roles, be reflexive and reflective, produce legible meaningful documentation, to keep focussed and get to the crux of the topic.

Upon entering the field, a number of challenges were identified. In order to capture the data successfully, these challenges had to be carefully managed. On the first participant observation session, a clinical uniform was worn. This was a deliberate choice in order to feel more comfortable and less conspicuous whilst observing

participants in the field. However, with an observation notebook in hand, and awareness that the department was being attended in a very different role, a range of new emotions was experienced. I felt out of place, awkward, de-skilled and nervous of how to proceed. A major concern was to not cause any disruption to the nursing staff in the execution of their duties as this particular department admits in the region of fifty acute medical patients daily and was known to be an extremely busy clinical area. In fact, personal prior knowledge of the usual ward practices enabled avoidance of particularly difficult or busy times for the nurses.

Despite the arguable advantages posed by Johnson (2004) of studying in a familiar environment with colleagues, entering the AMU in the role of researcher felt peculiar. Contrary to expectations, I felt like an outsider, not a well established member of the team. Whilst Savage (1995) found her role as a nurse helped her to downplay her 'sense of difference' during fieldwork, personal experience was one of bewilderment, feeling ineffective in either my nursing or researcher role. Since other nurse researchers had described their experience of nurse and researcher as intertwined and reciprocal, there was genuine concern that I was 'doing it all wrong,' and had to work hard to overcome feelings of ineptitude.

During the first data collection session, a member of staff immediately approached asking how I was and what was I doing? It was apparent to other staff that despite the uniform, my role that day was rather different. During later field work sessions, team members regularly enquired about a particular patient or to ask about a prescription, an investigation, or some other clinical consideration which prevented research activity. This became the norm. Wearing non-clinical clothing was

attempted to see if this would reduce the number of interruptions, but had little impact. Indeed, one observation session resulted in zero data collected because the barrage of contacts with colleagues made it impossible to conduct any observations that day. Other strategies, such as attending during off-duty hours were also tested, but did not appear to minimise the impact of 'self' on the research environment. However, in retrospect, even this apparent lack of progress provides insight into the potential difficulties to be faced and managed by insider researchers in the field.

Documenting the observations was troublesome, despite planning to use memos for recording the observations. Although useful, memos alone did not sufficiently capture all the detail. There was a desire to encapsulate the context of the observation including tone of voice, immediate work pressures, environmental considerations and other important issues that had impacted upon the unfolding scene being observed. Notes were therefore written in long-hand, including finer details such as the actual intervention being performed, or the particular noises audible in the ward area. It was not immediately clear what data were being captured, or the relevance to the research interest. Having planned to observe the individual nurses for only short periods of time (thirty to sixty minutes), everything was recorded, even if it seemed irrelevant at that moment. Griffiths (2010) found that she too tried to record everything observed during her study in an AMU. It was not until the key topics of interest emerged from the data that field notes became more focussed.

After the first observation session was complete, field notes were considered and the question rose as to whether anything of value had been documented at all. The field notes were written in essay style and appeared to contain limited useful information, which was disappointing. The field notes were read within an hour of completing the data collection with finer detail added to the script. Different coloured ink was used in order to differentiate what had been documented later. Questions to 'self' were jotted in to the page margin and whilst it was apparent that the initial work had not contributed greatly to the research question, there was interesting information documented, prompting additional questions and influencing the approach to later data collection. The first experience of participant observation was similar to conducting a pilot study: it provided a steep learning curve exposing areas of weakness as a novice researcher and it exposed specific areas that required additional focus and refinement. Reflecting back on this period, it is now clear how valuable this first experience was in demonstrating what had worked well in the field, and those areas which warranted greater attention and clarity. This ambivalence of how to record the observed data is not uncommon (Mulhall, 2003; Emerson et al., 2001). Once established in the department, the date and time of the session was recorded along with the pseudonym of the research participant. General references to the 'feel' of the AMU were noted: for example, how busy or calm the department was that day, how many patients the nurse was responsible for, what type of activities were observed. Mulhall (2003) posits that observation should capture the entire social situation and working context. Details about what was heard as well as seen were documented, and included some specifics relating to the context and environment. For example, this

extract from the personal observations depict the busy and noisy environment encountered during one of the data collection periods:

> *Extremely busy for Nurse B today. 8 patients to care for including 2 new admissions. Ward round in progress. She should be in attendance but has had to attend a meeting. Now she is trying to catch up on her work. Workmen on the ward: noise! Drilling the wall! (Personal observations).*

After the observations period had ended, the notes were proof read. Further details were added to the notes at this point, in different coloured ink, highlighting words or comments that were considered important. The field notes were then transcribed electronically. Notes were extensive in an attempt to capture all details-almost telling a story. However, Cheek (1996) points out that the interpretation of a presented reality is merely a construct, since it is the sole interpretation framed by the researcher at a specific moment in time. It is simply not possible to relay an authentic representation of the reality. Furthermore, this representation is affected also by the reader's interpretation of the textual account, adding an alternative viewing position. It was not until the first six or so observations were completed that field notes were reduced in length.

A further challenge identified early in the field work experience was the lack of available time to interview the nurse participants. The initial plan had been to conduct short interviews of approximately fifteen minutes. However, there were simply too many demands on the nurse during the early sessions to dominate such an amount of time for interview purposes. The planned interview approach

was not feasible in the AMU environment due to the high levels of activity and patient demand on the nurse's time. It was therefore necessary to adapt the research strategy to accommodate the needs of the department. In order to achieve this, the interviews became focussed questions and answers and were conducted in context. Observation periods lasted between thirty and ninety minutes depending upon local pressures on the staff, and were interspersed with the participant interviews. The interviews involved short questions and conversation about the nurse's activities, interventions, opinions etcetera, which were used to verify and clarify observations. This element of the data collection was the most difficult due to the working environment. The AMU is a highly pressured, very busy stressful department, which Griffiths (2010) confirmed during her ethnographic account of an AMU setting. The lack of opportunity for nurses to leave the immediate patient area made any type of 'real time' research extremely problematic. Intervals where the participants were available to talk were therefore extremely limited. It was impractical to take more than a few minutes of the participant's time at each point of questioning and would generally take place when the nurse was completing documentation, accessing results or reading the medical notes. During these periods, the nurse would be away from the immediate patient bed area, allowing conversation which would not disturb the patient. These short opportunities were seized and optimised. Personal knowledge of the department as a clinician was of great benefit in this situation, since it was possible to judge the most appropriate moment to approach the nurse for interview, without impacting upon patient care. Interview notes were immediately recorded verbatim by hand. Following each data collection period, the notes would be read through carefully, reflected on and used to develop further questions in

support of the research question, or areas for further clarification. The process used is depicted in diagrammatic format as a cyclical technique, which essentially framed questions to be used for interview following each period of observation (see appendix xi). Interview questions were asked in the context of the authentic practice environment during the next period of observation and with any one of the nurse participants. The challenges experienced have helped reinforce the choice of participant observation as the primary data collection tool, supplemented by participant interviews in context. It would have been highly improbable that sufficient time away from the AMU ward area to conduct lengthy interviews or focus groups could be arranged.

In practice, it was problematic to both observe and participate simultaneously, as it was not possible to select which clinical activities to participate in. Hence many dilemmas arose as to whether it was possible to engage fully as participant observer. These dilemmas were largely due to the uniqueness of the consultant nurse role within the department. There was no other nurse consultant in the AMU and whilst there was regular interaction with colleagues when on duty, it was not usual to participate in the same work activities for prolonged periods. As de Laine (2001) remarked, researchers new to ethnography may be ill-prepared for the dilemmas that lie within the field. This was certainly found to be an accurate portrayal of my own experience.

Other authors have discussed their experience of being insider researchers. In particular, Cudmore (2007) is of interest since she also opted to undertake study of her own cultural group. Her experience draws several similarities to my own,

despite the methodology and study subjects being very different. She compares her experience to that of Alice in 'through the looking glass.' It was not until she stepped into her usual working environment as a researcher that she became aware of seeing it from a whole new perspective. In this situation, a similar tension was felt from being both an 'insider' and an 'outsider' simultaneously. The literature contains many references to these types of tensions (Watson,1996; Alvesson, 2003; Roberts, 2007). On each occasion that I attended the department in my researcher role, similar obstacles were encountered such as interruptions to be asked questions, or staff simply wanting to ask about the research. The disruption caused considerable personal anguish as to whether important observations may have been missed due to the interruption and prevented complete immersion in the moment. An example is provided from this personal observation:

> *I am not in uniform today. I am here at the time of the ward round- routine practice for me. Observing Nurse A. Keep being asked for my opinion and to give advice on clinical issues. Can't keep track of what's going on. Constant interruption. ?Missed something important with Nurse A and drowsy patient. (Personal observations).*

Personal stress for the fieldworker is recognised by de Laine (2001), and whilst prepared for the potential of this in the field, it was underestimated on my part. This issue was addressed by accepting that the roles of researcher and clinician had to be interchangeable in order to cope with the competing demands. Gardner (1996) agrees that this simultaneous positioning of researcher and nurse is indeed achievable. Whilst Koch (1994) found the roles of nurse and researcher perfectly

in unison, on a personal level flexibility was the key, combined with an understanding that progress may appear slow and the maintaining patience to persist. Expectations of what might be achieved were put aside. Additionally, recommendations made by Bonner & Tolhurst (2002) were followed, that the distance between the researcher and those under observation must be finely balanced in order to make sense of the observations. Allowing one to switch between the researcher and clinician roles greatly reduced anxiety and personal stress. Whilst it was planned to collect the data in a participant-observer role, in reality the position fluctuated along a continuum between observer participant and participant observer (Gold, 1954). Despite the initial dilemma of juggling the roles of researcher and clinician, there was minimal risk of becoming totally immersed in either role, contradictory to the cautions made by Miles & Huberman (1994) and Hammersley & Atkinson (2007). There was an acute awareness of these conflicting roles and there was no risk of going completely 'native', thus becoming a non-observing participant (Bonner & Tolhurst, 2001).

Whilst my clinical presence in the AMU was a familiar one, occasional comments from the participants made reference to the researcher role demonstrating awareness of the researcher presence. The Hawthorne effect is a phenomenon seen in research whereby participant's behaviours change because of the researcher attention (Babbie, 1995). In this study, the actions, responses and behaviour of the participants appeared to be completely authentic. This was largely due to the pressured working environment, which allowed minimal time to ponder the response, and secondly the familiarity of the existing professional relationship between the investigator and the participants. However, there was

evidence from the data that suggests the Hawthorne effect played some part. Very early in the data collection period, nurses made remarks about being observed in practice.

"Oh, I'd best watch out - I don't want to get the sack or anything!"
(laughing)
(Statement made by Nurse C, 20months).

Whilst this was said in a light hearted manner, the underlying fear that my rank could be used against the participant was clearly an area of concern and suggested that there was some apprehension about the prospect of having a senior nurse actively surveying nursing practice. At first, some of the nurses seemed to think that I might be looking to criticize their practice. One participant said on the first observation period,

'Oh I'd best be careful now, I don't want you telling me off for anything!'
(Observational field notes).

It was alarming to think that staff might actually believe that fault-finding was an objective of the study. It was necessary to convince the participants that the research was not looking to criticise practice. I was frequently asked my clinical opinion of certain situations by the participants and by other colleagues during data collection and would try to avoid this by asking colleagues to discuss the issue with another member of the team. However, this was uncomfortable for both parties.

Having intimate knowledge and insight into the AMU culture enabled recognition of opportunities for questioning, occasions when the nurse could be easily engaged or times when it was appropriate to retreat from a particular situation. The established relationship with participants facilitated easy, unhindered conversation. Clinical trust was readily established between us as a team of practicing nurses. However, there was recognition that participants could be taken advantage of in this situation. As Wolff (1950) pointed out, certain external situations or moods can sway the participant to share what would otherwise be rather personal confessions with the researcher. This vulnerability must be borne in mind, particularly when the researcher is in a familiar environment. Familiar relationships can lead to issues that may jeopardise the field roles, such as over identification with the subject (Gold 1954). This may cause loss of research perspective. The researcher must find the balance between intimate content and intimate form, maintaining a pretence that is natural and convincing to the participant but allowing the research focus to remain at the forefront of one's mind. On the other hand, the intimacy associated with established working relationships in insider research can facilitate theoretical sensitivity. Being accepted as one of the team players eliminated the need to establish rapport with the participants. However, it was crucial to establish the researcher role whilst remaining unthreatening (Bonner & Tolhurst, 2002). Trust was clearly an important issue, as indicated earlier by the comments nurses made in relation to being observed and the potential repercussions on them as individuals. The strategy of recording reflexive memos was adopted in order to recognise the impact of this relationship on the data and to provide transparency and methodological rigour.

Memoing of the observational and interview data were undertaken promptly and benefited from inherent appreciation of the language used, the interventions being performed and the culture of the AMU setting from the shared cultural perspective of nursing. Holland (1999) argued that being known to the students as a teacher and being a nurse herself, enhanced the shared understanding of the cultural world and was seen as strengthening the research. The emic perspective had both advantages and disadvantages. For example, professional relationships with the participants were well established and did not require a period of time to familiarise myself. Similarly, the patterns of behaviour and practices of the nurses were commonplace, since they were typical of the routine behaviours and practices of the AMU in which I had been embedded for many years. In particular, it became apparent that my closeness with the setting sometimes meant that observations might be overlooked as unimportant. Morse (1998) argued that investigators were unwise to undertake qualitative insider research in their place of employment, since the dual roles were completely incompatible, thus placing the investigator in an untenable position. This closeness, rather than being considered valuable for the insight into a lived experience, arguably leads to a lack of sufficient distance and objectivity considered essential for valid research (Branick & Coghlan, 2007), preventing the recognition of subtle details by the researcher, or causing the researcher to subconsciously make assumptions about the data that were not based in reality. Validity is therefore considered problematic, since the closeness of the researcher to the setting is not believed to provide sufficient intellectual rigour (Alvesson, 2003; Anderson & Herr, 1999). Hence, the role of reflexivity in the study is critical for the investigator, in order to identify those prior assumptions (Holloway & Wheeler, 2002). This enables the researcher to distance

themselves from the cultural setting in order to generate the etic view of what is directly observable (Harris, 1976), thus creating a continuum for the ethnographer to move between the reality of the informants and rigorous interpretation to generate authentic findings.

The experience of field work was unique on each occasion, inevitably raising more questions than answers. It required a flexible, adaptable approach to achieve the end result. The AMU presents a challenging environment in which to conduct research. However, it is important to understand, accommodate and adapt to these challenges in order to develop the body of knowledge for nurses working in this field. Whilst it has been argued that researching in one's own field is overly convenient (Johnson, 2004), personal experience supported that of Roberts (2007), in that it was in fact fraught with challenges but that these could be managed by adopting a flexible approach. The difficulty of managing competing roles of clinician and researcher are not to be underestimated. In contrast to Johnson's (2004) argument, it is my belief that research from within one's own field is extremely important. The honest, authentic reactions that were experienced and observed in the field could not have been replicated by a researcher from another background, even another nurse researcher. Integral belonging with the AMU setting and clinical team placed me in a unique and privileged position to undertake the study- one which will add essential knowledge to the embryonic field of acute medical nursing practice, currently lacking understanding of the nursing contribution.

Chapter four will describe how the collective data were managed in order to commence a thematic analysis, and will describe in detail the process followed to identify themes and sub themes from the data. The individual themes will be critically presented in chapter five.

Chapter 4

Data Management and the Process of Thematic Analysis

Introduction

This research did not seek to generate numerical data or present clear cut hypotheses; the aim was to produce factual descriptions derived from the AMU. The challenge is, of course, capturing data from within a competing field of behaviours, actions and clinical routine. Moreover, how one analyses that data into meaningful interpretation worthy of dissemination is a further test if one is to challenge current thinking in relation to the nursing observation of patients and the potential impact on patient outcomes. The way forward then was to take an ethnographic approach to develop the research. I worked within the field to access and gain an understanding of the clinician's world view of their shared working environment.

The study explored the nursing observation and assessment of acutely ill patients admitted to a hospital, in order to gain insight and understanding of this aspect of

acute nursing practice in the context of an AMU. Data were collected using participant observations and interviews in context which was analysed using a qualitative, interpretive approach guided by the principles of ethnography.

As the principal investigator, the key objective was to explore and understand the practice of nursing observation and assessment of patients in the AMU setting. Three research phases accomplished this task by undertaking preliminary, principal and validatory qualitative research. Thematic analysis followed the advice of Opler (1945), Miles & Huberman (1994) and Ryan & Burnard (2003) who offer insight into the management and transformation of data into findings. Miles & Huberman (1994) advise that thematic analysis comprises three flows of activity: a reduction in the raw data, data display, followed by analysis/drawing of conclusions. The process of data reduction then followed, which involved 'selecting, focusing, simplifying, abstracting and transforming 'raw' data (Miles & Huberman, 1994 pg21). This process was achieved by first considering the techniques for identification of themes offered by Ryan & Burnard (2003) depicted in figure 3, which guides the researcher to an appropriate technique for the type of data collected. Since the data collected for this study was textual, with short verbatim texts offering brief descriptions, the techniques to be applied for theme identification were identified as: repetitions within the data, similarities and differences within the data and cutting and sorting of the data.

There is guidance available to researchers as to how the critical process of theme identification is achieved, and yet it is considered to be one of the most critical

elements of a qualitative study (Ryan & Burnard, 2003), although the guidance was found to confusing and without any consensus. Social scientists use different terms to refer to the association between themes and their expressions in the data, for example: units, chunks, segments (Dey, 2005), data bits (Ware et al., 2003), codes or categories (Glaser & Strauss, 1967). Furthermore, they also use different techniques, each having its own advantages and disadvantages. This can be confusing for the novice researcher and was found to be a challenging experience. Identification of 'themes' was found to be a challenging process, complicated by the relevance of data to more than one theme.

4.1 Data management

The analysis began as soon as field notes were written as this prompted the formulation of questions; moving from the description (what is going on?) to ask questions of the data (what does this mean? what is the significance of this?). Taylor (1993) suggests that understanding is achieved through constantly moving from the whole to the part and back to the whole: a hermeneutic circle. The circle however, is not an endless repetitive loop, because each time one goes round the cycle, one's appreciation of the unity of the whole, grows and matures. This view mirrors my own journey throughout this research. Indeed engaging in the research process in this way not only reflects the approach to the study, but also to the data collection and analysis and the writing up. The three interlocking and complementary activities of questioning, reading and writing could be clearly identified during the process; personal understanding has increased with each loop of activity. It was useful to write in field notes as these provided a literal 'carte

blanche', a free space in which the thoughts (the questioning) could flow. It was also useful to link the literature (the reading) to the questioning (the interrogation of the social world) as the study progressed; undertaking constant comparative analysis. In this way interpretations seem to be logical and have helped achieve a deeper awareness of peer learning and the process of the research. The pages of original data rapidly became almost indecipherable due to the initial notes and markings which were used to identify textual repetitions and similarities.

To an outsider the original field notes might appear to be scraps of notes rather than the important documents that they were. The pages became worn with constant handling. I would recommend that researchers make photocopies of their notes to avoid this, maintaining version control, so as to ensure always working with the most current version. Even when the data had been extracted and transcribed electronically onto a table, it was preferable to work with the original 'raw' notes. When reading the original documents it was possible to mentally transport oneself back to that precise time in the field, almost as if the pages themselves held the memory. In the same way as a piece of music can evoke a particular memory, the notes of data were able to do the same. Seeing and reading the actual words that were written by hand on paper, gave a clear recall of the events, facilitating the recollection of conversations, noises and incidents pertinent to the specific observation period. The primary working documents were therefore critical to the analysis.

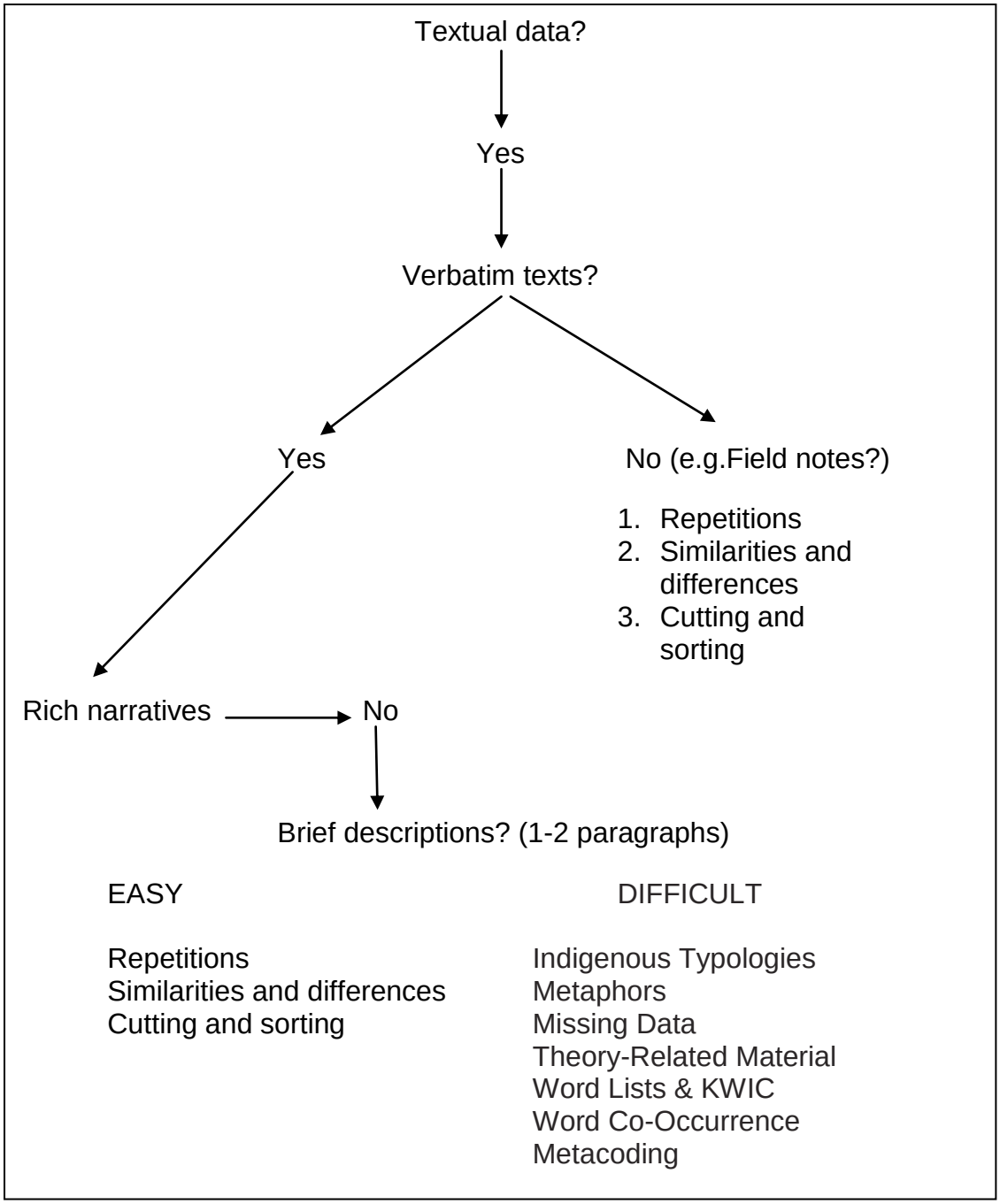


Figure 3 Selecting among theme identification techniques

(Adapted from Ryan & Burnard (2003) pg 102)

4.1.1 Immersion in the data

To become completely immersed and familiar with the data, the field notes were read and re-read on many occasions, with additional memos notes and comments to self added. The notes were then read again to identify areas of similarity from within the data. In order to do this, the field notes were transcribed into an electronic document. Each was then expanded further by the addition of a column to the word document where memoing was recorded and later reviewed with the addition of identified expressions. Each observation was summarised into an electronic table which facilitated the organisation of the data in clear format. The context of the observation was recorded, including the location of the observation and my perception of what was happening at the time. For example, a record was made of whether the environment was noisy, calm or hectic. The table included a summary of the observation and concluded with what were considered to be the key issues or questions which had been identified. This was achieved by considering the various layers of data, using a constant comparative approach across the observations of individual nurses and then across the entire data set for the presence of either similarities or contradictions (Glaser & Strauss, 1967). These occurrences were identified as expressions within the data. Two copies of each nurse observation and the summary table were printed, with one kept as a file copy which was taken to supervision sessions and kept for reference, whilst the other was used for further analysis. During the analysis these documents allowed cross reference with other information easily, identifying some specific considerations, such as whether the length of time a nurse was qualified had any potential bearing on what had been observed.

Opler (1945) argues that a theme may only be revealed from explicit expressions within the data. Guba (1990) suggests that regular recurrence within the data is one of the easiest ways to identify a theme yet while some themes are obvious; others are more ambiguous and subtle, possibly even symbolic. Opler (1945) concurs with this point of view, stating that substances, gestures and figures of speech may have become symbolic representations within a cultural group. According to Opler (1945) and Ryan & Burnard (2003), the significance of a theme may be crudely gauged by considering the frequency or regularity with which it occurs in the data as this suggests the theme is fundamentally more influential than one expressed infrequently within the data. However, in order to justify an assumption of this nature, validation of any supposition should be obtained from the participants. This guidance for theme identification was used to ensure that expressions in the data referred directly to a theme, and that identified themes related directly to expressions from within the data, such as evidence of repetitions and similarities.

The data were narrowed down to that which was directly related to a theme. Cutting and sorting of the expressions from both field notes and interviews was applied, which facilitated the assembly of relevant expressions into themes. These data were organised within the electronic tables which were developed over time. Examples are provided by tables 3, 4, 5 and 6. The remaining data were put aside as they were not considered to be data which directly generated expressions. These data were relating to other issues, general observations of nursing practice and interview data that did not specifically relate to the research question.

Table 3 Example of data presentation, analysis and relation to theme

Type of data	Data extract	What was happening in the data?	Theme
Participant interview in context	Nurse A says she has had a very busy shift so far. 1 bariatric patient Nurse A says it is a regular occurrence. She is waiting for a bariatric bed to arrive- Specialist equipment. Nurse A tells me patient has heart failure	Specialist nursing skills needed to manage the care	Managing complex care in AMU
Observational field notes	Patient very breathless and struggling to keep sat in upright position. CPAP in progress Patient is on a cardiac monitor at the bedside	Managing level 2 care needs with specialist organ support.	Managing complex care in AMU
Participant interview in context	*"She needs 1:1 really, but I haven't got the time- the other side are one down and can't help us."* *(Nurse A,14 months.)*	Patient assessment and observation Interpretation, clinical judgement, clinical decision making Risk management Specialist skills and monitoring	Observation and assessment of the patient in AMU Clinical decision making in action Managing complex care in AMU

Table 4 Example of data presentation, analysis and relation to theme

Type of data	Data extract	What was happening in the data?	Theme
Observational field notes	Observing Nurse F. She is currently administering medications on the drug round for her patients. She stops at the end of each bed and looks at the patient. Signs the drug record.	The nurse is attending each patient in turn, whilst carrying out the drug round. She is making observations of the patient from the end of the bed. Documentation	Visual assessment of the patient.
Observational field notes	Brief interactions with the patients Prepares two IV infusions for two patients and administers these to the individuals. Further short interactions with patients.	Short episodes of dialogue with the patients Preparation of medications Communication	Verbal assessment of the patient
Observational field notes	Nurse F attends patient to measure urine output and completes the fluid balance chart. Handwashing. Brief interaction with patient. Attends a patient to give nebuliser. Explains to patient. Asks if the patient is comfortable, any breathlessness.	Patient assessment and monitoring fluid balance. Documentation. Infection control. Communication. Administration of medication. Assessment of the patient through brief questions.	Monitoring the patient Verbal assessment Visual and verbal assessment of the patient

Table 5 Example of data presentation, analysis and relation to theme

Type of data	Data extract	What was happening in the data?	Theme
Observational field notes	Observing Nurse C. A new patient arrives for admission to AMU. Nurse C attends to the patient and assists him into bed. She asks him how he is and introduces herself using simple questions	Assisting patient into bed- new admission Communication with the patient	Visual and verbal assessment of the patient Knowing the patient Verbal assessment
Observational field notes	Nurse C has a short discussion with the escorting nurse and reads through the documentation briefly. States patient has a cardiac problem and needs cardiac monitoring. Nurse C asks the HCA to take the patient's obs. Performs 12 lead ECG. Nurse then prepares to take blood from the patient- labelling bottles, printing lab requests. Explains procedure, gains consent Takes the blood samples Sends these to the lab.	Communication with colleague Reading information about the patient Clinical decision making Assessment of the patient Delegation of duties to HCA Documentation Communication Performing specific tests for the patient Venepuncture	Gathering information Knowing the patient Clinical decision making Gathering information Knowing the patient

Table 6 Example of data presentation, analysis and relation to theme

Type of data	Data extract	What was happening in the data?	Theme
Observational field notes	Observing Nurse C - tells me that she has 8 patients to care for today. She leaves the clinical bay areas and goes to drug store/prep room, starts to prepare some medications Approaches patient, engages in conversation while setting up an IV drug. Has to leave briefly to take telephone enquiry from this patient's relatives. Writing in the notes	Prioritising care and nursing duties Engaging with the patient- assessing verbal response and administering medication Communication with relatives Documenting care	Clinical judgement and decision making Verbal assessment of the patient Knowing the patient
Observational field notes	Nurse C describes limited continuity of care over 48hours. Nurse C goes into the bays and observes each patient. Brief conversation.	Short length of time spent with patients Nurse is making sure that each patient is observed regularly- but the layout of the bay areas makes this challenging.	Knowing the patient in AMU Assessment and observation of the patient Clinical decision making
Statement made by Nurse C during the observational period.	Nurse C states that the layout is not conducive to caring for the acutely ill and for monitoring patients who are at high risk of falls.	Nurse recognises risk to patients from the ward layout and difficulty in observing the patients.	Impact of the AMU environment on patient assessment

Where a theme was identified, all possible data that supported or related to it was linked together in this way. It was recognised at this point that objectivity was required in order to minimise the risk of researcher bias on the findings and therefore I had to question and review the meaning attached to the data several times. It was noted that there were several areas where the themes linked together or overlapped. Categories and themes were also discussed, debated and justified with the research supervisors, in order to ensure that a theme was defensible and also that it was generating new knowledge. Consistency within the findings can be demonstrated by maintaining a robust, documented audit trail (Lincoln & Guba, 2000). The purpose of this is for the researcher to be able to show where the linkages in the data were made during the analytical process, allowing an external 'auditor' to follow the thought processes and decide whether the reasoning was adequately evidenced from within the data.

The original research question was concerned with establishing how nurses in practice observed and assessed their patients in the AMU setting, where there was little opportunity for nurses to become well acquainted with their patients. There was an expectation that patients in transition to critical illness would be detected, gaining insight into the cues that alerted nurses to a clinical problem. There were no occasions where a patient became critically unwell, although the observational data obtained provided far more than what was anticipated with regards to the nursing observation and assessment of acutely ill patients. Consequently, during the process of data collection and analysis, the focus of the

study adapted and expanded, allowing additional areas of interest to be investigated.

4.2 Themes identified from the data

Four themes were identified from the data analysis, all of which incorporated clinical decision making as a principal feature. Following thorough interpretive analysis of the data, it was possible to understand some of the ways in which nurses in the AMU observe and assess acutely ill patients and the range of skills and knowledge applied in this process. The primary theme identified from the analysis was the nursing observation and assessment of the patient in the AMU, which had three sub themes:

i. Visual assessment of the patient
ii. Assessment of the patient using verbal communication
iii. Monitoring the patient

The second theme was identified as knowing the patient in the AMU, which has the following two sub themes:

i. Sense of knowing
ii. Gathering information

The third theme identified was the impact of the AMU environment on patient observation and assessment; the fourth theme was identified as managing complex care in the AMU. Each of the themes demonstrated the overarching tenet of clinical decision making in practice.

The next chapter will critically discuss the themes that arose from the analysis of observational and interview data in relation to the nursing observation and assessment of patients in the AMU. Whilst expressions relating to the assessment and observation of patients in the AMU were highly prominent within the data, other concepts were identified relating to the wider context of nursing within the AMU and which provide valuable insight into this relatively new and undiscovered area of nursing practice. Data are presented in italics. Following each excerpt of data, the individual nurse's pseudonym is provided in brackets, with the length of time that the nurse had practiced in the AMU. For example: *(Nurse C, 20months)*. Where examples of observational field notes or personal observations are provided, these are also written in italics and followed by brackets stating the type of data presented.

Chapter 5

Findings

Introduction

The following chapter presents the findings of the study. Section 5.1 explores the primary theme of the nursing observation and assessment of the patient in the AMU, a complex process incorporating many facets. The theme is supported by three sub themes of visual assessment of the patient (section 5.1.1), assessment of the patient using verbal communication (section 5.1.2) and monitoring the patient (section 5.1.3). Section 5.2 considers the second theme which is identified as knowing the patient in the AMU, and which is supported by the sub themes of sense of knowing (section 5.2.1) and gathering information (5.2.2). The impact of the AMU environment on patient observation and assessment is examined in section 5.3, whilst section 5.4 explores the fourth theme of managing complex care in the AMU. The overarching tenet of clinical decision making is evident across all themes. Limitations of the study are identified within section 5.5.

5.1 Nursing observation and assessment of the patient in the AMU

The primary purpose of the study was to gain insight into the nursing observation and assessment of acutely ill patients in the AMU, since the early detection of clinical decline in the patient facilitates timely intervention, thus preventing the potential cascade to critical illness and possible death. Recognition of patient problems requires considerable ability in the assessment of the patient, clinical judgement and clinical decision making (Minick & Harvey, 2003). There had been an expectation that patients would be observed in the transitional phase to critical illness during the participant observation periods in the AMU. In fact, there was not one occasion where this expected 'transitional period' was apparent during data collection or analysis. It was therefore apparent that the AMU nurses were observing and assessing patients effectively, largely preventing clinical and physiological deterioration in the patients, despite the challenge of limited time and knowledge of the patients in their care.

Due to the fast and unpredictable pace of work within the AMU, nurses had nominal time to spend with individual patients, hence the observation and assessment of patients was adapted. The focus of nursing work was on the process of rapid assessment, treatment and onward transfer or discharge of patients, in order to ensure a constant flow of admissions through the department, in line with the purpose of the AMU. The impact of limited duration in the department affected nursing practice in the ways that nursing staff became familiar with and assessed the patients. Whilst much of the literature previously published has identified knowing the patient over time as important in alerting the nurse to

any deterioration (Minick & Harvey, 2006; Odell et al., 2009), this does not apply to the nurses in the AMU (Griffiths, 2010) due to the short-termism of the relationship. The findings presented here identified that the AMU was an extremely busy department and the nurses were managing high volumes of activity. Patients were cared for in the AMU for relatively short durations, allowing no opportunity for the nurses to know patients over time. At the start of a typical shift, the nurse would usually be allocated eight patients to care for, of whom she had no prior nursing knowledge. Having such short periods of time with individual patients meant that the nurses made decisions to adjust their approach to the observation and assessment of patients, using sensory data acquired through their expert visual assessments (discussed further in section 5.1.1) and the use of simple conversation as a means to assess neurological function (discussed in section 5.1.2). The findings provide an improved understanding of how nurses adapt to the influence of time in the AMU practice setting. Understanding the impact of time in short term care settings is essential, since existing literature referred to in section 2.6 is limited in its perspective of nursing time.

5.1.1 Visual assessment of the patient

The nurses were observed making rapid, visual assessments of their patients at the start of a shift, and frequently thereafter. The start of the shift would typically involve a ‘visual sweep’ of all patients where the nurse physically looked at each patient, or a brisk walk around all the individual patients, with the nurse stopping to ask each patient a few, short questions about how they were feeling for example. The following extracts provide illustrations of this from the observational data:

Researcher: 'How do you prioritise patients at the start of the shift?'
'I check on each of them, read the notes, look at their obs. I can see at a glance if someone doesn't look right- you know, the way they look, their colour, you can just tell if they're not well.'
(Participant interview in context, Nurse C, 20 months).

Initial assessment at the start of the shift- nurse observes each patient. Nurse G checks on each patient individually. Reads through each patient's notes. (Field notes).

Observing Nurse C- checks all the patients at the start of the shift- speaks to them all-?see's how they answer. Looking, listening, communicating, gathering information. (Field notes).

The visual sweep provided the nurse with vital information about the immediate status of each patient, and would alert the nurse to any urgent problem. At the start of the shift, this visual observation presented the baseline from which progress or decline in the patient could be measured. Similarly, when a new patient admission arrived on to the AMU, the initial assessment of the patient was swift and focussed, ensuring that the patient was comfortable, able to respond appropriately to some brief and basic questions and did not demonstrate any signs of pressing concern to the nurse. The nurse concentrated on ensuring that the patient was safe and had any essential care needs provided for.

Researcher: 'How do you assess new patients on arrival into your care?'
' I speak to the patient, ask them if they're Ok. Check the handover information. I look at the patient for any signs of distress, colour, breathing, agitation....then depending on that I might do some additional assessments. I keep returning to the patient to check on them, see if I can spot any changes.'
Researcher: 'What about the obs and EWS?'

'Yeah- I always check the obs, but they're not the first thing I look at.' (Participant interview in context, Nurse C, 20 months)

This extract demonstrates how the nurse relied upon her interpretation of the visual assessment to alert her to any immediate problem, in preference to the use of EWS tools which were used as a secondary measure. The extract below provides a similar example, where the nurse makes an assessment of the newly arrived patient through assisting the patient into bed. Again, the nurse makes reference to the use of EWS tools as a secondary means of observation.

Nurse G attends a new admission just arriving from the A&E. Nurse G takes the handover from the escorting nurse- a short summary of the presenting complaint and care given so far. Nurse G settles the patient into bed and transfers his oxygen supply. (Field notes.)

Researcher: 'How do you make your baseline assessment of the patient?'
'I go to sort him out, you know? Get him into bed. I can tell what he's like. Im going to go back now and do his obs.'
(Participant interview in context, Nurse G, 3 years).

Having undertaken their initial assessments, the nurses were observed making frequent, brief visual sweeps of the bays of patients, glancing briefly at each patient in turn. This would occur as the nurse walked in and out of bay areas or along the ward during the course of her work. Due to the demanding workload, the nurses only spent time with individual patients when a specific nursing intervention was required. It became apparent that the nurse was also using these interactions to reassess the patient.

Nurse F is currently administering medications on the drug round for her patients. She stops at the end of each bed and looks at the patient. Administering the drugs. Signs the drug record. Brief interactions with the patients. Prepares two IV infusions for two patients and administers these to the individuals. Further short interactions with patients. Prepares a controlled drug administration with a colleague. Signs the necessary records. Nurse F attends patient to measure urine output and completes the fluid balance chart. Attends a patient to give nebuliser. Explains to patient. Asks if the patient is comfortable, any breathlessness? (Field notes)

Researcher: 'Do you make any assessment of the patients when you are administering the drugs?'
'Erm, well I can see how they are and I usually ask them how they feel. I always ask if they need any pain relief.
Researcher: 'So, you make a visual observation and can assess their general state by asking them how they are?'
'Yes. I hadn't really thought of it like that. But yes, I make observations every time I'm with my patient.'
(Participant interview in context, Nurse F, 14 months)

I asked Nurse D whether she could confirm that she undertakes an observational assessment of the patients when giving them their medication.
'Yes, any time I look at the patient or speak to them, I can see if they're OK.'
(Participant interview in context, Nurse D, 12 months)

The examples above demonstrate that the nurses concentrated their observations and assessments on the appearance of the patient- using a visual assessment, particularly the patient's face, but also on the ability of the patient to respond appropriately to the basic questions posed by the nurse, which will be discussed in greater detail later in this chapter. This provided the nurse with valuable information about the wellbeing of the patient at that time. The nurse would interpret the presence or absence of specific visual cues to make clinical

judgements about the patient's wellbeing at that time. The nurses used similar language to each another when discussing the individual cues that alerted them to a clinical problem in a patient. They also identified physical symptoms in their patients which would cause concern. The visual assessment of patients has been identified by a number of authors as the means by which cues to clinical deterioration are detected by nurses (Minick & Harvey, 2003; Cioffi, 2000b; Donohue & Endacott 2010). These earlier studies all relied upon methodologies which collected data retrospectively from the participants. The study by Donohue & Endacott (2010) reported that nurses had noticed changes in the patient's breathing, colour and conscious level prior to their deterioration. However, the patients in their study had already deteriorated to a critical point, warranting intensive care admission. Similarly, Cioffi (2000b) determined that the colour and appearance of the patient were cues to a clinical problem which nurses recognised before calling the medical emergency team, which again suggests that patients were already critically unwell at that point. Minick & Harvey (2003) reported that nurses noticed subtle changes in patients that were so slight that they could not be considered a sign or a symptom and, unlike the findings presented here, nurses had to know patients over time to spot these subtle changes. The findings presented here show that nurses observed for these signs despite having no prior knowledge of the patient. The colour of the patients face and skin was referred to by all the nurses repeatedly as an indicator of wellbeing, which supports the findings of Cioffi (2000a). The nurses described the skin colour in various ways: pale or pallor, grey or sallow, but all mention looking at the 'colour' of the patient and how they 'looked' as a way to assess the immediate situation, as opposed to recognising a sign of deterioration. This is interesting

since the underlying physiology of the patient will affect the appearance of their complexion. As a nurse with significant experience and expertise in acute medicine, I was aware that staff would often refer to the way a patient looked in terms of their assessment. This was borne out in the data:

> *'Well she's probably had quite a big MI and she's still quite uncomfortable. I can see by her face that she's in pain still. She's quite clammy too and a bit grey around the gills.'*
> *(Nurse G, 3 years).*

> *'She doesn't look very good- she's a terrible colour, very pale looking.'*
> *(Nurse B, 20 months).*

> *'He's having hourly BM, urine output and EWS. He's diabetic ketoacidosis and he's very dry. He's got that sallow look.'*
> *(Nurse C, 20 months).*

In the three examples above, the nurses refer unanimously to their observations of the patients' appearance and skin colour alerting them to an underlying clinical problem. Nurse G has the most AMU experience (3 years) and provides a detailed analysis of her observation. This nurse has related the visual signs to the probable physiological problem and has also observed the patient's expression. However, Nurse C who has only 20 months' experience in AMU, also demonstrates ability to relate the physical appearance of the patient to the physiological cause, when she identifies the patient's sallow complexion and the underlying physiological condition of dehydration. These examples display how the nurses were able to apply knowledge to each situation, irrespective of their length of experience.

Having worked alongside the team of nurses in the AMU for many years, there was a sense of understanding when the nurses talked about the patient's appearance. The nurses expected me to comprehend their accounts because of my prior experience in the department. However, prior knowledge, experience and professional relationships with these nurses may have affected the way in which interview questions were answered and interpreted.

Though participants were pressed for more details about their perceptions of the patients' appearance, it was problematic for the nurses make explicit the subtleties that were observed for. They would describe a 'sense of knowing', yet typically related this to observable, though subtle, changes in the patient's appearance. For example:

> *'You can tell. It's how they look, you know? Pale, clammy. They get a bit agitated.'*
> *(Nurse E, 14 months).*

This suggests that the nurses were sub-consciously employing tacit knowledge in their interpretation of the patient assessment in order to make clinical decisions and prioritise care. Lake et al. (2009) argue that the ability to prioritise patient care is a skill learned in practice. There is a significant amount of research to support this theory, suggesting that as nurses gain confidence and competence in practice, their ability to make decisions about prioritising care also advances (Benner & Tanner, 1987; Benner et al., 1992; Offreddy, 1998). Benner (1984) argues that experience over time leads to the development of nursing expertise and the correlating intuitive ability to predict or anticipate patient problems. This

‘sense of knowing’ in expert nurses has also been identified in other studies (Cioffi, 2000a; Minick & Harvey, 2003; Cox et al., 2006) and is discussed further in section 5.2.1.

The nurses found it difficult to quantify their visual assessments of patient colour and appearance, yet this was the principal and most frequent assessment undertaken by the nurses and was fundamental to the overall evaluation of the patient’s condition. This finding is in stark contrast to that of Endacott et al. (2007), who asserted that visual assessment was of limited value according to the doctors in their study sample. Endacott et al. (2007) do not discuss whether any nurse interviewed in the study referred to the value of visual assessment. Bearing in mind that the doctor has less patient contact than the nurse, a doctor may reasonably feel that visual assessment is less valuable than objective, measurable assessment. However, the analysis of data clearly demonstrates the significance placed upon visual assessment by the nurses in AMU. The nurses’ demonstrated vigilance in their approach to the frequent re- assessment of the patients, which has been identified as a nursing behaviour found in the care of acute and critically ill patients (Cronin & Harrison, 1988; Burfitt et al., 1993). Vigilance and diligence lay at the heart of the nursing assessment, which whilst brief, was focussed and occurred frequently, dictated by the significant demands of workload, speed of patient transit and the short term nature of the nurse-patient relationship. The nurses interpreted the visual sensory data obtained and supported this with an assessment of the patient’s neurological status through verbal engagement to assess the spoken response.

5.1.2 Assessment of the patient using verbal communication

The nurses made reference universally to the importance of the patient 'response' in their assessment, which provides an indication of the level of consciousness and any neurological impairment affecting the expression and understanding of language. Nurses recognised that altered levels of consciousness or new onset confusion were worrying signs.

"I came on duty to an unresponsive patient. I was really worried..."
(Nurse B, 20 months).

Similarly, the presence of confusion, distress or agitation in the patient were features commonly associated with an urgent problem and generally recognised by the nurse as relating to an underlying physical process affecting the behaviour or cognitive function of the patient. Goldhill et al. (1999) identified conscious level as an important indicator of physiological instability and this is reflected by Endacott et al. (2007), who state that assessment of the patient conscious level was the first cue used by staff to identify deterioration. Despite this, Endacott et al. (2007) found that supporting documentation of an assessment was rarely completed. Furthermore, they do not verify exactly how this assessment of conscious level was determined by the staff in the study.

The AMU nurse participants confirmed that they assessed the patients for the presence or absence of confusion, agitation or distress in order to make a judgement about the patient's wellbeing, demonstrated by the following data:

Nurse F states that agitation is always a worrying sign (New onset) or confusion. She knows this can be a sign of infection. Maybe a chest or urine infection. (Field notes).

'His obs are fine but he's really confused. He keeps trying to get out of bed and is quite agitated. I'm worried he'll fall again. He's going for a CT in a bit.'
Researcher: 'Why is the confusion so important?'
'Well it shows there's something irritating his brain- infection or a bleed maybe.'
(Participant interview in context, Nurse A, 15 months).

I asked Nurse B if she was worried about the patient. She said 'No' because the half hourly obs help her to see any change. Also, she looks for a change in the patient's appearance or behaviour, signs of deterioration.
(Participant interview in context, Nurse B, 20 months).

In the data extracts above, the nurse participants identify that evidence of agitation or confusion in the patient would concern them. The nurses were vigilant to a change in behaviour which might suggest deterioration in the patient's clinical condition, and also to the presence of existing confusion or agitation which might point to a condition affecting the neurological status of the patient. Assessment of patient response was generally made in conjunction with the visual assessment of the patient. Using the fundamental nursing skill of communication, the nurse would ask the patient some simple questions to assess their level of alertness and appropriateness of the response. Again, this simple and efficient assessment provided significant amounts of valuable information to the nurse within a few seconds. The value of communication is often overlooked because it forms part of the daily routine, but is of critical importance in the health care setting and is fundamental to the effective assessment of the patient (McEwen & Harris, 2010). A single word communicated to the nurse by the patient can provide significant

information in terms of the patient assessment: mood, emotion, appropriateness and physical difficulty affecting vocalisation. Whilst this form of assessment may be performed by the nurse subconsciously (McEwen & Harris, 2010) it involves the intuitive interpretation of cues (Benner 1984; Fairley & Closs, 2006).

From the verbal assessment, the nurse was able to consider if the patient was making no response, a partial response, or if the patient was struggling to respond, to form the words or to make sense; maybe the verbal expression was inappropriate to the question or showed signs of delirium where the patient was shouting out and agitated; all of which would be worrying signs. Other information which might be obtained from this simple exchange of words was whether the patient sounded strong or weak, was breathless, upset or happy. The nurses used verbal communication to assess patients frequently. Examples of this from the data are:

> *Nurse B states that she came on duty to an unresponsive patient- was very worried re possible brain injury. Over the day, the patient has gradually improved. Eyes are open and the patient is communicating. Nurse B feels reassured.*
> *(Field notes)*

> *'At the start of the shift, I check every patient and speak to them. See how they answer.'*
> *(Participant interview in context, Nurse C, 20 months)*

The nurses made reference universally to the importance of the patient 'response' in their assessment, which is an indicator not only of the level of consciousness, but also provided the nurse with wide ranging information through a short, simple

yet effective form of assessment. Nurses recognised that altered states of consciousness or new onset confusion in the patient were worrying signs and verified that they assessed and observed patients for any evidence of this. The nurses talked about what they assessed patients for:

> *'EWS trend, high pulse, low BP, low urine output, confusion...'*
> *(Nurse A, 15 months. Participant interview in context)*

> *'Conscious level. I think if that's going down, its a bad sign...'*
> *(Nurse C, 20 months. Participant interview in context).*
> *'Agitation is always a worrying sign, or confusion...'*
> *(Nurse F, 14 months. Participant interview in context)*

The nurses also referred to situations where they were concerned about a patient demonstrating evidence of altered level of consciousness, or were reassured at the absence of these signs:

> *'Ive noticed that patient is drowsy...Im worried about her.'*
> *(Nurse E, 14 months. Participant interview in context)*

> *'Yes- he looks fine. He''s alert and comfortable. No worries.'*
> *(Nurse B, 20 months. Participant interview in context)*

> *Nurse C attends the patient who is distressed and pulling at the mask. Writhing in the bed. He isn't responding to Nurse C's requests. Nurse C bleeps the doctor. (Field notes)*

> *Researcher: 'What are you worried about?'*
> *'He doesn't look well, and he's confused- worse than before. He's retaining I think- he's getting panicky.'*
> *(Participant interview in context, Nurse C, 20 months)*

Wheatley (2006) contended that some nursing staff possess the skills and experience to assess patients during the normal course of nurse-patient interaction and suggested that this was a skill acquired with experience. During his ethnographic type study, he found that nurses were not taught to assess the overall patient condition in their basic training, only the measurement of vital signs. Wheatley (2006) suggested that the ability to synthesise the information obtained through observation, questioning and prior information about the patient was a skill acquired with experience. However, it is not clear what constitutes 'experience.' Effective communication is considered fundamental to nursing practice and the provision of high-quality patient care. Recognised as a key benchmark area in the Essence of Care strategy (DH, 2010), communication is critical to patient safety (McEwen & Harris, 2010) and as a core clinical skill for nurses, should be formally taught as an independent module.

In addition to the cues already identified, the nurses used their visual and verbal assessments to observe for other evidence of a clinical problem in the patient. In particular, the signs that would give rise to concern were 'breathlessness' and 'pain.' These were considered important signs and symptoms in the patient which required urgent attention and generally prompted the nurse to request a review from a doctor, mirroring the process of recognition used by nurses in Cioffi's study (Cioffi, 2000a; Cioffi, 2000b), when deciding to call the medical emergency team. The nurses considered pain and breathlessness to be important indicators of a problem in the patient, which supports the findings of both Minick & Harvey (2003) and Donohue & Endacott (2010). This is demonstrated by the following excerpts:

Nurse D has explained that one of her patients has just had a fall. She has bleeped the junior doctor to attend.
Nurse D is assisting the patient back to bed. Nurse D talks to the patient all the time, asking how they feel now. Do they have pain anywhere? Questions used to make assessment of the patient- uses specific reference to pain. (Field notes)

Researcher: 'Are you concerned?'
'No- she's fine. She's alert and responding normally. She's not in any pain, but I'll keep an eye on her- make sure she stays alert, in case she banged her head. But I can't see any obvious lumps or bumps.' (Participant interview in context, Nurse D, 12 months)

Researcher: 'What will you observe for in this lady?'
'Any pain, shortness of breath, change in colour, or if she gets sweaty or feels sick.'
(Participant interview in context, Nurse F, 14 months)

Breathlessness in a patient was considered by the nurses to be a worrying sign, although none of the nurses demonstrated any skills in the performance of respiratory examination. Following its review of critical care services, the Department of Health guidelines (DH, 2000) recommended that all nurses should possess critical care skills. Respiratory assessment is considered essential to the care and management of patients with critical illness (Higginson & Jones, 2009) and has been identified as a key skill for AMU nurses (Carroll, 2004; Lees & Hughes, 2009). Nurses were frequently observed managing the care of patients with critical illness despite their lack of formal preparation, which is explored further in section 5.4. Where the nurse identified a specific concern or suspected an underlying problem, decisions were made as to the appropriate ongoing monitoring for the individual concerned, which is explored further in section 5.1.3.

5.1.3 Monitoring the patient

Having completed their rapid visual and verbal assessments of the patients, the nurses made clinical judgements and decisions about the need for additional monitoring and condition related assessments. Decisions were made quickly. The visual and verbal assessments were always the foremost method of assessment used by the nurses and all the nurses referred to an intuitive sense of knowing when making their observations of patients, which is explored further in section 5.2.1.

Nurses were found to individualise the patient assessment according to their clinical presentation. The visual and verbal assessment of patients continued on a frequent basis, with the decision to add specific patient monitoring in certain cases. For example, in patients with a neurological condition, the nurses would decide to monitor specific neurological observations and Glasgow Coma Scores (GCS), (Teasdale & Jennet, 1974). For patients with a breathing problem, the nurses would generally choose to monitor oxygen saturations or to measure the peak expiratory flow rate (PEFR). For cardiology patients, nurses might elect to record the electrocardiograph. The nurses made these decisions based upon their assessment of the patient, their existing knowledge of the presenting problem and the individual risk assessment. Examples of the nurses decision making is provided by the following data extracts:

> *Researcher: 'What signs will you observe for in the patient to alert you to any deterioration?'*
> *'Well, I can see that the patient is alert and responsive. I'll keep checking on that.'*

Researcher: 'Why those signs?'
'I would be concerned if the patient became drowsy or unresponsive- that might be a sign of a bleed. I'll do the neuro obs too and check the EWS. Everything is fine at the moment.'
(Participant interview in context, Nurse A, 15 months)

Nurse A is with a newly admitted patient. She is administering pain relief to the patient who has headache ?Sub-Arachnoid Haemorrhage. Nurse A proceeds to undertake a set of neurological examinations. Nurse A calculates the GCS. Then she proceeds to measure the vital signs, BP HR RR T sats using digital recording equipment and calculates the EWS.
(Field notes)

These examples demonstrate how the nurse was able to rapidly process her visual and verbal observational assessment of the patient, whilst concurrently giving consideration to the additional monitoring required for the individual. In addition, the patients would have their vital signs (respiratory rate, blood pressure, heart rate and temperature) measured and the EWS monitored. This was generally a duty that the nurses delegated to a nursing support/health care assistant (HCA), which supports the findings of Wheatley (2006) who noted that delegation of routine vital signs monitoring to the HCA was custom and practice in acute ward areas.

I asked Nurse C whether she personally performed the vital signs monitoring. She replied:

"We [the nurse and the HCA] share them and then I check on them to make sure I'm happy."
(Participant interview in context, Nurse C, 20 months)

However, observations of practice did not support this statement. The nurses were not observed undertaking routine monitoring of vital signs and EWS and it is

argued that Nurse C may have made the statement to appease me since I had introduced the EWS tool to the AMU. The nurse was aware that I had strong opinions about the monitoring of patients. The nurses would intervene to perform the observations when concerned about a patient. Otherwise this task would generally be delegated to the HCA. The observational data reflect this:

> *Routine observations being done by the HCA... (Field note)*

> *Nurse B asks the HCA to do all the obs. (Field notes).*

> *Nurse D reads through the notes, checks the obs and EWS and then writes up the nursing notes...(Field notes)*

The routine delegation of this aspect of patient observation suggests that the nurses did not fully appreciate the complexity of information that may be gleaned during an interaction with the patient, such as the character of the pulse or the temperature of the skin. One reason for allocation of this task to a nursing support worker might be to release additional time due to the busy workload within the AMU. Nurses had to prioritise care and make decisions about aspects of work which could be safely handed over to the support worker. Observations of vital signs were routinely delegated in this way with the nurse being responsible for evaluating the recordings and the EWS. Nurses were able to rely upon their personal evaluation of the clinical picture. They referred to the EWS score if concerned about the patient in order to support their decision making, or if it became necessary to escalate their concerns to a doctor, when objective measurements would be required.

Monitoring of the patient observations and EWS tended to occur at specific times of the day, suggesting a task-orientated approach, supporting the findings of other researchers (Wheatley, 2006; Hogan, 2006). This task focussed approach ignored the fact that the EWS score should dictate the frequency of vital signs monitoring according to the individual patients and suggests that the nurses made clinical decisions about changes to the timing and frequency of observations, based upon their individual assessment of the patient and intuitive knowledge of the situation (Hogan, 2006). Participant observations found that the nursing support worker would attend each patient mid way through the morning, afternoon or evening shift to ‘do the obs.’ The support worker would always use digital recording equipment for the blood pressure, heart rate, temperature and oxygen saturation monitoring. Respiratory rate was documented, but measurement of the respiratory rate was not witnessed. Manual recording of blood pressure or heart rate was not witnessed except for one occasion, when a nurse was observed taking a manual blood pressure on a patient because the support worker had been unable to obtain a digital recording. However, on no other occasion was manual recording of physiological vital signs observed.

Over reliance on digital recording of vital signs meant missed opportunities for the staff to gain vital information about the patient through touch, including skin temperature, rate and regularity and character of the pulse for example. In addition, when measuring vital signs manually, there is a greater amount of time spent communicating with the patient, therefore offering further opportunities for patient assessment. Since valuable information can be obtained by nurses in their

visual and verbal observation and assessment of patients (section 5.1.1 and 5.1.2), opportunities for patient contact ought not to be neglected. This is of added benefit in the context of AMU and other short term care areas, where knowledge of the patient is limited. The importance of manual recording of vital signs has recently been recognised as having a significant place in the observation and assessment of patients, with some NHS hospitals recently opting to replace digital recording equipment with manual recording equipment (Santry, 2010). Since the recording of vital signs is a familiar task to most healthcare workers (Woodrow, 2005), there is a risk that staff may become complacent about the importance of monitoring which may lead to incomplete and irregular vital signs recording (McBride et al., 2005). The observational data does not suggest complacency in this regard, but that the EWS, whilst considered beneficial, was of secondary significance to the nurses' own assessment. Whilst the use of digital recording equipment may be appealing due to the pressure of work and limited time with patients in AMU, the benefits of manual recording should not be underestimated. Furthermore, nurses should carefully consider whether it is appropriate to delegate the monitoring of vital signs to the nursing support worker.

All patients had their vital signs and EWS measured and the EWS was considered useful tool to monitor a trend in a patient where there was existing clinical concern. The nurse would decide whether to continue routine vital signs and EWS monitoring of a patient or to supplement this with more frequent monitoring if there was any concern. Alternatively, the EWS may have triggered an increase in the frequency of monitoring. For example, the nurses remarked:

'The EWS can be a bit of a pain sometimes when the obs have to be repeated every half hour, but they are useful to tell you when a patient is going off...'
(Nurse A, 15 months)

'The EWS is helpful to see any change. We are doing half-hourly obs.'
(Nurse E, 14 months)

The use of EWS tools and vital signs monitoring was considered beneficial for monitoring changes in the vital signs, but the nurses relied upon their own expertise to make clinical decisions about the patients based upon interpretation of their assessments. The EWS tool is not designed to capture all possible eventualities in the patient, and it is reassuring to see that the AMU nurses valued their own expertise in the management of the patients. The literature demonstrates concern that patients suffer from sub-optimal management in hospital wards prior to critical clinical deterioration (McQuillan et al., 1998; NCEPOD 2007, NICE 2007). However, the problem persists despite significant attention given nationally to the introduction of EWS tools (Lomas & West, 2009; RCP, 2012).

Designed predominantly for use in general hospital wards, EWS scoring systems alone are not a panacea for the assessment of patients and should not be used in isolation. They do however provide a tool for objective data collection that may trigger a sequence of further actions and allow for the packaging of information to gain medical attention (Andrews & Waterman, 2005). EWS tools must be used sensibly, in context and in conjunction with the holistic nursing assessment. When combined with the nurse's clinical knowledge, judgement and skill in decision

making, the combined interpretation will determine the delivery of appropriate care and assist the nurse to become familiar with the patient's baseline physiological state.

5.2 Knowing the patient in the acute medical unit

The second major theme identified from the data analysis was that of 'Knowing the Patient in AMU.' This theme is supported by the sub-theme 'Sense of Knowing' which relates to the use of intuitive and tacit knowledge by the nurses in the AMU, and secondly 'Gathering Information,' which relates to acquiring knowledge of the patient through other sources of information. There is a significant interrelationship between the assessment and observation of patients in AMU and 'knowing' the patient, since one is fundamental to the other, providing the nurse with an essential clinical baseline upon which patient care could be safely prioritised. Knowing the patient is identified in the literature as a concept fundamental to nursing care (Tanner, Benner & Chesla et al. 1993, Benner, 1994; Radwin, 1996), and is considered essential to the early recognition of the clinically deteriorating patient (Cioffi, 2000a; Cioffi 2000b; Minick & Harvey, 2003; Odell et al., 2009). Whereas there is a significant body of work relating to 'knowing the patient' in the broad context of nursing practice, there is no published material relating to this aspect of practice in AMU.

The hectic nature of nursing in the AMU allows limited time for nurses to spend with individual patients since the patients' length of stay in the AMU is brief (RCP, 2007). Griffiths (2010) identified that the relationship between the AMU nurse and

patient was transient, confirming that there was no opportunity for nurses to become acquainted with patients 'over time.' The findings therefore provide essential insight into the ways in which nurses in the AMU come to 'know' their patients. Whereas Jenny & Logan (1992) identified that knowing the patient included both relational and cognitive facets developed over time, the data analysis found that knowing patients in the AMU was concerned with the amalgamation of a range of information pertaining to the individual patient. This information, when combined with knowledge of the patient gleaned through the nursing observations and assessments referred to in sections 5.1.1 and 5.1.2, provided illustrative baseline 'knowledge' of the patient for the nurse, and was not only intuitive in nature, but incorporated the use of explicit, tacit and intuitive knowledge.

5.2.1 Sense of knowing

A sense of knowing was identified as one way that nurses were able to identify a problem in the patient. The use of intuitive knowledge was referred to universally by the participants when interviewed about recognising clinical concerns and has been identified by other authors as a genuine source of knowledge used by nurses in the patient assessment process (Cioffi 2000a and b; Minick & Harvey, 2003; Andrews & Waterman, 2005; Cox et al., 2006). However, on closer examination, the nurses were able to identify specific indicators of concern demonstrating the use of other sources of knowledge. When I spoke to Nurse G about the signs which might alert her to a deteriorating patient, she referred to a sense of 'knowing':

> ‘*How they look, their colour. I suppose they may be clammy too, or sometimes they’re confused. You just know don’t you?’(Participant interview in context, Nurse G, 3 years)*

Other nurses also referred to a sense of ‘knowing’ when there was a problem with their patient:

> *‘I think you can look at a patient and just know...’*
> *(Participant interview in context, Nurse A, 15 months)*
>
> *‘I suppose they may be clammy too, or sometimes they are confused. You just know, don’t you?’*
> *(Participant interview in context, Nurse C, 20 months)*
>
> *‘I can tell if they’re not right...’*
> *(Participant interview in context, Nurse D, 12 months)*
>
> *‘I knew there was a problem and didn’t need the obs to confirm it..’*
> *(Participant interview in context, Nurse, B, 20months)*

The extracts above, evidence of intuitive knowing is provided despite most of the nurses participant being junior in their career and having limited experience. However, the use of language in each example is similar, in that nurses described a feeling, a perception or a sense that something was wrong. Benner (1984) states that intuitive knowing lies in the realm of expert practice, whereas the findings presented here suggest that intuitive knowing may be acquired early in a nurses' career.

The nurses found it difficult to articulate how they ‘knew’ specifically. Polyani (1966) suggests that this struggle to verbally express knowledge and

understanding is associated with expert practice with the premise that we know more than we can tell. When asked to be more explicit, the nurses referred to their interpretation of cues from patients in terms of the appearance and colour of the face and the patient's response, referring back to their interpretation of cues in the nursing assessment and observation of the patient. This suggests that it was the interpretation of sensory information obtained through observation, assessment and listening, combined with explicit nursing knowledge which informed the nurses' assessment of the patient, rather than purely intuitive knowing. Being able to explore this further with the nurses in the context of 'real time' was valuable, as it facilitated the exploration of unconscious elements of practice with the nurses.

Smith (2001) argues that there is a degree of dissension between process and practice. Process represents explicit knowledge, the 'knowing what'; that which is taught and learned, whilst practice represents tacit knowledge, the 'knowing how,' or the ways in which work is actually carried out. Polyani (1966) argues that tacit knowledge, that which we know but cannot tell, lies beyond the realms of spoken language, since language has not evolved sufficiently to adequately describe our cognitive processes in detail. This would go some way to explaining the difficulties faced by nurses when trying to impart the complexities of their 'knowing' to a third party. If it became possible to express the inexpressible, then this tacit knowledge could be converted to explicit knowledge facilitating the sharing of knowledge through the teaching of others (Stewart, 1997).

Since the nurse participants often referred to tangible, physical presentations in the patients, the role of intuitive knowledge is inconclusive. Unfortunately, the limited duration of interview did not allow time for the nurses to carefully consider or reflect upon their response when asked to clarify their sense of knowing. Had more time for discussion been available, this subject could have been investigated more thoroughly. Intuitive knowing has been extensively researched and is widely accepted as an authentic form of nursing knowledge (Smith et al., 2004), although there is some debate as to whether intuitive knowledge is innate or cognitive (Derbyshire, 1994). The findings relating to the 'sense of knowing' are more supportive of tacit knowledge than intuitive knowledge, although it is not possible to be absolutely certain as to the source of the knowledge. There are many unknowns regarding the nature of nursing knowledge, which have been discussed in chapter 2. The findings bear some similarity with those of Benner (1984) who accredited the ability of the nurse to anticipate the deterioration of patients before there were unequivocal, measurable, diagnostic indicators. Referring to one of her own research exemplars, Benner (1984, pg100) stated: 'When the stories are examined carefully, it is clear that the nurse is not using blind intuition, but rather picking up on subtle changes in the patient's behaviour or appearance.' Benner's statement makes unambiguous reference to the nurse's ability to recognise cues from the patient's appearance and behaviour, which is congruent with my own findings. However, Benner (1984) defines the fifth 'expert practice' stage of nurse development as synonymous with intuitive knowing, yet her own statement recognises that the nurse is not using 'blind intuition.' It is argued by Benner (1984) that experience over time leads to the development of nursing expertise and the correlating intuitive ability to predict or anticipate patient problems. This

‘sense of knowing’ in expert nurses has also been identified previously (Smith, 1988; Cioffi, 2000a; Minick & Harvey, 2003). However, none of the nurse participants in my own study had particularly extensive AMU experience and would not be considered expert practitioners given their length of nursing experience and education.

In the data examples provided, the nurses demonstrated knowledge of cues, such as pallor or clammy skin, which they would ‘zero in on,’ a skill which according to Benner (1984), alludes to the possession of expert intuitive knowledge. Yet the nurses in the study had limited AMU experience, with six of the seven participants having practiced in the AMU for less than two years. This poses the argument that specific knowledge and understanding may be developed in particular areas of practice more quickly than others. Nurses in the AMU are exposed to countless acute situations which may develop their ‘sense of knowing’ and specific areas of expertise more rapidly.

Benner’s (1984) model of expert practice lacks sufficient clarity as she fails to provide adequate explanation for the term ‘expert practitioner’ (Lyneham et al., 2008) and her theory is over simplified, suggesting a linear continuum from novice to expert (Arbon, 2004). The nurse participants in the study are not considered to be expert practitioners, given their levels of education and varying levels of experience, although all referred to the use of intuitive knowledge, or a ‘sense of knowing’ in relation to clinical concerns. Benner’s (1984) assumption that this

ability exists solely within the domain of expert practice is incorrect, since the findings here demonstrate that intuitive knowledge may be acquired an earlier stage in the nurse's development and that this knowledge is more likely to be tacit based, embedded in holistic work practices, implicitly gained and integral to practice experience (Carus et al., 1992; Herbig et al., 2001). It is therefore argued that nurses may acquire expertise in specific areas of practice, through the utilisation of tacit knowledge, and that such expertise may be limited to particular circumstances and contexts.

Nurses in the AMU had to acquire and assimilate knowledge of the patient rapidly in order to make a baseline assessment, to identify what were the most salient details and to understand what the patient's normal status was. Once the nurse had gleaned all available information from the patient, other informational resources were accessed (see section 5.2.2), including relatives and friends who might provide pertinent history, which was particularly valuable in the case of confused patients where the individual was unable to provide information, or for those patients from a different ethnic background where subtle skin colour changes might not be immediately apparent to then nurse during the visual observation. Where additional informational resources were not on hand, nurses relied upon their own clinical assessment of the presenting patient to make safe decisions about the patient using their experience, tacit and intuitive knowledge which they supported with additional information as soon as it became available.

5.2.2 Gathering information

When patients were admitted to the AMU, the nurse often had no information about the patient, whilst at other times the information was limited. When information was available, it tended to be in the form of a short GP referral letter, a one page report from the ambulance paramedic, or a brief summary of the A&E assessment. In the case of patients admitted from the A&E, the summary was provided by the escorting nurse from the emergency department, who would present a verbal summing up of the care and management plan at that point to the AMU nurse. Examples of this were identified in the field notes:

> *Nurse attends a new admission just arriving onto the AMU. Nurse listens to information from the escorting nurse- a short summary of the presenting complaint and care given so far. Nurse settles the patient into bed. (Observational field notes)*

Following the initial assessment, the nurse would focus on the process of formally admitting the patient to the AMU. The admission process was largely administrative and involved gathering a substantial quantity of information about the patient. The admission is referred to a ‘process’ as it concentrated predominantly on the completion of a specific set of tasks, which were obligatory for all new patients. The admission process involved the undertaking of numerous risk assessments and requisite written documentation, the obtaining of various swabs and samples from the patient, obtaining the necessary X-Rays and a recording the electrocardiograph (ECG).

Observing Nurse undertaking an admission.
Admissions documentation and risk assessments to be completed. Communication with colleagues. Nurse sitting with patient to go through admission document. Looking at the patient and engaging in conversation. Listening to the patient at the bedside, asking questions about the current condition. Recording information. Communication with the patient- states is able to see that the patient is comfortable and can provide a history. Nurse assesses the GCS, EWS score, skin integrity, completes a falls risk assessment and nutritional assessment. ECG. (Observational field notes)

Observing nurse on AMU Female- GPAU ward. 6 beds and ambulatory care area. Nurse states she has 3 discharges this evening, 2 transfers and 5 admissions waiting to come in.
Nurse receives new admission from the A&E. Nurse says hello and gives her name. She asks a few questions: has she been waiting long? Has she got anyone with her? Would she like a cup of tea?
Nurse tells me patient may have suffered a cardiac event. Initial assessment of the patient involves short questions and visual assessment by the nurse.
What does she need to know? Nurse tells me patient may have suffered a cardiac event. Nurse attaches ECG electrodes to the patient's chest for monitoring and connects this to the central monitor at nurses base. Nurse prepares equipment for venepuncture. Admits new patient to the area- performs venepuncture and 12 lead ECG. (Observational field notes)

The nurses made their initial assessment and observations of the patient and further supplemented this with the written admissions documents and risk assessments, vital signs measurements, EWS and verbal information provided by relatives or friends relating to the patient's 'normal' state and social situation. This provided the nurse with a broad picture of the patient's overall clinical, physical and social presentation. Minick & Harvey (2003) also found that nurses relied upon family and friend to provide additional information about the patients to the nurse, aiding in the recognition of problems. However, in the AMU setting, the testimony of the relatives might be the only information which was available to the

nurse at the point of admission and is therefore extremely valuable in making the initial patient assessment. The following extracts from the data provide evidence that the nurses obtained vital baseline information from the patient's relatives.

> *The AMU nurse has to complete reams of documentation- admissions, risk assessments, hourly updates. Record keeping takes up a large portion of the nurse's time. Writing in the notes- constantly recording information. Relatives give the information. Nurse makes entry in the nursing record.*
> *(Personal observations)*

> *New admission has arrived into the bay- confused patient. The nurse asks the relatives about his usual state. They tell her that this is new onset and that they are very worried.*
> *(Personal observations)*

Whilst not observed during the data collection, there may be further benefit to asking relatives their opinion of the patient's clinical status, particularly in the observation of patients from other ethnic backgrounds where skin colour changes might be less obvious to the nurse. In these situations, the relatives may provide critical prompts regarding the visual appearance of the patient, which might not otherwise be apparent, as evidenced here:

> *Nurse A is discussing her patient with his relatives. They point out to the nurse that he looks unwell. Nurse A asks the family about this. They explain that the patient looks pale.*
> *(Field notes)*

The challenge of limited time with patients induced the process driven approach to admission and the ongoing management of patient care in the AMU. Nurses concentrated their efforts on ensuring that all essential care was provided and that

assessments and tests were expedited, in order to facilitate the timely onward transfer of the patient to the appropriate sub-specialty ward. The nursing record was updated on a highly frequent basis. The nurses spent considerable time entering details about the patients and the nursing interventions performed in the patient records. Nursing documentation is complex as it serves a range of purposes and is fundamental to nursing practice. It is intended to provide continuity of care, support the evaluation and efficacy of care and to provide documentary evidence in legal cases relating to the provision and quality of care (Cheevakasemsook et al., 2006). The importance of nursing documentation has driven an increase in the quantity of written records required when a patient is admitted to hospital. The nurses occasionally became frustrated by the sheer volume of documentation required and the impact this had on time for providing 'hands on' care for patients.

> *Nurse C talks to me about the difficulties of managing demands of paperwork and risk assessments for patients. Has to decide whether to do the paperwork or direct care- which is more important.*
>
> *She states: 'There's too much paperwork!'*
> *(Participant interview in context, Nurse C, 20 months)*

The nursing records would provide future nursing staff with vital information about the patient following their onward transfer of care. The documentation, combined with the initial nursing assessment and observations when pooled with the results of the various risk assessments and tests, were compiled into a working set of notes, used for reference by the AMU nursing and medical teams. When assimilated, the amalgamation of patient related information provided the nurse

with an acquired ‘knowledge’ of the patient. There are many sources of knowledge which guide and direct nursing practice, much of which remains unknown (Liaschenko, 1998). The nurse participants drew upon knowledge which encompassed factual, cognitive, explicit, intuitive and tacit facets to acquire a baseline ‘knowing’ of the patient in AMU, which was bound to the individual nurse and context. This collective knowledge was then used to make clinical decisions about the care, management and prioritisation of patients in the AMU. Other sources of knowledge which may have influenced the ‘knowing of patients’ in the AMU remain unclear.

In order to assess individual levels of risk, to make safe clinical decisions about patients and in the absence of medical records, the AMU nurses relied upon their clinical skill to quickly interpret the various sources of information and knowledge available to them. These sources of information included the nursing assessment and observation of the patient which received significant emphasis, the patient history and the results of investigations, with knowledge being explicit or intuitive in nature. The nurse may not have always had all potential sources of knowledge available at the point of admission, for example if relatives were not present or if there was no referral letter. In such situations, the nurse made a baseline assessment using the evidence available at the time and was then responsible for making a clinical judgement and decision about the patient using the information at hand. The nurses focussed their enquiries on the history leading up to the hospital admission whilst ensuring that all other risk assessments were also completed, such as falls risk, nutritional and skin integrity assessments. The data reflect this in the following example:

Observing Nurse F who is sitting with the patient to go through the admission document. Looking and the patient and engaging in conversation, asking questions about the current condition. Is the patient in any discomfort? Can they provide an account of what happened?

Nurse F tells me that she is able to see that the patient is comfortable and can provide a history. She is looking for signs of cognitive impairment. Completes the EWS and risk assessments. Nurse states that these provide a baseline assessment. Records entries in the nursing record.
(Personal observations)

Observing Nurse C admitting a patient to the bay. Discussing with wife the onset of symptoms. Asks about the events leading up to the admission. Has this happened before? How does he appear now?

Questions generally explored aspects of the patient's medical and social history, seeking to establish what was normal for the patient, what the home situation was and what had occurred to bring the patient in to hospital. Nurses utilised the information received to make decisions about the ongoing care and management of the patient.

Nursing observation and the patient assessment are key sources of information which underpin the clinical decision making process for nurses in AMU. There is no consensus as to the exact nature of knowledge or type of information required by nurses to make clinical decisions and it may not be possible to know or fully understand this aspect of nursing practice. That said, there are some striking similarities across studies undertaken in a range of nurse practice settings and over many years, which inform us that recognising cues in patients is fundamental to clinical judgement (Hancock & Durham, 2006), and considered vital to prevent serious clinical decline (Cioffi 2000a; Minick & Harvey, 2003). However, this thesis

further adds to the existing body of knowledge in that the findings show how nurses relied upon their visual and verbal patient observations to prioritise patient care and valued this assessment above all other patient observation tools, including the EWS observation tools which have been imposed in practice. Nursing observation and the patient assessment are therefore key sources of information which underpin the clinical decision making process for nurses in AMU.

5.3 Impact of the AMU environment on patient observation and assessment

Analysis of the data identified that the AMU ward design directly impacted on the nurses' ability to observe and assess their patients and consequently the perceived safety of patients, supporting the claims of Cox et al. (2006) who argued that the clinical environment impacted upon the nurses' ability to assess patients. However, they provided no discussion relating to the environment that their study was conducted in other than to say it was on a medical ward in a district general hospital. Two representative diagrams are provided for the AMU male and female ward areas (see figures 1 and 2, pg102 & 103). These representations provide an overview of the variations between the two ward designs.

It became apparent during the collection of observational data that as a researcher, that it was easier to observe the nurses in the traditional Nightingale ward (AMU female), which offered a clear view of the patients from one end of the ward to the other, as opposed to in the more modern design of the AMU male

which was divided into bays of four beds. The Nightingale layout of the female ward allowed the nurses to be observed easily; The Nightingale layout of the female ward allowed the nurses to be observed easily; whereas in the AMU male which was divided into smaller bays, observation was extremely challenging. This ward layout was not conducive to the observation of patients and it was impossible for nurses to conduct their visual sweep of the beds. The observational data reflect this:

> *The nurse is never far from the patients. Is this important? An open bay area so observing a patient is easier in this area. Nightingale layout makes observation much easier- much easier to observe the patients? (Personal observations of AMU female)*

> *Problematic observation- this ward layout. Nurse A has to constantly walk in and out of the 2 bays to see the patients. Visibility difficult in wards with bays. How does this affect the observation of the patients? (Personal observation of AMU male)*

Having noted the difference in ease of observation between the two ward areas and the perceived impact upon nursing practice, it was considered important to investigate the nurses' perceptions relating to this notion. There is no doubt that ward design has significant implications for nursing practice and for patient outcomes (Trant, 2010) and was found to impact on the observation and assessment of patients in AMU. The study offered a unique opportunity to directly observe and compare two individual and very different AMU ward designs during the data collection phase of the study. AMU female was designed in the traditional 'Nightingale' layout, with beds laid out side by side in long rows. This ward followed the tradition of Florence Nightingale with this design dating back to the

Crimean war during the 1850's. The Nightingale wards were designed to provide ease of patient supervision, natural light, good ventilation and circulation of air having a window between each bed, whilst being easy to keep clean (Hurst, 2008). The design became the standard and is still visible in many longstanding hospital buildings (Richardson, 2010), although these are gradually being phased out and replaced by small bays or single rooms in modern hospital design.

The AMU Male was originally developed as a rheumatology ward with a focus on rehabilitation and physiotherapy for patients. It was designed in the more modern approach of four bedded bays, with the addition of individual side rooms which were suited to patients regaining independence and mobility. Whilst there has been some consideration given to increasing the overall number of single rooms in hospital accommodation, there are unresolved differences of opinion between nurses who have concerns around safety whilst patients are concerned with the need for greater privacy and dignity (Trant, 2010). Unfortunately, there is little in the way of empirical study to support either argument.

The design of modern hospital accommodation has recently been given significant consideration as part of the productive ward series, aimed at improving ward environments and reducing the amount of wasted nursing time from having poorly designed ward layouts (NHS Institute for Improvement and Innovation, 2011) and is generally influenced by societal changes, such as developments in technology , changes in demography, increasing costs associated with care and the drive for greater sustainability (Paatela, 2010). Additionally, there is greater concern now for ward design which might reduce the risk of cross infection and also that which

provides the patient with greater privacy, whilst also providing an aesthetically pleasing atmosphere (Vavili, 2004). Careful design and planning is clearly critical to allow for the clear and efficient flow of patients whilst offering a safe environment for nurses and patients in aesthetically pleasing surroundings.

The modern layout of the AMU male with small bays appeared to create additional work for the nurses rather than 'releasing time to care.' Nurses had great difficulty performing the visual sweep of patients as they has to physically enter the bay to do so. More importantly, whilst affording the patients a greater degree of privacy, the nurses were unhappy as the lack of space for equipment in the small bay area and identified a number of concerns for patient safety.

> *It's not easy to see your patients in these bays, and it's a nightmare if you've got a poorly patient with loads of equipment. You can't move. I don't think it's safe.'*
> *(Participant interview in context, Nurse D, 12 months)*

The design of the AMU Male ward having numerous enclosed bay areas created an awkward and obstructive practice environment for nurses to make their rapid and skilled observations of patients. The bays of 4 beds were designed as individual rooms, enclosed by walls with a double door, which afforded privacy for the patients and also shielded the patients from external noise. However, the design also had the reverse effect of preventing nurses from having a clear view of the bays and making it very difficult to hear if a patient was calling for assistance. The nurses were unable to conduct the visual sweep of the patients unless they physically entered the individual bay. This was especially worrying when a patient

was acutely confused, was unsteady on their feet and at risk from falls. It was apparent that the AMU male ward, accommodating patients in bays of four beds posed significant challenges for the nursing staff with regard to ease of patient observation and the maintenance of a safe care environment, as demonstrated by the comment below.

> '*It's really difficult on these 4-bedders- I can't keep an eye on everyone. We need to be able to see the patients easily.'*
> *(Participant interview in context, Nurse C, 20 months)*
> *Ward layout: bays of 4 patients. Not favoured by this nurse. Nurse C states that the layout is not conducive to caring for the acutely ill and patients who are at risk of falls.*
> *(Observational field notes)*

There is no question that ward design should provide a safe environment for patients (Hurst, 2008; Simmonds, 2011). The nursing environment and ward design is known to influence the welfare of patients (Hurst, 2008), though there is little in the way of published research which considers the relationships between ward design and the patient outcomes. However, there is a growing body of research which shows that the design of the healthcare environment presents risk to the safety of the patient (Battisto & Pak, 2009), particularly in acute care areas where there is little understanding of the role and practice activities of the nurses which are greatly affected by the built environment. This is of particular concern in acute care environments where nursing time is limited. The design of the AMU male ward created additional work for the nursing staff in conducting their rounds of the patients.

When one considers that intensive care units are designed in a spacious, open plan layout, there is clearly some merit in having a clear and open view of patients in their beds when at their most vulnerable. This is especially relevant given the nature and importance of the visual assessment identified as used by nurses in this study. The nurses in the study felt that the clear view of patients at all times was essential to patient safety, as shown from the data below:

> *Nurse A explains that she needs to be able to see the patient at all times, so only partially draws the curtain. (Field notes)*

> *Researcher: 'How important is it for you to see the patients easily?'*
> *'Its crucial in a ward like this one- especially when its busy.'*
> *(Participant interview in context, Nurse F, 14 months)*

The ease of supervision afforded by the Nightingale ward layout was preferable and offered a greater degree of safety for the patient in the nurses' opinion. The nurses were observed frequently walking along the rows of beds on the AMU female ward during the normal course of their duties and were able to easily observe the patients. They often commented on the importance of this:

> *'The ward layout lets me see the patients easily. I can keep a close eye on them whilst I'm working and they can all easily see me and call me if they need me.'*
> *(Participant interview in context, Nurse G, 3 years. AMU female.)*

> *'On this side I can see all my patients easily and keep an eye on them. That's why I prefer this side, it's definitely safer.'*
> *(Participant interview in context, Nurse B, 20 months, AMU female)*

Researcher: 'Does the ward layout have an impact?'
'Yes! That's why I work on this side because I don't think the other side is safe. You can't see your patients. Here, you can see at a glance...'
(Participant interview in context, Nurse A, 15 months, AMU female)

Given the nature of nursing observation and assessment in the AMU, ease of visibility was identified as critical to the ongoing monitoring and safety of the patients. As previously identified in section 5.1.1, the erosion of nursing time in the AMU meant that nurses had to adapt their observations of patients in order to maintain patient safety. The nursing observation of patients therefore occurred in brief, frequent episodes and included the visual sweep of patients, which facilitated the rapid assessment of the patients by the nurses on a regular basis, whilst going about their other duties. Due to the lack of clear patient visibility in the male ward, the nurse had to spend valuable time walking in and out of the bay areas so that patients could be observed and assessed, meaning that not only were they unable to view the other bay of patients, but also were not visible to the other patients. Furthermore, communication between the nurses and their colleagues was hindered by the 4-bedded bay design, as the nurses were unable to see each other. This resulted in nurses working in isolation, which was simply avoided in an open plan layout, due to the ease of communication between staff and patient supervision afforded by the design, thus offering a higher degree team work and perceived patient safety.

Unless there is the luxury of having a purpose built unit, most existing AMUs will be housed in hospital departments designed originally for another purpose. There is increasing pressure on hospital managers to meet government standards for infection control (DH, 2008), patient privacy and dignity and the provision of single sex accommodation (DH, 2010b). However, there must be judicious thought given to the accommodation of patients in the acute stages of illness, which takes account of the pace and acuity of work, the changing patient demographic and the challenges ahead of a decreasing workforce upon the time available for care and the impact upon safety if patient outcomes are to be improved. It is imperative that the design and layout of the AMU environment provides the highest degree of safety for patients and acknowledges the range and complexity of care provided, the varying levels of patient dependency and the impact of the ward design upon the time available to nurses in the delivery of care.

5.4 Managing complex care in the AMU

The data analysis demonstrated that patients presenting to the AMU as new admissions had widely variable conditions and nursing needs. There is little written or understood about the nature of nursing practice in the AMU although Griffiths (2010) identified that AMU nurses dealt with a variety of complex needs in patients who had yet to have a confirmed diagnosis and that a core skill of AMU nurses was their adaptability in managing the complexities of patient care. The findings presented here support and add to the earlier work of Griffiths (2010) through affirmation that it was routine for nurses in AMU to manage complex, high

dependency or critical care patients in the AMU. The following examples of observations demonstrate the range of patient conditions that the nurses managed:

> *Observing in AMU Female. Confirmed 8 patients to 1 nurse. Patient with: myocardial infarction, acute asthma, alcoholic liver disease, upper GI bleed, elderly frail: UTI, TIA, confused and short of breath. (Field notes)*

> *Observing in AMU Male. 8 patients in 2 bays. Confirmed with nurse: 1 patient cardiology on telemetry, 1 patient respiratory on Non Invasive ventilation. 1 patient end of life. 1 patient ?Stroke. 1 patient pneumonia. 1 patient acute renal impairment UTI. 1 patient TIA and 1 patient elderly confused. (Field notes)*

The nurses had to employ a range of enhanced practice skills and knowledge to make safe clinical decisions about the prioritisation and care of patients. For example, it was routine for the nurse to perform venous cannulation, venepuncture and arterial blood gas sampling in patients, which were identified by Carroll (2004) as a range of enhanced clinical skills to manage the varied needs of patients presenting to AMU. The nurses were often engaged in the preparation and delivery of intravenous drug infusions and in the preparation and set up of equipment to treat patients. These activities occupied a significant amount of the nurses' time.

> *Nurse G tells me that one of her patients is unstable- probably an NSTEMI- on telemetry monitoring. Quite poorly. Nurse G is attending the patient- setting up an infusion. Checks the infusion with a colleague. Nurse G is talking to the patient- asks about her pain level. Nurse G explains about the infusion and the need to do regular BP checks. Nurse G sites a new cannula and then commences the infusion. HCA attends and checks the Obs and EWS. Nurse G fetches the ECG machine and performs a 12 lead ECG. Nurse G has a discussion with SHO who checks the ECG. Nurse G glances along the row of patients- observing them from a*

distance. She attends 2nd admission- poisoning. Nurse G renews infusion for the patient. Patient is vomiting.
(Field notes)

Observing Nurse E. Preparing for NIV. Preparing IV Infusion. Nurse E brings equipment and monitoring to the beds- NIPPV and O2 sats monitor. Infusion commenced. Takes an Arterial Blood Gas. Adjusts NIV settings. (Field notes)

It was commonplace for the nurses in AMU to be managing a patient with level 2 care needs (appendix viii) as defined by the Intensive Care Society (2009). Most often, these patients were having non invasive ventilation (NIV) to manage respiratory failure.

Researcher: How often do you care for patients on NIV?
'Pretty much all the time- especially in Winter. We can have 3 or 4 at once.'
(Participant Interview in context, Nurse B, 20 months)
'He's not a good colour and he's quite confused- that's the CO2. He's retaining a lot- Ive got to get him on the NIPPY now and see how he goes- but Im not sure if he'll tolerate it.'
(Participant Interview in Context, Nurse E, 14 months)

Observing Nurse E. Preparing for NIV. Preparing IV Infusion. Nurse brings equipment and monitoring to the beds- NIPPV and O2 sats monitor. Infusion commenced. Patient having nebuliser but very distressed. Nurse E explains to the family and patient what's going to happen. I prepare the equipment for her. She sizes the mask- the patient is becoming aggressive with the family. Nurse E gets the NIV on – difficult for the first 30minutes. Patient keeps pulling the mask off. Nurse E reassures the patient and family, talking to him and watching him. Writes in the patients notes. Takes an ABG. Adjusts NIV settings.
(Field notes)

Given that the use of ventilatory support for respiratory failure was a regular occurrence within the AMU, it is argued that there is an evident need for designated critical care beds and dedicated nurse staffing within the AMU. Significant challenges have been identified within the thesis for nursing in the

AMU, posed by the obstreperous ward design in the AMU male (section 5.3) combined with the erosion of nursing time (see chapter 1 and section 3.4). It is therefore argued that despite the considerable ability in managing complex patients, nurses practicing in acute medicine require the requisite skills and education to provide care for high dependency patients, since such patients are at high risk from further clinical deterioration and require an altogether different level of nursing intervention.

The RCP (2007) recommended that AMU facilities should include dedicated accommodation for the care of patients with level 2 high dependency needs and there should be a minimum of one nurse to every four level 2 patients either studying for, or having achieved critical care competencies working in AMU (Society for Acute Medicine, 2012). However, there were no dedicated level 2 beds in the AMU study location and the nurse participants stated that they learned their skills for this aspect of their role whilst 'on the job.' None of the nurses had undergone any form of specific, post registration education in the management of patients with critical care needs or indeed any other specialist nursing care (see table 2, pg 107), but accepted that this level of care was a routine element of their role in AMU.

> *Researcher: How often do you look after a septic patient?*
> *'Every shift pretty much- well I always seem to have patients like that.'*
> *Researcher: What training or education have you had?*
> *'AIMS , ILS (2days) and the rest on the job. I did a bit at Uni (during training) but not really in depth.'*
> *(Participant interview in context, Nurse A, 15 months)*

'We can have 2-3 critically ill on a shift. Over Winter its been horrendous.'
Researcher: Have you had any formal critical care skills training?
'Only learning on the job. 90% of the time you have a patient who needs 1:1 care or support.'
(Participant interview in context, Nurse C, 20 months)

Whilst experiential learning is invaluable, individual nurses' experience will vary resulting in differing standards of knowledge and skill. Therefore, experiential learning alone does not give sufficient assurance as to the competence of the individual in providing appropriate care or in the performance of a specific skill. Competencies require standardisation and measurement against agreed standards to demonstrate assurance. The only educational development that the nurses in the study had received were one or two day courses delivered by the hospital education department, and which were not competency based. This level of education is considered to be the absolute minimum one would expect to practice in the acute setting of an AMU, but may not equip nurses with the necessary skill and underpinning knowledge to confidently care for patients with critical illness. Indeed, since there was a very low medical presence on the AMU, there is further weight added to the argument for nurses to be educated to manage patients with critical care needs, since nurses frequently had to rely upon their own knowledge to manage and prioritise care.

Nurses on the AMU frequently managed acute cardiology patients who required monitoring of the electrocardiograph. The British Cardiovascular Society (2011) state that when managing acute cardiac care, the ratio of nurses to patients should not fall below 1:2. Furthermore, they state that Trusts must ensure all staff

involved in the delivery of acute cardiac care have suitable training and competency, although they fail to identify the minimum standard of post registration education in this regard.

The data shows that the nurses in AMU were neither formally educated nor confident in the management of cardiac patients undergoing telemetry monitoring of the electrocardiograph (ECG). None had received any specific post registration educational preparation in this regard and whilst able to recognise basic ECG abnormalities, the nurses admitted that there were ECG rhythms that were unfamiliar to them, despite cardiac monitoring being a routine occurrence in the AMU. Some of the nurses referred to the Acute Illness Management (AIMS) course and the Immediate Life Support (ILS) training that they had received, which were both single days delivered by the hospital education centre.

> *Researcher: "Your patient is on telemetry. Do you have training to understand the ECG rhythms?"*
> *"Ive done my AIMS and my ILS - but Ive learned the rest here. I know AF and VF, but Im not very good with the rest."*
> *(Participant interview in context, Nurse G, 3 years)*

> *Nurse A attends a patient on telemetry. Notes the doctor has prescribed new medication. Nurse A leaves the area- fetches volumetric pump. Enters the clean utility area to prepare the IV medication for the patient. Identifies the drug and diluents. Prepares the equipment for mixing the drug. Prepares a label for the infusion. Washes hands. Draws up the drug and adds it to the diluent. (Checks this with a colleague). Takes the drug to the pump- sets up the pump and administers the infusion to the patient. Records on the medication chart. (Field notes)*

> *'Well, if she was in pain, or became breathless. I'll keep checking on her to see if she's comfortable. I'll monitor her rate- she was batting along at 140 earlier, but that's settled now.'*
> *(Participant interview in context, Nurse A, 15 months)*

The Critical Care Network, recognising the lack of educational standardisation since the demise of the English National Board, have recently published national standards for critical care nurse education in an attempt to drive common standards in the provision of critical care and the assurance of a quality workforce (Critical Care Network National Nurse Leads, 2012). A competent workforce has been identified as central to the provision of safe, high quality critical care (DH 2005), although there is no clear consensus as to the definition of a competent practitioner, or what the skills and competencies should be for nurses providing critical care outside of a dedicated high dependency or intensive care unit.

Nurses were often observed managing a combination of high dependency care alongside that of more standard acute medical patients. However, this clearly affected the delivery of care since patients with level 2 care needs warranted a higher degree of nursing time and had more pressing needs than other patients. Cox et al. (2006) reported similar findings, with nurses finding great difficulty in balancing the needs of such diverse patients.

The nursing staff were constantly assessing the situation and managing clinical risk. It was essential for them to make astute clinical decisions about the priority and delivery of care to the range of patients for whom they held responsibility. The following extracts from the data are all taken from one period of observation with Nurse A and help to illustrate the types of care situations that the nurse managed on a regular basis.

Observing Nurse A, who is caring for 8 patients. She says she has had a very busy shift so far and no medical beds available. 1 bariatric patient (Nurse A says it's a regular occurrence) waiting for a bariatric bed to arrive. Nurse A tells me patient has heart failure and has CPAP in progress. Patient very breathless and struggling to keep sat in upright position. Patient has a cardiac monitor at the bedside.
(Field notes – conversation with Nurse A, 15 months)

'She needs 1:1 really, but I haven't got the time- the other side are one down and can't help us. She is quite breathless but I can't keep her propped up enough until the bed arrives.'
(Participant interview in context, Nurse A, 15 months).
Bariatric bed arrives- has to prepare the bed and mattress. Nurse A and HCA plus other staff assist the patient onto the bariatric bed. Nurse A attends to the CPAP. Preparation of specialist equipment for the patient- takes additional time. A number of additional staff have to be called to assist.
(Personal observations)

The nurse had to call on help from her colleagues every time the patient needed assistance with moving. As this was a bariatric patient, specialist equipment had to be ordered to provide care. In addition, the patient was having continuous positive airways pressure ventilation to manage heart failure, which is a level 2 care need (Intensive Care Society, 2009). The level 2 care was delivered alongside the care of other 'routine' patients with acute illness, and whilst ensuring that basic care needs, such as helping patients to eat meals, was provided. The nurse assessed the risk for the patients in her care and was able to make clinical decisions about the appropriate care and management required.

Nurses in the AMU were constantly managing a state of flux, generated by the drive for acute bed capacity. Patients had a short length of stay in the department

which supports Griffiths (2010) findings. This short-termism influenced the manner in which nursing care was delivered. Time was therefore a critical factor in the decision making process, since rapid decisions had to be made in relation to patient care, in the context of an acute care setting where patients were unstable and complex in their presentation. The influence of time on the ability of the nurse to make accurate decisions has not been fully addressed by the literature, although Bucknall & Thomas (1997) found that time constraints experienced in the critical care setting posed difficulties for nurses when they were managing complex patients in need of rapid and multiple decisions. Thompson et al. (2004) argue that time restricted decision making is more likely to induce intuitive information handling with nurses less likely to seek out additional information to support their decision making. The following examples from the data demonstrate how the frequent alarms on an NIV machine interrupted the routine duty of drug administration. The nurse was unable to adequately trouble shoot the alarms due to lack of sufficient knowledge, and the patient was subsequently becoming distressed. Cox et al. (2006) found that nurses were unfamiliar with the specialist equipment needed to care for patients, hindering the assessment process.

> *Observing Nurse C - undertaking the medication round. HCA doing obs. Nurse C changing an infusion. Attends to alarms. Checks the prescription chart. Signs chart. Porter arrives to collect a patient. Nurse C prepares paperwork. Nurse attends alarm on the NIV- it is alarming frequently. Patient seems distressed. Nurse C looks at the settings and the patient's notes. She makes adjustments to the settings and to the NIV mask.*
> *(Field notes)*
> *Researcher: What are you looking for?*
> *'Just checking he's ok- you know, not leaking too much. I've increased the IPAP but now it keeps alarming. I'm not too sure why.'*

Researcher: Have you been trained to use the NIV?
'Only here, you know, by the other nurses. You learn it all on the job. I've not done a course.'
Researcher: Do you often have patients on NIV?
'Oh yes! All the time!'
(Participant interview in context, Nurse C, 20 months)

Nurse C returns to the medication round. Has discussions with the HCA. Spends time checking notes, giving medications, answering the phone. Speaks with doctor on the ward round.
(Field notes)

The extract above demonstrates a lack of underpinning knowledge and confidence by the nurse, in her ability to appropriately manage the alarms on the NIV machine. Additionally, the extract highlights the challenges faced by the nurse who was trying to undertake a medication round whilst also providing level 2 care to a patient. Patients with level 2 care needs are by definition in need of careful monitoring and management, due to the severity of their underlying clinical condition and the potential risk for them to become more clinically unstable. Despite having only a brief length of stay in the AMU, the clinical needs of patients are no less important than those in longer stay or critical care wards. In fact, patients in the AMU require a higher degree of nursing time and observation whilst the initial acute phase of the illness is stabilised. This phase of the admission involves intense medical and nursing attention whilst the diagnosis is made and the medical treatment is initiated. Indeed, at this early stage in the patient's admission, one could argue that the patient is at a higher risk of deterioration, adding further weight to the need for adequate nursing skill, competency and staffing in appropriate accommodation which facilitates ease of patient monitoring. These recommendations will be further discussed in chapter 6.

Griffiths (2010) has also identified that the nurses in her study had received no specific educational preparation for their role in the AMU, but found that the nurses were able to demonstrate high levels of knowledge and skill in managing patients with a variety of health needs. Nursing knowledge is acquired in many ways, and much remains unclear about the nature of nursing knowledge as discussed in chapter 2. The findings here suggest that nurses in AMU had acquired knowledge through experience, in that managing complex care was a routine function of their practice. The nurses were using their expertise and knowledge in the assessment of patients, combined with a range of sources of knowledge in 'knowing the patient' to safely manage a range of complex patients on a regular basis, employing proficient clinical decision making skills in practice. However, there were occasions when the nurse lacked sufficient underpinning knowledge to confidently resolve alarms from the machinery that was in use and that the level of preparation they had received was not wholly sufficient to meet patients' needs adequately.

5.5 Limitations

The study was conducted in a single site, district general hospital. However, the aims and objectives of the mini ethnography did not require a large, multi centre study, although a larger study may have given additional insight into the nature of nursing in the context of an AMU. Researcher presence as an observer and participant in the field may have altered the participant's natural responses and hence is considered a limitation of the study. Researcher bias may have impacted upon the data, but attempts have been made to account for this and minimise its bearing through a reflexive approach. Additionally, the influence of personal

previous experience and interest in the subject area has a bearing upon interpretations made during analysis. Again, through reflexivity, the impact of this prior knowledge and experience has been identified, accepted and is transparent within the thesis. Interviewing participants in the field was found to be problematic and initial plans for the interviews had to be revised and adapted, in order to accommodate the demands on the department (see section 3.8.3). However, the revised methodology did not allow for deeper interrogation of pertinent details exposed within the study and is therefore considered a limitation of the research. For example, further exploration of intuitive knowing by the AMU nurses would have benefited the research, but was an issue which would have required a considerable length of interview with participants. This may account for other authors selecting retrospective interview to collect data. However, being able to capture the participant's immediate thoughts and responses was believed to be critical to the study, to prevent distortion of recollected events. Whilst the reduced interview time is recognised as a limitation, the use of interview was essential to the success of the study and has proven highly beneficial in the acute setting where time and human resource are under constant pressure and might otherwise not be exposed to investigation. Observational methods alone would not have provided equivalent data and therefore, use of this technique was fundamental to the success of the research. Finally, a decision was made to not collect data in the overnight period, when nursing practice may have been very different to that observed in daytime hours. Collecting data overnight was felt to be inappropriate given the reduced staffing levels and potential impact upon delivery of care to patients. However, this aspect of nursing care requires investigation and understanding, warranting independent investigation.

Chapter 6

Discussion and Research Contribution

Introduction

The aim of the study was to address the gaps in nursing knowledge previously identified from the literature review presented in chapter 2, with the following objectives:

- To generate knowledge and understanding relating to the nursing observation and assessment of patients in the AMU setting
- To generate knowledge and understanding of nursing practice in the context of the AMU, where high levels of patient acuity, activity and frequent footfall within the department influence the amount of time available for nurses to spend with individual patients.

The thesis has explored nursing practice in the AMU setting, with particular attention given to the nursing observation and assessment of patients admitted to

hospital with acute medical illness. Nursing practice in this embryonic speciality has received minimal prior investigation, meaning that nurses in the AMU have a negligible evidence base upon which to make informed clinical judgement and decisions.

The thesis argues that there has been a significant erosion of nursing time over the past fifteen years due to increasing demand for acute hospital beds, political drivers for faster throughput, and the changing patient demographic towards an older population with more complex illness. Additionally, the global economic downturn has resulted in tremendous financial constraints for the NHS resulting in a diminished workforce. The cumulative effect of these combined factors has been to erode the time available for nurses to provide care and to change the practice environment for nurses. However, despite the significant challenges for nursing posed by limited time, this thesis has demonstrated that nurses have the skill and expertise to safely manage patient care within exceptionally acute, fast paced environments such as the AMU. Whilst nurses are familiar with the need to work efficiently and at pace, the consequences of limited time with patients and short duration of stay in the AMU for nursing practice has thus far been overlooked. Nurses draw upon their fundamental skills in the observation of patients to maintain patient safety, making rapid visual and verbal assessments, drawing out salient details to inform clinical decision making and to prioritise patient care.

The AMU is a demanding field of practice operating 24 hours per day and admitting large numbers of complex, acutely ill patients. Indeed, the AMU is unlike any other hospital department in terms of patient population, activity, staffing and

activity. Such complexity actually inhibits progress in the sense that nurses are faced with competing demands upon their time and must make safe decisions in order to prioritise the delivery of care to patients appropriately. Moreover, expeditious diagnosis and management of the patient in the AMU is paramount in order to maintain patient safety.

The impetus to move patients swiftly through the AMU resulted in brief encounters between nurses and their patients. This resulted in a process driven environment with the objective of completing the admission, investigations and confirming the diagnosis for patients in order to provide appropriate medical intervention and then to transfer or discharge the patient. Length of stay in the AMU was transient for patients. The characteristics of the AMU are likely to become a template for hospital wards in the future since the current NHS hospital system is unsustainable in terms of financial viability and the availability of resources.

The exponential growth in emergency demand for acute medical beds in hospital, increasing patient age and complexity, and reduced staffing levels will result in decreasing length of stay in hospital for patients. This has significant implications for the observation, assessment and ultimate safety of patients, since nurses will have less time available to provide care or to know the patient. However, the findings presented within the thesis offer reassurance that despite exceptionally acute and demanding workloads, nurses were able to safely adapt their practice to accommodate the challenges of diminished time. Even though nurses were managing a range of complexity and were often challenged by the difficult practice environment, they were able to maintain their observations of patients by

transforming the ways in which they worked, demonstrating how practice is evolving in response to the changes in hospital care and the challenges for practice of current health care delivery. Nursing expertise was evident in the observation of acutely ill patients, despite a limited experience. Nurses showed incredible resourcefulness to manage the complicated workload and applied a range of knowledge to each situation and to safely manage the impact of limited time.

The impact of time and temporality of nursing in the context of the AMU was the singular most critical and influencing factor which impacted nursing practice. The erosion of nursing time has required nurses to make clinical decisions about the observation, assessment and prioritisation of patient care in order to ensure safety. However, despite competing demands on the nurses' time and short duration of patient stay in the AMU, nurses were able to adapt their observation and assessment of patients and to recognise clinical concerns. In response to this challenge, nurses showed resilience and flexibility by adapting their observation and assessment of patients with skill and expertise. Nurses employed a method of carefully conducted visual sweeps whilst remaining highly vigilant and alert to any change. The visual sweep involved frequent, rapid, visual observations of the patients which the nurses combined with their verbal assessments to inform themselves as to the patients' clinical status. In doing so, nurses were rapidly assimilating large quantities of data about each patient, and making complex decisions about the prioritisation of care. The visual information acquired was supported by the measurement of vital signs, EWS and additional measurements when deemed appropriate by the nurse. This said, nurses relied primarily upon

their visual observations of patients to alert them to a clinical concern. The visual observation was the first and most frequently conducted observation and was supported by the addition of other nursing assessments, including EWS tools. Nurses were vigilant to the presence of specific visual indicators alerting them to any potential problems. Using an initial visual sweep of the patients at the start of a shift, nurses were able to make a rapid assessment and form a clinical judgement regarding any immediate concerns. Nurses then monitored this baseline assessment with repeated observations of the patients' appearance and with the addition of verbal assessments to judge the presence of any neurological dysfunction. The nurses identified specific cues alerting them to a potential problem, and were vigilant to any critical changes in the patients. In particular, the nurses were alert to the colour and appearance of patients' face, observing for evidence of distress, pallor or sweating. This was supported with the verbal assessment of the patients' ability to respond appropriately to simple questions, providing the nurse with powerful data about the patients' condition. EWS tools were routinely used to monitor the patients' physiological vital signs of respiratory rate, heart rate, blood pressure, oxygen saturation and temperature and whilst believed to be useful in the overall monitoring of the patient, were not the primary method used to assess patients. Nurses in the AMU relied upon their personal appraisal of the patients' outward appearance to make their initial clinical judgement and decisions, employing the EWS as a secondary measure to support their assessments and to monitor the patients' progress. Nurses made skilful decisions based upon their initial observations of the patient as to the addition of other quantitative assessments such as the Glasgow Coma scale where there was any evidence of or potential for neurological deficit.

Whilst other studies (Cioffi, 2000a, Minick & Harvey, 2003; Cox et al., 2006) have identified the presence of similar visual cues to those identified within the study, none have concerned the anticipatory assessment of the patient. None have previously referred to nurses employing a visual sweep or supporting their visual observations of skin colour and facial appearance with an assessment of the patient's ability to respond appropriately to questioning of the patient; none where based in an AMU. Previous study findings were all concerned with identification of cues following a critical event, whereas the findings presented here demonstrate that the AMU nurses were vigilant to the presence of cues in anticipation of the potential for deterioration in the clinical condition. The nurses identified specific features in the patients which would draw their attention to a potential problem. In particular, the features observed for included the facial skin colour, appearance and expression of the patient. Despite having limited AMU experience, and in contradiction with Benner (1984), the nurse participants exhibited anticipatory ability which is an expression of nursing expertise associated with expert practice and intuitive knowing.

The ability of nurses to predict clinical deterioration in the patient has been closely associated with intuitive knowing or a sense of knowing (Benner, 1984; Cioffi,2000a, Cioffi, 2000b; Odell et al., 2009) and this was further acknowledged within the findings of the study. However, Benner (1984) argued that possession of intuitive knowledge was specific to expert nurses. In contrast to Benner, the findings presented suggest that nurses in the AMU were able to demonstrate expertise in their observations and assessments of acutely ill patients, despite having relatively narrow AMU nursing experience (one nurse having three years

AMU practice experience, with the remainder having only between 12 and 20 months) and indeed despite none of the participants being in possession of post registration qualifications. Based upon their level of AMU experience, the majority of the nurse participants, having less than two years experience in the AMU, are arguably advanced beginners (Benner, 1984). Yet each nurse participant referred to observing for specific cues in anticipation of a change, irrespective of the individual length of professional experience suggesting that expertise had been developed in this specific skill.

Whilst intuitive knowing was identified within the findings of the study, the nurses in AMU had little opportunity to develop a nurse-patient relationship over time or to become familiar with the patients in their care due to the fast pace of activity and the short duration of patient stay in the department. This contradicted the findings of earlier research into the recognition of patient deterioration, where intuitive knowing was identified as by nurses as knowledge used in the recognition of deterioration in the patient (Cioffi, 2000a; Minick & Harvey, 2003). However, whereas earlier research was concerned with hospital wards where nurses had the opportunity to develop the nurse-patient relationship over time, the findings presented within this thesis have demonstrated that the nurses in the AMU adapted their practice to account for the critical influence of limited time and interaction with patients in the AMU.

What the findings are saying is that nurses in the AMU were able to demonstrate expert decision making in the observation and assessment of patients; and that intuitive sources of knowledge, previously identified as limited to the realms of

expert practice, may be acquired in the earlier stages of the nurse's career, but that knowledge may be context bound to a particular field of experience. Furthermore, the findings suggest that intuitive knowledge was not used in isolation, but in conjunction with other sources of knowledge which the AMU nurses sought to make their baseline assessments of patients, utilising all information available to them and identifying the salient elements rapidly. The nurses made skilful decisions about the type and frequency of observation and assessment of acutely ill patients by drawing upon their existing knowledge and understanding of the situations before them. In addition to the use of intuitive knowledge, the nurses utilised professional nursing knowledge gained through nurse education and professional practice but also frequently relied upon tacit sources of knowledge, much of which could not be articulated by the nurses but which underpinned clinical decision making by the nurses. This was evident in the nurses' ability to describe some of the cues to deterioration in the patient when asked to consider precisely what they observed for in the patient. The findings suggest that possession of tacit knowledge was deeply embedded within the unconscious brain such that the cognitive processes involved in the application of specific knowledge appeared to be largely instinctive.

Knowing the patient has been identified by a number of authors as essential for nurses to identify the signs of clinical deterioration in patients (Minick & Harvey, 2003; Cox et al. 2006; Odell et al., 2009). However, as previously highlighted, knowing the patient is a concept generally referred to developing over a period of time; arguably a number of days. For nurses practicing in the AMU setting, the opportunity to know the patient in is hindered by the patient's short duration of stay

in the department. However, the findings illustrate how nursing practice was adapted to accommodate the influence of time on the nurse patient relationship.

In order to develop baseline knowledge of the patient, various elements of information were assimilated by the nurse to develop essential knowledge specific to the patient in a very short time frame, which has not previously been identified in the literature. As patients were admitted as emergencies and in the absence of the patients' medical records, the nurses relied upon information from referral letters, relatives, results of investigations and their individual nursing admission to piece together an impression of the patient which they could become acquainted with. The amalgamated patient information was expanded during the patient's hospital stay and followed the patient to their onward destination.

The AMU nurses relied upon their interpretation of the various sources of information and knowledge available to them which subsequently informed their clinical decision making. Nurses concentrated their attention on observation of the patient's outward appearance. The colour of the patient's skin was identified as the primary observation alerting nurses to the potential for a clinical problem which has been identified by previous authors as an indicator of clinical deterioration (Minick & Harvey, 2003), but not previously identified as the primary observation observed for by nurses. The nurses were able to glean significant amounts of information about the patient's wellbeing from a few seconds of observation and assessment, applying a combination of explicit, experiential, tacit and intuitive knowledge to inform their clinical judgement and decision making. In addition to the sources of knowledge identified, other forms of nursing knowledge may have

also been employed by the nurses, but which yet remain undiscovered and which would benefit from further inquiry.

Visual and verbal observations of patients were rapid, frequent, focussed and entailed a persistent state of vigilance on the part of the AMU nurse who was constantly alert to any change. At the start of the shift and frequently thereafter, the nurses were found to conduct a visual sweep of the patients in their care. The visual sweep was used to identify any patient who might require immediate attention from the nurse, who was able to process the visual observational information rapidly. The nurses generally followed the visual sweep with simple questions to the patients which provided further observational information about the wellbeing of the patients. Similarly, when a new patient was admitted to the AMU, the nurse focussed her attention on the immediate outward visual appearance of the patient, observing the patient's colour, facial expression, and evidence of pain or breathing difficulty. Upon assisting the patient into their bed, the nurse also made an assessment of the patient's cognitive and neurological status, basing this judgement on the level of consciousness, evidence of agitation, muscle tone, power and verbal response to questions.

Nurses in the AMU preferred to rely on their own observations of patients rather than on protocol driven paper based EWS tools which were used as an adjunct to support the nurses own observations. Whilst EWS tools were found to be valuable in monitoring patients' progress, they were not the primary mode of observation identified by other authors (Donohue & Endacott, 2010). In congruence with Wheatley (2006), the findings also highlighted that recording of the patients' vital

signs and EWS was routinely delegated to a nursing support worker, although the recordings were reviewed by the nurses in AMU. However, the delegation of this key nursing role meant that vital opportunities to have patient contact were missed. Consequently, the nurses also missed opportunities to acquire further observational data about their patients which could have been obtained through manual recording of patients' vital signs such as the character and rate of the pulse, presence of clammy skin and opportunities to verbally interact with the patient. Furthermore, the Francis Inquiry (2013) has recently published recommendations for the monitoring of patients' vital signs arguing that the observations should be available to all staff electronically immediately that they are recorded. This places attention on the important role of physiological vital signs, but fails to appreciate the value of the nurses' skill in recognising clinical deterioration before physiological measurements trigger a response.

The findings presented in chapter 5 demonstrate that nurses in the short-stay acute setting of the AMU observed for subtle indicators to alert them to a potential clinical problem in the same manner as nurses in longer stay ward environments (Endacott et al., 2007, Odell et al., 2009) and critical care (Maharmeh, 2011). It is therefore argued that knowing the patient is not a prerequisite to recognising a patient who is clinically unstable; this ability is not strictly determined by time and that the cues identified may be recognised by the nurse even on the first encounter with the patient. This has not previously been identified within the literature. Furthermore, the findings highlight that the cues identified by AMU nurses were observed in the stable patient, whereas earlier research evidence has identified the presence of these indicators only after a critical event.

The ability of nurses to observe and assess patients was significantly influenced by the design and layout of the AMU ward. Currently, there is no published literature relating to the AMU design, layout or the subsequent impact of these on patient outcomes or the consequences for nursing practice. Indeed, there would be limited, if any, literature pertaining to an AMU from a new-build design and layout perspective as most AMUs are simply new units housed in existing buildings and new hospitals might be built only once in a lifetime. Where there is evidence of such design within healthcare literature it is usually focussed upon outcomes relating to the patient experience or in minimising cross infection (Ulrich et al., 2008). It would appear that the concept of the AMU was conceived within the existing infrastructure of health services. Therefore it can be argued that the AMU meets *current* health care needs external to *existing* (and pre-existing) building layout and design. For example, given the acute nature of the patients' illnesses, patient safety demanded frequent and rapid nursing observations. However, the layout of the modern four-bedded patient bay area was considered unsafe by the nurses for acutely ill patients as it impeded ease of observation and reduced the amount of bed space available for clinical equipment. The geographical layout meant additional time was needed for nurses to conduct their visual sweep of patients which had consequences for the speed which nurses were able to prioritise care or to identify potential problems due to the physical obstruction of the walls and the additional walking required. This further reduced the amount of time available for nurses to spend with patients, which was already minimal due to the pressure of patient acuity and demand and is argued to create a higher risk for the safety of patients. Similarly, the physical structure of 4-bedded bays created an additional barrier to communication between the nurses, patients

and other members of the team due to the design of the smaller enclosed space. Nurses were not able to speak to each other easily in the smaller bay areas and spent significant additional time walking between the various sectors of the ward in order to locate colleagues, leaving the patients unsupervised in the bays.

The significance of ward design for patient safety has been discussed in section 5.3; although there is no literature available which has considered this argument. However, demands for improved privacy and dignity for patients in hospitals combined with the need to minimise the risks of cross infection have seen contemporary hospital design move away from the traditional Nightingale ward, towards smaller bays of patients, or single room accommodation. However, when one considers the open plan format of an intensive care unit, the benefits to patient safety through ease of observation are apparent. The challenge is to provide patients with a safe and clinically responsive environment, whilst meeting public demand for high levels of privacy.

The AMU layout is particularly relevant due to the type of complex patient care being delivered. The findings from the study were strongly in support of the Nightingale ward layout for the care of acutely ill patients, which provided ease of observation for the nurses to undertake frequent visual sweeps and for patients who were afforded a clear view of the nurse as she performed her work. Additionally, communication between staff and patients was unhindered in the open plan design. The nurses agreed that the Nightingale design offered a greater degree of safety for patients because they could be seen and heard easily. The layout of the AMU is a crucial consideration for the designers of the built hospital

environment and also for hospital managers who may locate an AMU within an existing hospital building. Whilst patient privacy and dignity are vitally important to patients, their safety is paramount. Where small bays of patients and high numbers of single room accommodation are the preference, a higher ratio of nurses to patients is necessary to ensure adequate supervision, to allow for the additional time needed to deliver care and to ensure the monitoring, observation and safety of patients.

Managing complex and critical care was found to be routine for the AMU nurses. However, in contrast to Cox et al. (2006), it is argued that the nurses in AMU saw this aspect of their role as routine and did not show concern at their lack of educational preparation. Patients in the AMU regularly required high dependency care, in particular respiratory support using non invasive ventilation. However, there was no dedicated facility within the department to provide high dependency care, and nurses were managing patients with less serious conditions simultaneously. This was found to further impact upon the time available for nurses to spend with other patients, as the ratio of patients to nurses was well above recommended levels and the patients with level 2 care needs required close monitoring, regular intervention and additional nursing time.

The nurses demonstrated significant ability in the management of acutely ill patients, but were found to be lacking in underpinning knowledge and educational preparation to care for patients with critical or high dependency needs. A number of authors have identified lack of underpinning knowledge in the care and management of acutely ill patients as a concern (Hogan, 2006; Cox et al., 2006;

Robson et al., 2007; Thompson et al., 2010; Francis Inquiry, 2013), though their recommendations have not yet received serious consideration by the professional and regulatory nursing bodies. None of the nurses involved in the study had received any formal preparation for the AMU role. Furthermore, lack of nursing education, knowledge and preparation meant that there were occasions when nurses were unable to troubleshoot problems encountered in practice effectively. Whilst able to perform complex practical skills such as arterial blood gas sampling, the nurses had limited understanding of the complicated altered physiology such as that of respiratory failure which could ultimately impact on the safety of the patient. Other areas where nurses lacked confidence in their ability related to the interpretation of the ECG, which was a routine monitoring procedure for many patients admitted to the AMU with a cardiac problem. Nurses practicing in the AMU would benefit from the addition of formal educational development to add to their existing depth of knowledge and to further develop the understanding of the care and management for the range of complex patients who are admitted to the AMU. Additionally, nurses practicing in this field require substantial practical skills relevant to the provision of care, such as the ability to manage central venous access and chest drains. Whilst nurses in the AMU were able to acquire intricate skills through experiential learning, it would be beneficial to provide opportunities for skill development in an educational setting where additional time for learning is available. These matters require further attention nationally from professional and government bodies, who ought to define mandatory standards of education and experience for nurses involved in the care and management of seriously ill patients. Lack of educational preparation has significant implications given the Francis Inquiry (2013) recommendations which advise an increased focus on

nursing education, professional development and defined national standards and although the recommendations are not specific to the AMU, it would be judicious to apply his suggestions to all areas of nursing practice.

The findings from the study give unique insight into the practice of nursing in the context of the AMU and the clinical decision making of nurses in relation to the observation and assessment of acutely ill adult patient, and provide an original contribution to the body of nursing knowledge. The findings have wide ranging implications, which will now be explored further and used to make recommendations for practice.

Conclusions and recommendations for practice

The aim of this thesis was to explore how the practice of nursing in the AMU influences decision making in the nursing observation and assessment of patients. Nurses are well rehearsed in caring for patients in stressful and fast paced environments. However, this thesis develops knowledge and understanding of the complexities faced by nurses in acute nursing situations and demonstrates how nursing practice in the AMU setting has evolved and adapted to manage the absolute brevity of nurse patient relationships in the short stay acute admissions area. Short stay admissions wards are likely to become the standard as length of stay in hospital decreases due to advances in medicine. The thesis therefore provides timely insight into the ability of nurses to manage patients despite the challenges of short stay.

Acute Medical Units have generally been accommodated within existing hospital buildings, which may not provide optimal configurations for the provision of acute medical care and which pose additional difficulties for nursing practice in the observations of patients. Nursing in this emergent area of practice requires skill and knowledge in the care of patients admitted with wide ranging and complex

medical illness; the ability to make observations of patients rapidly with the underpinning knowledge of signs and symptoms which would give rise to nursing concern and also the ability to anticipate a problem in a patient. Nurses in the AMU have developed a level of expertise in the observation of patients, through the combined application of tacit, intuitive and explicit knowledge sources to rapidly decipher salient pieces of information about the patients in their care.

The observation of acutely ill patients in hospital has received significant attention nationally in an effort to improve patient mortality. However, efforts to formalise the nursing observation and assessment of patients using protocol based tools such as the EWS have thus far failed to have the desired impact upon patient outcome. In the AMU setting, nurses accepted the EWS as part of an overall assessment of the patient. However, the initial nursing observation of patients was considered the most beneficial tool for nurses to assess risk and make decisions about the prioritisation of care for patients. There has been too much emphasis placed upon the value of EWS tools and an over reliance on their accuracy to detect deterioration, whilst the vital ability of nurses to identify clinical concerns through tacit and intuitive knowledge has been overlooked. Consequently, the measurement of vital signs has been demoted as a task for unregistered support staff using digital monitoring equipment which suggests that this aspect of nursing practice is not fully appreciated for its complexity. What this means is that valuable opportunities to acquire observational information will be missed, leading to clinical deterioration in patients that may be potentially missed. Reliance upon EWS tools to observe patients for deterioration in the clinical condition fails to appreciate the complexities involved in the nursing observation of patients, which cannot be

captured easily or replicated using the objective measurements of patients' vital signs in a paper based tool. The findings show that nursing observation of patients is multi-faceted and complex; therefore staff who are given the responsibility for undertaking vital signs measurements must be fully educated and competent to do so, with the ability to demonstrate underpinning knowledge of relevant physiology. Furthermore, the move towards electronic monitoring of vital signs in patients is expensive and unnecessary as this also neglects to appreciate the critical importance of interaction and touch in the overall assessment and observation of the patient.

Whilst nurses have embraced the opportunity to improve patient monitoring, there has been no resistance to having these tools imposed upon practice, despite the lack of sufficient convincing evidence as to their reliability and specificity. The critical role and ownership of observation and assessment of patients must be asserted within the nursing profession. EWS tools advocated for the nursing observation of patients currently disregard the visible indicators identified within the thesis which may herald a problem since they focus heavily on the recording of objective measures. Furthermore, EWS tools do not include other sources of nursing knowledge in recognising clinical deterioration. In particular, tacit and intuitive knowledge were recognised within the findings as sources of knowledge relied upon by nurses in preference to EWS tools, when observing and assessing acutely ill patients. Nurses demonstrated expert application of combined knowledge sources to make safe decisions about the observation and assessment of patients, adapting this element of practice to cope with fluctuant work pressure in the AMU and to ensure that all patients were frequently observed for signs of

clinical deterioration. It is argued that nursing knowledge and expertise surpass the ability of EWS tools to recognise clinical deterioration in the acutely ill patient, since EWS tools have many limitations which were explored in section 2.2. This thesis argues that the EWS does not offer the solution to improving patient outcome in hospital. However, some resolution to the intrinsic changes the NHS has faced within the economic turmoil of the last five years is that nurses are able to demonstrate their ability to adapt and cope with the tremendous pressures faced in the practice environment, indeed ensuring vigilant observation of patients through the judicious application of knowledge in a highly efficient manner.

The professional nursing body must grasp the opportunity to influence and further develop guidance for the nursing observation of patients rather than allowing the medical profession or any other authority to dictate this fundamental aspect of nursing practice which is strongly correlated with influencing patient safety. Indeed, EWS tools have a valuable place and were used by the AMU nurses to support their decisions about patients and to provide ongoing monitoring of a situation. However, it is essential that the observation of patients is acknowledged as central to the nursing role and is recognised for its critical role in detecting signs of deterioration and the maintenance of patient safety.

The findings presented within the thesis may be valuable for the educational preparation of pre and post registration nurses who may use the rapid visual and verbal assessments of patient appearance and response in their observations and assessments of patients, particularly in nursing environments where nurse-patient relationships are transient and interactions may be brief. It would be beneficial to

teach all nurses attending educational programmes in acute illness management about the use and value of sensory data when undertaking their observation and assessment of patients, and the corresponding physiological explanations for changes in skin colour or appearance, facial expression and evidence of altered cognitive function. Despite the fleeting and short term nature of the nurse-patient relationship in AMU, the findings presented illustrate that AMU nurses identified cues which would generate a clinical concern. These cues have been acknowledged and are evidently important to nurses working in a number of care settings, irrespective of the duration of patient stay and may be applied to any practice setting. Consequently, the development of observation tools ought to consider and further investigate the scope and role of these cues in identifying decline in the patient's condition, with a move away from protocol based tools back to a focus on the nurses' clinical opinion of the situation, which incorporates vital signs measurements.

National best practice guidance has recommended that all hospitals initially provide care for patients admitted to hospital with an acute medical illness on an AMU (NCEPOD, 2005; RCP, 2007). The aim of this drive has been to improve the quality and safety of care delivered to patients whilst in the acute and most vulnerable phase of a medical illness, in order to improve patient outcomes, and to meet the Governments emergency care performance targets, thus leading to the establishment of AMUs in hospitals across the country. A similar pattern of AMU establishment is emerging in New Zealand and Australia, demonstrating the wider international impetus to improve the management of patients admitted to hospital

as medical emergencies. However, the purpose of the AMU will not be fulfilled unless its critical functions are formally agreed and upheld. In addition, the role of the nurse within acute medicine should be given urgent attention, with specific regard to the formal educational preparation of nurses to care for critically and acutely ill patients with specific competencies agreed for nurses practicing in the AMU.

The AMU is a specific department within the hospital, known to be a stressful and pressured environment where the vast majority of patients with a medical emergency are initially cared for. The professional nursing body must give recognition to the delivery of critical care within the AMU setting and agree the requisite standards of preparation, skills and competencies for nurses practicing in this domain. In particular, guidance is needed to support nurses in the care and management of patients with acute respiratory and cardiac illness, who would otherwise be nursed in a critical care environment. Despite acknowledgement that acute medicine is a distinct specialism within general internal medicine; standards for the educational preparation of AMU nurses have been overlooked. This may be due to the lack of evidence and understanding of the nature of nursing practice in the AMU setting, thus leading to the mistaken perception that the AMU is similar to any other hospital medical ward. Whilst experiential learning may go some way to meeting the needs of AMU nurses, it is wholly unacceptable for patients diagnosed with level 2 critical care needs to receive care from nurses who have only received training from their peers and without any formal assessment of competency. There must be recognition of acute medical nursing as a field of

critical care with defined minimum standards of educational preparation and assessment of competency for nurses, as well as sufficient nursing resource to adequately care for patients with critical illness. Educational preparation for nursing in acute medicine currently lacks any form of standardisation. Without a defined minimum standard, hospital managers may avoid the expense of educating nurses in acute medicine. Patients and the public should be able to expect a similar standard of nurse education, role preparation and care across the country when nursed in an AMU. However, without standardisation there are bound to be huge variations in skill, knowledge and experience which may contribute to variations in the quality of patient care.

Current recommendations and guidelines for post registration nurse education in acute illness management are insufficient and ought to be replaced with mandatory minimum standards, in order that patients may expect similar levels of care anywhere in the country since acute illness may develop at any stage of a hospital admission. Mandatory minimum standards of education in acute illness management should also be considered for pre registration student nurses, who may find themselves presented with acute clinical deterioration in practice, and who should feel confident in their ability to recognise the clinical cues which herald a potential problem and be able to safely manage the patient. Furthermore, whilst routine delegation of this key aspect of nursing practice to nursing support workers is not recommended, given that delegation of this area of practice appears to be occurring on a frequent basis, the educational preparation of nursing support workers undertaking observations of vital signs must be addressed and must

provide them will the skills, knowledge and understanding to undertake this role safely. Nurses must decide on the appropriateness of delegating this task, and must supervise delegated responsibility judiciously.

The findings presented within the thesis have important ramifications for the future design and use of EWS tools, which are recommended for patient observation by professional and government agencies. The EWS is not a panacea and it is worth considering incorporating the use of sensory observation data in the overall assessment of the patient. Nurses' observations could be made explicit by referring to the cues identified within the findings; in particular, the colour and appearance of the patient's skin and the quality and appropriateness of the patient's verbal response. Nursing observation of the patient ought to incorporate assessment of these indicators, particularly in acute and short stay assessment areas where time with patients is transient and continuity of care is fragmented. These elements of nursing observation provide valuable data which might assist in the detection of clinical change in the patient.

The nursing observation and assessment of acutely ill patients in hospital has come under scrutiny during the past decade, since observations of patients' vital signs can identify changes in the patient's clinical status, enabling interventions to prevent further deterioration if detected quickly. EWS observation tools were designed and implemented in an effort to assist nurses in detecting physiological changes in the patient's condition. Despite significant attention given to the use of

EWS tools, the mortality of acutely ill patients in hospital continues to cause concern, with recent research arguing that the positive predictive values of EWS tools are unacceptably poor (see section 2.2). When used in isolation, EWS tools are not sufficient to detect patients at risk from clinical deterioration. Whilst nurses in the AMU valued the EWS tool for monitoring patients, their preferred method of patient observation was the use of frequent, rapid visual and verbal assessments. The introduction of EWS tools in the UK appears to have shifted the focus of 'patient observations' to vital signs monitoring with concentration placed on altered physiological measurements, detracting from the skills previously used by nurses to assess for change in the patient's condition. EWS tools are not intended as a panacea and must not replace the expert clinical judgement of the nurse. Nurses in the AMU demonstrated expert practice in the observation and assessment of acutely ill patients. Despite the lack of any broad post registration experience or educational development, the AMU nurses had acquired skills and experience that was bound to the context of nursing in the AMU setting. They were able to demonstrate intuitive knowing and the use of tacit knowledge in action in this specific area of nursing practice, which suggests that expertise may be acquired far earlier in a nurses career subject to the boundaries of individual experience. The nurse participants used a combination of knowledge sources, many which remain unknown, to make clinical decisions in practice. Additionally, whilst tacit knowledge is referred to as knowledge which defies articulation, the findings presented have identified elements of tacit knowledge which may be shared and explored further.

This thesis makes a positive contribution to the body of nursing knowledge in a field of practice where there is a dearth of literature and at a pivotal time. There are many questions that remain unanswered by the inquiry, such as the conundrum around the prevalence and efficacy of intuitive and tacit knowledge sources in nursing. Additionally, the impact of time and temporality in areas of nursing practice where acutely ill patients are cared for requires further investigation and specifically, how limited time influences nurses' clinical decision making.

Nursing in acute medicine is a rapidly evolving field of practice and which is gaining momentum across the western hemisphere, in recognition that acutely ill patients require specific care and management. Whilst there is not an existing evidence base for all nursing decision making in the context of the highly complex AMU setting, further research is essential to develop nursing knowledge in this discipline in order for nurses to underpin practice their clinical decisions with an appropriate and defensible rationale.

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Appendix i Example of an Early Warning Score Chart.

MEWS (Modified Early Warning System)

	3	2	1	0	1	2	3
Respiratory Rate per minute		Less than 8		9-14	15-20	21-29	More than 30
Heart Rate per minute		Less than 40	40-50	51-100	101-110	111-129	More than 129
Systolic Blood Pressure	Less than 70	71-80	81-100	101-199		More than 200	
Conscious level (AVPU)	**U**nresponsive	Responds to **P**ain	Responds to **V**oice	**A**lert	New agitation Confusion		
Temperature (°c)		Less than 35.0	35.1-36	36.1-38	38.1-38.5	More than 38.6	
Hourly Urine For 2 hours	Less than 10mls / hr	Less than 30mls / hr	Less than 45mls / hr				

EARLY WARNING SCORING SYSTEM FOR DETECTING ADULT PATIENTS WHO HAVE OR ARE DEVELOPING CRITICAL ILLNESS

IS THE SCORE FOR YOUR PATIENT 1-2? PERFORM 2 HOURLY OBSERVATIONS AND INFORM NURSE IN CHARGE

IS THE SCORE FOR YOUR PATIENT 3? PERFORM 1-2 HOURLY OBSERVATIONS AND INFORM NURSE IN CHARGE

*IF THE MEWS SCORE IS DETERIORATING : THE WARD S.H.O. OR DUTY DOCTOR **MUST** ATTEND*

IS THE SCORE FOR YOUR PATIENT 4 OR MORE? PERFORM OBSERVATIONS AT LEAST 1/2 HOURLY. ENSURE MEDICAL ADVICE IS SOUGHT AND CONTACT OUTREACH TEAM (see below)

Appendix ii National Research Ethics Committee Approval Letter

NRES

National Research Ethics Service

NORTH WEST 10 RESEARCH ETHICS COMMITTEE – GREATER MANCHESTER NORTH
3rd Floor, Barlow House
4 Minshull Street
Manchester
M1 3DZ
Tel: 0161 625 7817
Email: cynthia.carter@northwest.nhs.uk

Mrs Deborah Atkinson
Nurse Manager
Mastercall Healthcare
226-232 Wellington Road South
Stockport
SK2 6NW

12 August 2010

Dear Mrs Atkinson

Study Title: **A qualitative case study to explore how qualified nurses working in an acute medical unit recognise clinical deterioration**
REC reference number: **10/H1011/43**

Thank you for your letter of 30 July 2010, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion
On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites
The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion
The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where the only involvement of the NHS organisation is as a Participant Identification Centre (PIC), management permission for research is not required but the R&D office should be notified of the study and agree to the organisation's involvement. Guidance on procedures for PICs is available in IRAS. Further advice should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents
The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Investigator CV		04 June 2010
Protocol	1	04 June 2010
CV Roberts		
REC application		07 June 2010
Covering Letter		04 June 2010
Response to Request for Further Information	1	30 July 2010
Participant Information Sheet	2	30 July 2010
Participant Consent Form	2	30 July 2010

Statement of compliance
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review
Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

10/H1011/43 **Please quote this number on all correspondence**

Yours sincerely

Dr Peter Stanley Kilmfuk
Chair

Enclosures: "After ethical review – guidance for researchers" SL- AR2

Copy to: Deborah Roberts, University of Salford

Jan Smith, R&D office for Stockport NHS Foundation Trust

Appendix iii NHS Site Specific Approval Letter

Stockport NHS
NHS Foundation Trust

R&D Office
F08 Pinewood House
Stepping Hill Hospital
Poplar Grove
Stockport, SK2 7JE

Tel (0161) 419 5801/5084
Fax (0161) 419 4967
Jan.smith@stockport.nhs.uk

Mrs Deborah Atkinson
Nurse Manager
Mastercall Healthcare
226-232 Wellington Road South
Stockport
SK2 6NW

8 September 2010

Dear Debbie,

R&D Reference Number: 2010017
Project Title: How do qualified nurses in the Acute Medical Unit recognise clinical deterioration?

Thank you for your application for R&D approval for the above study. I am pleased to confirm that I have now received and reviewed all necessary documentation, and R&D approval has been granted for this study.

I acknowledge that the University of Salford has accepted the role of Research Governance Sponsor for this study.

Approval is given subject to the attached terms. Please ensure you and all members of the research team are familiar with these terms before commencing your research.

It is a requirement of this approval that you feed back the results of your study to the Trust. This should be done by submitting copies of both a Summary Final Report and the NRES End of Study Declaration to the R&D Office within 90 days of conclusion of the study.

I would like to take this opportunity to wish you well with your research and if I can be of further assistance, please do not hesitate to contact me.

Yours sincerely,

Jan Smith
R&D Manager

cc: Lynne Allcock
Ann Rippon

Documents Approved	Version No. / Reference	Date
Protocol	1	04.06.10
Participant Information Sheet	2	30.07.10
Consent form	2	30.07.10

Terms of Approval:-

- The unique R&D Reference Number for the project must be quoted in all correspondence with the R&D Office
- All research undertaken under this approval must be conducted in line with guidance given within the Research Governance Framework (DH 2005) a copy of which is available at http://www.dh.gov.uk/en/Aboutus/Researchanddevelopment/Ring/Researchgovernance/DH_4002112
- The R&D Office must be informed as soon as possible of
  - The actual start date of the project
  - Any changes to the protocol throughout the course of the project
  - Any amendments sent to the MHRA or Research Ethics Committee
  - Any changes to the management of the project
  - Any extensions to the project, and associated arrangements for funding, if applicable
- No substantial amendment may be implemented at this site before written R&D approval has been given for said amendment.
- For Clinical Trials of Investigational Medicinal Products, the R&D Office must be notified immediately of all Serious Adverse Events (SAEs) and Suspected Unexpected Serious Adverse Reactions (SUSARs) relating to Trust patients/participants.
  A copy of official notification to the regulatory authorities (Sponsor, NRES, MHRA as applicable) should be supplied by post or fax number 0161 419 4967.
- All research taking place on Trust premises is subject to the Trust monitoring programme. Investigators are required to make themselves available for any monitoring visit, on a mutually agreed date
- Investigators are required to complete and submit any self-assessments that may be requested by the R&D Office from time to time
- Investigators are required to provide any other information that may be requested by the R&D Office from time to time
- The R&D Office must be given a minimum three months' notice, in writing, if the Chief or Principal Investigator is intending to leave the employment of the Trust
- The R&D Office must be advised immediately if the Chief or Principal Investigator is unable to continue to fulfil his/her duties as CI/PI for other reason e.g. long-term sickness
- Any evidence of fraud and/or misconduct in research must be immediately brought to the attention of the R&D Office
- All research undertaken under this approval must comply with both the Health and Safety at Work Act and the Data Protection Act.

Failure to comply with any of the above may result in withdrawal of R&D approval for the project and the immediate cessation of the research. Persistent failure to comply may result in disciplinary action.

Appendix iv University of Salford Ethics Committee Approval Letter

Academic Audit and Governance Committee

Research Ethics Panel
(REP)

THE UNIVERSITY OF SALFORD

MEMORANDUM

To Deborah Atkinson

cc: Dr Debbie Roberts, Prof Tony Warne

From Tim Clements, Contracts Administrator

Date 24th September 2010

Subject: Approval of your Project by REP

Project Title: HOW DO QUALIFIED NURSES RECOGNISE CLINICAL DETERIORATION?

REGEC Reference: REP10/101

Following your responses to the Panel's queries, based on the information you provided, I can confirm that they have no objections on ethical grounds to your project subject to the following condition:

The study is, by definition, dealing with acute situations where there is potential for rapid and critical deterioration in a patient's condition. The PI acknowledges the difficulties of the participant/observer role however the Panel would like a clear agreed plan in place for the actual conduct of the research in the acute clinical setting. The Panels view is that it can, and should, be agreed with the appropriate clinicians and managers in the hospital and does not need to be specifically approved by the panel, but that it should be clear, at least:

1. That the observation can be terminated by anyone at any time;

2. What the role of the PI would be, as a Consultant Nurse, if

a) s/he believed relevant clinical signs were not being picked up by the nurse being observed;
b) that the right clinical conclusions were not being drawn;
c) that relevant information was not being properly communicated within the clinical team; or
d) a situation arose where the PI could be of assistance in treating the patient.

The Panel assume that the PI would step in to take whatever steps s/he thought necessary in the interests of the patient. It may be that is seen as "going without saying" but it is best for any out of the ordinary arrangement to be fully agreed and understood by all the professionals potentially involved.

Finally, the Panel wish to say they hope this is a successful study because it does have the potential to be very valuable.

If there are any changes to the project and/or its methodology, please inform the Panel as soon as possible.

Regards,

pp

Tim Clements
Contracts Administrator
TC/DH

For enquiries please contact:
Tim Clements
Contracts Administrator
Contracts Office
Enterprise Division
Faraday House
Telephone 0161 295 5307 Facsimile 0161 295 5494
E-mail: t.w.clements@salford.ac.uk

Appendix v Consent Form

Patient Identification for this trial:

University of Salford
Frederick Road Campus
Salford
M6 6PU

CONSENT FORM

Title of Project: How do qualified nurses recognise clinical deterioration?

Name of Researcher: Deborah Atkinson

Please initial box

1. I confirm that I have read and understand the information sheet dated 30/07/2010 version 2 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

3. I understand that relevant data collected during the study, may be looked at by responsible individuals from the University of Salford, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

4. I agree to take part in the above study. ☐

5. I agree for anonymised direct quotations to be used ☐

Name of Participant	Date	Signature
Name of Person taking consent (if different from researcher)	Date	Signature
Researcher	Date	Signature

When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in notes.

Appendix vi Participant Information Part 1

University of Salford
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Salford
M6 6PU

Participant Information Sheet – Part 1

Study Title: **'How do qualified nurses recognise clinical deterioration?'**

You are being invited to take part in a research study. Before you decide whether to take part it is important you understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or you would like more information about. Take time to decide whether or not you wish to take part.

Who is organising and funding the research?

This study is not funded. It is a project being undertaken as part of a Doctoral degree programme with the University of Salford. The study is being organised by Deborah Atkinson (Registered Nurse) and being supervised by Dr Deborah Roberts at the University of Salford and by Jan Smith (R&D manager), Stockport NHS Foundation Trust.

Why is the study being done?

Acutely ill patients being cared for in general wards are known to show signs of clinical deterioration in the hours preceding cardiac arrest or admission to critical care. Nurses have been found to be key players in the detection of these deteriorating patients. However, the signs of clinical deterioration are often poorly assessed, missed or misinterpreted leading to long delays in seeking advice and getting patients the appropriate management. Despite the introduction of various tools to help nurses recognise acute illness, the research shows that acutely ill patients continue to deteriorate in ward environments unnoticed.
Some prior research suggests that intuition plays a significant role in recognising the acutely ill patient. Others found that getting to know the patient was essential.
This study aims to explore these concepts specifically within the acute medical unit environment.

In this study I will be using the following methods to find out about the things described above:

1. Approximately six periods of observations of practice.

2. Short question and answer sessions following the observations.

The study will require you to agree to participate in each of these stages.
It is hoped that the results from the study will help to gain a deeper understanding of how nurses recognise deteriorating patients.

Why have I been asked to take part?

We are inviting qualified nurses to take part in the research who are working in an acute medical unit, are aged 18-65, and are employed by Stockport NHS Foundation Trust.

Do I have to take part?

It is up to you whether or not you decide to take part. If you agree to take part you will be given a copy of this information sheet to read. You will be asked to return a reply slip if you wish to participate. Your written consent will be obtained. If you do decide to take part you can leave the study at any time without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect you in any way.

What will happen / what will it involve for me?

The researcher will arrange a convenient time to see you to explain how the study will be conducted and answer any questions you may have. You will be asked to sign a consent form.

What are the advantages and disadvantages of taking part?

The information we get from this study may help to understand how nurses recognise acutely ill patients in the acute medical unit. This may help us to improve outcomes for people admitted as a medical emergency.
People often welcome the opportunity to talk about their experiences and it is possible you may benefit emotionally from participating in this study. However, it is possible that talking about your personal experiences may result in some distress. If this affects you unduly, you will be able to speak to a staff counsellor based at the hospital.

What if there is a problem?

Any complaint in relation to the way you have been dealt with during the study or any possible harm you might suffer will be addressed.

Will my taking part be kept confidential?

Yes. The study will follow ethical and legal practice and all information about you will be handled in complete confidence.

If the information in part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.

Appendix vii Participant Information Part 2

University of Salford
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M6 6PU

Participant Information Sheet – Part 2

What will happen if I don't want to continue with the study?

If you wish, you can withdraw from the study at any time without giving a reason. This will not affect you in any way. Any information obtained prior to withdrawal from the study will not be used.

What do I do if something goes wrong?

If you have any questions or concerns you are welcome to ask the researcher or advisors whose contact details are listed at the end.

If you are harmed by taking part in this research study, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, then in the first instance please contact:

Post Graduate Research Officer
University of Salford
Faraday House
The Crescent
Salford
M6 6PU

Will my taking part be confidential?

If you agree to take part in the study, any information you give the researcher will be kept strictly confidential and will conform to the Data Protection Act of 1998 with respect to data collection, storage and destruction. Your name will not appear on any documentation. You will be assigned a pseudonym instead. All information about your identity will be stored separately from data gathered during the study. All data may be held for up to 7 years before it is destroyed. Any information you give to the researcher will not be shared with anyone outside the research team without your consent, unless the researcher feels that either yourself or others are likely to be harmed.

What will happen to the results of the research study?

If you take part in the study you will be informed of the overall results by post. The findings may be presented to a range of health professionals and service users. It is intended that the results of the study will be published in a nursing journal and presented at relevant conferences.

Who has reviewed the study?

All research in the NHS is looked at by an independent party called a Research Ethics Committee in order to protect your safety, rights, well-being and dignity.

Further information

If you would like any further information or have any questions about the study, please contact:

Deborah Atkinson
Clinical Nurse Manager
Mastercall healthcare
224 Wellington Road
Stockport SK2 6NW
0161 476 0400 x244

If you would like any other general advice or information about taking part in the research, please contact:

Dr Deborah Roberts
University of Salford
Mary Seacole Building
Frederick Road Campus
Salford
M6 6PU
D.Roberts@salford.ac.uk
Tel: 0161 295 5000

Appendix viii levels of Care (Intensive Care Society, 2009)

Level	Definition/Example.
Level 2	**Patients needing pre-operative optimisation** ▪ Haemodynamic, renal or respiratory optimisation required prior to surgery. ▪ Invasive monitoring inserted (arterial line, CVP as a minimum). **Patients needing extended postoperative care** ▪ Immediate care following major elective surgery. ▪ Emergency surgery in unstable or high risk patients. ▪ Patients where there is a risk of postoperative complications or a need for enhanced interventions and monitoring. **Patients stepping down to Level 2 care from Level 3** ▪ Requiring a minimum of hourly observations. ▪ At risk of deterioration and requiring level 3 care again. **Patients receiving single organ support** **Patients receiving Basic Respiratory Support** **NB When Basic Respiratory and Basic Cardiovascular support are provided at the same time during the same critical care spell and no other organ support is required, the care is considered to be Level 2 care.** **Basic Respiratory Support:** Indicated by one or more of the following: ▪ More than **50%** oxygen delivered by face mask. *(Note, 50% has been chosen to identify the more seriously ill patients in a hospital and should not be recorded for short term increases in FiO2 such as for transfers or physiotherapy).* ▪ Close observation due to the potential for acute deterioration to the point of needing advanced respiratory support. *(e.g. severely compromised airway or deteriorating respiratory muscle function).* ▪ Physiotherapy or suction to clear secretions at least 2 hourly, whether via tracheostomy, mini tracheostomy, or in the absence of an artificial airway. ▪ Patients recently extubated after a prolonged period of intubation and/or mechanical ventilation via an endotracheal tube for more than 24 hours. ▪ Mask CPAP or pressure supported ventilation. ▪ Patients who are intubated to protect the airway but needing no ventilator support and who are otherwise stable. Basic Cardiovascular Support: Indicated by one or more of the following: ▪ Use of a CVP line for monitoring of central venous pressure and/or the

	provision of central venous access to deliver titrated fluids to treat hypovolaemia. ▪ Treatment of circulatory instability due to hypovolaemia from any cause. ▪ Use of a CVP line for basic monitoring or central venous access to deliver therapeutic agents. ▪ Use of an arterial line for basic monitoring of the arterial pressure and/or sampling of arterial blood. ▪ Single intravenous vasoactive drug used to support or control arterial pressure, cardiac output or organ perfusion. ▪ Intravenous drugs to control cardiac arrhythmias. **Renal Support** **Neurological Support** **Dermatological Support:** **Hepatic Support**

Appendix ix National Early Warning Score (Royal College of Physicians, 2012)

National Early Warning Score (NEWS)*

PHYSIOLOGICAL PARAMETERS	3	2	1	0	1	2	3
Respiration Rate	≤8		9 - 11	12 - 20		21 - 24	≥25
Oxygen Saturations	≤91	92 - 93	94 - 95	≥96			
Any Supplemental Oxygen		Yes		No			
Temperature	≤35.0		35.1 - 36.0	36.1 - 38.0	38.1 - 39.0	≥39.1	
Systolic BP	≤90	91 - 100	101 - 110	111 - 219			≥220
Heart Rate	≤40		41 - 50	51 - 90	91 - 110	111 - 130	≥131
Level of Consciousness				A			V, P, or U

*The NEWS initiative flowed from the Royal College of Physicians' NEWS Development and Implementation Group (NEWSDIG) report, and was jointly developed and funded in collaboration with the Royal College of Physicians, Royal College of Nursing, National Outreach Forum and NHS Training for Innovation

Please see next page for explanatory text about this chart.

Royal College of Physicians

NHS Training for Innovation

Appendix x Diagram to show cyclical interview method