

Clinical Decision-Making by Acute Medicine Advanced Nurse Practitioners

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**Clinical Decision-Making by
Acute Medicine
Advanced Nurse Practitioners**

James Barnard

A thesis submitted in partial fulfilment of the requirements of
Sheffield Hallam University
for the degree of Doctorate of Professional Studies

October 2019

Candidate Declaration

I hereby declare that:

1. I have not been enrolled for another award of the University, or other academic or professional organisation, whilst undertaking my research degree.
2. None of the material contained in the thesis has been used in any other submission for an academic award.
3. I am aware of and understand the University's policy on plagiarism and certify that this thesis is my own work. The use of all published or other sources of material consulted have been properly and fully acknowledged.
4. The work undertaken towards the thesis has been conducted in accordance with the SHU Principles of Integrity in Research and the SHU Research Ethics Policy.
5. The word count of the thesis is 52,753.

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Date	October 2019
Award	Doctorate of Professional Studies
Faculty	Health and Well-Being
Director(s) of Studies	Dr Robin Lewis and Professor Davina Porock

Abstract

Background

The Acute Medicine Advanced Nurse Practitioner (ANP) role has become one of the innovative strategies employed by the National Health Service (NHS) to address the challenges of the speciality of Acute Medicine. Clinical decision-making is regarded as the cornerstone of accountability. Nursing has a much shorter tradition of medical clinical decision-making. There continues to be a battle between specifying the philosophies underpinning education, preparation and the expectations of the public.

The current literature is heavily influenced by theoretical discussion around the definition of an ANP, the conceptualisation of Advanced Practice, the quest for autonomy, the medicalisation of the nursing profession influencing scope of practice and the integration of evidence based practice. There is no previous research into clinical decision-making by Acute Medicine ANPs. To ensure quality clinical decision-making and enable appropriate education and training it is imperative to gain a thorough understanding of the factors that influence the clinical decisions of Acute Medicine ANPs in the context of real life practice.

Methods

An ethnographic case study approach was employed to examine clinical decision-making by ten Acute Medicine ANPs in Acute Medicine from three NHS sites (Site 1: 6 Acute Medicine ANPs, Site 2: 2 Acute Medicine ANPs and Site 3: 2 Acute Medicine ANPs). The research study was conducted in the context of the natural world of the research participants.

Data were gathered through varying levels of observation from unobtrusive to participant during Acute Medicine ANP clinical encounters with patients and during the following informal interviews. Field notes from the clinical encounters and the informal interviews were documented in a double-entry notebook. The field notes were then expanded into descriptive text and then further into extended narratives to encompass forty case studies (Site 1: 24 case studies, Site 2: 10 case studies and Site 3: 6 case studies). Data collection for the fifteen formal interviews conducted away from the clinical environment (Site 1: 9 formal interviews, Site 2: 4 formal interviews and Site 3: 2 formal interviews) were audio-recorded and transcribed to provide an accurate account and contributed to extended narratives. The data collection phase of the research study reached saturation after one year.

The analysis of the data was an iterative process that required ongoing comparison and contrasting between incidents found in the data and the emerging theoretical concepts. Quirkos (computer software designed to aid qualitative data analysis) was employed to assist in the organising and analysis of the large volume of data. This process was enhanced through a shared experience by exposing the themes to the research participants and research supervisors to ensure that the data had descriptive value.

Findings

Acute Medicine is a complex and nuanced healthcare environment characterised by an atmosphere of unrelenting tension and high pressure demands. The discussion is organised around Dual-Process Theory, clinical decision-making and the themes: Decisiveness (the ability to commit to a decision); and Indecisiveness (the consideration of multiple alternative possibilities) identified in the data. System 1 reasoning processes are connected to experience and priori knowledge. The abstract hypothetical thinking of System 2 reasoning processes are required in situations of complexity, uncertainty and in the absence of an anchor.

The Acute Medicine ANP is more decisive when there is no gap between what is known and what needs to be known. The degree of uncertainty or certainty varies depending upon how much knowledge can be established regarding the presented clinical situation. The absence or limitation of unknown factors lends itself to less potential for uncertainty to intrude upon the clinical decision-making process. The concept of 'common' and 'decisiveness' are linked and that the combination of these two lends itself to the notion of experience.

Conclusion

Clinical decision-making by the Acute Medicine ANP is a process of diverse levels of complexity that they undertake multiple times on a daily basis. This research has identified constructs, patterns of behaviour and attitudes that may be comparable and translatable to other similar complex and nuanced healthcare environments and the ANPs that ply their trade in them.

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CHAPTER 1.

Background and Study Design

Introduction

Multiple and extensive challenges are now faced by the National Health Service (NHS). These include those posed by the ageing workforce, the rise and longevity of chronic conditions, complex comorbidities, recruitment difficulties and ultimately financial pressures. There has been a crisis surrounding the limited numbers of medical practitioners that has been embroiled with disputes and subsequent industrial action. In addition, attendances to Accident and Emergency (A&E) departments has risen exponentially in the past decade with a particular increase in the number of patients being sent from the community without a diagnosis. As a consequence, there is a desperate need for new and innovative models of healthcare provision and the establishment of a flexible workforce to provide such models.

One strategy to address these issues has been the introduction of the Advanced Nurse Practitioner (ANP) into the specialty of Acute Medicine and other acute areas. Clinical decision-making about the assessment and management of acutely ill patients in this setting is regarded as the cornerstone of accountability. Nursing has a much shorter tradition of medical clinical decision-making. To ensure quality clinical decision-making and enable appropriate education and training for ANPs it is imperative to gain a thorough understanding of factors that influence the clinical decisions and actions of Acute Medicine ANPs in the context of real life practice.

The research forming the basis of this doctoral thesis employed an ethnographic case study approach to examine clinical decision-making by ten Acute Medicine ANPs from three NHS sites in relation to acute clinical patient-care in Acute Medicine.

This chapter is divided into two parts. The first part of this chapter describes the background to the research question, the aims and objectives of the research

study and justification for undertaking the research study. The second part of this chapter provides the background to clinical decision-making, the specialty of Acute Medicine, development of Acute Medical Units (AMUs) and the role of ANPs.

Background

The Acute Medicine ANP role has become one of the innovative strategies employed by the NHS to address the challenges of Acute Medicine. Initially the drive to reduce the hours worked by junior doctors resulted in initiatives that have extended and expanded the traditional scope of the nurse within hospital-based settings (Royal College of Nursing [RCN], 2018).

Few would argue that the development of ANPs in all clinical areas across the NHS has presented significant opportunities for career role development in nursing and service innovation in healthcare (The National Leadership and Innovation Agency for Healthcare, 2012). However, there continues to be a battle between specifying the philosophies underpinning education, preparation and the expectations of the public (Mantzoukas & Watkinson, 2007). Health Education England (HEE) has encountered complexity in its current campaign to regulate and to standardise these roles nationally under the title Advanced Care Practitioner (ACP).

The intricate vagaries of the 'Advanced Nursing Practice' debate and the need for regulation and standardisation forms the backdrop of this study and therefore lies outside the scope of this study. Whatever the outcomes of the national deliberations, the need for ANPs to make well-reasoned, accurate and meaningful decisions in relation to the presenting clinical problems is fundamental to quality of care and the ongoing contribution of ANPs to Acute Medicine. It is the understanding of clinical decision-making by the Acute Medicine ANPs that motivates and drives this research.

Study Design

An ethnographic case study design was employed as an interpretive methodology to address the research question - 'What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?' The emergent findings from the data analysis will be discussed using evidence from the variety of data sources to provide a picture of clinical decision-making by the Acute Medicine ANPs in Acute Medicine. The discussion is organised around Dual-Process Theory, clinical decision-making and the themes Decisiveness (the ability to commit to a decision); and Indecisiveness (the consideration of multiple alternative possibilities) identified in the data and incorporating the following research aims and objectives:

- To use an ethnographic case study design to explore the clinical environment of the Acute Medicine ANP working in Acute Medicine.
- To use an ethnographic case study design to explore the clinical decision-making behaviours when caring for acute patients in Acute Medicine.
- To seek an understanding of factors that influence the clinical decisions and actions of Acute Medicine ANPs as they make clinical decisions in the context of real life practice.
- To inductively explore and identify the factors that affect Acute Medicine ANP clinical decision-making behaviours.
- To explore similarities and differences in the types of clinical decisions made by Acute Medicine ANPs.
- To explore the perceived internal limitations of Acute Medicine ANP clinical decision-making authority and scope of practice.

Ethnographic case study approaches have emerged as a promising method for applying ethnography over a shorter time span than traditional ethnographic studies (Schwandt, 2007). It allows exploration of a distinct issue or shared experience within cultures in specific settings, rather than throughout entire communities (Cruz & Higginbottom, 2013; Roper & Shapira, 2000; Schwandt, 2007). As a naturalistic form of inquiry, the ethnographic case study design entails observing and analysing the behaviour of the Acute Medicine ANP in their

naturally occurring conditions of Acute Medicine, with the intention of providing thick rich descriptions of data for theory analysis.

Decision-making

Decision-making is a broad term that applies to the process of making a choice between options as to a course of action (Thomas, Wearing & Bennett, 1991). We are all involved in making decisions numerous times a day. These range from the simple to the complex. Those that deal with patients and those that deal with our life outside work. Thompson, Aitken, Doran and Dowding (2013) believed that decision-making can range from fast, intuitive, heuristic decisions through to well-reasoned, analytical and evidence-based decisions. Clinical decision-making by healthcare professionals can be a complex process requiring the defining of choices between limited options concerning diagnosis, intervention and resources. Clinical decisions can be characterised by situations of uncertainty where not all the information needed to make them is or can be known. These decisions in the clinical environment with more complexity may involve alternative treatment pathways for patients, for example: when considering antibiotics for pneumonia; considering patients for primary coronary intervention in myocardial infarction; the risks versus benefits associated with thrombolysis for stroke; or ceiling of treatment discussions for nursing home patients with advanced dementia.

Background to Acute Medicine and the origins of the research question

Over the last twenty-five years, healthcare provision in developed countries such as the United Kingdom (UK), the United States of America (USA) and Australia have witnessed a shift in healthcare management styles. UK healthcare systems continue to be more informed by high-profile national reports such as Berwick (2013); Francis (2013); Keogh (2013) and Willis Commission (2012) that emphasise the need for care to be patient-centred, compassionate and well informed. This has contributed to new models of care delivery and a restructuring of the healthcare workforce. Included in this process has been the development of Acute Medicine itself as a new specialty and the role of the Acute Medicine ANP. Acute Medicine and the Acute Medicine ANP have developed in parallel

over the last decade in response to the increasing number of emergency medical admissions and concerns over the quality of acute care.

Acute Medicine

According to the Royal College of Physicians (RCP) (2018), Acute Medicine (sometimes referred to as Acute Internal Medicine) is defined as, 'part of General Internal Medicine (GIM) concerned with the immediate and early specialist management of adult patients suffering from a wide range of medical conditions requiring urgent or emergency care'. Acute Medicine differs from most other medical specialties as it is not based around a specific body system (for example cardiology and the heart or respiratory and the lungs) or a specific disease (for example Stroke, Chronic Obstructive Pulmonary Disease (COPD), or Diabetic Ketone Acidosis (DKA)). Most patients presenting with an acute medical illness describe symptoms or signs requiring a diagnosis (for example chest pain in Acute Coronary Syndrome, or breathlessness in Pulmonary Embolism, or Falls in older people). Many patients are physiologically unstable and require resuscitative measures, while other patients, although less critically ill, still require urgent diagnostic investigations and clinical and therapeutic interventions. In the frail and elderly patients, an important consideration is the interaction of an acute illness and social care needs. The unique challenge for Acute Medicine is to provide a range of high-quality services to a heterogeneous group of patients.

Acute Medical Units (AMUs)

Acute Medical Units (AMUs) are the home of Acute Medicine. AMUs have now been established in many NHS hospitals with new medical teams with Consultants in Acute Medicine, leading to a redesign of the way acute medical care is delivered (Lee & Myers, 2011). AMUs are specialised areas of an acute hospital configured with operational policies to provide an optimal environment for high quality medical and nursing care for patients suffering from acute medical illness or with symptoms where diagnosis may be uncertain.

An integral part of Acute Medicine and AMU is Ambulatory Care. Ambulatory Care is a dedicated area often within the AMU and is regarded as a whole system approach that includes both Primary and Secondary Care. Patients who are

deemed appropriate for Ambulatory Care are diagnosed and treated on the same day and then discharged home with on-going clinical follow up as required. The underlying principle of Ambulatory Care is that a significant proportion of adult patients requiring emergency care can be managed safely and appropriately on the same day without admission to a hospital inpatient bed (NHS Institute of Innovation and Improvement, 2012). While there is a close working interface with A&E and the Critical Care Units - High Dependency Unit (HDU), Intensive Care Unit (ITU) and Coronary Care Unit (CCU), the specific challenge for AMUs is rapid decision-making in complex patients leading to immediate therapeutic intervention. To address these challenges within Acute Medicine, multidisciplinary staff groups are progressively evolving to accommodate the needs of acute medical patients.

The Acute Medicine ANPs

The development of ANPs and other advanced practice roles has become a worldwide trend as healthcare planners explore innovative options for the provision of healthcare services (Schober, 2013). The integration of these dynamic nursing roles presents a change for healthcare professionals and the systems in which they practice. The definition of an ANP by the RCN (2010) reflects the building on traditional skills and knowledge base, extending and expanding the scope of nursing practice beyond initial registration in all healthcare settings to enable it to be responsive to society's changing healthcare needs:

“An ANP is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice” (RCN, 2010, p.4).

Like other clinicians working in healthcare, ANPs claim that their discipline is founded upon scientific knowledge. The principles of evidence-based practice is widely accepted in medicine and healthcare in general. Clinical knowledge consists of interpretative action and interaction. Clinical expertise, critical thinking, critical analysis and clinical judgment in combination with clinical decision-making are areas of competence repeatedly identified as essential for

these professionals (Davies & Hughes, 2002). ANPs are required to acquire specific clinical expertise and advanced ANP knowledge in line with guidance outlined by the Nursing and Midwifery Council (NMC) and HEE for Advanced Clinical Practice.

The ANP scope of practice described by Facchiano and Hoffman-Snyder (2012) within the literature includes diagnosing and treating health conditions unique to a specific patient population. Dulko (2010) acknowledged that the ANP is able to care for patients with complex physiological and psychosocial problems which they do by independently formulating and managing a familiar spectrum of diagnoses (Laming, 2004). They provide comprehensive management of acute patients including clinical assessments, clinical decision-making, prescription of medications, implementation of therapies, ordering and interpreting diagnostic investigations and referral to other healthcare professionals (Davies & Hughes, 2002). Williams (2012) suggests that ANPs possess capabilities that go beyond traditional nursing competencies to include high levels of self-efficacy, creativity and innovation in complex situations while working effectively as part of multidisciplinary teams. ANPs also provide a stable, permanent provision of clinical care, education and experience covering the dips in competence as each new wave of junior doctors rotate and acclimatise to the acute setting.

Despite these positive characteristics, recent data from the Society for Acute Medicine (SAM) identified that there is not an abundance of ANPs working in Acute Medicine across the UK. For example, 45% of UK AMUs do not have Acute Medicine ANPs (Society for Acute Medicine Benchmarking Audit [SAMBA], 2018). Those AMUs that have Acute Medicine ANPs there is usually only one on duty at any one time (SAMBA, 2018). Nevertheless, ANPs are at the forefront of policies to modernise the healthcare workforce both internationally and in the UK (Department of Health, 2010; HEE, 2015; Kooienga & Carryer, 2015; NHS England, 2016).

In the acute care setting of Acute Medicine where patients are often critically ill, the making of accurate clinical decisions is considered essential. With increased accountability for clinical decision-making behaviours, it is necessary to

understand what factors influence the Acute Medicine ANP clinical decision-making to maximise the potential of their contribution to Acute Medicine.

Thesis Structure

The remainder of this doctoral thesis proceeds as follows:

Chapter 2 - Literature Review and Theoretical Foundations, will systematically describe and critique the literature surrounding the influences of clinical decision-making by ANPs in acute clinical care settings and examine the theoretical foundations of decision-making found in relation to clinical decision-making and Dual-Process Theory and the relevance to the Acute Medicine ANPs.

Chapter 3 – Methodology and Methodological Considerations, will discuss the methodology and methodological considerations present in the research study and provide details of how the research was conducted.

Chapter 4 - Ethnographic Findings, will examine the complexity and nuances of the very specialised healthcare environment of Acute Medicine and report on two themes (Theme 1: Acute Medicine, the AMUs and the AMU People; and Theme 2: The Unrelenting Tension) from the analysis and theorise how this influences the clinical decision-making of the Acute Medicine ANP.

Chapter 5 - Clinical Decision-Making in Context, will examine the clinical decision-making by the Acute Medicine ANPs in the context of clinical situations in Acute Medicine and reports on two themes (Theme 1: Decisiveness - The ability to commit to a decision; and Theme 2: Indecisiveness - The consideration of multiple alternative possibilities) from the analysis.

Chapter 6 - Summary, Discussion, Limitations and Conclusions, will summarise the doctoral research including the key findings, address methodological issues including strengths and limitations and conclude with recommendations for future research.

CHAPTER 2.

Literature Review and Theoretical Foundations

Introduction

Many studies have examined and developed theories on decision-making in nursing (for example; Banning, 2007; Benner & Tanner, 1987; Dowding, 2008; Lauri & Salanter, 2002; O'Neill, Dluhy & Chun, 2005; Thompson, 1999) and medicine (for example; Charles, Gafnv & Whelan, 1997; Makoul & Clayman, 2006), however there has been no research into the clinical decision-making of the Acute Medicine ANP. As Acute Medicine ANPs are progressively evolving to address the challenges of Acute Medicine and accommodate the needs of acute medical patients, understanding their clinical decision-making is necessary to inform strategies towards regulation, preparation and continuing education, national standards and guidance for resource investment.

To inform this research into the influences of clinical decision-making of Acute Medicine ANPs in Acute Medicine, the first part of this chapter will include a literature review that will systematically describe and critique the literature surrounding the influences of clinical decision-making by ANPs in acute clinical care settings. The second part of this chapter will critically examine the theoretical foundations of decision-making found in relation to clinical decision-making, including Dual-Process Theory and the relevance to the Acute Medicine ANPs. This will demonstrate that a deeper theoretical understanding of the culture and context of clinical decision-making for the Acute Medicine ANPs is needed in order to further establish the processes of decision-making for future practice.

PART 1: Literature Review

Aim

The aim of this literature review is to explore, describe and critique the literature surrounding influences on clinical decision-making by ANPs in acute care settings and to consider how this knowledge specifically informs the research into the clinical decision-making of Acute Medicine ANPs in Acute Medicine.

Methodology

The approach used to research clinical decision-making by ANPs in acute care considered all types of relevant research methods, publications and findings. The implemented literature review technique was an informative and narrative style with the intention to summarise the current state of knowledge and themes in order to provide a comprehensive and accessible account surrounding the influences of clinical decision-making by ANPs in acute care settings.

Search strategy

The development of the search strategy was an iterative process. Several experimental scoping attempts preceded the final strategy. It was originally anticipated that a series of search tests would formulate the definitive product. All study designs were considered. The initial belief was that a significant percentage of the identified research would be of a qualitative nature. The search strategy did not identify any literature regarding ANPs working in Acute Medicine specifically and therefore the search was expanded to include acute care settings which would essentially incorporate acute inpatient hospital environments. The consequences of this will be addressed in more detail in due course.

PICOS structure

The initial approach evolved from a breaking down of the research question using a PICOS structure (*refer to Table 1*):

'What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?'

Table 1: PICOS Structure

P opulation	ANPs, patients
I ntervention	Clinical decision-making, clinical judgment
C omparator	AMU, Acute Medicine, Acute care environments
O utcome	Clinical decision-making, actions, influences
S tudy Design	Any study design

(Adapted from Huang, Lin & Demner-Fushman, 2006)

From these concepts a list of synonyms, abbreviations and spelling variants was established (*refer to Table 2*). Similar research was often described using very different terms, hence the search strategy comprised indexing terms, free text terms and synonyms to ensure that as many relevant papers were retrieved as possible.

The keywords were then combined using Boolean logic (and, or, not) to create a set of results which contained articles relating to the topic. An initial draft strategy was tested on one database and the results checked by whether it retrieved papers that were already familiar. This strategy was then exploited to identify additional search terms (text words and indexing) to highlight potential limitations. The same process was undertaken for each chosen database to account for the vagaries of each unique thesaurus.

There are no agreed standards for what constitutes an acceptable number of databases searched in any form of review (Centre for Reviews and Dissemination [CRD], 2008). However, this literature review applied a meticulous vetting procedure to identify what had been accomplished previously in the field. A thorough search to identify relevant studies was undertaken from 28/11/2018 to 28/12/2018. For reviews of healthcare related enquiries and for the purposes of this investigation the literature was searched using CINAHL, Medline, Scopus, PubMed, Cochrane and NICE in addition to the grey literature. It was the intention to include publications from a variety of countries. The search was

limited to peer-reviewed literature published in English and conducted following the PRISMA guidelines (*refer to Appendix 1*).

Table 2: Synonyms, Abbreviations and Spelling Variants

Population	Intervention	Comparator	Outcome	Study Design
Advanced Nurse Practitioner*	Clinical decision making	Acute Medical Admission Unit*	Clinical decision making	Qualitative Quantitative
ANP*	Clinical decisions	AMU*	Clinical decisions	Mixed Methods
Nurse Practitioner*	Decision making	MAU*	Decision making	Case Study
NP*	Clinical judgment	Acute Medical Assessment Unit*	Clinical judgment	
Advanced Care Practitioner*	Clinical responsibility	Medical Assessment Unit*	Clinical responsibility	
ACP*	Professional judgment	Medical Admission Unit*	Professional judgment	
Advanced Clinical Practitioner*	Scope of practice	Admission Unit*	Patient outcomes	
Advanced Nursing Practice	Intuition	Assessment Unit*	Autonomy	
Critical Care Practitioner*	Action	Acute care	Supervision	
Patient*		Acute Medicine	Action	
Client*		Acute Internal Medicine		
		General Internal Medicine		

Long (2005) Evaluation Tool for 'Mixed Methods' Study Designs was used as an appraisal template to aid in the formation of an understanding of the quality of the publications (*refer to Appendix 2*). It draws on questions from both quantitative and qualitative evaluation tools (Long, 2005). The qualitative evaluative elements

involved making a judgement about the 'adequacy' or 'appropriateness' of the approach undertaken (Long & Godfrey, 2004). "Critical appraisal of research studies forms a central role within the application and uptake of evidence-based approaches within health and social care" (Long & Godfrey, 2004, p.181). Currently, there is no consensus on the necessity, merit, or appropriate approach to appraising the quality of qualitative research (Majid & Vanstone, 2018). However, some researchers believe that using a structured appraisal tool for quality assessment provides an objective evaluation of the rigor of research (Whiting, Wolff, Mallett, Simera & Savović, 2017).

Inclusion and Exclusion Criteria

The aim of the inclusion and exclusion criteria was to ensure that all relevant studies were included in the literature review. Traditionally outpatient settings and A&E, rather than acute clinical inpatient settings have been the primary source of documentation that ANPs provide cost-effective, comprehensive care that produces desired patient outcomes (Lambing, 2004). There was no single article dedicated specifically to address the topic surrounding clinical decision-making by ANPs in Acute Medicine, AMUs or acute care. It was determined that specific aspects of the selected publications had various degrees of relevancy.

The inclusion criteria included publications on the concept of clinical decision-making by ANPs in acute clinical care settings. Publications that were not related to this subject and not written in English were excluded. A strict date range of publication was not imposed, however it was conceded that the concept of ANPs has only been accepted formally as a unique role in the discipline of acute nursing since the early 1990s (Mantzoukas & Watkinson, 2007). All research undertaken from this time until the present date was therefore considered.

Details of Selected Publications

The final twenty-two publications that satisfied the inclusion and exclusion criteria originated from multiple countries (*refer to Appendix 3*). These included the UK (8), USA (10), Australia and New Zealand (1), Netherlands (1) and Canada (2).

The selected articles included a variety of designs and research methods and the publication dates ranged from 1999-2014.

Literature Analysis

The final stage included analysis of the aggregated literature. It is the intention to provide a comprehensive summary and analysis of the selected publications and influential theories in relation to clinical decision-making by ANPs working in acute clinical care. Each publication was scrutinised to reveal five key themes: What is an ANP?; Clinical decision-making; Evidence Based Practice; Autonomy; and Scope of practice. It is acknowledged that the literature is scanty and that the emerging themes are theoretical in nature and potentially not a true reflection of real life clinical practice.

What is an ANP?

Proliferation of terms

This question; 'What is an ANP?' represents the heart of the debate and leads suitably into the discussions associated with the other contrasting themes. Definition and clarification of the ANP role is widely discussed as a fundamental step toward role implementation (Mantzoukas & Watkinson, 2007; ter Maten-Speksnijder, Grypdonck, Pool, Meurs & van Staa, 2014; Williamson, Twelevtree, Thompson & Beaver, 2012). Within the literature there are various titles that are employed by authors to incorporate the essence of what could be the generic term 'Advanced Nurse Practitioner' (ANP) that is favoured by Begley et al. (2013); Davies and Hughes (2002); Gardner, Mooney and Forester (2013); Mantzoukas and Watkinson (2007); Weber (2007); Williamson et al. (2012); and Yost et al. (2014). Alternatively, Cajulis and Fitzpatrick (2007); Chapa (2013); Dulko, Hertz, Julien, Beck and Mooney (2010); Facchiano and Hoffman-Snyder (2012); Gardner, A, Hase, Gardner, Dunn, and Carryer (2008); Lambing, Adams, Fox and Divine (2004); Maylone, Ranieri, Quinn Griffin, McNulty and Fitzpatrick (2011); Pritchard (2006); Rashotte and Carnevale (2004); ter Maten-Speksnijder et al. (2013) and Tiffen, Corbridge and Slimmer (2014) preferred to neglect the

controversies surrounding the use of 'Advanced' and hence simply used the term Nurse Practitioner (NP). Becker (2006) representing the American Association of Critical-Care Nurses (AACN) and Kapu, Wheeler and Lee (2014) representing Vanderbilt University Hospital's Critical Care Rapid Response Team (CCRRT) preferred the title Acute Care Nurse Practitioner (ACNP). As Conway and Richardson (2004) focused on the fragmented care for respiratory patients, the term Respiratory Nurse Practitioner (RNP) was hence conceived. Juretschke (2008) acknowledged that Acute Care Nurse Practitioners (ACNP) date back to the 1970s and "are the most established acute care nurse practitioners" and hence Neonatal Nurse Practitioners (NNPs) was their preferred title when they were introduced.

Confusion is evidenced by this proliferation of terms (Begley et al., 2013). Most of the selected studies pre-date the more recent debates around the recently preferred title of Advanced Care Practitioner (ACP) that is championed by HEE. Under this title, ACPs come from a range of professional backgrounds, not just nursing, including pharmacy, paramedics and occupational therapy (HEE, 2018). To date there is no research around the topic of clinical decision-making and ACPs in any of these professions or in any clinical setting. The discussions surrounding the employment of this title fit well outside the scope of this research, however this inconsistency amongst the selected studies and authors in regards to preferred title is also mirrored in the other contrasting themes. This is conceivably significant in terms of identifying many of the specifics in relation to clinical decision-making by ANPs in acute clinical care. Nevertheless, for the purpose of this doctoral thesis and ease of translation, all of the above will come under the simple umbrella term Advanced Nurse Practitioner (ANP) and hence are from a nursing background.

Generic background components

The concept of ANPs in the literature appears to lack a concerted agreement on the core roles leading to Mautzoukas and Watkinson (2007, p.29) suggesting that the definition should be underpinned by a conceptual framework that identifies unique, common elements and core characteristics rather than be seen as "a homogenous category". ANP capabilities go beyond traditional nursing

competencies to include high levels of self efficacy, creativity and innovation in complex situations while working effectively as part of multidisciplinary teams (Williams et al., 2012). Davies and Hughes (2002, p.3) listed risk taking, vision, flexibility, articulateness, inquisitiveness and ability to lead as desirable characteristics. These are however desirable characteristic of all nurses.

Alternatively, all considered authors agreed a consensus when defining broadly the generic background components of the ANP job role, or rather the “set of multiple and potentially heterogeneous sub-roles that require explication and clear identification” (Mantzoukas & Watkinson, 2007, p.29). The emerging discipline of nursing is attempting to liberate itself from the traditional organisational and cultural restrictions to elevate itself through ANP roles to a higher degree of professional autonomy (Mantzoukas & Watkinson, 2007; Maylone et al., 2011). It has become evident that ANPs possess a scope of practice that can be maximised to skilfully meet the needs of vulnerable acutely ill patients with complex physiological and psychosocial problems (Becker, 2006; Davies & Hughes, 2002).

In summary, ANPs are broadly registered nurses with advanced and extended clinical roles (Dulko et al., 2010). Ironically, even the terms ‘advanced’ and ‘extended’ create debate and split opinion within the nursing literature. Additionally, clinical expertise, critical thinking, analysis and clinical judgment in combination with clinical decision-making are areas of competence repeatedly identified in the literature as essential for these professionals (Davies & Hughes, 2002). Thus, the ANP scope of practice includes diagnosing and treating health conditions unique to a specific patient population (Facchiano & Hoffman-Snyder, 2012). The ANP is able to care for patients with complex physiological and psychosocial problems (Dulko et al., 2010). ANPs independently formulate and manage a familiar spectrum of patient diagnoses (Lambing et al., 2004). They provide a comprehensive clinical management of acute patients that includes clinical assessments, clinical decision-making, prescription of medications, implementation of therapies, ordering and interpreting diagnostic investigations and referral to other healthcare professionals (Davies & Hughes, 2002).

Clinical Decision-Making

Nurses from all backgrounds and specialties (including ANPs) are being cast in the role of active decision-makers in healthcare by policy makers and other members of the multidisciplinary team. These clinical decisions involve the treatment of patients and incorporates multiple factors, such as diagnosis, interventions, investigations, resources and evaluations. The dynamic context is influenced by variabilities in knowledge base, evidence based practice and interpersonal variables of those involved.

Defining clinical decision-making

Various authors contend that the practice of clinical decision-making involves the application of theoretical knowledge as well as research evidence, upon particular cases (Begley et al., 2013; Rashotte & Carnevale, 2004). Clinical decision-making has often been defined as the process for choosing between alternatives or options (Tiffen, Corbridge & Slimmer, 2014), or as a complex pattern recognition process (Gardner et al., 2012; Tiffen et al., 2014), that draws on various universal principles and algorithms to facilitate the task (Rashotte & Carnevale, 2004). This will typically follow a process moving from gathering the necessary information, to identify, prioritise and establish a plan, finalise a clinical decision and produce an outcome (Tiffen et al., 2014).

The importance of clinical decision-making is emphasised by Rashotte and Carnevale (2004) in their comparative epistemological analysis. The American Association of Colleges of Nursing and National Organization of Nurse Practitioner Faculties includes decision-making as a component of ANP training. The variation in clinical backgrounds of the ANPs across the selected literature would suggest that it is necessary to consider the context of the clinical decision-making. Yost et al. (2014) identified an increased expectancy to engage in Evidence Informed Decision Making (EIDM), that incorporates research evidence with information about patient preferences, clinical context, resources and clinical expertise in decision-making processes. Clinical decision-making regarding the care of patients can cover the spectrum from fast, intuitive, or heuristic through to composed, analytical, evidence-based decisions. Rashotte and Carnevale

(2004) acknowledged that if ANPs can be taught how to make better clinical decisions, then fewer poor clinical decisions would be made and patient safety would improve. Few within healthcare where all efforts are intended to be patient-centred would argue that good decisions are preferable to poor decisions. There is an assumption that good clinical decisions lead to good patient outcomes and vice versa, however within the literature there is an absence of objective evidence to necessarily support this.

Difficulty and ambiguity in defining the associated terms

Within both the nursing literature and ANP literature, the terms '*clinical judgment*' and '*problem solving*' and to an increased frequency '*critical thinking*' tend to be used interchangeably in their association with '*clinical decision-making*'. Whether these terms have the same meaning is debateable and certainly not explained within the selected literature.

Davies and Hughes (2002) suggests that clinical judgment is inherent to decision-making in situations where ethical issues are prominent. Benner, Hooper-Kyriakidis and Stannard (1999); Davies and Hughes (2002); Rashotte and Carnevale (2004) attempted to clarify clinical judgment as the ways in which nurses come to understand the problems, issues or concerns of patients, derive meaning from observed data, to attend to salient information and select actions that respond in concerned and involved ways. While, Pritchard (2006) within an analytical framework discussion identified that, it is a complex intellectual process of decision-making that typically includes determining what to observe in a patient situation, deriving meaning from observed data and selecting actions that will be of optimal benefit.

Becker et al. (2006, p.133) when exploring the differences in the practice of Clinical Nurse Specialists (CNSs) and ANPs stated that "critical thinking required a global grasp of the situation, as well as nursing skills acquired through a process of integrating formal and experiential knowledge". There is a distinction between clinical judgment and clinical decision-making as the "assessment of alternatives" versus "choosing between alternatives" (Rashotte & Carnevale,

2004, p.162). “A decision in this context may be the outcome, but the term decision-making describes a process that may include antecedents” (Tiffen et al., 2014, p.400). These antecedents are reinforced by Pritchard (2006) and Tiffen et al. (2014) who found that decision-making was a deliberate mental choice in which the ANP gathered and considered information, weighed up the consequences and committed to the courses of action based on the evidence.

Theories involved in the clinical decision-making process

The literature is laden with theoretical discussions as to the nature of thinking involved in the clinical decision-making process (Becker, 2006; Begley et al., 2013; Rashotte & Carnevale, 2004). Lambing et al. (2004, p.343) adapted Carpenito (1997) three domains of practice (advanced practice nursing, medical practice and shared practice) or “domains of expertise” conceptual framework, to differentiate the “discipline-specific expertise” of nursing from that of medicine in the inpatient geriatric population. Nevertheless, evidence provided by the participating ANPs demonstrated an ability to independently formulate and manage a familiar spectrum of diagnoses, appropriately obtain guidance for acute and complex care issues and interdependently diagnose and manage the acute and chronic needs of frail elderly patients including decision-making around advanced directive discussions and physical and occupational therapy referrals.

Rashotte and Carnevale (2004) utilised multiple theories - Bayesian formula of probability (Eddy & Clayton, 1988; Fischhoff & Beyth-Marion, 1988), the clinical continuum theory (Hamm, 1988), decision analysis theory (Doubilet & McNeil, 1988), the Brunswik lens model (Wigton, Hoellerich & Patil, 1988), information processing theory (Elstein & Bordage, 1988) and reflection-in-action theory (Schön, 1988) to explore clinical decision-making between ANPs and medicine. Rashotte and Carnevale (2004, p.168) concluded that “there is not always a definitive theoretical premise to invoke nor is there always a clear, succinct clinical cue from which a logically valid conclusion can be formulated”. Mantzoukas and Watkinson (2007) international literature review of advanced nursing practice and Rashotte and Carnevale (2004) concentrated on previous work done by Benner et al. (1999) that suggested that clinical practice incorporates critical active thinking. Hence, coining the phrase ‘*thinking-in-action*’

to describe patterns and habits of thought and action to meet the challenges of an unstable situation, and '*reasoning-in-transition*' as reasoning about the changes in a situation and processes that can help the ANP to enhance his or her skills in clinical judgment and scope of practice.

Intuitive form of judgment

Discussion regarding intuitive decision-making is prevalent in the selected literature and deeper nursing literature. The essence of intuitive thought is that it is reached with little conscious awareness or effort. It is a process by which information acquired through associated learning, stored in long-term memory and accessed unconsciously when a judgment or a decision is required. Cajulis and Fitzpatrick (2007) argue that when studying levels of ANP autonomy in acute care that this involves an intuitive form of judgment that is the central component of the clinical decision-making process. Gardner et al. (2008) argued that it cannot be just simply taught. Hence, it is acquired through experience as "he or she observes for patterns and themes and can quickly differentiate between relevant and irrelevant information" (Tiffen et al., 2014, p.401). Begley et al. (2013) comparative study suggested that to assess and manage patients, ANPs needed to be effective in synthesising this information.

Tiffen et al. (2014) highlighted that the concept of intuition itself has been criticised as a process that involves guessing what the final decision may be based on a "hunch" rather than the actual evidence. Chapa (2013) argued that the cornerstone of the ANP profession is its possession of a systematic body of knowledge. This is characterised by "the conscientious, explicit and judicious use of current best evidence" and application of that knowledge to particular problems (Chapa, 2013, p.234). This results in a higher level of competence and decision-making authority and thus patients are more likely to be provided with the best possible care (Cajulis & Fitzpatrick, 2007).

Comparisons with the medical profession

Quality clinical decision-making is an essential component of good clinical practice in modern healthcare. The emergence of ANPs has increased the numbers of healthcare professionals who are now also expected to make clinical

decisions regarding the care of patients and thus potentially blurring the traditional boundaries between nursing and medicine. Both Lambing et al. (2004) and Rashotte and Carnevale (2004), highlighted that medical decision-making research that has focused on the processes that doctors use to identify the correct diagnosis and select the most appropriate treatment could be employed by nursing researchers to describe the processes used by ANPs as an initial step in developing a prescription for improved clinical decision-making. Hence, it is essential to identify and understand factors that influence clinical decision-making. These factors will be discussed under the following themes - Evidence Based Practice, Autonomy and Scope of Practice. It is acknowledged that these terms are considered unpopular by many in academia, however their use is prevalent in the literature.

Evidence Based Practice

Knowledge utilisation and Evidence Based Practice has evoked controversy like no other healthcare issue in modern times (Rashotte & Carnevale, 2004). One of main features of evidence based practice is the reliance on the partnership between hard scientific evidence and clinical expertise to answer clinical practice inquiries (Facchiano & Hoffman-Snyder, 2011). Much of the literature highlights that ANPs should strive to take ownership and accountability for driving quality improvements and to encourage evidence based practice changes similar to medicine (Yost et al., 2014). Nevertheless, there is conflict whether they possess the necessary qualities to do so.

ANPs are similar to their medical counterparts

Rashotte and Carnevale (2004) epistemological analysis of medical and nursing clinical decision-making highlighted that medical decision-making research has previously focused on the processes that doctors use in the identification of correct diagnosis and the selection of the most appropriate treatment for a disease. Chapa (2013) found that ANPs, particularly in acute care settings and similar to their medical counterparts, have to evaluate and synthesise the best available evidence as an integral part of their professional role and to guide

patient care decisions. Yost et al. (2014) coined the term Evidence-Informed Decision Making (EIDM) to describe clinical expertise that integrates the best quality research evidence along with information, clinical context and patient preference. All nurses, including ANPs are increasingly expected to engage in the use of research evidence with information about patient preferences, clinical context and resources (Yost et al., 2014). The data from Begley et al. (2013) indicated that all ANPs were influential in implementing evidence based practice locally and some had made a contribution at national and international level (Begley et al., 2013).

Applying Evidence Based Practice is not straight forward

Multiple studies however, have identified that the goal of practicing and implementing evidence based practice in healthcare is not straight forward (Becker, 2006; Begley et al., 2013; Tiffen et al., 2014). Yost et al. (2014) acknowledged that strategies for enhancing evidence based practice or specifically EIDM have been synthesised in high quality systematic reviews. However, most relate to “physicians or mixed disciplines” and hence the criticism is that existing reviews, specific to nursing [or ANPs], have not captured the breadth of approaches for promoting the knowledge and skills for EIDM (Yost et al., 2014, p.156).

The consideration of research evidence in practice decisions has undoubtedly achieved acceptance as an important skill and behaviour for healthcare professionals (Chapa, 2013). “Clinical decision-making is a continuous and evolving process in which data are gathered, interpreted and evaluated in order to apply evidence to formulate a decision” (Tiffen et al., 2014, p.400). Incorporating this interpretation, Tiffen et al. (2014) also proposed a contiguous framework for clinical decision-making specific for ANPs based on the Information Processing Theory, Intuition Theory, Decision Analysis Theory and Cognitive Continuum Theory. However, there is complexity and difficulty for ANPs (and for all healthcare professionals) when using pre-appraised evidence sources to guide practice decisions. Confidence and dependence “on the results from a single study, even those that are highly publicised from well-respected journals does not replace a full, systematic evidence search” (Chapa, 2013, p.236).

Therefore, if evidence based practice means integrating individual clinical expertise with the best available external clinical evidence from systematic research, perhaps the difficulty for ANPs is combining evidence based practice with proficiency and judgment that is acquired through clinical experience and clinical practice. Arguably, it is this clinical experience of ANPs that tends to be variable.

This is compounded when considering the risks versus benefits when evaluating research findings and clinical management strategies. Ultimately, critical appraisal skills can assist ANPs in interpreting available research, determining its validity, reliability and applicability to their clinical practice (Facchiano & Hoffman-Snyder, 2011). The ANP is required to assess the strengths and weaknesses of sources consulted to ensure that the one used for the question of interest meets the standards of a high-quality pre-appraised evidence source (Chapa, 2013). ANPs therefore must constantly toil with how to overcome the incessant inundation of new studies, recommendations and practice guidelines (Facchiano & Hoffman-Snyder, 2011). In addition to this, consideration must also be given to patient preference and values (Begley et al., 2013).

Ironically, what is regarded as one the greatest achievements of positivistic, biomedical perspective of evidence based practice is the development of systematic reviews and meta-analyses. These identify multiple research studies on a topic, identify those of the highest quality and then critically analyse them to summarise the best available evidence. Research studies (of this nature) into the clinical decision-making by ANPs is absent, however the selected literature suggests that ANPs are under the same expectations as the medical profession in applying evidence based practice to clinical decision-making in the clinical setting.

Autonomy

Autonomous clinical practice involves self-directed diagnosis and self-determined, controlled action not requiring authorisation (Maylone et al., 2011).

Cajulis and Fitzpatrick (2007); Mantzoukas and Watkinson (2007); and Maylone et al. (2011) suggest that it is essential element in the attainment of full professional recognition. However, since the earliest development, the dominant professional issue for nurses in the ANP role has been the struggle in this pursuit of autonomous clinical practice (Maylone et al., 2011, p.52). Mantzoukas and Watkinson (2007, p.30) argue that this, “area of convergence is the attempt of the nursing discipline to emancipate itself from organisational and cultural restrictions and to achieve a high degree of professional autonomy”. However, to this day the concept of ANP autonomy remains complicated and ambiguous.

Characteristics of autonomy

ANPs need autonomy to make timely care decisions (Cajulis & Fitzpatrick, 2007). Davies and Hughes (2002) identified clinical expertise, critical thinking and analysis, clinical judgment and decision-making, leadership and management, communication, problem solving, collaboration, education, research and program development as areas of competence repeatedly identified in the literature. Cajulis and Fitzpatrick (2007, p.505) descriptive study to determine the level of autonomy of ANPs indicated that the majority of the ANPs had high levels of autonomy, skills and mastery in clinical decision making.

Clinical decision-making frameworks such as the strategy for ANP assessment of reduced urine output (Gardner et al., 2013) and Dulko et al. (2010) cancer pain guidelines “can aid ANPs in assessment, increasing patient safety and expatiating management” (Gardner et al., 2013, p.1562). Dulko et al. (2010) suggested that the process of pain assessment and documentation improved. This arguably raises the question whether following guidelines is a limit to autonomy. However, Gardner et al., (2013) contended that within these, autonomous individuals have competence to think, decide and act independently. Discretionary autonomous decisions, actions and plans are implemented according to the ANP’s scope of practice (Cajulis & Fitzpatrick, 2007).

The concept of clinical autonomy is part of the broader context, the bigger picture and a heightened sense of responsibility (Cajulis & Fitzpatrick, 2007; Davies & Hughes, 2002). Therefore, the increasing complexity of healthcare systems

increases the need to understand clearly how best to support clinical decision-making. Internationally, away from the potential medicalisation of the ANP role, in the USA, ANP autonomy was dependent on their ability to practice to the full extent of their knowledge and skills and their accountability for clinical decision-making (Cajulis & Fitzpatrick, 2007). Within the nursing literature, clinical nurse autonomy has been associated with job satisfaction, nurse retention, respect, status and recognition for nurses (Hinshaw, 2002; Kramer & Schmalenberg, 2004).

ter Maten-Speksnijder et al. (2013) literature review on the Dutch ANP role debate, suggested that the global ANP workforce, should strive for autonomy and obtain positions in which they are allowed to make their own decisions regarding healthcare resources for the good of patients and society. ANPs from all countries are “facing similar barriers in developing their advanced roles including the dominance of efficiency arguments combined with the protection of medical autonomy” (ter Maten-Speksnijder et al., 2013, p.44). Organisational constraints, public perceptions, collaboration and support of other healthcare colleagues are additional factors that inhibit the ANP to practice autonomously (Maylone et al., 2011). Despite state legislation that has broadened the authority of ANPs over recent years, providing a major influence and becoming a key component in healthcare reform, the current healthcare environment continues to challenge their autonomous role claims (Cajulis & Fitzpatrick, 2007, p.500). This global perspective provides a significant hurdle to the development and wider acceptance of the clinical practice of ANPs and subsequently their clinical decision-making.

Medicalisation of the nursing profession

Similar to the pressure on ANPs to integrate evidence based practice into their clinical practice, there is also apprehension over the inferences professional boundary transgression has on the potential professional scope of nursing practice and potentially “the perilous risk” of the medicalisation of the nursing profession (Mantzoukas & Watkinson, 2007). ter Maten-Speksnijder et al. (2014) again introduces the case for medical replacement by ANPs and have predicted that ANPs in 2020 will be expected to work as independent, comprehensive care

providers to substitute a significant percentage of the standardised medical care. This may suggest that the ANP workforce is to be more appropriately aligned with the field of medicine and therefore the culture and context of clinical decision-making are under similar scrutiny. Arguably, it is this subtle undertone that characterises the 'quest' for autonomy for ANPs.

Scope of Practice

The final theme 'Scope of Practice' is closely linked to clinical decision-making and the wider issues around Advanced Practice. Counter arguments are offered by various authors thus proving difficult to synthesise. Mantzoukas and Watkinson (2007, p.29) identify conflict around the specialisation of ANP roles and their scope of practice. Similar to the discussion regarding autonomy, having multiple "and possibly antithetical definitions" limits the scope of advanced nursing practice, particularly when linked to specialisation.

Advanced nursing, medical functions, knowledge and experience

Adding to this discord, ter Maten-Speksnijder et al. (2014) suggested that ANPs have experienced circumstances where role descriptions and their implementation have not been congruent, even though the "Dutch health ministry in 1997 was positive about nurses performing certain medical activities, such as small surgical procedures" (ter Maten-Speksnijder et al., 2014, p.45). Similarly, Cajulis and Fitzpatrick (2007) comprised the perspectives of Sidani and Irvine (1999) when explaining that the extended scope of practice of ANPs incorporated advanced nursing functions as well as many traditional medical functions and responsibilities. These would include clinical examinations, making a diagnosis, prescribing medications and referring to other specialities based on their clinical judgment. Nursing however, may become denigrated by the process of expanding nursing roles and removing existing barriers (Mantzoukas & Watkinson, 2007). Studies by Juretschke (2000) and Dulko et al. (2010) perceived their own capacity to treat the presenting conditions as the strongest factor in determining the ANP scope of practice. Conceivably incongruences in function result from disparities in knowledge and skill levels based upon experience and educational preparation (Begley et al., 2013). Sometimes

individuals who meet the mandated requirements can be assigned to the role and not adequately carry out functions of the role (Davies & Hughes, 2002). This is likely to impact on clinical decision-making and the difference between decisiveness and indecisiveness. The assumption is that experienced clinicians perform better than novices and practice at clinical decision-making improves performance.

Assessment tools and protocols influencing scope of practice

Pragmatically speaking, having any scope of practice insinuates that there are limits to the scope of ones' practice. Most of the selected literature highlights how scope of practice is limited by various primarily external influences.

Williamson et al. (2012, p.1579) ethnographic exploration of ward-based ANPs in an acute medical setting "led to the overarching concept of the ANP as a lynchpin" with "ANPs facilitating most aspects of patient care". This study seemed to be limited to ANPs prompted intervention with patients triggering Early Warning Scores (EWS). Scope of practice was limited by comments from nurses who "reported that the ANPs had enhanced credibility in regard to doing ECGs, administering intravenous fluids, arranging blood tests and a chest x-ray in preparation for the assessment by the doctor (Williamson et al., 2012, pp.1584). Williamson et al. (2012) also identified sub-themes including enhancing communication and practice, acting as a role model, facilitating the patients' journey and pioneering the role.

Begley et al. (2013) included the less clinical characteristics of guideline and policy development, audits, participation on committees and service development. Juretschke (2000) and Dulko et al. (2010) highlighted restrictive protocols, prescribing and referral authorisation as factors inhibiting scope of practice. The conclusions drawn regarding empowerment and scope of practice from Maylone et al. (2011) considered that low levels of empowerment indicated that ANPs continue to have restrictions on rights and privileges impacting their ability to practice to the fullest extent of their knowledge and skills. This is likely to be associated with limitations on requesting of various diagnostic and radiological investigations.

Davies and Hughes (2002) and Mantzoukas and Watkinson (2007) allude to an intrinsic relationship between ANP scope of practice and the lack of concerted agreement determined largely by key stakeholder needs on the core characteristics and diversity of roles between professionals working under the generic umbrella term of the ANP. This is no better exemplified than by highlighting the diversity in titles preferred by the various authors previously in 'What is an ANP?' Essentially, all of the selected literature highlights the 'limits' to scope of practice whether these are influenced by local guidance or the theoretical discussion itself.

What the selected literature fails to represent is that scope of practice could or should extend beyond specific ANP roles to include a range of practical and theoretical application of skills in a specialised area of practice. Hence, scope of practice would vary between ANPs working in different specialities. Consequently, the clinical decisions made and the influences on these clinical decisions may vary between ANPs working in different specialities.

Gaps in the literature

The selected literature regarding ANPs is heavily influenced by theoretical discussion around definitions and conceptualisation of Advanced Practice, the quest for autonomy, the medicalisation of the nursing profession through role and function substitution influencing scope of practice and the application or integration of evidence based practice.

Multiple authors highlight the importance of clinical decision-making for ANPs and that clinical decision-making is a significant avenue for ANPs to have an impact in acute care. ANPs are apparently now more capable than ever to exhibit accountability and are better equipped for complex decision-making in the course of care delivery (Williamson et al., 2012). However, despite identifying what the role of ANPs should be, what ANPs should be able to do and the characteristics that are required, there is little evidence describing clinical decision-making by ANPs in the context of acute patient care outside compliance with guidelines and frameworks. For example, Williams et al. (2012) ethnographic study looked at patients triggering on EWS and ANPs alerting the medical team of their

deterioration. Dulko et al. (2008) examined adherence to cancer pain guidelines. Gardner et al. (2013) produced a model for the assessment and management of patients with a reduced urine output. Juretschke (2000) examined the utilisation of an ethical framework to make appropriate decisions at the bedside. These examples highlight prevalent restrictive hurdles in regard to obtaining professional and clinical autonomy and limited the synthesis of scope of practice. There is evidence of excellent standards of practice in all areas of healthcare, however a dearth of information exists on what issues are associated with ANP clinical decision-making (Davies & Hughes, 2002). It is therefore not unreasonable to imply that there is also little evidence and gaps in the literature describing what specific clinical decisions ANPs make in the context of Acute Medicine. The potential evolving role of the Acute Medicine ANP is an opportunity to employ an ethnographic case study design as an interpretive methodology to explore Acute Medicine ANP clinical decision-making behaviours when caring for patients in Acute Medicine.

PART 2: Theoretical Foundations of Decision-Making

The second part of this chapter critically examines the theoretical foundations of the clinical decision-making literature including Dual-Process Theory and its relevance to the Acute Medicine ANPs. In view of the findings of the Literature Review, the clinical decision-making literature in the field of medicine will be considered as a guide to understanding the influences of clinical decision-making by the Acute Medicine ANP.

Decision-Making Theory

Conceptualising decision-making as an event in time and space and the idea of humans as rational beings has its foundations in economics and mathematics (Vlaev, 2018). Decision-making is a broad term that applies to the process of making a choice between options as to a course of action (Thomas, Wearing & Bennett, 1991). Over the past several decades, researchers investigating the psychological processes behind the making of decisions of any nature and the context that they are made have offered a mixture of “counterintuitive findings, profound insights and practical prescriptions” (Koehler & Harvey, 2004, p.XIV).

Polič (2009) defined decision-making as a regular part of everyday life and therefore is a typically human activity. The impact on people’s lives is potentially significant dependent upon the position of the decision-maker. Koehler and Harvey (2004, p.5) describe that the instrumental view of rationality assumes that the primary notion of making judgments and decision-making is rational action to achieve goals. This is on the pretext that the innate goal of human activity is the search for pleasure and ideally the avoidance of pain. Pragmatically and subjectively, good decisions are preferable to bad decisions. Good decision-making therefore maximises satisfaction or positive utility and hence minimises dissatisfaction or negative utility. Bad decisions therefore equally have a contrasting balance of these desired objectives.

Psychological views on decision-making

Psychology began to test the economic and mathematical theories of decision-making experimentally after the Second World War. Collyer and Malecki (1998) and Polič (2009) distinguished the development of these decision-making theories into three periods: Rational decision-making models; Descriptive decision-making models; and Decision-making models in natural settings (*refer to Table 3*):

Later theory has acknowledged that decision-making is influenced by the perception of elements in the environment and the situation (Endsley & Garland, 2000). Decision-making is an ongoing process that requires complex amalgamation of multiple sources of information and is influenced by a multiplicity of interacting factors that are difficult to identify and more difficult to exercise experimental control (Wood & Bandura, 1989, p.407). Hence, classical decision-making models tend to over-emphasise the concept of rationality in its abstract form and neglect the real world complexity of decision-making (Polič, 2009, p.80).

Normative versus descriptive

There has been extensive research throughout these periods examining the way we are observed to make decisions (descriptive) and the way in which we should theoretically make decisions (normative). Hence, the breadth and diverseness of theory is vast.

Epistemologists have struggled for centuries with the question of what makes something normative and hence the approach to normativity tends to operate at a typically abstract level concerning beliefs and knowledge (Corner & Hahn, 2013, p.3582). “As research has evolved, the distinction between descriptive and normative theories has become fuzzy” (Dillon, 1998, p.2). Formal Logic Theory, Probability Theory, Prospect Theory, Image Theory, Lexicographic Model and Subjective Expected Utility are examples of normative theories that govern how we ideally should or ought to reason, make judgments and make decisions. These theories provide rules to guide rational thought (Koehler & Harvey, 2004).

Descriptive theories use supportive empirical evidence and reflective judgments to account for behaviour and describe how people think when making decisions (Beresford & Sloper, 2008; Koehler & Harvey, 2004). Theories that are descriptive in nature include the Advantage Model and Satisficing Model. Within the descriptive decision-making literature, one of the central themes is the idea of ‘Bounded Rationality’ and the concept that judgments deviate from rationality (Bazerman & Moore, 2013; Dillion, 1998). There are also models that are described as prescriptive that link descriptive and normative by having a strong theoretical foundation of normative theory and then combine the observations of descriptive theory.

Table 3: The development of psychological views on decision-making

Rational decision-making models	Rational decision-making models prevailed during the period between 1955 and 1975 and are models based on logic, rational choice and behaviour. These include, Subjective Expected Utility, Multi-Attribute Utility Theory and Bayesian Inference models. Rational Decision-Making models consist of a series of steps, beginning with problem identification and end with actions to be taken on decisions made.
Descriptive decision-making models	Descriptive decision-making models were compiled during the period between 1965 and 1985 and stemmed from the rational models of decision-making arguing that decision-making that deviated from this prescribed to heuristics and biases. The concept of bounded rationality by Simon (1955) was the pioneer of this way of thinking.
Decision-making models in natural settings	Decision-making models in natural settings approach was founded in the 1980s and moved research from laboratory into dynamic natural settings. “Studying decision-making means studying the activity and not studying the choice” (Polič, 2009, p.80).

(Adapted from Polič, 2009, p.79)

Rationality

Our mental processes and actions are considered rational when they meet the cognitive standards of normative theories and rules (Koehler & Harvey, 2004, p.4). The “extent to which human behaviour matches up to these putative ‘gold standards’ and therefore the extent to which we might rightly claim to be rational, is of fundamental interest in its own right” (Corner & Hahn, 2013, p.3582). Normative behaviour is central to the study of human cognition when examining rationality (Evans & Over, 1996; Nickerson, 2007; Nisbett & Ross, 1980; Oaksford & Chater, 1998). Seminal research by Kahneman and Tversky (1979) into Prospect Theory and Johnson-Laird (1983) into Mental Models Theory in the domain of logical reasoning have examined specific deviations from these cognitive standards of rational thought and behaviour. However, critiques of logicism in the field of reasoning such as Boger (2005); Evans (2002); Hamblin (1970); Heysse (1997); and Oaksford and Chater (1991, 1998) argue that logic cannot provide an appropriate putative standard by which to judge argument strength.

Despite the cognitive system attempting to follow rational principles, our “beliefs and judgments may sometimes be too vague or sloppy to be fully consistent” (Over, 2004, p.6). There are bounds to the amount of information that we as humans can take on board (Pashler, 1998). Perception, motor control, memory, reasoning and language are processing functions of the brain that have limited capacity (Pashler, 1998; Vlaev, 2018). Therefore, when confronted with multiple decision alternatives, Tversky (1972) suggested that we may be limited to addressing one at any given moment. “It is as if we have a big library in our heads and we can only look at a few books at a time when we make up our mind on a specific issue” (Vlaev, 2018, p.4). Over (2004, p.6) states that for “these reasons, we can sometimes do better by relying on heuristics, which are bounded and satisficing procedures for performing inferences or making decisions”. Heuristics allow us to manage the composite environment surrounding our decisions. These rely on a number of simplifying strategies, or rules of thumb to short-circuit a rational decision process (Bazerman & Moore, 2013).

Classical versus descriptive decision-making theories

The traditional approach to understanding decision-making is based upon classical decision-making theory or the Rational Economic Model (Huczynski & Buchanan, 2001). Classical decision-making theories stemmed from economy, statistics and philosophy and integrated the concept of rationality and rational decisions based on the expectations about the consequences of action (Li, 2008, p.151). Such classical decision-making theories were flawed by assuming three often inhuman and unrealistic characteristics: i) that decision-makers are fully informed regarding all possible decision-making options and potential outcomes or consequences; ii) that decision-makers are infinitely sensitive to the subtle distinctions among decision options; and iii) that decision-makers are fully rational in regard to their choice of options (Polič, 2009, p.80). Classical decision-making theory hence views the decision-maker as acting in a world of complete certainty, with perfect information, with a perfect grasp of the objectives, the perfect ability to use that information to make decisions and assumes that all the problems are easily defined (Elster, 1986; Lee, Newman & Price, 1999). These 'bounded' problems are usually small and deemed less important and not complicated by the limitations of time and cost (Li, 2008).

American psychologist and economist Herbert Simon (1955, 1956) introduced the concept of 'bounded rationality' and believed that much could be learned about rational decision-making by considering the changeable environments to which it must adapt, thus permitting further simplification of its choice mechanisms (Simon, 1955, 1956). Simon (1956) argued that there are contextual and psychological constraints and our ability to make optimal choices is influenced by the complexity of circumstances, limited time and inadequate mental computational power (Campitelli & Gobet, 2010). Hence, those that are considered 'unbounded' problems are ambiguous, harder to define and cannot easily be separated from the context in which they exist (Rollinson, 2002, p.254). Thus, the basic dogma of bounded rationality is that all intendedly rational behaviour occurs within physiological and psychological limitations and constraints (Schoemaker, 1980; Simon, 1955).

Hence, descriptive decision-making theories are concerned with describing observed behaviours under the assumption that the decision-makers are behaving under some consistent rules (Roe, Busemeyer & Townsend, 2001). Kahneman and Tversky (1979) linked decision-making with the probability of gains and losses of decision-making outcomes based on the belief that the decision-maker wants to make rational decisions considering all known options and considering the maximal quantity of available information. Humans are striving to make sense of and hold consistent beliefs about the world (Vlaev, 2018, p.4). This supports the pretext that the innate goal of human activity is the search for pleasure and ideally the avoidance of pain and that good decisions are preferable to bad decisions. Chater and Loewenstein (2015, p.126) attribute the drive for ‘sense-making’ to evolution and is what motivates people to gather, attend to and process information. Utility can be described as goodness (Baron, 1996) and thus, is a reflection of people’s choices (Kimball & Willis, 2006). “The question of ‘what does the most good’ then becomes the question of ‘what achieves our goals best’, on the whole” (Koehler & Harvey, 2004, p.23). Hence, there is a rational decision-making process (*refer to Table 4*):

Table 4: Rational Decision-Making Process

Specifying the problem
Identifying all factors
Weighting factors
Identifying all alternatives
Rating alternatives on each factor
Choosing the optimal alternative

(Adapted from Divekar, Bangal & Sumangala, 2012)

Rational Decision-Making Process

Decision-making begins with structuring of the decision problem. Decision-making options are linked to potential gains or subjective positive utility. These are counterbalanced with decision-making options that are linked to potential losses or subjective negative utility. Alternatively, Simon (1960) three phase

trichotomy of decision-making that incorporated the terms 'Intelligence', 'Design' and 'Choice' (refer to Figure 2.1):

Figure 2.1: Simon (1960) Model of the Decision-Making Process



The *Intelligence* phase involves identifying the need to make a decision, the *Design* phase comprises investigating and developing the problem domain and alternatives and the *Choice* phase describes the activity of selecting the most appropriate course of action (Dillon, 1998). All the phases within this trichotomy of decision-making have the potential to generate new problems that may require further intelligence and subsequent further design and further choices.

Payne, Bettman and Johnson (1993) argue that the fundamental distinction among different decision-making theories or models is the extent to which they make trade-offs among attributes. The decision-maker chooses an option or course of action that exceeds some criterion or standard (Dillon, 1998). Dillon (1998) and Schoemaker (1980) defined that 'Non-Compensatory' decision-making models eliminate decision alternatives based upon the single attribute and once assessed are excluded regardless of their performance on these subsequent attributes. 'Compensatory' decision-making models trade-off between a high value on one dimension of an alternative and are balanced with a low value on another dimension (Dillon, 1998). "Comparisons are then made among the overall values of the alternatives and the one with the greatest value is chosen" (Payne, 1976, p.367). Subsequently, coding of possible outcomes compares potential gains or losses relative to the status quo or an expectation or an aspiration. This initial phase leads to the representation of the acts, outcomes and likelihoods that are associated with a particular choice (Dillon, 1998). Hence, these theoretical perspectives are intended to simplify and provide context for subsequent clinical decision-making evaluations and choices.

Clinical Decision-Making

Clinical decision-making (clinical being an adjective and meaning relating to the observation and treatment of actual patients) by any healthcare professional (including an Acute Medicine ANP) can be described as a complex, contextual, continuous and evolving process, where data is gathered, interpreted and evaluated in order to select a choice of action (Tiffen et al., 2014). A more simplistic interpretation is that clinical decision-making is the process of choosing between alternatives (Thompson & Dowding, 2002). These alternatives however may be complex and defined by multiple variables and encompass multiple foci including limited options or resources and uncertainty regarding diagnosis, interventions, interactions and evaluation. There is a growing body of evidence-based literature to consider in this dynamic context “where clinical decisions are characterised by situations of uncertainty where not all the information needed to make them is, or can be, known” (Smith, Higgs & Ellis, 2008, p.90). As previously highlighted however, what is known is that experienced clinicians perform better than novices and practice at clinical decision-making appears to improve performance (Croskerry, 2005, R2). This is despite little emphasis on specialist clinical decision-making training and education for doctors or ANPs.

The terms ‘clinical judgment’, ‘problem solving’, ‘clinical decision-making’ and to an increased frequency ‘critical thinking’ tend to be used interchangeably within the literature review. Gardner et al. (2014); Rashotte and Carnevale (2004); and Tiffen et al. (2014) describe clinical decision-making as a complex pattern recognition process that draws on various universal principles and algorithms to facilitate the task. Thompson, Aitken, Doran and Dowding (2013) believe that the cognitive continuum of clinical decision-making can range from fast, intuitive, or heuristic clinical decisions through to well-reasoned, analytical and evidence-based clinical decisions. Croskerry (2009, p.1026) believes that clinical decision-making to be a critical aspect of clinical performance and that it is difficult to imagine anything of greater importance or relevance to patient outcomes and to patient safety. Hence, the importance of making a clinical decision to identify the diagnosis.

Clinical decision-making motives, influences and characteristics

Croskerry (2005, p.R1) assumed that “all human behaviour with the exception of reflexes was driven by some motivating influence. Motives in turn lead to decision-making which characterises human behaviour”. Nevertheless, Bazerman and Moore (2013) claim that humans are not necessarily perfect makers of decisions. Ethically, an assumption in the world of clinical practice within healthcare, is that individual clinicians from whatever background make clinical decisions with the aim of making the ‘best’ possible choices and have the patient’s ‘best interest’ or ‘virtue of benevolence’ at heart. This characterises the ethical principle of beneficence and the ethical obligation to act for the benefit of others’ by preventing or removing possible harm (Beauchamp, 2016). ‘Best interest’ is a guiding principle which serves to promote the well-being or benefit of the individual (Beauchamp & Childress, 2013). It encompasses determining the right diagnosis, optimising patient outcomes and follows traditional processes of the clinician making clinical decisions on behalf of the patient (Smith et al., 2008). The concept of shared decision-making in the clinical encounter, despite its theoretical appeal has yet to translate into practice and the appetite of patients to play an active role in the clinical decision-making process decreases as the severity of illness increases (O’Grady & Jadad, 2010). This surrogate clinical decision-making is typical of Acute Medicine despite much of the literature advocating a collaborative approach where clinical decision-making is shared with patients.

Consultation Models

Those responsible for assessing patients and the problems they present with appear to be influenced by knowledge and experience and the traditional conceptual models around the patient – clinician consultation. Many authors have written extensively on the structure of the consultation with the patient (*refer to Table 5*): These were initially designed as a two-way medical consultation between doctor and patient and initiated by the patient when they were ill or by the doctor when instituting preventative medicine or screening (Pawlikowska, Leach, Lavalley, Charlton & Piercy, 2007). “Not only must we formulate a

differential diagnosis during our consultations, but we must also establish rapport, explore ideas, concerns and expectations and negotiate a management plan, bearing in mind limited resources, technological skills and the need for health promotion” (Dennes, 2013, p.592). Consultation models provide a framework for a consultation via an established list of questions or areas for these to be explored (*refer to Appendix 2*). These are theoretically transferrable to other healthcare professionals, including the Acute Medicine ANPs when conducting clinical consultations with patients. There is no single consultation model that covers every eventuality.

Table 5: Examples of Consultation Models

Weiner (1948)
Maslow (1954) Hierarchy of human needs
Balint (1957) Doctor-patient relationship
Berne (1964) Transactional Analysis
Byrne and Long (1976)
Stott and Davis (1979)
Helman (1984)
Pendleton, Schofield, Tate and Havelock (1984, 2003)
Neighbour (1987)
Fraser (1994, 1999) The Leicester Assessment Package (LAP)
Stewart, Brown, Weston, McWhinney, McWilliam and Freeman (1995, 2003)
Kurtz, Silverman and Draper (1996) The Calgary-Cambridge Observation Guide

The Medical Model

The Medical Model however, has proven highly successful and even indispensable in many contexts. This term was coined by psychiatrist R. D. Laing in his *The Politics of the Family and Other Essays* (1971). The medical model is the most widely used conceptualisation in medical research. The key features of the clinical consultation with the patient when employing the medical model are the patient’s presenting complaint, the taking of a history, the physical examination, use of laboratory tests, prescription of treatments, the management plan and record keeping.

The success however of any consultation depends on how well the patient and the clinician communicate with each other. Imposing clinical factors with various levels of ambiguity can create problems for the consultation process and ultimately present with communication difficulties. There is now firm evidence linking the quality of this communication to clinical outcomes (Gask & Usherwood, 2002). A criticism of consultation models is that they risk over-simplifying what is actually considered a highly complex interaction between doctor (clinician) and patient consultation (Dennes, 2013, p.598).

The concept of 'health' itself can prove difficult to define

Arguably, in all societies the dominant image of death determines the prevalent concept of health. Health is encapsulated in the phrase from the World Health Organisation (WHO) – “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (Frenk & Gómez-Dantés, 2014, p.401). In many cases, terms such as disease, disorder, morbidity, sickness and illness are used interchangeably.

In antiquity, Hippocrates (ca. 460-377 B.C.) considered health as a harmonious balance and “blend of humours in the body” that included “blood, phlegm, black bile and yellow bile from the heart, brain, liver and spleen” (Larson, 1999, p.124). The Renaissance covered the span between the 14th and 17th centuries and gave birth to the development of modern science marking the transition from the Middle Ages to modernity. During this period, Francis Bacon (1561-1626) believed that healing requires the study of the complexity of the body and questioned the inevitability of death. Francis Bacon (1561-1626) hence believed that physicians were charged with the task of prolonging life through preserving health and curing disease (Larson, 1999, p.125). The primary function of medicine is to fight against the anticipation of a certain event at an uncertain date. Vesalius (1514-1564) and Harvey (1578-1657) saw the body as a homologue of the machine (Navarro, 2019). Descartes (1596-1650) was responsible for the first scientific paradigm for health with the development of the machine model of the human body. Human beings “were viewed as biological organisms (materialism), to be understood by examining their constituent parts

(reductionism) using the principles of anatomy, physiology, biochemistry and physics” (Mehta, 2011, p.202).

The methodologies that developed from this view considered illness and disease to be both natural and occurring on an individual basis. Disease being any condition that impairs the normal homeostatic processes of the body (Sefton, 2011). The incongruous mixture of fundamental clinical knowledge, the differences in perception and interpretation can compromise the therapeutic and clinical management of patients. The perception of illness in contrast, is an individual perception that one is suffering from a disease (Larson, 1999). Therefore, the concept of ‘health’ itself can prove difficult to define. Nevertheless, the ‘medical model’ is generally succinct, tangible and considered unambiguous in offering terminology, formulations and explanations in accordance with a scientific method which relies primarily on objective and measurable observation (Zigmond, 2012).

For those who work in healthcare, this is probably the most pertinent point rather than defining the concept of health. This revolves around the traditional concepts of the need of the patient to be relieved of 'distress' rightly or wrongly attributed to 'illness or ill health' and the expectation of the patient that the clinician (whether a doctor or the Acute Medicine ANP) has the professional competence and motivation to provide such relief.

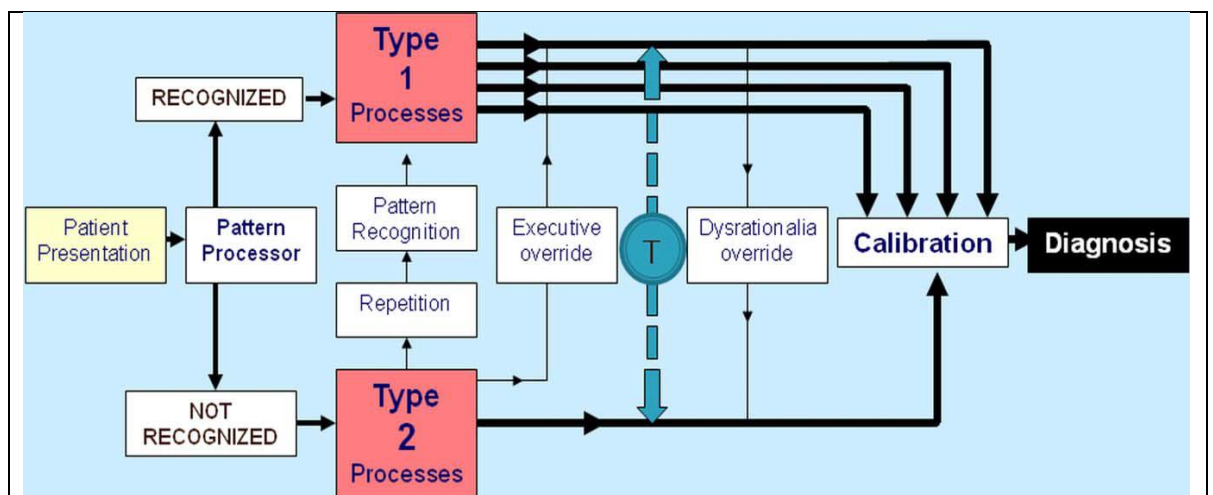
Dual-Process Theory

For the Acute Medicine ANPs, clinical decision-making is a process of diverse levels of complexity that they undertake multiple times on a daily basis when they make judgements about the assessment and care that they are providing to patients in Acute Medicine and the clinical management plans they implement.

“The idea that there are two distinct kinds of reasoning has been around for as long as philosophers and psychologists have written about the nature of human thought” (Evans, 2003, p.454). These are located along the continuum stretching

from the unconscious, intuitive approaches at one end and the deliberate, analytical approaches at the other (Croskerry, 2009, p.28). There has been evidence provided by multiple specialities from philosophy, psychology, neurology and genetics that supports the emergence of Dual-Process Theory as the predominant approach to clinical decision-making within the literature (Croskerry, 2009, p.29).

Figure 2.2: Dual-Process Model for Clinical Decision-Making



The principal *modus operandi* of the Dual-Process Model for Clinical Decision-Making is pattern recognition. The model is linear, running from left to right. System 1 is engaged when the presenting patient complaint is recognised. System 2 is engaged when the presenting patient complaint is not recognised. Repetitive processing in System 2 leads to recognition and default to System 1. Either system may override the other. Both System 1 and System 2 outputs pass into a calibrator to produce the final diagnosis.

(Adapted from Croskerry, 2009, p.31)

Automatic–Intentional (Bargh & Chartrand 1999), Reflexive–Reflective (Lieberman, 2000), Experiential–Rational (Epstein, 2002) and Unconscious–Conscious (Dijksterhuis, 2004) are a few of the different names/titles/labels that dual-process dichotomies have been referred to in the literature (Järvillehto, 2015, p.25). However, similar to the majority of the dual-process literature and for the purpose of this work, discussion of Dual-Process Theory (*refer to Figure 2.2*) will consist of the autonomous and non-conscious cognition of System 1 that is

characterised by a heuristic and intuitive approach and the volitional and conscious cognition System 2 that is characterised by a systematic and analytical approach.

System 1

System 1 is regarded as an intuitive approach that Stanovich (2004) describes as highly context-bound, with the potential for ambient conditions to exert a powerful influence.

Intuition and heuristics

“The term intuition (*from lat. intueri, meaning to look inside or to contemplate*) is quite often used in everyday life, but the majority of people would hardly define it precisely” (Polič, 2009, p.85). For many it can evoke some mystical connotations as a source of knowledge, a ‘what we know without knowing’, an automatic or implicit process of thinking and finally a distinct faculty of the human mind (Betsch, 2008, p.3). The definitions are variable and complex. The characteristics are informed by some major theoretical approaches. Järvillehto (2015) suggests that intuition is a mental process in the form of skilled action, based on expertise in recognising familiar cues in context of the surrounding environment. The key feature is that it operates automatically on a subconscious level and differs from deliberate processes of thinking. Knowledge acquired through associative learning is committed automatically and unconsciously to long-term memory (Betsch, 2008; Simon, 1955).

Research on intuition is strongly associated with heuristics and biases (Gilovich, Griffin & Kahneman, 2002; Kahneman, Slovic & Tversky, 1982). These are a set of shortcut strategies to decision-making and are often based on information the decision-maker believes are the most important (Gigerenzer, 2004; Payne, Bettman & Johnson, 1988). This leans heavily on the experience of the clinical decision-maker and is closely associated with pattern recognition as specific diseases or conditions often present with a combination of salient features. Intuition can handle a huge amount of information and previous experience provides a rich database on which “intuition can unfold its power” (Betsch, 2008,

p.6). Pattern recognition “is going on fast and without the conscious effort, people are not aware how they reach intuitive judgment” (Polič, 2009, p.87). This is reflected in “an immediacy of perception and may result in anchoring bias” (Croskerry, 2002, p.1184).

Anchoring and availability

The perception of frequency of events and probability of consequences (positive or negative) are evaluated by a limited number of heuristics (Tversky & Kahneman, 1973). The key components of anchoring and availability heuristic have inspired a considerable amount of research activity. These heuristics exploit associative learning where previous experience is stored in long-term memory and infers frequency from the ease by which instances can be activated from memory (Betsch, 2008, p.16). The stronger and more vivid the associations between previous experiences and the current events the more likely they will influence and form the foundations of the clinical decision-making event (Esgate & Groome, 2005, p.1). This would suggest that if it can be recalled, it must be important, or at least more important than alternative solutions which are not as readily recalled (Phung, 2013). Subsequently, there is a tendency to rely on recent information (also known as the "anchor"). Anchoring occurs when the clinical decision-maker uses or relies on an initial piece of information to make subsequent clinical decisions. Hence, Tversky and Kahneman (1973) suggested that perception of frequency of events can be systematically biased. “Thus, the degree of consolidation of knowledge matters” (Betsch, 2008, p.10). This may not be under voluntary control (Frederick, 2002).

The process of perception is largely driven by visual features. Croskerry (2009, p.1023) describes System 1 as “fast, frugal, requires little effort and frequently gets the right answer”. However, visual data lends itself to the vulnerability of misinterpretation or is used to support a more favoured hypothesis. The System 1 approach can provide problems when patients present atypically. There is the potential in the acute clinical setting with a patient to overlook other possibilities that could account for the initial clinical presentation. Bazerman and Moore

(2013) suggests that we favour and are biased towards information that is easy for our minds to retrieve.

System 2

In contrast, System 2 is employed in clinical situations where patients present atypically or with greater complexity. Ambiguity breeds uncertainty in the absence of an anchor or pattern recognition as described in System 1.

System 2 would be engaged when the clinical decision-maker is unfamiliar with the patient clinical presentation (*refer to Figure 2.2*). The transition from trusting the intuitive System 1 is key to reducing the effects of bias and is believed to improve decision-making (Bazerman & Moore, 2013). This “deliberate, conscious processing does not enable fast and complete decisions, enabled by intuition” (Polič, 2009, p.87). System 2 permits abstract hypothetical thinking that cannot be achieved by System 1. The flow of information through the working memory is a stream of consciousness and is characterised as slow, sequential and correlated with cognitive capacity measures (Evans 2009, p. 37). The clinical decision-maker would be required to tease out and analyse the various possibilities in an objective and systematic examination of the data.

The uniqueness of patients and the clinical environment is demonstrated in the wide spectrum of decisiveness and certainty to indecisiveness and uncertainty. Patients, like people and personalities, rarely fit nicely into one little box where we can label the problem as this or that. Therefore, this “division into two completely separate non-conscious and conscious systems is not a very viable one” (Järvillehto, 2015, p.26). Hence, there are inherent difficulties in accommodating the multiple and heterogeneous attributes of Systems 1 and System 2 by oversimplification of the Dual-Process Theory. Therefore, the Dual-Process Model (*refer to Figure 2.2*) does not imply that one single reasoning mode accounts for a diagnostic decision or that a particular mode is always preferable over the other one (Croskerry, Singhal & Mamede, 2013), however, there is a tendency to default to the state requiring the least cognitive effort (Stanovich, 2004). The final clinical decision is more often a synthesis of the two processes as the automatic and controlled cognitive operations compete for the

control of overt responses (Kahneman & Frederick, 2002). Repetitive processing using System 2 may allow processing in System 1. This is the basis of skill acquisition (Croskerry, Singhal & Mamede, 2013).

Summary

Clinical decision-making is a complex, contextual, continuous and evolving process, where data is gathered, interpreted and evaluated in order to select a choice of action. Theoretical approaches emphasise the importance of deliberative processes. Thinking is constrained by memory capacity. System 1 and heuristics are decision strategies that are shortcuts to deliberation founded in the notion of bounded rationality that have been documented in the literature. Intuition advocates that decision-makers rely on proxy variables for estimation and strive to make problems less complex (Betsch, 2008, p.18).

Hence, there are many distinctive elements that have the potential to influence the clinical decision-making of the Acute Medicine ANPs within the complex and nuanced healthcare environment imposed by Acute Medicine in the acute emergency care environments of both the A&E and AMU. These have yet to be studied and tested with regard to the Acute Medicine ANP.

As Acute Medicine ANPs are progressively evolving to address the challenges of Acute Medicine and accommodate the needs of acute medical patients, an understanding of their clinical decision-making is necessary to inform strategies towards regulation, educational preparation, national standards and guidance for resource investment. This will demonstrate that a deeper theoretical understanding of the culture and context of decision-making for the Acute Medicine ANPs is needed in order to further establish the processes of decision-making for future practice.

CHAPTER 3.

Methodology and Methodological Considerations

Introduction

The purpose of this chapter is to discuss the methodology and methodological considerations present in the research study and to provide details of how the research was conducted. At the heart of the approach is understanding the influences on clinical decision-making by the Acute Medicine ANPs in their lived reality of Acute Medicine.

The chapter is divided into two parts. The first part of the chapter defines and discusses the philosophical framework including ethnography and the researcher's position as an expert member of the culture. The second part of the chapter presents the methods used to collect data, namely in the form of participant observations, unstructured informal interviews and formal interviews and the strategies for ethnographic data analysis. The methodological strengths and limitations of each method will be discussed including reflections on the issues of researching my own workplace and culture.

PART 1: Philosophical Framework

Qualitative research

"Qualitative research is a form of social enquiry that focuses on the way people make sense of their experiences and the world in which they live" (Holloway & Galvin, 2016, p.3). It enables an exploration of the wide array of dimensions of the social world, "including the texture and weave of everyday life, the understandings, experiences and imaginings of our research participants, the ways that social processes, institutions, discourses or relationships work and the significance of the meanings that they generate" (Mason, 2002, p.3).

In recent times, researchers of nursing have begun to recognise the value of qualitative research to better appreciate and understand the subjective participant experiences that cannot be objectively quantified or measured (Munhall, 2007; Parse 2001; Streubert-Speziale & Rinaldi Carpenter 2007). Qualitative research has been commonly associated with certain research paradigms such as phenomenology and symbolic interactionism, that fall broadly within what is known as the interpretivist sociological tradition (Goldkuhl, 2012; Mason, 2002). Ethnography has been practiced by anthropologists for many years and is also included in the interpretivist sociological tradition (Atkinson, Coffey, Delamont, Lofland & Lofland, 2001). “Proponents of these persuasions share the goal of understanding the complex world of lived experience from the point of view of those who lived it” (Schwandt, 1994, p.221).

Social science research

Fundamentally, social science research is concerned with people and their life contexts, with philosophical questions relating to the nature of knowledge and truth, values and being (Somekh & Lewin, 2005). Epistemological assumptions ask what the nature of the relationship is between ‘myself’ as the researcher and what can be known about the clinical decision-making by the Acute Medicine ANPs. The ontological assumption is that Acute Medicine as a unique clinical, social and cultural environment. Bureaucracy, the division of clinical areas, the medical lexicon, staff dress codes and technological accoutrements is what constitutes the hospital reality. Bulmer (1979) suggested that people actively collaborate in the construction and maintenance of cultural meanings. Therefore, Badah (2015) believed that such an approach to knowledge focuses on how knowledge is produced and recognises that knowledge is socially constructed. “The world of lived reality and situation-specific meanings that constitute the general object of investigation is thought to be constructed by social actors” (Schwandt, 1994, p.221). Hence, Acute Medicine and clinical decision-making is constructed and given cultural meaning via the complex processes of social interaction and the fashioning meaning out of events and phenomena by the Acute Medicine ANPs themselves.

Ethnography

Ethnography was pioneered in the biological, social and cultural branches of anthropology as the presentation of empirical data on human societies and literally means to 'represent the culture'. Malinowski (1922) ethnographic work, *Argonauts of the Western Pacific*, an account of native enterprise and adventure in the Archipelagos of Melanesian New Guinea, is considered to have had enormous impact on the ethnographic genre (Nadar, 2011). The Chicago School of Sociology (1917-1940s) influenced later ethnographic methods in examining urban sociology and marginal subcultures through the work of Herbert Blumer (Cavan, 1983). There is a perception that the defensiveness of hospital authorities and their hesitation in allowing observers to enter their workplace has attributed to the lack of hospital ethnographies (der Geesta & Finkler, 2004). Lock (1986, p. 8) described, "the study of health, illness and medicine provides us with one of the most revealing mirrors of the relationship between individuals, society and culture". Therefore, for the purpose of this research, ethnography has been used as an interpretive methodology directed at understanding the phenomenon of clinical decision-making by the Acute Medicine ANP in the cultural context of Acute Medicine.

The ethnographic features of this doctoral research are similar to those described by Hammersley and Atkinson (1983, p.110-111):

- The clinical decision-making behaviours of the Acute Medicine ANPs were studied in the natural everyday context of Acute Medicine rather than under unnatural and experimental circumstances.
- Data was collected primarily by means of observation.
- Data collection was flexible and unstructured to avoid pre-fixed arrangements that impose categories on the behaviours of the Acute Medicine ANPs.
- The focus was on Acute Medicine as a single setting and the Acute Medicine ANPs as a single group.
- The analysis of the data involved attribution of the meanings of the clinical decision-making by the Acute Medicine ANPs.

Hence, a key motif of ethnography is 'time in the field' gathering data based on empirical descriptions of the social and cultural worlds of a particular group' (Emerson, Fretz & Shaw, 1995). The anticipated challenges of fieldwork in Acute Medicine studying the Acute Medicine ANP are highlighted in the following personal reflection:

"I have had much time in between re-submitting and amending applications to read the works of other ethnographers and their views on field work. Many are of the opinion that it is a scary thing. The idea of being alone 'in the field', trying to accomplish a task initially formulated as a perfectly coherent research plan with questions, methods and readings – alas to find out that the 'field' is a chaotic and hugely complex place. I am not so sure. I am not expecting chaos even though my day job is working in Acute Medicine. Or maybe I have an understanding of this chaos because I am already *native*? Nevertheless, it is time to test the waters" (001.190916JBSSTRFT).

Therefore, the intention was to identify patterns, describe local formal and informal relationships, tacit and explicit understandings and meanings to make sense of the Acute Medicine ANP clinical decision-making behaviours in relation to acute clinical patient care in Acute Medicine from three NHS sites. It was anticipated that my professional life may become embedded within the fieldwork experiences as a researcher in such a way that my interactions in the field may involve moral choices. This is demonstrated in the following reflective extract:

"Doing ethnography in the sensitive field of Acute Medicine ANP clinical practice and concerning the health and care of patients could be likened to walking a tightrope. I will need to keep a mindful awareness of ongoing relationships with the Acute Medicine ANP participants and to make frequent adjustments accordingly. Clinical questions or discussions, despite the best of intentions do not always result in smooth social interactions. Awkward outcomes can be produced. Nevertheless, it is indeed a cyclic and iterative process, whereby to produce any richness

into the understanding and meaning of the collected data I need to constantly bounce or cleverly manoeuvre between the pillars of observation, interviewing and interpretation” (003.JBRBDR1220916).

Ethnographic case study approaches

Hospitals reflect and reinforce dominant social and cultural processes of a given society (der Geesta & Finkler, 2004). It is also acknowledged that hospitals encompass more than just Acute Medicine. Within this environment there is a dynamic interplay of the various cultures and subcultures of Acute Medicine and the Acute Medicine ANPs with other ‘players’ (patients and staff) that can produce powerful differentials and controversy. Schwandt (2007) advocates that ethnographic case study approaches can be used to research a bounded system (Acute Medicine is one such example). A ‘bounded system’ is one bounded by time and place or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context (Beverland & Lindgreen, 2010, p.57). It is the study of a naturally occurring phenomenon that will continue to exist long after the research has been completed (Rowley, 2002; Yin, 2009).

Hence, in this research study the distinct issue or shared experience would be the clinical decision-making by the Acute Medicine ANPs in Acute Medicine. Each clinical encounter between an Acute Medicine ANP and a patient defined a case. Roles or responsibilities of the Acute Medicine ANP that were outside this (for example: mandatory training, corporate responsibilities, continued professional development, non-clinical interactions) were not the focus of the research.

PART 2: Research Methods

Participant Observation

The literature relating to ethnographic fieldwork and observation, describes a variety of roles that the researcher may move between, depending on the situation. These roles are usually classified depending on the extent to which the observer is involved in the behaviour of the observed, ranging from mainly participant to mainly observer (Punch, 2005). Complete participant, participant as observer, observer as participant and complete observer are identities the observer may assume (Takyi, 2005). Hence, the role adopted by the researcher is dependent on the balance between observation and participation relative to the research setting. The following reflective account provides insight into these difficulties that are similar to Atkinson and Hammersley (1994) who concentrated on the differences between participant and non-participant observation and that this was influenced by the role of researcher:

“After completing several episodes in the field, I believe that you cannot just be ‘observing’ and you cannot just be ‘interviewing’. You can be just ‘interpreting’, however this often occurs simultaneously with ‘observing’ and ‘interviewing’. It is not a formal rigid process” (003.JBRBDRI220916).

Questionably, the polar extremes of complete observer and complete participant are potentially impossible and undesirable. As I found, “There was a tendency to connect with the Acute Medicine ANP research participants on both cognitive and emotional levels” (003.JBRBDRI220916). This was supported by the following reflective comments:

“During these early stages, I was very conscious about how ‘unnatural’ the concept of participating and undertaking research in your own place of employment with the Acute Medicine ANP participants (some) whom you have known for many years. I was hopeful that this ‘unnatural’ process would become more ‘natural’” (001.190916JBSSTRFT).

Mason (2002, p.88) stated it is “more about how you are using selectivity and perspective rather than assuming you are not”. There were occasions where my entity as an observer had become blurred, for example, “Due to the patient’s habitus I assisted the Acute Medicine ANP to position the patient as the A&E nursing staff were nowhere to be found” (001.190916JBSSTRFT). Hence, participant observation extends beyond naturalistic observation because the observer is a ‘player’ in the action and involves sharing the experiences of the social reality of those being studied (Delamont, 2007). The interpretation of the behaviour of the Acute Medicine ANP is based on watching, observing, listening and talking to them as the participants of the research so that the data authentically reflects themselves making clinical decisions. This would otherwise be inaccessible and underpins the quest to understanding the multiple realities of the Acute Medicine ANP life in context.

Gaining access and participant recruitment

Gaining access to the field is often not a simple task and requires some combination of strategic planning, hard work and luck (Van Maanen & Kolb, 1985). These difficulties are highlighted in the following reflective account:

“I had previously sent many emails and pieces of information to engage the ‘bosses’ of these Acute Medicine ANPs. During the three years of narrowing down my field of interest, selecting a methodology and an appropriate title I confess to neglecting this hurdle. My own place of employment has provided the most time consuming and tedious challenges which I naively thought would merely be strategic tactical issues rather than complex forms and bureaucratic red tape processes. Having now reached the point where I am having the opportunity to reflect on the ‘journey’, I should have at the very least read more about ‘gaining access” (003.JBRBDRI220916).

As the purpose of all research is to produce useful knowledge, it was important to assess and state the benefits of the research study to the chosen organisations, NHS sites, Acute Medicine settings and the Acute Medicine ANP

research participants themselves. This also involved the use of a Participant Information Sheet (*refer to Appendix 5*). The informal, embedded nature of participant observation means that a degree of attentiveness is required before delving straight into all the topics that address your research issues. The following reflective account demonstrates that this process presented personal challenges to participant recruitment:

“The more personal aspect of participant recruitment has been a bumpy ride. There has been bubbling on the surface at least a degree of scepticism by the potential Acute Medicine ANP participants themselves about the role of an outsiders undertaking research in their place of work. Whilst I admit to not being a personally warm and fluffy character bursting with charm and charismatic superpowers, I have recruited several willing participants with the sufficient amount of honesty and enthusiasm. There are a few others however, that require a little more discussion incorporating the properties of persistence, patience and perhaps gentle persuasion” (003.JBRBDR1220916).

Features of this scepticism from the potential research participants can be explained by Coffey (1999) who acknowledged that to a certain degree, relationships are often contrived and entangled with the ulterior motives of the ethnographer. Similarly, Grills (1998); Shaffir and Stebbins (1991); and Smith and Kornblum (1996) all concede that fieldwork relationships inevitably involve some level covertness. However, there was no attempt to consciously obscure any motives or purposively deceive informants. As advocated by Lugosi (2006), the building and nurturing of open relationships in fieldwork allowed for a constructive dialogue between the Acute Medicine ANPs and myself.

Study participants

The research study was conducted in the context of the natural world of the research participants. This natural world included the domains of Acute Medicine that incorporates AMU, Ambulatory Care and A&E. By observing and analysing behaviour in their naturally occurring conditions, this provided the thick rich

descriptions that produced useful data for theory analysis (Coffey, 1999; Glaser, Strauss, 1967).

The research study took place against a backdrop of considerable change within the NHS and in particular, national interest in the strategies concerning the non-medical workforce (Imison, Castle-Clarke & Watson, 2016). However, there is not an abundance of Acute Medicine ANPs working in Acute Medicine across the UK. The research study included ten voluntarily consenting Acute Medicine ANPs working in Acute Medicine from three NHS sites (Site 1: 6 Acute Medicine ANPs, Site 2: 2 Acute Medicine ANPs and Site 3: 2 Acute Medicine ANPs). The Acute Medicine ANPs ranged in clinical experience as an Acute Medicine ANP from less than one year to greater than fourteen years (*refer to Table 6*). Other demographics were not included as were deemed not relevant in the context of this research.

Table 6: ANP versus Years of Experience

ANP	Years of experience
PS	7
RB	2
SS	9
TM	14
LH	9
KH	9
JC	3
TN	3
HG	3
JH	1

Voluntary informed consent

As ethnographic studies of healthcare involve observing health professionals with patients (Thomson, 2011), voluntary informed consent was sought from both prior to being observed. This was in written form (Participant Consent Form) for the

Acute Medicine ANPs (*refer to Appendix 5*) and verbal for the individual patients during each clinical interaction. This inevitably involved ongoing re-negotiations throughout the period of the research study as consent to initial access did not imply continual approval for every single clinical scenario. Verbal consent from the patients was deemed to be appropriate as the focus of the research study was the clinical decision-making behaviours of the Acute Medicine ANPs. Data collection regarding patient input did not involve access to their confidential medical information and was not the focus of the research study.

For some groups of patients, verbal consent was not possible. Patients who are critically ill or have cognitive impairment can lose their capacity to make judgements regarding consent particularly during stressful situations such as admission to hospital. These patients constitute vulnerable populations needing special and reinforced protection. The participation of critically ill patients and patient's lacking capacity in medical research is particularly important for the community, who will benefit from the ensuing improvement of care in vital situations as the mortality and morbidity from critical illness is high (Chenaud, Merlani & Ricou, 2007; Kersten et al., 2003). Here in lies the importance of including these examples in this research study. The same principles applied for patients who could verbally consent. Verbal consent for these patient groups involved discussions with patient's relatives or legal representatives.

Data collection

Data were collected via field work, participant observations, informal interviews and formal interviews. Each observed clinical encounter between an Acute Medicine ANP and a patient defined a case study (Site 1: 24 case studies, Site 2: 10 case studies and Site 3: 6 case studies). The duration of a clinical encounter was variable and could last from mere minutes to several-hours dependent on the clinical complexity and the natural course of the clinical encounter. Data were gathered through varying levels of observation from unobtrusive to participant during Acute Medicine ANP clinical encounters with patients and during the following informal interviews. Like the description by Zaman (2008, p.141), "I was an observer and my participation was participation in the sense

that I was present in the scene of the ward as a social being, watching, observing and talking to the people ...”

While there are no rules as to how field notes should be compiled (Burgess, 1981), the prime consideration was developing a style that was workable and useful. Hence, field notes from the clinical encounters with patients and the informal interviews were documented (by hand) in a double-entry notebook (*refer to Figure 3.1*).

Figure 3.1: Double-Entry Notebook Example

Raw Data/ What I saw	What I thought/ Interpretation
<i>An objective account of what happened.</i>	<i>A subjective account of what happened.</i>
A&E Middle Grade doctor referral	
ANP SS attended A&E	W/R full Desperate people Long queues Eyeballing us as we walked through
Very busy, messy A&E rammed	
Located the patient on the A&E board	Everyone appears to be too busy to help find the patient
A&E Middle Grade documenting his assessment	Very brief Well known Previously worked in Acute Medicine
Unwell patient Low sats, SOB Fall + Pain + Chest trauma No ABG done No CXR done	Little engagement on arrival (frosty reception) Hypoxia is defined by PO2 Need ABG to measure PO2 O2 sats are not very reliable
Exchange about VBG versus ABG A&E declined to do ABG Waiting for portable CXR Still referred the patient	?haemothorax ?pneumothorax
ANP examined patient Analgesia O2, Nebs, Pred, Abx = COPD (for now)	Awkward conversation Poor eye contact A&E no interest in doing the ABG Usual treatment for COPD patients

(Adapted from Driscoll, 2012)

Suitable forms of anonymity were agreed with the research participants. This involved the use of pseudonyms (two random letters). The entries included an account of the event, what clinical decisions were made, how the consultation was conducted, dialogue, where people were positioned, comings and goings, personal subjective responses to what was observed and any other details and observations necessary to make the story of the field work observation experience complete. The initial notes were made in short hand in order to maximise use of time and in anticipation of the next thought arising. The number of notes taken was dependent upon the duration of the clinical encounter and the number of thoughts that arose (*refer to Figure 3.1*): These field notes were then expanded further (on computer/ Word document) away from the clinical environment into a 'descriptive text' to reflect the actual events that occurred during the case study. Initially the naïve intention was to generate potentially one hundred case studies. However, I found as I wrote the descriptive texts and later extended narratives that consistent information was arising along with similar themes from the data. The following is an example of the kind of information held within a descriptive text emanating from the Double-Entry Notebook Example (*refer to Figure 3.2*):

Figure 3.2: Descriptive Text Example

The A&E Middle Grade doctor had referred a patient to Acute Medicine. Acute Medicine ANP SS had arrived to assess the patient.

It had been a very busy and messy day to date. SS had clerked several sick patients already. The A&E was 'rammed'. The waiting room was full of people waiting to be called through to the main department from the waiting room and other areas that are not formal waiting rooms to be assessed. Several people were queueing down the entrance corridor just to book in at reception. All of them eyeballed you (with faces of hope or desperation) as we walked through the double doors into the main department to the A&E Control Room.

SS located the patient on the A&E board (a white board with patient's names, presenting complaint, destination and location). The patient was in resus which

is located directly opposite through another set of double doors. The A&E Middle Grade doctor was standing next to the Blood Gas Machine still documenting what appeared to be a very brief assessment in the A&E notes. The A&E Middle Grade doctor was well known to the SS. He had previously worked in Acute Medicine a few years ago. As a Medical Registrar in Acute Medicine he had a reputation for hard work, honest, good quality clinical care. Staff and patients were fond of him. This interaction however seemed out of character and did not progress as smoothly as expected.

From the outset it was obvious that the patient was not very well. SS asked the A&E Middle Grade doctor if he was doing an arterial blood gas (ABG) because the patient had low oxygen saturations of 84%. Hypoxia is defined by the patient's PO₂. PO₂ can only be measured from arterial blood. To measure the arterial blood gas you need to take an ABG. Oxygen saturations are not a reliable indicator of the patient's oxygenation, particularly if the patient is critically unwell.

A&E Middle Grade doctor: "I am doing a VBG (venous blood gas)".

SS: "But ...the patient has low oxygen saturations".

A&E Middle Grade doctor gesturing to SS: "Medics can do that".

SS muttered: "A VBG is of no value in assessing oxygenation".

SS: "Have you seen the chest x-ray?"

A&E Middle Grade doctor: "I am still waiting for a portable"

This was an awkward exchange between the A&E Middle Grade doctor and SS. The A&E Middle Grade doctor was rushed, flustered and barely looked up from his writing. It appeared that he wanted to complete his documentation and move onto the next patient (there three other sick patients in resus) now that this patient had been 'triaged' and referred to Acute Medicine.

Data collection for the later fifteen formal interviews with the Acute Medicine ANPs conducted away from the clinical environment (Site 1: 9 formal interviews, Site 2: 4 formal interviews and Site 3: 2 formal interviews) were audio-recorded. The audio-recordings were transcribed by a medical secretary with skills in

transcription and provided an accurate account of what was said during the formal interviews and were used to enhance and expand the descriptive texts further into the extended narratives to encompass forty case studies. The following is an example of part of the transcribed audio-recording of the Acute Medicine ANPs thoughts related to this case study (*refer to Figure 3.3*):

Figure 3.3 Transcribed Audio-Recording Example

Voice 2: “Assessing critically unwell patients in A&E resus can be challenging”.

Voice 1: “Why is that?”

Voice 2: “Well, I suspect these ‘ways of working’ from one A&E to another could vary quite a bit. I know in some hospitals the ‘On Call Team’ don’t even go to A&E at all. All medical emergencies, whatever the problems is, or whatever degree of difficulty are sorted in the A&E by the A&E doctors before the patient is transferred to whatever specialty” (Number 8).

The extended narratives were where the most purposeful reflexivity occurred. “I found that I returned to them at times during the research in order to reflect on them, deepen them and extract tacit information previously not identified” (010.031016JBTMTRFT). Reflexivity occurred at a level of remembering and experiencing what had occurred. Emerson, Frezt and Shaw (2011) believed that beginnings and endings of the account tend to be more variable as the thematic thread is selected to create a coherent narrative to organise and unify sequences of interactions. The extended narratives developed into a fusion of description of what had happened, combined with my developing understanding and transformative journey. The researcher “writes one episode after another, including all actions he observed and remembers, even though he might not see how they fit in while writing about them. He makes what connections he can at the moment, guided by an intuitive sense for what belongs in this tale” (Emerson, Frezt & Shaw, 2011, p.23). The following is an example of part of an extended narrative that had been developed from the descriptive text and transcribed audio-recording (*refer to Figure 3.4*).

Figure 3.4: Extended Narrative Example

There appears to be a developing theme regarding the events of this particular day. Again we have an encounter of the patient referred to Acute Medicine from A&E. On the surface at least, it appears that the Acute Medicine ANPs are having to undo many of the apparent 'not quite rights' to improve the patient's clinical condition. SS expressed disappointment that not everything that could or should have been done for the patient had occurred. I noted that this type of interaction is not uncommon and that there can be a level of animosity between those that work in A&E and those that work in Acute Medicine. It was a frosty conversation between two people who actually knew each other. On reflection this makes little sense as from the idealist perspective that is usually associated with healthcare, everyone's objective is to do their best and what is best for the patient. Terms such as 'best interest' and 'beneficence' spring to mind. (Source: 005.260916JBSSTRFT. docx).

Data analysis

Data analysis took place throughout the research and was tightly connected with interpretation. This was an iterative process where cultural ideas that arose during active involvement in the field were transformed, translated and represented in this written document. This sequential analysis or interim analysis allows the researcher to go back and refine questions and pursue emerging avenues of inquiry in further depth (Becker, 1971, Miles & Huberman, 1984). The ethnographic data were analysed thematically based on the following strategies for ethnographic analysis by Roper and Shapira (2000) (refer to Table 7):

Ethnographers traditionally collect great quantities of material to describe what their participants believe and how they behave, therefore data analysis and interpretation can be challenging (Roper & Shapira, 2000, Sangasubana, 2011). Hence, the large volume of data generated was managed and organised by employing Quirkos - computer software designed for qualitative data to aid analysis process. Initially the extended narratives were read and re-read (an immersion in the raw data) to gain an understanding of the concepts that were arising from them. Becoming familiar with the data aided understanding and the

identification of traces of patterns, connections, similarities and contrastive points. Data were examined word by word, line by line, sentence by sentence, paragraph by paragraph and extended narrative by extended narrative.

Table 7: Strategies for ethnographic analysis

<i>Coding for descriptive labels</i>	Written words were first grouped into meaningful categories (conceptual categories) or descriptive labels, then organised to compare, contrast and identify patterns. First level coding was done to reduce the data to a manageable size.
<i>Sorting for patterns</i>	Patterns became apparent as data were sorted into groupings. Themes were developed that fit the collected data and to understand “why things happen as they do” (Roper & Shapira, 2000, p.98).
<i>Identifying outliers</i>	Cases, situations, events or settings that did not “fit” with the rest of the findings were identified. These cases were then ‘kept in mind’ as the different steps in the research process were developed.
<i>Generalising constructs and theories</i>	The patterns or connected findings were related to theories in order to make sense of the rich and complex data collected. Existing literature was also reviewed.
<i>Memoing with reflective remarks</i>	Memos are insights or ideas about different parts of the data. They were written to identify areas that may have needed further clarification or testing. It also helped to keep track of personal assumptions, biases and opinions throughout the whole research process.

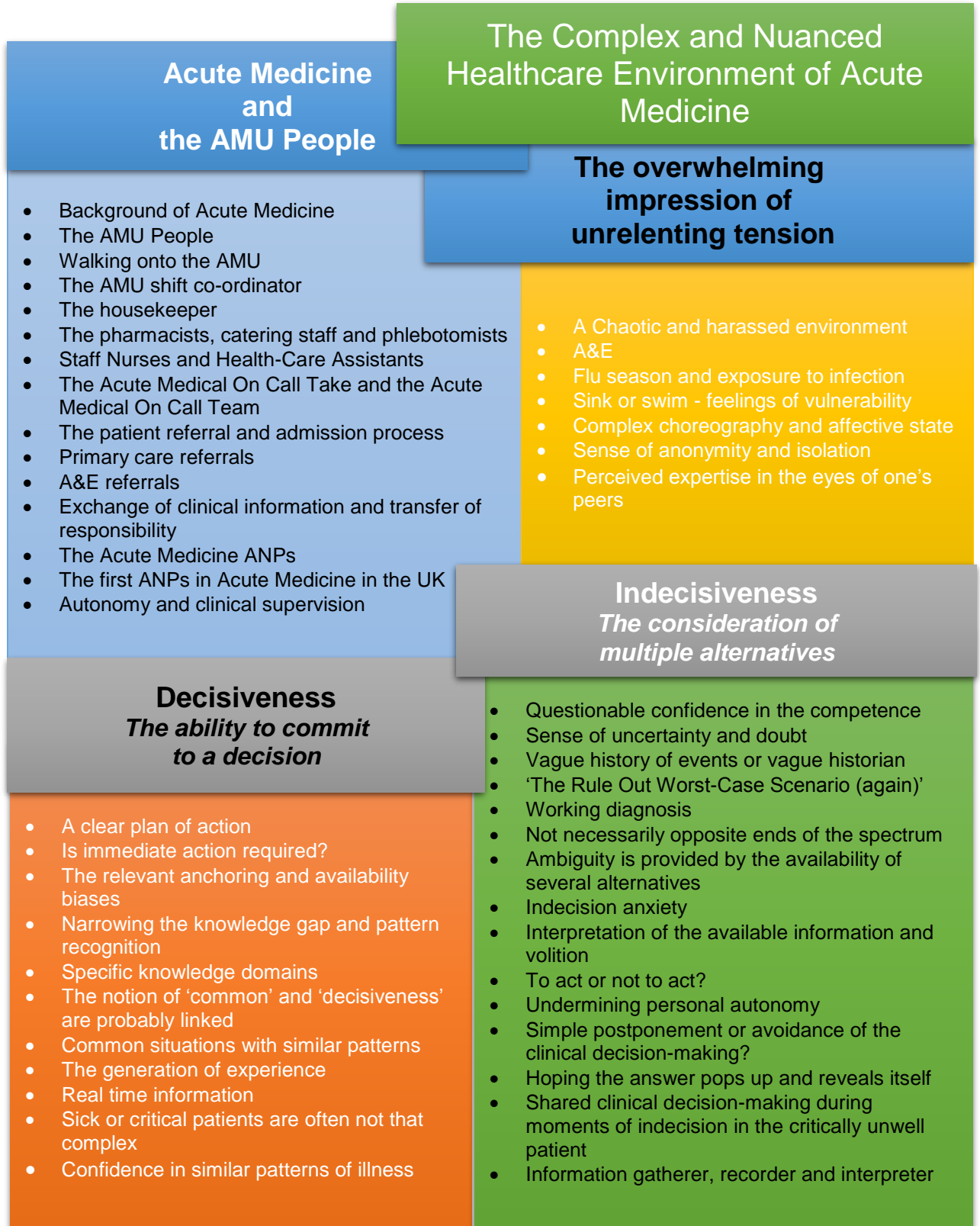
(Adapted from Roper & Shapira, 2000)

The thematic analysis focused on the identification of conceptual categories derived from the data via the constant comparative method (Fram, 2013). These were recorded next to the word, or line, or sentence, or paragraph or full extended narrative (*refer to Figure 3.5*). These were then given meaning beyond the immediate setting, put into the context of the research question and displayed in a form that conveys their meaning (LeCompte & Schensul, 1999). This process required ongoing comparison and contrasting between incidents found in the data and the emerging theoretical concepts. This method of analysis involved comparing data with data or theme with theme which in practice is a non-linear developing process (Charmaz, 2014). Similarities and differences in the collected data were identified to derive theoretical categories or themes and subthemes (*refer to Figure 3.6*) to explain - ‘What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?’

Figure 3.5: Identification of Conceptual Categories and Themes or Subthemes Example

Extended Narrative (example)	Conceptual Categories	Themes or Subthemes
<p>SS quickly saw the patient. <i>History was limited due to the patient's cognitive impairment and that she had no recollection of events.</i> During the examination SS established that the patient was tender on the left side of her chest and right hip. There was no obvious hip deformity. Her radial pulse was bounding. She had a bruised and swollen nose. There was no other evidence of head injury. Air entry was poor in the bases. The patient requested the toilet to pass urine during the consultation.</p> <p>When reviewing the results from the A&E investigations. No chest x-ray had been done (this is despite A&E suspecting that the patient may have a haemothorax or pneumothorax). No ABG was done despite the patient being hypoxic and requiring oxygen and having no history of chronic respiratory disease. Bloods had been sent to biochemistry for analysis but no FBC had been sent to haematology. Analgesia had been administered.</p> <p>During discussion SS expressed her frustration with these events and the quality of the patient's care to date. Unfortunately, this is not an isolated occurrence. The patient certainly required these basic investigations and if need treatment as a matter of urgency (Source: 005.260916JBSSTRFT.docx).</p>	<p>Taking a history <i>Difficult due to cognitive impairment (Vague historian)</i></p>	<p>Vague history of events or vague historian</p>
	<p>Clinical examination & Clinical signs and symptoms <i>Tender chest and hip Bounding pulse Bruised (Anchor) Traumatic injuries Positive chest findings (Anchor)</i></p>	<p>Is immediate action required?</p>
	<p>Collecting evidence & Clinical investigations <i>Difficult history Traumatic injuries No investigations as yet (Gaps in information)</i></p>	<p>Real time information</p> <p>The relevant anchoring and availability biases</p>
	<p>Diagnosis <i>Key investigation missing (CXR) ?Haemothorax ?Pneumothorax</i></p>	<p>Narrowing the knowledge gap and pattern recognition</p> <p>Working diagnosis</p> <p>Questionable confidence in the competence</p>

**Figure 3.6: Diagram of the themes and subthemes
Clinical Decision-Making**



Thematic identification during the ethnographic data analysis was an on-going process that began in the early stages of data collection and continued throughout the research study and was shared with the research participants to provide clarification and triangulation of findings. Exposing the themes to research participants and research supervisors enhanced this process. Therefore, the theoretical representation of the data has been developed as a shared experience and is discussed in Chapter 4 and Chapter 5.

Ethical issues and considerations

There are several ethical considerations with observational ethnographic research of this nature. A clearly written protocol that includes the aims, objectives, methods and potential findings is usually the first indicator of rigorous research. However, it is acknowledged that it can be problematical to set these out in advance for an ethnographic approach (Iphofen, Krayer & Robinson, 2009). The need for flexibility in approach was included in the research proposal to access the emergence of as much authentically produced data as possible.

The research study received Sheffield Hallam University (SHU) research ethics approval prior to being undertaken (SCJ Code: 14035407/4) (*refer to Appendix 6*). The Health Research Authority (HRA) deemed that NHS research ethics was not required (IRAS No: 19982) (*refer to Appendix 7, p.264*). The NHS providers provided confirmation that they agreed to participate (Reference: 0791/2016/HRA and Reference: 16-01-03) (*refer to Appendix 8*). One of NHS providers had a joint research office and was responsible for two of the research sites.

Confidentiality and anonymity

Other ethical issues considered included how the findings would be used and ensuring confidentiality and anonymity. The basic ethical principles to be maintained included, not doing harm and protecting autonomy, wellbeing, safety and dignity of all the research participants (Iphofen, Krayer & Robinson, 2009).

This was also supported by the nursing 'Code of Conduct':

“UK nurses and midwives must act in line with the Code, whether they are providing direct care to individuals, groups or communities or bringing their professional knowledge to bear on nursing and midwifery practice in other roles, such as leadership, education or research” (NMC, 2015, p.2).

Concern for privacy, confidentiality and anonymity included consideration of how the research study would intrude into the working lives of the Acute Medicine ANPs, how identifiable would the research participants and NHS sites be and how information was guarded during the data analysis process. This was addressed and negotiated with the research participants early in the research study when explaining the approaches that would be taken to protect privacy and maintain confidentiality. Jorgensen (1989) rationalised that it can be difficult to present a rich description in a case study while at the same time not identifying the setting. Here in laid the strength of the thematic data analysis process. Suitable forms of anonymity were agreed with the research participants before findings were shared. This largely centred round the coding of themes and the use of pseudonyms for each Acute Medicine ANP participant (two random letters) and each NHS site (allocated a single site number). The Acute Medicine ANPs were asked to review the findings and reports before their public release to gauge the extent to which they felt privacy had been appropriately preserved. It has been necessary to ensure that prior agreements made allowance for academic publications and the sharing of data with research colleagues and academic supervisors in advance of the research study.

Storage of research data

The research data was stored and secured using SHU Research Data Management Processes. Properly managing research data increases its value, improves research visibility and increases research citation rates (SHU, 2015). SHU has a dedicated 'research store' where the research data was selected, documented, recorded in the SHU Research DATA Archive (SHURDA) and will be made publicly available for ten years.

Ensuring quality through research

Ethnographic research differs from positivistic research approaches. These differences focus on the formulation of a research problem, the nature of the research goals and the application of research results. Consequently, there are variations in the ways problems of reliability and validity are approached in ethnographic research. Frameworks for ensuring rigour in this form of work have been in existence for many years. Guba (1981) constructs, satisfying four criteria has won considerable favour (*refer to Table 8*):

Table 8: Criteria for assessing the trustworthiness of naturalistic inquiries and actions taken

<p>Credibility</p> <p>In addressing credibility, the researcher will attempt to demonstrate that a true picture of the phenomenon under scrutiny is being presented.</p>	<p>The research study included ten voluntarily consenting Acute Medicine ANPs working in Acute Medicine from three NHS sites. By observing and analysing behaviour in their naturally occurring conditions, this provided the thick rich descriptions that produced useful data for theory analysis.</p>
<p>Transferability</p> <p>To allow transferability, the researcher will provide sufficient detail of the context of the fieldwork for a reader to be able to decide whether the prevailing environment is similar to another situation with which he or she is familiar and whether the findings can justifiably be applied to the other setting.</p>	<p>Since the findings of this qualitative project are specific to the Acute Medicine ANP and Acute Medicine, it may be difficult to demonstrate that the findings and conclusions are applicable to other situations and populations (or other ANPs in other specialities). Shenton (2003, p.69) suggests that the researcher knows only the “sending context” and hence cannot make transferability inferences. However, there may be sufficient contextual information about the fieldwork sites to enable the reader to make such a transfer.</p>

<p>Dependability</p> <p>The meeting of the dependability criterion can be challenging in qualitative work, although researchers should at least strive to enable a future researcher to repeat the study.</p>	<p>Veracity was established through focusing specifically on the Acute Medicine ANPs and their clinical decision-making behaviours during acute clinical events with patients in Acute Medicine. Observations made during the clinical incidents were correlated with the informal interviews directly after and the formal interviews at a later time to clarify and triangulate the data and to ensure that all facets of the construct were included in order to assess accuracy and to enable critical-reflection.</p>
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<p>Confirmability</p> <p>To achieve confirmability, researchers must take steps to demonstrate that findings emerge from the data and not their own predispositions.</p>	<p>The balancing of this insider versus outsider dialectic brought with it certain challenges. An inductive discovering process was employed to identify the themes and subthemes important to the study.</p>
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(Adapted from Guba, 1981)

Emic and etic perspectives

It is acknowledged that there are numerous biases for which observational methods are susceptible particularly as a lone researcher. Subsequently, the identification of themes potentially may have been influenced by my prior theoretical understanding of the research area (an a priori approach) and my personal and professional biases. I was an Acute Medicine ANP for nearly fifteen years and now am an Acute Medicine Nurse Consultant, hence my specific interest in the research study area. Emic and etic perspectives in ethnography arguably are consequential because they impact the research process, the findings of a study and the arguments regarding the implications of the findings. Bulmer (1979); Maxwell (1996); Strauss (1987); and Strauss and Corbin (1990) considered that prior theorising or 'theoretical sensitivity' can inhibit the forming of fresh ideas and the making of unanticipated connections. The balancing of this insider versus outsider dialectic brought with it certain challenges and was certainly reflected in many of the early scenarios and is demonstrated in the following dialog:

Acute Medicine ANP RB then left the patient and exited the room to talk to me in the hallway.

RB: “What do you think?” he asked me.

JB: “It is not important what I think. What do you think?” I replied indicating that I am the researcher, you are the responsible clinician.

RB: “COPD plus something else, I think. May be cancer?”

RB: “What do you think?” he asked me again.

JB: “What do you think?”

RB: “I’m not sure. He doesn’t look very well. He has that look, you know!” (003.JBRBDRI220916).

“Herein lies several ethical conundrums. In my clinical role this question would pose little difficulty” (003.JBRBDRI220916). Hence, this type of interaction emphasised the importance of personal discipline and being self-critical and reflexive during the recording and expansion of the hand-written field notes to ensure an analytical description and interpretation of the case. Fortunately, as this scenario progressed the Acute Medicine ANP RB continued to explain his thinking without my overt prompting (*refer to Chapter 5, Case Study 5: Vague history of events of vague historian, p.141*). Maintaining a balance between emic and etic perspectives was crucial for the most accurate depiction of research participants. In its most characteristic form, ethnography involves the ethnographer participating in people’s daily lives for an extended period of time, watching what happens, listening to what is said, asking questions, collecting whatever data is available to throw light on the issues that are the focus of the research (Hammersley & Atkinson, 2007).

Summary

This chapter has defined ethnography as the philosophical framework and considered reflections on the issues associated with researching my own workplace and culture. The methods used to collect data, namely in the form of participant observations, unstructured informal interviews and formal interviews and the strategies for ethnographic data analysis were presented including the

strengths and limitations. These are the processes that will be utilised to examine the clinical decision-making by the Acute Medicine ANPs in the context of clinical situations in the complex and nuanced healthcare environment of Acute Medicine.

CHAPTER 4.

The Complex and Nuanced Healthcare Environment of Acute Medicine

Introduction

Many authors have written about the other-worldness of the hospital and its ways of working. Long, Hunter and van der Geest (2008, p.72) described hospitals as “places of intensity, of life-and-death drama, creating moments of truth, self-discovery and rites of passage”. This is encompassed in the historical backgrounds of the three NHS sites. Site 1 had its origins in a sanatorium created for soldiers gassed in the trenches. The original two-storey building for Site 2 was erected in the late 1700’s and during the outbreak of the Second World War, hutted wards were built in order to receive the wounded and provide extra nursing accommodation for staff. At the turn of the 19th century, similar to many other hospitals of the time, Site 3 began as a small local Poor Infirmary where medical care was free and nursing care was provided by the female inmates who would often not be able to read. This was a concerning problem when administering medications from labelled medicine bottles (Fraser, 2009).

Inside the hospital environment itself, in particular, the bureaucracy, the division of the wards, the medical nomenclature, staff uniforms and technological appurtenances can appear deceptively familiar at first glance (van der Geesta & Finkler, 2004, p.1995). All three NHS sites provide a 24-hour A&E department and inpatient facilities supported by comprehensive pathology, medical physics and imaging services (including Magnetic Resonance Imaging (MRI) and Computerised Tomography (CT) facilities). Ultimately, hospitals are “liminal spaces, where people are removed from their day to day lives, taken into a betwixt and between space of being diagnosed, treated, operated upon, medicated, cleansed etc.” (Long, Hunter & van der Geest, 2008, p.74). Delving deeper, the intricate complexities of specialties within the hospital institution that cannot be explained by theories of homogenisation and hence there is diversity

and heterogeneity of cultures or in the case of Acute Medicine a complex and nuanced healthcare environment.

The purpose of this chapter is to examine the complexity and nuances of the very specialised healthcare environment of Acute Medicine and theorise how this influences the clinical decision-making of the Acute Medicine ANP.

This chapter reports on two themes from the analysis. Theme 1: Acute Medicine, the AMUs and the AMU People, lays the foundation of Acute Medicine practices and contextualises the AMU and the AMU staff who work in them. Theme 2: The overwhelming impression of unrelenting tension, characterises the atmosphere and environment where the clinical decision-making by the Acute Medicine ANPs takes place.

Theme 1: Acute Medicine, the AMUs and the AMU People

Background of Acute Medicine

There is a complex and nuanced healthcare environment imposed by Acute Medicine in the acute clinical environment that encompasses both the AMU and A&E. Though both are logistically separate, seldom does one not have an imposing influence on the clinical environment and ambiance of the other. This is multi-faceted and incorporates the patients themselves, the public, the clinical space, other healthcare professionals, the unique hospital processes, other clinical specialities and the bricks and mortar of the physical environment itself.

Acute Medicine is characterised by an atmosphere of unrelenting tension, high pressure demands for urgent and emergency care and hustle and bustle. There is a requirement to be innovative and flexible within operational policies to provide timely assessment and treatment for patients suffering from acute medical illnesses often in an environment that is less than optimal. Many patients are physiologically unstable and require resuscitative measures, while other patients

who are less critical still require urgent diagnostic investigations and clinical and therapeutic interventions. Some patients may require the clinical expertise of Critical Care (HDU, ITU or CCU) or the dedicated area within the AMU known as Ambulatory Care. How the Acute Medicine ANPs approach clinical situations with patients and the clinical problems they present is significantly influenced by the unique characteristics of these clinical environments and the way their knowledge and experience is organised.

The AMUs

The following provides a description of the unique features of each AMU from the three NHS Sites:

Site 1

The AMU of Site 1 has undergone many changes leading to its current form over the last decade. There was a time when the AMU was led by only one Acute Medicine Consultant (who often started the morning ward round at 0500 hours) and one Ward Sister. The cornerstone however, of the development of the AMU in its current form has been the increased presence and number of full time Acute Medicine Consultants to six and a nursing Ward Manager at the head of a team of three deputies. McNeill, Brahmbhatt, Prevost and Trepte (2009) suggest there is the hypothesis that consultant supervision improves patient care. This is unlikely to be in isolation, as these nurses also play an important part as clinical leaders through active engagement with patients and staff, influencing safer patient care (West & Dawson, 2012) and co-ordinating the day-to-day activity of the AMU. The morning ward rounds now at least start at 0800 hours.

A typical AMU shift therefore, is led by the AMU Shift Co-Ordinator, five Staff Nurses (one Staff Nurse allocated to Ambulatory Care), four Health Care Assistants (HCAs) (one HCA allocated to Ambulatory Care), two AMU Consultants, one AMU junior doctor and the Acute On Call Medical Team (including one to two Acute Medicine ANPs).

The AMU itself stretches along one single narrow corridor and is located next door to the A&E and the convenience of Radiology. The following reflective account sets the scene for the AMU:

“It [the AMU] is busy, chaotic and sees nine to ten thousand patients every year (thirty to fifty new acute medical admissions per day). In contrast to other parts of the hospital it is obviously a little battle weary and run down. The high traffic areas are well worn and dull with patches of the grey/light blue paint missing and a few extra dints here and there. The dreary grey lino on the floors are marked and scuffed. Most mornings the AMU corridor is cluttered by linen skips, linen trollies, commodes, the breakfast trolley, ECG machines, notes trollies, hazard cones, mop buckets and a defibrillator sat on top of the blue covered resus trolley. In addition to these various obstacles there are unsteady patients mobilising to the toilet, doctors on ward rounds and AMU nursing staff dashing in and out of the bay to the sluice or the clinical room for medications” (Source: 017.141016JBSSTRFT).

The twenty-nine AMU beds are all located in five bays of five beds and four single isolation cubicles. Each bay has a nursing station with a computer, a trolley for patient medical notes and a small sink in each corner. The patients for these bays only have access to one single male and one single female toilet located on the corridor. The four single isolation cubicles are usually used for patients' with infective clinical conditions (for example: Methicillin-Resistant Staphylococcus Aureus (MRSA), Clostridium difficile (C.diff), meningitis or confirmed Influenza/flu) and have access to their own en suite toilet. There are also an additional six assessment trollies and six assessment chairs in the two Ambulatory Care bays (one male and one female bay of three assessment trollies and three assessment chairs each).

The following provides a descriptive account of the Ambulatory Care:

“The male and female Ambulatory Care bays are located either side of the central AMU Control Room. The actual Ambulatory Care bays themselves

share the same features and décor as the rest of the AMU except the beds are replaced by a combination of assessment trollies and large reclining chairs. This (I suspect) makes it easier to transform it into an inpatient bedded bay when needed. This Ambulatory Care usually attends to twenty to twenty-five patients a day and is managed by the lone Staff Nurse (one Staff Nurse is allocated to Ambulatory Care). The AMU and Ambulatory Care are co-located and from the outside looking in appear as parts of the same unit configured with collected Acute Medicine operational policies.” (Source: 017.141016JBSSTRFT).

Site 2

Similar to Site 1, Site 2 has enjoyed a recent increase in the number of Acute Medicine Consultants (now seven Acute Medicine Consultants). “The AMU has also attracted Acute Medicine Consultants of the ‘younger generation’ who have recently completed their Acute Internal Medicine training. Investment in new modern facilities is likely to be an attractive feature contributing to this as well” (Source: 003.JBRBDRI220916.docx). This NHS Trust is also designing a new education program and developing a competency framework for Advanced Practice in an attempt to attract potential Acute Medicine ANPs (and ANPs in other specialities).

The newly refurbished and redesigned forty-three bed AMU of Site 2 is located on the third floor of the hospitals’ main block. It is a combination of three bedded bays with en suite facilities, four bedded bays with shared facilities on the corridors with mixed dependency and seven single-bedded side rooms with en suite facilities for patients who require isolation.

The following provides a descriptive visual account of the AMU:

“It [the AMU] has yet to show the inevitable battering signs of 24/7/365 patient and staff wear and tear. The true test is to examine the exposed corners in key areas (the AMU entrance, the door frames to each bay, the sluice door and doorway). To date, the paint on the exposed corners is

still intact, having avoided the trolley driving habits of the porters and the cumbersome hot meal wagon of the catering staff. In some places you can still smell the paint.

The AMU generally is very open and brightly lit with an excessive amount of modern lighting from all directions (ceiling lighting, wall lighting, under ledge lighting). Unseasonal sunshine is also beaming through the large windows that oversee one of the hospitals many carparks. The AMU has direct elevator access to A&E and Radiology on the ground floor. The layout gives the impression of a horse-shoe shape and for a first time visitor with little sense of direction (and all the bright lighting) it is somewhat disorientating.

The Ambulatory Care Unit is also co-located on the AMU. It is positioned at the 'bend or apex of the horse shoe' and despite being fresh, clean cut and modern is 'undersized' by comparison to the rest of AMU. It has a small 'bus shelter' like waiting area of six orange plastic chairs, where pending patients sit and wait. There are three single consulting rooms each with an assessment trolley and chair that all overlook another unique mismatch of a building from a different era. There is also bay area (similar design to a bay on the AMU) with three assessment trollies with matching grey-on-grey curtains for privacy and wall oxygen available" (Source: 003.JBRBDRI220916.docx).

A typical AMU shift would be led by the AMU Shift Co-Ordinator, seven Staff Nurses, four HCAs (one HCA allocated to Ambulatory Care), three AMU Consultants, two AMU junior doctor and the Acute On Call Medical Team (including one to two Acute Medicine ANPs) to rapidly assess, investigate, diagnose and provide treatment for forty to sixty adult medical admissions each day.

Site 3

Similar to Site 2, the AMU of Site 3 “is relatively new in age and shares the similar dark, grim and bluish grey ‘almost’ NHS trademark décor” of both Site 1 and Site 2 (Source: 016.121016JBRBDB.docx). The AMU has twenty-eight beds consisting of a combination of three and four bedded bays that align side-by-side down one side of a single corridor similar to the layout of Site 1.

“Each bay has a small nursing station, with a high counter that serves as a barrier where the Staff Nurse can work behind (perhaps seek recluse or observe patients from a distance) when not interacting directly with patients. The Staff Nurse has access to a computer and a notes trolley with divided sections for each patients’ medical notes. Some patients’ have ‘extensive past medical histories and therefore often have several volumes of medical notes. These tend to be held together by several large rubber bands and stacked precariously one on top of the other on the shelf underneath or hanging off the side of the notes trolley” (Source: 016.121016JBRBDB.docx).

The three side rooms are on the opposite side of the corridor to the bays. All have access to en suites and are usually reserved for patients that need to be isolated due to infective clinical conditions. “The small two toned smoky glass window on the door that is controlled by the latch outside of the side room enhances the impression of imprisonment or solitary confinement (perhaps not unlike the Poor Infirmary days), that I am sure many patients feel particularly when nursing staff enter dressed from top to toe in a protective face mask, apron and gloves” (Source: 016.121016JBRBDB.docx).

“The Ambulatory Care with a modest capacity and less modern furnishings is also located on the AMU at the opposite end to the reception. Ambulatory Care consists of two single consulting rooms each with a large lime coloured chair that is dated and fatigued. There are also two bays each with four points of access to wall oxygen for two large assessment chairs in one and one large assessment chair and a trolley in the other.

Both bays have a three panelled mobile curtains used to provide privacy during clinical examinations” (Source: 016.121016JBRBDB.docx).

The AMU shift is led by the AMU Shift Co-Ordinator, five Staff Nurses (one Staff Nurse allocated to Ambulatory Care), three HCAs, two AMU Consultants, one AMU junior doctor and the Acute On Call Medical Team (including one to two Acute Medicine ANPs). The AMU operates in close association with both the A&E and the Operations Centre (similar function to the CCC) and receives patients that have been referred either by the A&E or by the patient's GP. All the patients on AMU are reviewed by an Acute Medical Consultant on daily basis. All Ambulatory Care attendances are reviewed by an Acute Medical Consultant. Apart from Acute Medicine trained consultants, the AMU also has consultants from other specialist backgrounds including diabetes, rheumatology, respiratory medicine and intensive care.

The AMU sees twenty-five to thirty-five acute medical admissions per day. To address capacity and demand issues, Site 3 evolved the technique of differentiating short stays from longer stays. This involved one bay of four beds being allocated as longer stay (greater than forty-eight hours) and two bays each of four beds (eight beds in total) being allocated for shorter stay (less than forty-eight hours). The theory behind this is that it allows the AMU to provide faster specialist input to the longer stay patients when there are challenges in regards to capacity at the destination wards that is typical of this time of year while also retaining capacity to admit patients with potential shorter inpatient stays. Acute Medical Consultants, junior doctors, Acute Medicine ANPs and nursing staff continually confessed that ideally patient length-of-stay on AMU should only be up to about forty-eight hours. “Despite various specialist nurses regularly attending the AMU covering areas such as chest pain, heart failure, COPD, diabetes and palliative care, they appeared to have limited impact on expediting patient discharges directly from AMU” (Source: 016.121016JBRBDB.docx).

The AMU People

Hierarchy is such a defining and pervasive feature of any organisation that its forms and basic functions are often taken for granted (Magee & Galinsky, 2008). Despite established medical hierarchy there is increasing recognition across the NHS of the need to develop urgent care outside these traditional models. Doctors and nurses alone cannot provide the entire spectrum of care services in Acute Medicine. It is essential that the delivery of healthcare is conducted in a highly co-operative fashion. There needs to be collaboration with many other healthcare professionals including receptionists; housekeepers; pharmacists; radiologists; radiographers; sonographers; phlebotomists; student nurses; catering staff; estates; healthcare assistants; porters; and doctors of various grades. Groups naturally emerge from day-to-day interactions. These are the people that form the highly hierarchical social groups of AMUs. Typifying this is that each group is referred to, or refers to themselves, by their 'job title'. For example:

“I am JB the Receptionist”.

“I am LA the Housekeeper”.

“I am Acute Medicine ANP TN”.

“I am Charge Nurse AH”.

“I am Sister NZ”.

“I am Dr AKJ Consultant”.

Lost in these simple titles and greetings is the uniqueness of their tone, their facial expressions and physical appearance. Each individual or group is required to execute their designated tasks. Within the data there is evidence that the collective goal of providing high quality healthcare to patients cannot be achieved without co-operation with all other groups.

Walking onto the AMU

The first person you encounter is generally the receptionist. AMUs have several receptionists who work around the clock sat behind a desk and computer screen at the entrance to AMU. The following reflective account provides an introduction to entering AMU:

“Walking through the double doors to stand at the reception desk, I am greeted by an atmosphere of hustle and bustle. People are shouting ‘this’ and ‘that’ with what appears little regard for civil curtesy. Porters, nurses and members of the public are trying to gain the attention of the receptionist as she appears to be trying to answer the phones, register new patient details on the computer, request patient notes, print patient labels off and do another dozen things at once” (Source: 003.JBRBDRI220916.docx).

The receptionist is often the first face new patients and relatives visiting their loved ones are greeted with on arrival. Each receptionist has their own style of greeting from Receptionist JB and GP who are tall, strongly built Yorkshiremen with stereotypical Yorkshire accents to bright, bubbly smiling persona of Receptionist SH. Amongst many administrative and diplomatic responsibilities from signing Westfield forms, updating the Ambulatory Care list, removing jammed paper from the printer, re-directing frustrated relatives looking for the ward and bed that their sick ‘loved one’ is in and keeping track of which patient the porter has taken to Radiology, the receptionist clarifies the patient’s personal details for new admissions and processes their attendance on the computer data base.

The AMU Shift Co-ordinator

The designated roles and responsibilities of the AMU Shift Co-ordinator who is either a Ward Sister or Charge Nurse exemplifies the belief that the day-to-day activity of AMUs are nurse dominant and arguably nurse led. The AMU Shift Co-ordinator is responsible for all of the AMU, (Site 1: 29 beds, Site 2: 43 and Site 3: 28). In addition to this the AMU Shift Co-ordinator is responsible for the patients in the waiting room, in the ‘quiet room’, in Ambulatory Care (that can also accommodate fifteen to eighteen patients) and also communicating with site co-ordinators, communicating with the A&E Shift Co-ordinator, communicating with the medical wards, triaging and allocating beds and nursing resources to patients, chasing junior doctors and the Acute Medicine ANPs to clerk patients, to complete discharge summaries and discharge prescriptions, chasing the Medical

Consultants to update the patient handover information from the ward rounds and supporting all members of the AMU team.

The housekeeper

The housekeeper appears to have a variety of responsibilities that are unlikely to be specifically outlined in their job descriptions. Like her clinical colleagues, there is a requirement to be innovative and flexible within less conventional operational policies. This includes ensuring that all the clerking proformas and treatment charts for the Acute Medicine ANPs and junior doctors and the masses of nursing paperwork (TPR charts, Waterlow charts, nutrition assessments and continuation sheets) are hole punched and held neatly together by a short piece of red string. Similar to hair clips, these pieces of red string are often found misplaced or discarded all over the AMU. The housekeeper also ensures that the secretaries and the Ward Manager have enough post-it-notes, bright coloured highlighter pens and printer paper for their various administrative duties. The housekeeper spends much of her time walking the length of the hospital posting the paper referrals to the appropriate secretaries. The housekeeper also advises junior doctors how to complete the MRI safety check questionnaires correctly and often must justify and negotiate with the laboratory technicians the number of blood culture bottles needed to manage over a busy Bank Holiday weekend.

What may be considered an unusual task is that one Medical Consultant specifically requests that the housekeeper fetches him a discounted tuna sandwich from 'Boots' every Monday and Tuesday. Whether this request was a patronising abuse of power or a way for the Medical Consultant to have a favoured relationship with a staff member who arguably would not usually fit within his designated hierarchical position is an interesting question. Unfortunately, due to the limitations of this research this was not pursued further.

The pharmacists, catering staff and phlebotomists

The pharmacists, catering staff and phlebotomists attend AMU in the morning together at the same time each day. The pharmacists work on AMU in small groups of two or three. They ensure that the medication cupboards are well stocked and are characterised by the precision that they critique the prescribing

habits of clinical staff. With a distinctive flourish of a red pen, they review the patient treatment charts, contact GP surgeries for up-to-date medication records including the allergy status and identify prescription errors and omissions followed by a pursuit of a junior doctor to make the amendments.

The catering staff similarly work in small groups. The catering staff however, are considered less precise not only in their portion allocation as they serve the patients the specials at breakfast, lunch and tea, but also the way they bang and clatter the hot meal cart down the corridor, through narrow doorways, past commodes, notes trolleys and other strategically placed metal obstacles.

Phlebotomists are required to overcome similar obstacles to the catering staff. This involves pushing a computer on wheels avoiding the pathway of the hot meal cart, to take the routine blood samples from the AMU patients that have been requested electronically by the Medical Consultants on the ward round. Very few patients survive an AMU admission without being visited by a phlebotomist.

Staff Nurses and Healthcare Assistants

Staff Nurses (SNs) and Healthcare Assistants (HCAs) govern the hands-on patient care and documentation of patient care. The SNs and HCAs have all-encompassing responsibilities. This is highlighted in the following reflective account:

“The workload for the non-doctors has multiplied several-fold. The doctors themselves in many ways continue to plod along despite the atmosphere reeking in exigency. They take a history from the patient and then instruct the SNs and the HCAs to undertake the technical tasks (bloods, cannulas, ECGs, venous blood gases, catheters etc. etc. etc.). It is very rare to see a doctor undertake any of these tasks. Long gone are the days when the junior doctors were responsible for administering all the intravenous antibiotics themselves to the patients on the ward.

The HCAs tend to be more involved in attending to the patient hygiene, providing reassurance to the shouting and distressed frail and elderly

patients, attending to the endless ringing patient buzzes and alarms from drip counters with the flashing alert of 'occluded flow'. Often the AMU Shift Co-ordinator will ask them to escort the dozens of blood samples to the labs when the pod system inevitably breaks-down" (Source: 024.110117JBHGTRFT.docx).

Amongst all these non-medical healthcare professionals there is a complexity of relationships and personalities. Long et al. (2008, p.72) believed that in order to portray the richness of hospitals an "understanding of complexity and multifaceted relationships is essential". Where the Acute Medicine ANP themselves actually fit into this complex tapestry of the medical and non-medical workforce is seldom as clear.

The Acute Medical On Call Take and the Acute Medical On Call Team

The Acute Medical On Call Take is managed by the Acute Medical On Call Team. The Acute Medical On Call Take represents the period of time that the Acute Medical On Call Team are on duty. This incorporates a diversity of presenting clinical scenarios and complex challenges for the number of staff involved in the care of patients. The Acute Medical On Call Take has proven to be a challenge across many acute NHS hospital trusts (Vaughan, Edwards, Imison & Collins, 2018). There are limited resources (this includes staff and bed numbers). There is a requirement to make clinical decisions and prioritise care. All of these contribute to what is considered the difficulties of providing healthcare of any quality. Acute medical patients admitted (from A&E or from GP) via the Acute Medical On Call Take make up the majority of acute unscheduled admissions.

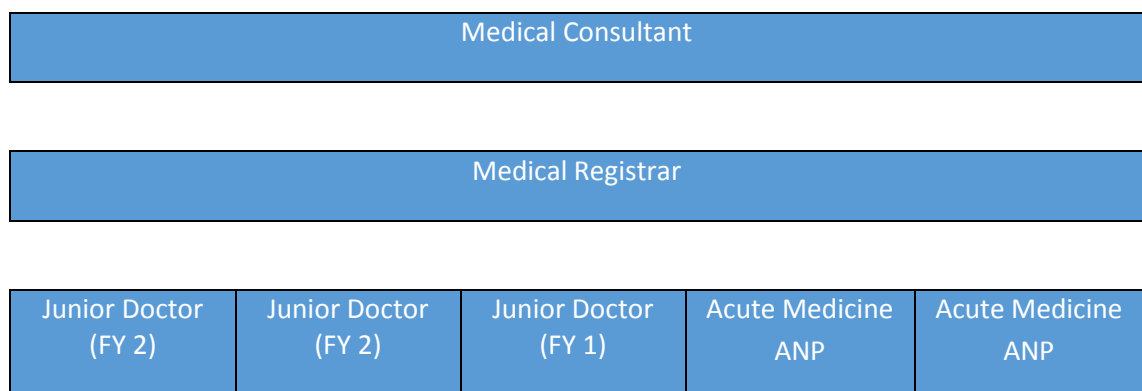
The Acute Medical On Call Team (over all three NHS sites) usually consists of a Medical Registrar, three other junior doctors (two Foundation Year 2 and one Foundation Year 1) and one to two Acute Medicine ANPs (*refer to Figure 4.1*). The admission process for any patient requires an initial assessment by a member of the Acute Medical On Call Team followed by an actual admission to hospital. This includes a prompt and efficient clinical assessment, with legible accurate documentation in the patient's medical notes of appropriate

investigations and the establishment of a clear management plan (Mann & Williams, 2003: RCP, 2007).

The Acute Medical On Call Take is co-ordinated by the Medical Registrar under the supervision of the on call Medical Consultant or the Acute Medicine Consultant. The quality of this supervision is variable from Medical Consultant to Medical Consultant, nevertheless the on-call Medical Consultant is ultimately responsible for all the patients admitted during the Acute Medical On Call Take (RCP, 2007).

The Medical Registrar traditionally has been perceived to be the ‘workhorse’ of the hospital with the responsibility for recognising and treating acutely unwell patients, having the ability to deal with complexity, diagnostic uncertainty and to support and lead the rest of the Acute Medical On Call Medical Team. Many clinical teams (including those from other specialities) rely on the support and advice of the Medical Registrar. Good working relationships between all these teams and individuals are considered crucial to the safety of patients. Meeting the challenges of the Acute Medical On Call Take and delegating tasks appropriately is considered characteristic of an efficient Acute Medical On Call Team.

Figure 4.1: The Acute Medical On Call Team



The patient referral and admission process

Patients are admitted to Acute Medicine via two potential routes. This is either after attending A&E or directly from attending their GP surgery (Primary Care). Before arriving on AMU, the patient has been assessed by another clinician prior to attending AMU. A patient referred from A&E would have been assessed by an A&E clinician and a patient referred from Primary Care would have been assessed by a Primary Care clinician usually a GP.

Primary care referrals

Primary care clinicians provide information regarding their patients that they see in the community and when they are unwell and require the expertise of hospital, the patient is admitted and the responsibility for their care is handed over to the hospital clinicians (doctors and Acute Medicine ANPs). Patient referrals to Acute Medicine from Primary Care (mainly from GPs) are made via phone to the Acute Medicine ANP or AMU Shift Co-ordinator and facilitated by the Care Co-ordination Centre (CCC) or Operations Centre via a conference phone call. The CCC or Operations Centre would then arrange transportation for the patient to hospital. An interesting anecdote of the referral process is highlighted in the field notes below:

“The conversation initiated by the GP usually starts with the GP’s name and the patient’s NHS number. Clinical details are often limited and the patient’s name is not given until the end of the conversation. Clearly the GP’s expectation is that the admission will be accepted and the patient is coming to hospital no matter what. Patient consultations away from the convenience of diagnostics (often even the equipment to do a blood pressure or blood sugar is absent) poses unique challenges that those working in Secondary Care facilities find difficult to understand. GPs actually often state time and time again, “I do not know what is going on here”. The obvious undertone of many of the conversations is that the GP is very busy and frustrated by how long it takes for the call to be answered by the hospital switchboard, then put through to the Acute Medicine ANP via the CCC (or Operations Centre). Conversations with GPs who had previously spent time as part of their training on AMU progress more

congenially and productively. These however are in the minority. The referral to hospital process though appears to be inconvenient and inefficient” (Source: 034.230217JBHGSSTRFT.docx).

A&E referrals

Similarly, A&E clinicians admit patients and handover the responsibility for their care to Acute Medicine. Patient referrals to Acute Medicine from A&E and other specialities are made via phone to the Acute Medical On Call Team. Acute Medicine ANP SS describes the process of a patient that has been referred to the Acute On Call Medical Team from A&E:

SS: “Once an admission has been agreed between the referring A&E doctor and the Acute Medical On Call Team doctor, the patient’s name, presenting complaint and date-of-birth are written down on the patient referral registrar and the AMU Shift Co-ordinator is informed. Members of the Acute Medical On Call Team, including ourselves, will then pick up this patient by signing our name next to the patient details. The next step is to then go and clerk the patient. Sometimes we have to go to A&E to see the patient there” (Source: 001.190916JBSSTRFT.docx).

Exchange of clinical information and transfer of responsibility

Clinical information is frequently exchanged between healthcare professionals because of the nature of patient care. This transferring of responsibility via this process continues throughout the hospital. Inpatient clinicians from various specialities handover the responsibility of their patients to the next team of clinicians at the end of their shift. Nursing staff follow a similar process and handover the responsibility of their patients to the next nursing shift and so on and so forth. The handover of patients from the initial responsible clinician to another poses many interesting questions. Often the complexity of the patient’s clinical state defines the diversity and the number of clinicians involved in care of the patient. Often this complexity is exaggerated or described inaccurately and those who are handing responsibility over to another clinician are providing the type of information about the patient that will ensure that the referral is ‘accepted’. This is reflected in the following field notes where a patient referred to Acute

Medicine by the GP attends AMU presenting with none of the symptoms the GP had claimed:

“The patient arrived on AMU feeling well and unsure why she was advised to attend by the GP. She denied all symptoms of feeling unwell. This appeared to be a total contradiction in what was said during the phone conversation with the GP. The GP actually had not even seen the patient. I have noted across many of the clinical scenarios and extended narratives from the field work that there are often ‘inaccuracies’ in the background information regarding patients given by referring clinicians (GPs, A&E clinicians and nursing staff). This type of interaction is not uncommon and presents challenges to the ‘receiving’ Acute Medicine clinician (including the Acute Medicine ANP).

What has been established so far is that there is a degree of caution or even scepticism in considering the assessment and treatment of the clinician who has previously seen or sometimes not seen the patient, particularly if you are the clinician who has the ongoing responsibility for the patient’s treatment and care. Just because an A&E clinician states or labels the patient as Acute Coronary Syndrome (ACS) does not mean that this is the case. Many conversations around this topic have generated discussion around whether these patient referrals are better considered as triaging patients rather than a thorough assessment of the patient’s clinical concerns” (031.120217JBHGTRFT).

Within Acute Medicine and the patient’s hospital journey, multiple transitions of care are expected to take place which require clinical handovers between clinicians. Most documents describe this handover as the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis (Black Country Partnerships, NHS Foundation Trust, 2016). Within AMU, being responsible for the patient, or perhaps more specifically being responsible for ‘their’ patient is a defining characteristic of the Acute Medicine

ANP. This belief or ethos perhaps fuels the belief of feeling ultimately responsible and accountable and working in isolation. This will be discussed in due course.

The Acute Medicine ANPs

As outlined in Chapter 1, the development of ANPs and other advanced practice roles has become a worldwide trend as healthcare planners explore innovative options for the provision of healthcare services (Schober, 2013). The integration of these dynamic nursing roles presents a change for healthcare professionals and the systems in which they practice.

The first ANPs in Acute Medicine in the UK

One NHS Trust that participated in this research, has had Acute Medicine ANPs since 2004. This Acute Medicine ANP group believe that they were potentially the first ANPs in Acute Medicine in the UK. During this time within this intense clinical environment and despite modest staffing numbers, the Acute Medicine ANPs have acquired specific clinical expertise and advanced ANP knowledge in line with guidance outlined by the NMC and HEE for Advanced Clinical Practice. The following reveals some anecdotal insight of the time when the Acute Medicine ANPs were trying to establish themselves. In a moment of reminiscing, Acute Medicine ANP TM recalled the many challenges and barriers of the early days:

“At the time, many doctors, nurses and managers said that the concept of ANPs was flawed and that 'nurses' were not capable of assessing and treating acutely unwell patients, prescribing medications and co-ordinating management plans independently and safely. Fast forward to now and times have certainly changed. It would appear that the doubters were unjust” (Source: 010.031016JBTMTRFT.docx).

This also provides a contribution to the presentiment that Acute Medicine is significantly dominated by a nurse led model of care. Despite acknowledging that the Acute Medicine ANP group across the three NHS sites are small in numbers (five to eight Acute Medicine ANPs at each NHS site, ten Acute Medicine ANPs

participated in this research), their clinical activity is diverse and covers many different Acute Medicine responsibilities. “The Acute Medicine ANP workload continues to increase as the diversity in Acute Medicine expands and the size of the AMU has grown. This is to accommodate not only the number of acute medical admissions, but also the increasing clinical acuity of these acutely unwell patients” (Source: 010.031016JBLHTRFT.docx). This is objectively supported by local statistical data at one NHS site indicating that apparently 30% of the Acute On Call Medical Take is clerked by an Acute Medicine ANP and 75% of Ambulatory Care patient attendances are clerked or reviewed by an Acute Medicine ANP. Arguably and without subjecting these figures to intense statistical analysis, the Acute Medicine ANPs clinical performance or clinical activity has exceeded previous external negative expectations as described by Acute Medicine ANP TM in the field notes above. Nevertheless, within the literature there has been no quantitative research into Acute Medicine ANP clinical performance in terms of patient numbers seen in Acute Medicine.

Autonomy and clinical supervision

Heavily evidenced in the ANP and Advanced Practice literature is the pursuit of or quest for autonomous clinical practice. However, the journey towards or the desire to achieve this is not overtly captured within the collected data and there is difficulty in recalling the actual word ‘autonomy’ being used by an Acute Medicine ANP throughout the data collection process. This raises the question whether this is relevant to day-to-day clinical practice and perhaps arguably that there is a more an allegorical conception of autonomy, specifically clinical autonomy for the Acute Medicine ANPs or anyone practising in healthcare. Unfortunately, this is an insight that was not pursued during the data collection process. Nevertheless, evident is another defining characteristic of professional autonomy that is authority to make clinical decisions in accordance with one's professional knowledge base (Skår, 2010). Arguably, this satisfies the belief of Cajulis and Fitzpatrick (2007) and Maylone et al. (2009) that it is essential to the attainment of full professional recognition.

In terms of clinical supervision by the on-call Medical Consultant (who is ultimately responsible for all the patients admitted during the Acute Medical On

Call Take), there is again a description of variable involvement. The dialogue below provides a brief example of one particular AMU Consultants' participation in a clinical scenario involving Acute Medicine ANP PS:

The AMU Consultant entered the office. PS asked him what he thought of the an ECG that she had been pondering over for quite some time.

AMU Consultant: "It is fast. Stick him in a bucket of ice water. Should do the trick. Does anyone have any lidocaine?"

The AMU Consultant then left.

PS: "This was not very helpful" (Source: 019.221016JBPSDRI.docx).

Generally, however the "assistance from Consultants is in the form of a quick review and the 'rubber stamping' of the outlined management plan. Seldom are plans significantly changed" (Source: 010.031016JBTMTRFT.docx). During the recent junior doctor strikes, the Acute Medicine ANPs at one specific NHS site, managed the Acute Medical On Call Take independently for a week in the absence of all the junior doctors. "Locally, this event is considered a pivotal moment that demonstrated the value of the Acute Medicine ANP to our Trust specifically" (Source: 010.031016JBTMTRFT.docx).

The Acute Medicine ANPs also attend to the AMU post take ward round jobs when required, take the GP referrals via phone, manage a significant proportion the daily activity of Ambulatory Care, support the AMU nursing staff and Acute Medical Consultants and amongst many other responsibilities nurture the junior doctors through the stress of an Acute Medical On Call Take. "Several conversations with the Acute Medicine ANPs have revealed that there is now also increasing pressure from Medical Consultants to expand their clinical skills and capabilities to incorporate other specialist technical skills as the clinical experience and expertise of junior doctors diminishes each year" (Source: 010.031016JBLHTRFT.docx). From this, one could easily conclude that Acute

Medicine relies heavily upon this small group of Acute Medicine ANPs with concerns regarding the potential overwhelming expectations and unrelenting tension and that the expectations of junior doctors are retreating. This arguably contributes to the difficulty in placing the Acute Medicine ANP in the Acute Medicine or AMU medical or non-medical workforce hierarchy.

From a clinical and leadership perspective the Acute Medicine ANPs have a proven regional reputation in Acute Medicine across all three NHS sites. All demonstrated an ability to assess the critically ill and complex patient as well as the stable patient with a less complex problem. Within the data there was evidence of organising and prioritising the clinical management of multiple patients simultaneously, using expert clinical knowledge and skills to assess, diagnose, plan, implement, interpret investigations and re-evaluate patients' responses to treatment. Subsequently, the Acute Medicine ANPs across the three NHS sites have become pivotal members of the multidisciplinary team, not only for their expert clinical management of acute medical patients, but also as a clinical and leadership resources to Consultants, junior doctors, nursing staff and allied health professionals in Acute Medicine, AMU, Ambulatory Care and A&E.

Theme 2: The overwhelming impression of unrelenting tension

A Chaotic and harassed environment

The AMU environment is characterised by an atmosphere that feels chaotic and harassed. There is an overwhelming impression of unrelenting tension fuelled by the absence of any spare bed capacity to accommodate patients in need. "Listening to the media when reporting on the NHS during this time of year, the term 'Winter Crisis' is a headline that is getting plenty of publicity. Is there actually a Winter Crisis? I am not so certain" (Source: 022.07011JBHGTRFT.docx). The demands for urgent and emergency care at the participating NHS Trusts have been consistently extreme during the entire year of data collection and hence justifiably provoking the pragmatic comment that; "The only difference between

summer and winter is the amount of daylight outside” (Source: 022.07011JBHGTRFT.docx).

Reflective accounts within the data highlight:

“The friendly and dry northern banter between staff has tempered but not quite vanished. Focused faces and focused minds prevail and appeared to be the order of the day. Where are all these patients going to go? Patients were queued up on stretchers down the corridor from the very beginning of the day and regrettably for some, are still waiting at the end of the day and into the night” (Source: 009.031016JBTNPJBTRFT.docx).

Consequently, a clinical environment is created with the unique challenges of extreme patient demand and the intricacies of limited and in many cases absent resources. These resources include what could be considered the NHS basics or even essentials of an assessment trolley or bed to examine and treat a patient in need.

Regardless of job title or NHS experience, the repeated eternal question muttered quietly under bated breath is - Where do all these patients come from? There are discomfiting mental images provided by several reflective accounts within the data. For example; “There were as many paramedics dressed in their distinctive green accompanying the stretcher patients as there were AMU staff themselves” (Source: 009.031016JBTNPJBTRFT.docx). A constant stream of stretchers lined the corridors with sick patients desperate for a bed and waiting to be assessed and treated. “The piercing daggers that are directed at you by the waiting public can be intimidating” (Source: 027.200117JBSSTRFT.docx). “It is hard to rationalise why there are seemingly innumerable patients” (Source: 009.031016JBTNPJBTRFT.docx). The eternal rhetorical question of – ‘Where do all these patients come from?’ is boundless and therefore will take so long propositioning that it can never be fully articulated, let alone answered. “Other times it does make sense when you review some of the clinical cases to find that more often than not patients are unwell and require the expertise and resources

provided by an inpatient admission to hospital” (Source: 009.031016JBTNPJBTRFT.docx).

A&E

The AMU does not exist in isolation. Subsequently, the sphere of influence of the Acute Medicine ANP also encroaches to the less familiar environment of A&E. Features of both these specialities are intimately entwined. The cascade of extreme demand envelopes all the urgent and emergency care services including A&E. The A&E waiting room is full day after day after day. There is no vacant sitting room or standing room. Desperate patients are queued up at the reception desk. The line of people waiting to book in is relentless. It stretches way down the corridor and even around the corner. At one NHS site in particular, the junction between the AMU and A&E had more people seated on chairs, or on the floor, or standing around the edges of the room, talking on their mobile phones, often discussing how busy the hospital is and that they have been waiting for ages. This junction was designed as an area for the porter wagons to turn around but serves instead as a makeshift waiting room overflow. “The A&E itself has now attracted the attention of all the suited personnel from hospital middle management. They are constantly attending in a seemingly unsuccessful attempt to establish patient flow and risk assess” (Source: 022.07011JBHGTRFT.docx). Even amongst hospital management there is evidence of a sink or swim mentality.

During these times all the referred medical patients from Primary Care that would usually attend AMU directly have now been redirected to A&E because there are no acute medical beds on the AMU or any medical ward. “The A&E is very busy and staffing in all hospitals across the country is problematic. Nurse to patient ratio is ridiculously high” (Source: 001.190916JBSSTRFT). The Acute Medicine ANPs are finding that they are spending their entire shift seeing patients in A&E. Certainly, there is a requirement and an almost surrendering need to compromise what would be considered the ideal clinical environment. Clinicians need to be innovative and flexible if patients are to receive timely assessment and treatment.

The following reflective account provides further evidence outlining the challenges of finding an appropriate place to assess patients:

“The AMU is full; Ambulatory Care is full of inpatients and the waiting room is full of ‘the walking wounded’ (anyone who is upright and does not require oxygen). The AMU is forced to use the neighbouring Children’s Dental Unit to assess and treat ambulatory patients. Normal business generated by the Children’s Dental Unit is considered elective/non-urgent and hence all elective/non-urgent activity has been cancelled due to the high demands of urgent and emergency care. It is all pretty extreme. The words penned on this paper really do not describe adequately the problems encountered daily just to provide very simple basic care” (Source: 024.110117JBHGTRFT).

These negative features of the clinical environment being constantly challenged and under strain dominate this theme. There appears to be little evidence of the privacy and personal space deemed important by healthcare staff and patients (Hutton, 2005). A trolley or bed space and an available A&E member of staff to assist has become a scarce luxury.

Flu season and exposure to infection

Previous studies however, have focused on different areas that may still be considered under the umbrella of the multifarious healthcare environment of the Acute Medicine. For example, an assumption is that all healthcare workers (including the Acute Medicine ANPs) are a key risk group for being exposed to and acquiring infections or ill health. Limited and dated studies by Jiang et al. (2003); Kromhout et al. (2000); Kumari et al. (1998); and Smedbold et al. (2002) examined healthcare employees’ risk of contracting infectious diseases from patients or from the clinical environment. There is potential exposure to many biological agents, either in the laboratory or directly from patients. The Public Accounts Committee concluded that the hospital environment ‘was dangerous by its very nature’ (National Audit Office, 2003). Commonly most of these infections will be with diarrhoea-causing viruses (for example; Norovirus) or bacteria. However, Influenza (Flu) can potentially be passed from patient to healthcare

worker. This is of particular concern if the UK suffers an outbreak of pandemic flu. During the winter months, with the increased prevalence of Influenza and Norovirus, the NHS is rarely away from the focus of the media and the high demands for urgent and emergency care. Acute Medicine ANP SS acknowledged this direct heavy influence of the media surrounding the 'Winter Crisis' and Influenza in the clinical decision-making surrounding the management of a patient with COPD and pneumonia in terms of prescriptions of medications and isolation in a side room with respiratory precautions.

SS: "Everyone who gets a heavy cold thinks they have flu. Flu gets a lot of publicity in the media. Very few patients actually end up having a confirmed case of influenza. During the winter months, all hospitals throughout the country are inundated with potential cases. The elderly and frail and those patients with co-morbidities are the most vulnerable. The consequences of treating or not treating patients for flu has implications not only for this individual patient, but also other patients and staff. There has to be a clear clinical suspicion that the patient may have flu. Treatment is very straight forward while waiting for the swabs to confirm either way. The real headache is for Infection Control and the Bed Management Team, because these patients need to be isolated in a side room with respiratory precautions. Side rooms or isolation rooms are pretty scarce" (Source: 027.200117JBSSTRFT.docx).

Sink or swim - feelings of vulnerability

"Healthcare is often thought of as an elaborate network of buildings and services that collaborate in an efficient way to provide the general public the service they have come to expect. The healthcare system represents one of the most complicated and critical emergency response resources in any country" (Achour & Price, 2010, p.267).

It is apparent that the clinical environment across the three NHS sites has an effect on the way the Acute Medicine ANPs conduct their assessments and the clinical decisions that they make. This chaotic environment has an impact on clinician performance. There is this constant undertone of a sink or swim survival

mentality that forms the essence of the Acute Medicine ANP human motivation. A typical example is highlighted by Acute Medicine KH:

KH: “This constant barrage if you like must influence the way I think and feel. It is pretty intense” (Source: 011.031016JBKHTRFT.docx).

This challenging climate appears typical of the morale and attitudes of the clinical environment as highlighted by Acute Medicine ANP SS:

SS: “Stepping almost over and around people who are lying on the floor at the reception can make you feel callous and uncaring as you make your way to A&E resus to see a patient who is critical” (Source: 027.200117JBSSTRFT).

The negative perspective is very obvious and represents the adverse events, mishaps, near misses and other easily quantifiable aspects (Carthey, de Leval & Reason, 2001). Arguably, these attributes are part of the unwritten rules of the NHS and are established as normal or inevitably to be expected. “The media have not helped the hysteria either. Doom and gloom! Not a day goes by without a constant reminder of the problems facing the NHS and particularly urgent and emergency care” (Source: 027.200117JBSSTRFT). The positive face of the intrinsic resistance to its operational hazards and the robust coping with the human and the technical dangers associated with their daily activities are less obvious. Unfortunately, there are currently no studies to date that have examined the influence of personal resilience across such professions and demographics.

Complex choreography and affective state

The clinical work of the Acute Medicine ANPs consists of a complex choreography of direct clinical patient care, various critical forms of communication with patients, relatives and other healthcare professionals, documenting in patient clinical notes, completing treatment charts, accessing technology and information. Consistently, the data revealed a narrative demonstrating the conflict between feeling vulnerable and often isolated in this

intense clinical environment and being exposed to at times to extreme clinical and physical demands. Acute Medicine ANP HG explains for example:

HG: “When you string three long shifts together and there is a constant stream of stretchers with sick patients lining the corridors desperate for a bed and waiting to be assessed and treated, it is hard work. There are so many people needing help. We are all stretched to the limits. It can feel very isolating and it is natural to feel stressed and fatigue” (Source: 022.07011JBHGTRFT.docx).

The following dialogue from Acute Medicine ANP LH highlights the effects that these high clinical demand periods has on systems and processes in Acute Medicine. Arguable, this exacerbates the need to feel secure in the clinical environment that are beyond the physiological needs. LH explained that ‘ideally’ in Acute Medicine, patients that are admitted during the Acute-Medical On Call Take should have a review from a Medical Consultant within twelve hours of admission. LH described an example where due to the extreme demands the involvement of a Medicine Consultant was missing:

LH: “I had to clerk a patient in the physio room because the A&E department was busy and overcrowded. She had presented with her first episode of seizures. On arrival to A&E she was well. I documented the consultation, requested the appropriate investigations and communicated the plan of care and treatment. The patient was well, safe and under the nursing care of the A&E nurses. A couple of days later I came across her on the wards. She was outlying on an orthopaedic ward. She had not seen a clinician of any nature since I had clerked her in A&E. This seems less than ideal. There is this concern that many a patient could be left to fester and deteriorate for days before being assessed by a senior clinician. This made me feel very uneasy to say the least. Fortunately, she was well and had had no further seizures whilst in hospital” (Source: 036.05031JBLHTRFT.docx).

The changing conditions and pressure that Acute Medicine, AMU, Ambulatory Care and A&E provides does heavily impact on affective state or state of mind and potentially clinical performance. The stages of Self-Actualisation and Self-Esteem as outlined in Maslow (1943) model hierarchy of basic human needs lectured to nurses during their education and advocated by Benson and Dundis (2003) appear difficult to achieve when the Acute Medicine ANP is still searching for early stage of Safety (Security, Stability and Freedom from Fear).

Visions of an endless line down the corridor of paramedics with stretcher patients portrays a clinical environment and a NHS under strain. Comparably, Maben et al. (2015) described the very nature and clinical character of a NHS healthcare facility can feel generic and impersonal. The institutionalised care provided runs the risk of being a one size fits all design. Hospitals are most commonly thought to be about beds (or lack of), walls, windows, floors, ceilings and technology rather than people (patients and staff), clutter and noise. Hamilton (2003) identified links between the physical environment of hospitals to patients and staff outcomes that focused on the reduction of staff stress and fatigue to increase effectiveness in the delivery of care. However, there have been limited studies focused on the development of supportive clinical environments to facilitate what appears to be an obvious idealism of tranquillity.

Sense of anonymity and isolation

Emotive terms within the data such as “unrelenting day on AMU”, “no empty beds”, “tension in the atmosphere was high”, “the AMU clinical environment felt harassed and chaotic” and “a trolley or bed space has become a scarce luxury” highlight the highly tense and disjointed background to the clinical environment of Acute Medicine. “Being human we are all at the mercy of this intense clinical environment and also the normal human responses of anxiety, stress, irritability, frustration and fatigue” (Source: 022.07011JBHGTRFT.docx). Within the data there were multiple examples where the Acute Medicine ANPs felt exposed, isolated and unable to find some senior support and guidance when assessing, treating and investigating patients (as previously discussed under Autonomy and clinical supervision p.88). Acute Medicine ANP LH reflected:

LH: “This is to be expected, I guess. There appears to be a sense of anonymity and isolation encouraged by the sink or swim state of mind. The more experienced a clinician becomes the less volunteered support one tends to receive. I suspect there is the assumption that I will ask for help if I need it” (Source: 010.031016JBLHTRFT.docx).

There is isolation imposed through the accumulation of their Acute Medicine experience and longevity. This is where a loose association with the literature can be drawn where Lyon (2005) stressed that autonomous practice involves self-directed treatment and diagnosis, which means self-determined and controlled action not requiring authorisation. Arguably, the Acute Medicine ANPs in many ways are essentially ‘victims of their own success’. The temporal component of reputations is formed through the consistent demonstration of distinctive and salient behaviours on repeated occasions over time and are typically not formed instantaneously (Anderson & Shirako, 2008).

Perceived expertise in the eyes of one’s peers

The undertone throughout the data suggests that the Acute Medicine ANPs, whose clinical experience within the speciality ranged from less than one to greater than fourteen years across the three NHS sites, are positively contributing towards the widening professional horizon of nursing. Zinko, Ferris, Humphrey, Meyer and Aime (2012) argue that personal reputation demonstrates important influences on work outcomes. Reputations in the workplace are characterised by work-related behaviour towards performance and personal characteristics perceived by others (Ferris, Blass, Douglas, Kolodinsky & Treadway, 2003; Zinko, Ferris, Blass & Laird, 2007). Observers need to perceive consistency of behaviour demonstration across occasions and therefore reputations take time to develop (some of the Acute Medicine ANPs in the study have been in post since 2004).

For the Acute Medicine ANP, these reputations focus on their individual capacity to perform their jobs effectively and even to undertake roles and responsibilities of other healthcare professionals. There are increasing pressure and expectations from the hospital nursing leaders, executives and Medical

Consultants to cover medical staffing shortages as a result of junior doctor strikes, junior doctor sickness and gaps in the medical on call rota. These are personal reputation building events. In these times of increasing numbers of acute medical admissions and clinical acuity of the patients, there have also been proposals to expand their clinical skills and capabilities to incorporate other specialist technical skills. With the exhibition of unusual proficiency over time, it can be argued that the “perceived expertise in the eyes of one’s peers is the first step towards gaining a personal reputation” (Zinko et al., 2012, p.159). This reinforces the isolation of the sink or swim mentality and the perception that close mentoring, monitoring or support to achieve these extra demands may not be considered necessary by others unless they actively seek this assistance. Zinko et al. (2012) argue that the reduction in uncertainty that a personal reputation brings to interactions with the reputed individual allows economisation in monitoring and freer assignment of power to that individual. However, there are relatively few studies that have dealt with these issues in regards to the impact on healthcare staff and no studies focused on Acute Medicine ANPs. More attention within the literature has been given to patient outcomes during times of extreme patient demand.

Summary

AMUs form the foundation of Acute Medicine. AMUs have been developed in response to the increasing number of medical admissions and the desire to improve the quality of acute care. The clinical environment provides the context of clinical decision-making. Subsequently, Acute Medicine imposes a complex and nuanced healthcare environment in the acute clinical environment of AMU in which ANPs make clinical decisions.

CHAPTER 5.

Clinical Decision-Making in Context

Introduction

Acute Medicine ANP clinical decision-making is a contextual and continuously evolving process that spans the wide spectrum of decisiveness and certainty to indecisiveness and uncertainty. Amemiya and Redi (2016) described decisiveness as the ability to commit to a decision quickly and efficiently and hence, indecisiveness entails the repeated consideration of multiple alternative possibilities. Theoretical discussions by Rassin, Muris, Franken, Smit and Wong (2007) and Spunt, Rassin and Epstein (2009) suggest that decisiveness and indecisiveness are opposing rather than independent traits. Within this clinical decision-making process, the task is to make action related choices (including, if necessary, not acting) (Smith et al., 2008, p.90). The Dual-Process Theory is highlighted throughout the clinical decision-making spectrum.

The purpose of this chapter is to examine the clinical decision-making by the Acute Medicine ANPs in the context of clinical situations in Acute Medicine. By employing a case study approach to ethnography, each clinical encounter between an Acute Medicine ANP and a patient is defined as a case study. Each case study will highlight elements and influences of clinical decision-making demonstrated by observations from field notes, quotes from the informal and formal interviews and supported by the literature including Dual-Process Theory.

This chapter reports on two themes from the analysis. Theme 1: Decisiveness - The ability to commit to a decision. Theme 2: Indecisiveness - The consideration of multiple alternative possibilities. Within these themes there are sub-themes from the analysis of the data that form the foundations of the Acute Medicine ANP Clinical Decision-Making Process Model that is later discussed in Chapter 6.

Theme 1: Decisiveness - The ability to commit to a decision

Case Study 1: A clear plan of action

The perspective from the Acute Medicine ANPs demonstrated within the data is that to achieve the desired patient outcomes that are considered positive, then clinical decision-making requires a clear plan of action and hence decisive committed clinical decision-making.

Multiple discussions with the Acute Medicine ANPs themselves revealed that difficulties in clinical decision-making arise through the complexities and uncertainties provided by the clinical decision-making alternatives. The optimal environment is one where there is no gap between what is known and what needs to be known. When there is an absence (or limitation) of unknown factors, there is less potential for uncertainty to intrude upon the clinical decision-making process. With greater certainty regarding the outcome brings more decisiveness in the process of clinical decision-making.

In the following case study, Acute Medicine ANP SS verbalises a clear clinical management plan when presented with an unwell, coryzal patient with radiological evidence of pneumonia. As previously highlighted, during the winter months in the UK, influenza (commonly known as "the flu") is a prominent media talking point when associated with the intense pressure that urgent and emergency services are under. The most common symptoms include a high fever, runny nose, sore throat, muscle pains, headache, coughing and feeling tired (Brankston, Gitterman, Hirji, Lemieux & Gardam, 2007).

Prior to attending A&E to clerk the patient, SS sat at a computer on AMU to review the patient's previous hospital attendances, blood results and chest x-ray. From this it was established that the patient had previous admissions with a diagnosis of COPD. Previous sputum sample results did not reveal a dominant precipitating bacteria for the exacerbations. The blood test results demonstrated raised infection and inflammatory markers indicating that an infection was still

suspected. This was confirmed by subtle radiological changes in the left lower zone on the chest x-ray. It was anticipated that this would be reflected as crackles or bronchial breathing during auscultation and dullness during percussion of the patient's chest. In the following narrative Acute Medicine ANP SS describes the advantages of this process:

SS: "It helps me establish a clear plan of management. I do this for all patients (if I am able to). Clear plans for our patients is what we all should be trying to achieve. It makes sense to gather this information if you can beforehand. This is not cheating. The purpose of investigations is to help to find out what the problem is. It does make sense. If the patient fell and states my left arm hurts, it makes sense to focus your assessment on the left arm. If the patient states my right ear hurts, it makes sense to look in the right ear" (Source: 027.200117JBSSTRFT.docx).

Returning to the case study:

SS attended A&E to see the patient who had been referred to Acute Medicine.

On arrival SS found the elderly lady on a trolley. She was unaccompanied. The trolley was laid flat. The patient was laid awkwardly on her right hand side. She had oxygen running through a nasal cannula oxygenating her forehead. She was wearing a hospital gown but also still had a dress on that had been pushed down to the waist. She was very breathless, clammy and sweaty. Her nose was obviously running. Her lips had a blue tinge to them.

SS attempted to introduce herself and take a history from the patient. The patient was not very compliant. She appeared confused and was incoherent. I assisted SS in sitting the patient up and elevated the back of the trolley. SS checked the patient's vital signs and repositioned the nasal

oxygen. SS stated that the ABG that had been just taken excluded CO₂ retention and narcosis.

SS then left the patient's side for a moment to read through the A&E assessment including the paramedic sheet. SS stated that the paramedic sheet can be very helpful in providing information about the patient at the initial scene (if the paperwork has been completed appropriately). Abnormal vital signs like low blood pressure and low oxygen saturations can give an indication of how unwell the patient initially was. Often after some emergency intervention in the ambulance and in A&E the patient can present significantly different.

SS established from the paramedic sheet that the patient was known to have COPD. She had been unwell for a week with running nose, aches and pains, rigors and chills, cough and shortness of breath. The patient lived alone and had no carers. The A&E assessment was essentially copied (word for word) from this.

SS then went back to the patient to clarify some points. After having been sat up for several minutes with a more traditional method of nasal oxygenation, she was much brighter. She did not appear to be confused. Her breathing had settled. She was drenched in perspiration even though her temperature was normal. Her nose was dripping. The patient now was able to confirm the previous history of events that had been documented by the paramedic staff and A&E doctor. The patient was unable to confirm whether she had had her seasonal flu jab. SS examined the patient (heart, lungs, abdomen etc.).

SS then sat down to document her findings and prescribe a treatment plan. Oral Prednisolone, intravenous Co-amoxiclav and Clarithromycin had already been administered. Oxygen via nasal cannula was now in situ and the patient had received several Salbutamol and Atrovent nebulisers.

SS stated aloud: “Is this just simply pneumonia and COPD? Ummmdoes she have flu?” (Source: 027.200117JBSSTRFT.docx).

Conscious of my level of participation as the researcher, all I offered was a gormless raising of the eyebrows and pathetic shrug of the shoulders.

SS: “That was not very helpful”.

“Analogous to determining ‘whodunit’ when reading a mystery story, the diagnostic challenge involves considering each piece of available information and determining the most plausible explanation for the illustrated pattern” (Eva, 2004, p.1). SS had identified several characteristic features and now was attempting to establish their relationship with the underlying diagnosis or diagnoses.

Returning to the case study:

SS answered her own question: “This patient clearly has pneumonia, but I think we need to treat her for flu as well. She will need to be isolated in a side room with respiratory precautions. Now what is the dose of Tamiflu?”

SS then explained to the patient and A&E nursing staff what the management plan was and then completed her documentation and prescription of treatment (Source: 027.200117JBSSTRFT.docx).

Is immediate action required?

The first clinical decision for SS was to determine whether immediate action was required. This binary question concluded ‘yes’ as the patient was unable to communicate a history of events due to breathlessness, confusion and poor posture. This clinical decision involved assisting the patient into an upright position and repositioning the nasal oxygen to improve the patient’s oxygenation. While waiting for this therapeutic intervention to take effect, SS used this time to collect data from other sources (A&E documentation and the paramedic sheet).

SS clearly demonstrated the ability to analyse and understand the clinical information provided from the various diagnostic investigations (blood tests, vital signs, chest x-ray and ABG), the A&E documentation and paramedic assessment, the patient history of events and the clinical examination. These could be considered features of both System 1 and System 2. In regards to System 1, many parts of this clinical decision-making process were firmly established prior to clinically examining the patient as the characteristic features were plainly evident. In regards to System 2, the process of the clinical consultation (history taking, physical examination, use of laboratory tests, patient management and record keeping) was less than straight forward as it was necessary for SS to be dynamic and engage in the situational factors surrounding the clinical environment and the clinical decision-making itself.

As the case study progressed, the clinical decision-making consisted of a process where SS made choices regarding the patient's presenting problems (breathlessness due to COPD, pneumonia and potentially influenza) and the appropriate therapeutic interventions (oxygen, steroids, nebulisers, antibiotics and Tamiflu). Norman, Colle, Brooks and Hatala (2000) demonstrated that clinical decision-making improved in terms of diagnostic accuracy when 'clinicians' started with a hypothesis and actively pursued data to support and confirm these initial thoughts (confirmation bias). This lends evidence to dual-process theorists who have placed great emphasis on the rapid and automatic nature of System 1 and its association with this prior knowledge and belief (Evans, 2003). Clinicians (including the Acute Medicine ANP) are assumed to have an understanding of signs, symptoms and diagnostic tests associated with particular diagnoses.

However, not all biases originate in System 1. SS verbalised the question openly whether the patient may have 'flu'. This is more a feature of System 2. System 2 has low processing capacity, and this requires high effort and the exclusion of attention to other matters. The influenza/'flu' bias when identified as such, can only be addressed with the activating of System 2. Optimal modes of interaction and methods of evaluation were considered in regard to whether there was enough evidence to suggest that influenza required active treatment. Stanovich

(2011) believed that this is an example where a balance between System 1 and System 2 is required for a well-attuned clinical decision-making performance. “Increased awareness and introspection while treating a patient comprise reflecting in action, whereas retrospective analyses of decisions comprise reflecting on action” (Monteiro & Norman, 2013, p.S28). This is outlined in the following dialogue:

I asked SS what influenced the clinical decision to also treat the patient for influenza.

SS stated: “The COPD part seemed straight forward. All patients with a background of COPD who present with shortness of breath and wheeze generally receive very similar treatments. This usually consists of oxygen, steroids, nebulisers and various antibiotics. Often this occurs with very little evidence to suggest infection. Now that we are in winter, ‘flu’ is getting a lot of publicity in the media. Everyone who gets a heavy cold thinks they have flu. The prescription of Tamiflu in this situation is common, if not almost routine” (Source: 027.200117JBSSTRFT.docx).

The relevant anchoring and availability biases

Arguably, the relevant anchoring and availability biases in this clinical scenario were the patient’s previous history and hospital attendances for COPD and the over exposure in the media of the ‘NHS Winter Crisis’ and the prevalence of ‘flu’. Mamede et al. (2010) considered that relying on these examples of availability heuristics is often helpful during clinical reasoning because of the ease that they come to mind. SS herself acknowledged that patients with COPD who present with breathlessness usually receive the same concoction of baseline pharmacological interventions. This supports the description from Croskerry (2002) that a combination of salient features of a presentation often result in pattern recognition of a specific disease or condition. Supporting System 1, Redelmeier (2005) would arguably suggest (and conflicting with Norman, Colle, Brooks & Hatala, 2000), that once SS has become anchored on this initial

hypothesis she will only look for confirming evidence to support the initial diagnosis and refute evidence to the contrary.

Certain cognitive biases are manifested more frequently than others (Ogdie et al., 2012). However, the diagnosis of COPD and pneumonia were made in advance by SS while reviewing the A&E investigations and previous hospital attendances on the computer on AMU prior to actually seeing the patient. Debatably, only the final product or clinical management when documented in the patient's clinical notes and then articulated to the A&E nursing staff is posted in the consciousness.

The use of anchoring and availability heuristics in clinical decision-making is also evident in the literature. Graber, Franklin and Gordon (2005) elucidated from one hundred cases involving internists and autopsy discrepancies, quality assurance activities and voluntary reports and found anchoring and availability were identified in 88% and 76% of the narratives respectively. Clinicians who are considered of greater experience appear to be more subject to an anchoring effect (Eva, 2002). These findings are consistent with other studies, however the scientific literature on the availability bias in medicine is mainly descriptive (Mamede et al., 2010). Monteiro and Norman (2013, S27) argue that diagnosis is primarily recognition of similar and familiar previously seen signs and symptoms. Though these processes are considered complex, Monteiro and Norman (2013, S27) believe that they are secondary and only serve to describe how memory functions in accessing prior knowledge. Therefore, in some circumstances a high degree of System 1 processing may be beneficial or even lifesaving in a potential critical event, such as in imminent life-threatening conditions (Croskerry, 2011). Similarly, prior experiences influence clinical decision-making and diagnostic choices. SS sitting the patient upright and repositioning the nasal oxygen to improve the patient breathing would be included under this umbrella. This therefore introduces another heuristic bias, that being recognition. The recognition memory literature indicates that a sense of recognition or familiarity appears in consciousness earlier than recollection (Gigerenzer & Gaissmaier, 2011; Ratcliff & McKoon, 1989). The clinical decision to treat the patient for flu (with Tamiflu) was possibly inevitable when combining

the familiar pattern of coryzal symptoms, chronic respiratory disease and the season of winter. A diagnosis of influenza is not considered during other times of the year.

Case Study 2: Narrowing the knowledge gap and pattern recognition

Difficulties in clinical decision-making arise through the complexities and uncertainties provided by the clinical decision-making alternatives. The optimal environment is one where there is no gap between what is known and what needs to be known. When there is an absence (or limitation) of unknown factors, there is less potential for uncertainty to intrude upon the clinical decision-making process. With greater believed certainty regarding the outcome and previous exposure to similar circumstances with similar patterns brings more decisiveness in the clinical decision-making. This is demonstrated during the following case study involving Acute Medicine ANP HG and a patient that had been referred to Acute Medicine from the GP. HG verbalises a clear clinical management plan when presented with a patient on Indapamide (thiazide medication) to treat Essential Hypertension (a long-term medical condition in which the blood pressure in the arteries is persistently elevated) presenting with Hyponatremia (low sodium level in the blood).

Severe hyponatraemia and other electrolyte disturbances secondary to Indapamide are well documented in the literature and are a common presentation in Acute Medicine. Profound hyponatraemia can result from Indapamide therapy (Prague & Zalin, 2014). HG was aware through previous exposure to similar clinical situations of the common association between Indapamide and hyponatremia and the potential clinical symptoms. “These symptoms can be variable and range from absent, to mild or severe. Mild symptoms impair the patient’s ability to concentrate, cause headaches, nausea and mobility problems” (Source: 034.230217JBHGTRFT.docx). Severe symptoms include confusion, seizures and coma (Babar, 2013; Henry, 2015).

The following describes the patient referral telephone discussion between HG and the GP:

HG received a phone call from a GP. The GP at the surgery had just received some blood results for a patient. The patient's sodium level was 121 (low). The rest of the renal function was normal. On asking the GP why the sodium result had dropped (previously the patient's sodium had been normal), the GP was unsure. The GP stated that the patient was not well known to him and that one of his colleagues had requested the blood tests for the patient.

While the GP was still on the phone, HG logged onto a computer and reviewed the results on ICE (the computer system shared by both Primary and Secondary Care). The clinical comment on the system attached to the U&E result was "Routine bloods, patient started Indapamide 2 weeks ago".

HG discussed this with the GP. Indapamide is a thiazide. Hyponatremia is a common problem amongst thiazide users. The GP stated that the patient was unwell with nausea, vomiting and dizziness. The GP wanted the patient assessed on AMU. HG accepted the patient referral, confirmed the patients details and wrote them down on the admissions register pending her arrival on AMU (Source: 034.230217JBHGTRFT.docx).

Specific knowledge domains

Working in Acute Medicine, the Acute Medicine ANP is exposed to many mechanisms that underlie many specific knowledge domains. Stanovich (2011) described this as embedded in the cognitive and behavioural repertoire through overlearning. Included in this is understanding that profound hyponatraemia can result from Indapamide therapy (Prague & Zalin, 2014). Severe symptoms of hyponatremia can have dramatic consequences for the patient.

Even before conducting a clinical consultation with the patient, utilising the relevant anchoring and availability biases, HG had already begun to develop a

clinical management plan for the patient. Gathering information about the patient before the patient has even arrived on AMU and a familiarity with this common type of an Acute Medicine presentation provides an example of the fast and automatic reasoning process that involves high processing capacity with low effort that is typical of System 1. Eva (2004) highlights that if the patient presentation is fully entwined with a particular diagnosis, practice with the critical hypothesis testing phase (System 2) is lost.

Returning to the case study:

A couple of hours later, on arrival to the AMU reception desk the patient clearly stated several times of her reluctance to coming to hospital and that she could not understand why this had been the case.

HG greeted the patient and escorted her to the Ambulatory Care area to conduct a consultation. The patient disclosed that she had had hypertension for several years and that the GP had changed her medication to Indapamide two weeks ago. The patient had routine blood tests today to assess her kidney function. The patient stated that the GP had phoned her at home to tell her of the abnormal 'salt levels' and that she needed to come to hospital. The patient stated that she did not actually see the GP and that she had not complained of any specific symptoms. The patient denied any nausea, vomiting or dizziness. (Source: 034.230217JBHGTRFT.docx).

JB reflected:

"This appeared to be a total contradiction in what was said during the phone conversation between HG and the GP. The GP actually had not even seen the patient" (Source: 004.250916JBLHTRFT.docx).

HG then examined the patient and checked the patient's blood pressure (BP 150/80). HG then advised the patient to stop taking Indapamide and

to see her GP in one week for assessment of her blood pressure and repeating her U&E.

HG: “But before I can let you go home; I just need to speak to the Consultant” (HG does not have authority to independently discharge a patient).

HG had a very brief conversation with the Consultant to confirm the plan outlined. HG wrote a brief discharge letter to give to the patient outlining the treatment plan. A copy of this would also be sent electronically to the GP. (Source: 034.230217JBHGTRFT.docx).

The notion of ‘common’ and ‘decisiveness’ are probably linked

The clinical decision-making from HG involved a decisive dynamic process that engaged with the situational factors of Indapamide induced, asymptomatic (patient denied symptoms) hyponatraemia in the immediate context following a referral to Acute Medicine on AMU. HG identified these factors to guide the course of action and hence the clinical management of stopping Indapamide and advising the patient to attend the GP in a week to review her blood pressure and U&E. This prior understanding and familiar pattern recognition with limited variables and stability contributed to what is described as narrowing the knowledge gap and confidence of relative certainty. When asked during the informal interview after this clinical interaction with the patient whether it was necessary to investigate other causes of hyponatraemia, HG explained:

HG: “Hyponatraemia secondary to Indapamide appears to be pretty common. I have come across it a few times of late. The patient’s low sodium should resolve by stopping Indapamide. The GP can recheck the patient’s sodium levels and monitor her BP (blood pressure). An alternative antihypertensive agent may have to be added if the patient’s BP goes up” (Source: 034.230217JBHGTRFT.docx).

Common situations with similar patterns

Smith et al. (2008) acknowledged that familiarity, certainty, limited variables, stability, congruence and perceived low risk were 'attributes' associated with relatively simple clinical decision-making. Croskerry (2009, p.1023) suggested that many diagnostic decisions are based on pattern recognition and is closely associated with the characteristic and pathognomic presentation for a specific disease process (similar to this clinical scenario). HG acknowledged that, "Hyponatraemia secondary to Indapamide appears to be pretty common" (Source: 034.230217JBHGTRFT.docx). Crosskerry (2002) described a strategy known as 'The Rule Out Worst-Case Scenario' (ROWS), that is a form of pattern matching resulting from known characteristic presentation for a particular disease:

"For most presentations the physician will have available, or carry mental templates of, the top five or so diagnoses that should be excluded. Thus, for chest pain the physician might match the presentation against the scenarios for unstable angina, acute myocardial infarct, aortic dissection, tension pneumothorax, and pericarditis. This is not an exclusive list of diagnostic possibilities for chest pain, but these are diagnoses that must be excluded before judicious disposition" (Crosskerry, 2002, p.1186).

This previous experience of a given situation or a common situation with similar patterns makes it easier to be decisive and make a clear plan for the patient. These strategies rely on using readily accessible, though loosely applicable information to control problem solving (Ippoliti, 2015). Croskerry (2012) was concerned that specific clinical situations increase vulnerability to specific biases. In relation to this case study and acknowledged by HG that, "Hyponatraemia secondary to Indapamide appears to be pretty common" (Source: 034.230217JBHGTRFT.docx). Therefore, there may be an increased susceptibility to attribute Indapamide as responsible for all patients who are on Indapamide and experience a hyponatraemic event. There are potential other causes of hyponatraemia. However, common things are common because they are common, or the maxim coined by Dr Theodore Woodward in the 1940s is, "When you hear hoof beats, think of horses, not zebras" (Dickinson, 2016, p.620).

It is unclear whether HG is unaware of the influence of these unconscious cognitive and affective biases have on her clinical decision-making. Yet “zebras” do exist (Dickinson, 2016, p.620). Unfortunately, this concept was not explored in further detail at the time. However, throughout the collected data the Acute Medicine ANPs have acknowledged that the notion of ‘common’ and ‘decisiveness’ are probably linked and that the combination of these two lends itself to the notion of experience.

JB reflected:

“When discussing this with the Acute Medicine ANPs, many admitted that it is an important process to review and absorb as much information as possible prior to speaking to and examining the patient. Generally patient problems are relatively straight forward. COPD is usually straight forward COPD. It is very common in this part of the UK. Acute Coronary Syndrome (ACS) is actually rarely ACS but rather Atypical Chest Pain, Musculoskeletal or simple Angina. Even Diabetic Ketone Acidosis (DKA) patients who can present as very unwell with a severe acidosis barely compatible with life have a straight forward management plan and will get better providing that they are alive when they reach hospital. The point that this highlights is that such presentations present few surprises and reviewing the available results and being influenced by what the referring clinician has documented seems appropriate” (Source: 034.230217JBHGTRFT.docx).

Arguably, similar familiar symptoms of disease and other characteristics of the patient themselves (whether having a self-awareness of consciously specifically knowing or perhaps unconsciously sensing) form the foundation of availability heuristic and the tendency to erroneously “consider a diagnosis more frequently and judge it as more likely if it comes to mind more easily” (Mamede et al., 2010, p.1198). This shares many of the elements of System 1, where the intention is to make judgments or clinical decisions more quickly and frugally, where the term ‘frugal’ is often measured by the number of cues that a heuristic will search (Gigerenzer & Gaissmaier, 2011, p.455). The sense of knowing is described by

Sheridan and Reingold (2012, p.439) as “subjective phenomenal awareness” and the “unconscious processing on an a priori basis”. The recognition memory literature denotes that a sense of familiarity appears in the consciousness earlier than recollection.

Case Study 3: The generation of experience

Research on the System 1 reasoning processes has evidenced its connection with experience (Coget, Haag & Gibson, 2011, p.477). “Human intelligence draws its conclusions from a base of experience-generated knowledge” (Hartung & Hakansso, 2014, p.186). Benner (1984); Benner and Tanner (1987); and Simmons, Lanuza, Fonteyn, Hicks and Holm (2003) argue that merely encountering patient conditions and situations is not experience. However, any experience should be considered experience of some description. Perhaps, it is the quality of the experience that is the question. Therefore, the generation of experience involves reflecting on encountered circumstances to refine their moment-to-moment clinical decision-making at an unconscious, intuitive level (McHugh & Lake, 2010). Bargh and Chartrand (1999) and Kahneman (2003) argued that repeated exposure to the same stimuli or problems will encourage the development of instinctive ways of processing and addressing information, thus relieving the mind from the burden of consciously processing.

Another rich example of clear and instinctive diagnosis and management plan for a patient presenting with symptomatic anaemia is demonstrated by Acute Medicine ANP HG in the following case study:

The next patient walked onto AMU and registered at the reception desk. She was a lady in her early 70's who had been referred with a low haemoglobin (Hb) and symptoms of lethargy. There had been no overt bleeding

HG read the GP referral letter and sat at a computer station to review the patient's Full Blood Count (FBC). The HCA escorted the patient to a

trolley. The patient's FBC confirmed a diagnosis of anaemia (Source: 028.060217JBHGTRFT.docx).

Symptomatic anaemia without obvious signs of bleeding is a frequent presentation to Acute Medicine. It is a decrease in the total amount of Red Blood Cells (RBCs) or Haemoglobin (Hb) in the blood (Rodak, 2007). "Symptoms are often vague and may include feeling tired, lethargic, weak and breathless. There are many other disease processes that can cause these symptoms as well" (Source: 028.060217JBHGTRFT.docx).

Returning to the case study:

HG went into the Ambulatory Care bay to consult the patient. The patient's husband was present. He appeared anxious as he paced around the end of the trolley. He refused the offer for a chair to sit on. HG sat next to the patient and asked the patient some questions. I stood inconspicuously at the nursing station listening in.

Three months previously the patient had a Myocardial Infarction (MI). Prior to this she had no chronic medical diagnoses. Since her MI her general health had deteriorated. She complained of greater than one stone weight loss despite a good appetite. She felt tired and lethargic. Her exercise tolerance had decreased to less than twenty yards. She ate little red meat. She denied any overt bleeding. Her Hb had dramatically dropped from 160 to 76.

During the clinical consultation, HG explained to the patient that a blood transfusion was necessary to increase the haemoglobin to improve her symptoms of lethargy. The cause for her anaemia would need to be investigated as part of the clinical management plan. HG did not explain what the potential causes for the patient's anaemia could be. HG then explained to the patient that one of the Medical Consultants would soon review her to clarify the history and provide more detail regarding the investigations.

Following the clinical consultation HG explained her thoughts regarding her clinical decision-making in regards to this patient.

HG: “As the history progressed, I am not surprised that the husband felt nervous. The patient was a lifelong smoker. This often leads to news of badness. The patient belonged to a generation where smoking was very normal and socially accepted. Many lifelong smokers actually enjoy or enjoyed smoking. Cigarettes were once cheap and during the Second World War were rationed out for free. Nowadays you cannot even smoke in a pub. A blood transfusion should hopefully improve her symptoms and make her feel a bit better ...for now. I am not quite sure what other tests she will need though” (Source: 028.060217JBHGTRFT.docx).

Real time information

HG had the benefit of real time information gathered from the blood results forwarded by the GP that indicated anaemia and explained the classic symptoms of the patient to guide the clinical decision-making processes. It is acknowledged that symptoms of tiredness, lethargy, feeling weak and breathless are vague symptoms that could be attributed to multiple pathologies and conditions. Human cognition is limited in its ability to manage the potential of these multiple pathologies and conditions. Hartung and Hakansson (2014, p.187) state that, this “is not taken as a limit on human intelligence, but rather a defining characteristic”. When these symptoms are combined with a Hb of 76 (low) they become less vague and more certain of a diagnosis of symptomatic anaemia. The availability of this information ensured prompt issue identification, allowing HG to identify the key patient concerns and enabled HG to make a clear clinical diagnosis and patient management plan regarding the need for a blood transfusion. Mamede et al. (2010) demonstrated that an availability bias may occur in response to recent experiences with similar clinical cases when a non-analytical mode of reasoning is used. Anchoring and the key features of symptomatic anaemia being a frequent and hence classic presentation to Acute Medicine, HG has used the parsimonious and highly effective reasoning process of System 1. This is reflected in the previous thoughts from Croskerry (2009),

that clinical decision making is fundamental in the formulation of a diagnosis and key to the effective and safe management of patients. This is reflected in the following:

“The literature suggests that a comprehensive decision-making process is one that is exhaustive in the generation and evaluation of potential clinical decision-making alternatives or choices. From the data it appears that clear and decisive clinical decisions are made with greater ease if there is an absence of multiple treatment options. On this occasion the patient needs a blood transfusion. Fortunately, these last two cases have had really no other alternatives. I have seen several examples of greater complexity” (Source: 028.060217JBHGTRFT.docx).

Arguably, this familiarity and availability of information regarding the patient speeds identification of the clinical diagnosis and decisiveness regarding the requirement of a blood transfusion. Mamede et al. (2010) highlighted that encountering only one case of a disease can even be sufficient to make the clinical decision-maker (Acute Medicine ANP) susceptible to inaccurate diagnosis to subsequent cases of different, though similar diseases. This is an example where a reliance on non-analytical reasoning and heuristics such as availability have enabled the Acute Medicine ANP to reduce the time and effort involved in accurate clinical decision-making in some self-confessed familiar clinical situations. Similar to the previous clinical scenario involving the patient with hyponatremia secondary to Indapamide, decisive clinical decision-making was aided by patterns developed through continual exposure to actual clinical situations.

Case Study 4: Sick or critical patients are often not that complex

The description of a relatively ‘simple’ clinical decision-making (as described throughout the decision-making literature) in reference to healthcare and patient lives and livelihoods must be considered a subjective term, particularly when “the contribution of diagnostic error to patient morbidity and mortality is significant”

(Croskerry, 2009, p.1002). "Assessing critically unwell patients in A&E resus can be challenging for members of the Acute On Call Medical Team including the Acute Medicine ANPs" (Source: 005.260916JBSSTRFT.docx). There is no strict dichotomy between heuristic and non-heuristic as such strategies can, more or less, ignore information (Gigerenzer & Gaissmaier, p.455). Clinical decision-making potentially may become increasingly intricate. Within this case study, Acute Medicine ANP SS adopts an approach to clinical decision-making that was more specific, creative and refined towards the individual needs of the critically unwell patient in the unique contextual dimensions of an A&E resus environment. Despite what might be considered a complex (subjectively) and a clinically critical patient there remains multiple examples of decisiveness assisted by System 1 reasoning processes in clinical decision-making by SS in the following case study:

SS and TN attended A&E resus to see a patient in his 70's who had presented with shortness of breath. He had a background of pneumoconiosis and Hairy Cell Leukaemia (Source: Source 58).

In Hairy Cell Leukaemia, malignant B lymphocytes (the "hairy cells") accumulate in the bone marrow, interfering with the production of normal white blood cells, red blood cells and platelets. Consequently, patients may develop infections related to low white blood cell count, anaemia and fatigue due to a lack of red blood cells. A low platelet count (thrombocytopenia) results in easy bleeding and bruising (Matutes, Wotherspoon & Catovsky, 2003).

Returning to the case study:

The patient had recently had several courses of antibiotics for a presumed chest infection. Bipap (a type of ventilator device) had been initiated by the A&E staff to help treat his Type 2 Respiratory Failure.

When SS and TN arrived, the patient was sat up. He was alert. He stated that his breathing had improved since he had received some urgent intervention including the initiation of Bipap. SS spoke to the patient

regarding the events that led to him to calling 999. He had woken up unwell this morning. He felt weak and more breathless. He had no chest pain. He was not expectorating any phlegm. He slept sat upright and could walk up to five hundred yards comfortably on flat ground usually. He had a degree of ankle oedema. He was an ex-smoker and ex-miner. He was under the care of the Haematologists for his Hairy Cell Leukaemia.

The patient had never required any active treatment for his Hairy Cell Leukaemia. He had suffered a rash in the past when given Co-amoxiclav and Clarithromycin and hence was considered allergic to these two antibiotics. These two antibiotics are considered first line therapies for patients presenting with Community Acquired Pneumonia (CAP).

SS then took a few minutes to clinically examine the patient.

SS then explained to the patient what she thought the problems were. SS stated that the patient had a combination of infection, chronic respiratory disease, heart failure and oral candida. This would require the patient being treated with antibiotics, anti-fungals, steroids, nebulisers, diuretics and titrating oxygen. It is interesting to note that SS was happy to state what she thought the problems were purely from the patient's history and clinical findings on this occasion. SS was yet to review any of the investigations apart from the vital signs.

SS then reviewed the A&E documentation including the ECG, ABG and other blood results. SS then reviewed the patient's chest x-ray from today and compared this to the previous films. SS highlighted that the patient's chest x-ray displayed several concerning features. The right mid zone shadow was still present. There was cardiomegaly. The left base was obliterated. The upper lung fields looked congested and there were chronic changes of pneumoconiosis. The radiologist report for the previous chest x-ray from last-month suggested that the right mid zone shadow could be a loculated pleural effusion.

SS then explained to TN that the history and physical examination are critical in guiding the evaluation of pleural effusions. Signs and symptoms of an effusion vary depending on the underlying disease, but dyspnoea, cough and pleuritic chest pain are common. SS explained that the chest examination of a patient with pleural effusion is notable for dullness to percussion and decreased breath sounds:

SS: “For this patient, the right mid zone shadow could be anything. On a background of ex-smoker, ex-miner, pneumoconiosis, Hairy Cell Leukaemia and first presentation of Type 2 Respiratory Failure this gentleman is not very well. Clinically for the moment though he was holding his own”.

SS then prescribed the patient IV Frusemide 40 mgs, a further Salbutamol 5 mg nebuliser, a further Atrovent 500 mcg nebuliser, IV Ciprofloxacin 400 mgs and IV Teicoplanin 400 mgs. SS stated that she would talk to the Microbiologist regarding the antibiotic choices later (generally speaking the Microbiologists are difficult to contact during the mornings because they are heavily involved in the management of patients on the Haematology Unit). SS then asked TN to liaise with the physiotherapist regarding the Bipap therapy settings after the repeat ABG in a couple of hours’ time (Source: Source 58)

SS handled the subjectively complex patient presentation by adopting practical certainty and engaging in clinical decision-making choices that she was comfortable with. SS demonstrated an intricate knowledge of oxygenation and Bipap, various medications and an in-depth understanding of antibiotics, the potential bacterial organisms responsible for the patient’s infection and the clinical confidence and competence to proceed without the advice and guidance of the considered expert (Consultant Microbiologist). SS acknowledged this during an informal discussion detailed in the following:

SS: “My confidence and I supposed decisiveness in my clinical decision-making has developed over time. Fortunately, I get to

spend quite a bit of time with sick patients in A&E. Over time I have been exposed to more and more clinical situations and am able to understand the potential outcomes. Sick or critical patients are often not that complex. Many of the clinical decisions are straight forward and almost made for you as there are not actually many alternatives. For example, this patient needed oxygen and nebulisers to help his breathing and he needed antibiotics to treat his pneumonia. Without these he would struggle to survive. Understanding this and what can happen enables me to narrow down the clinical decision-making alternatives. When there are few or no alternatives then making treatment choices becomes simpler or more straight forward. It must be done” (Source: Source 58).

Confidence in similar patterns of illness

SS acknowledged that previous experience of critical patients in an A&E resus environment often present with similar patterns of critical illness and could be considered subjectively less complex. Extensive clinical experience of oxygenation and non-invasive ventilation, an in-depth understanding of various medications and the potential bacterial organisms responsible for the patient’s infection requiring antibiotics and the clinical confidence again contributes to the knowledge of certainty or narrowing the gap between what is known and what is not known. SS stated that, “Understanding this and what can happen enables me to narrow down the clinical decision-making alternatives” (Source: Source 58). Expertise might play a role in bias and therefore an experienced Acute Medicine ANP like SS may be more subject to an anchoring effect (Eva, 2002). It is reasonable to suggest that the structured based principles of deliberate practice may be limited to the early stages of learning and may prove too cumbersome to maintain for an experienced Acute Medicine ANP such as SS. Mamede et al. (2010) argued that reliance on the non-analytical reasoning of System 1 tends to increase with experience. This can provide confusion because experienced clinicians tend to rely more on this non-analytical, default model of reasoning based on pattern recognition, recruiting heuristics to diagnose routine problems (Monteiro & Norman, 2011). Crosskerry (2009); De Neys (2010); Kahneman (2011); and Redelmeier (2005), claim that heuristics and System 1

are associated with biases and are generally viewed as suboptimal strategies and error prone.

Theme 2: Indecisiveness - The consideration of multiple alternative possibilities

“The capacity to make decisions quickly, confidently and competently is important for personal and professional well-being” (Barkley-Levenson & Fox, 2013, p.1). Decisiveness as previously discussed is associated with the intention to make clear plans of management for patients in Acute Medicine. These clear plans of management involve action related choices. Subsequently, these action related choices are also influenced by the uncertainty of indecisiveness. Hesitating and the habitual difficulty to make decisions is associated with indecisiveness (Germeijs, Verschueren & Soenens, 2006).

Questionable confidence in the competence of other clinicians’ clinical performance and clinical decision-making fuels indecisiveness and revealed itself as questionable confidence in the competence of the Acute Medicine ANPs themselves. This heavily influences their own clinical performance and their ability to make decisive clinical decisions is associated with uncertainty and indecisiveness. It is a prominent, multi-faceted, recurring theme and is linked to the logical, linear and conscious activation of System 2.

Questionable confidence in the competence

‘Competence’ is a term that has both a precise, scientific meaning, embedded within a theoretical context and a more variable and vague meaning stemming from everyday use (Teodorescu, 2006). This can make any attempt to develop a general theoretical base from which to make pragmatic recommendations quite challenging. There has been considerable acknowledgement in many professional fields, that although the assessment of competence is essential, it is a process fraught with many difficulties (Lichtenberg et al., 2007; Roberts, Borden, Christiansen & Lopez, 2005). It “is difficult to measure and methods

claiming to measure it have rarely been tested for reliability and validity” (Watson, Stimpson, Topping & Porock, 2002, p.425). Competence can be subjected to variable opinion and interpretation. This is reflected by Weinert (1999) that generally, even though most would know what the terms ‘competence’, ‘competencies’, ‘competent behaviour’ or ‘competent person’ mean, precisely defining or clearly differentiating them would be more difficult. Ironically however, one would have thought that precision is vital when dealing with the healthcare concerns of people and the public. Nevertheless, it is widely regarded that the foundational clinical attributes of professional self-confidence and competence in healthcare inform the development of clinical judgment and safe clinical practice (Kendall-Gallagher & Blegen, 2009; Roach, 2002; Suliman & Halabi, 2007). Therefore, it would be reasonable to suggest, that if the primary tasks of any clinician (doctor or Acute Medicine ANP) is diagnosing illnesses and providing interventions to improve the condition of patients, then a competent clinician would have the clinical knowledge, judgment, skill and experience to diagnose the patient correctly and be capable of providing appropriate treatment interventions. “In terms of being competent, whoever is making the clinical decisions and providing an assessment and management plan for a patient needs to have that clinical knowledge to be effective” (Source: 004.250916JBLHTRFT.docx). Within the data a discernible semantic core captured by such terms as ‘ability’, ‘aptitude’, ‘capability’, ‘effectiveness’ and ‘skill’ incorporate the meaning of the term ‘competence’. Unfortunately, it appears that such a simple definition like this is unable to function as a thorough framework for clinical competence. Hence, despite debating for decades, healthcare institutions and the medical profession itself have been unable to provide a general definition (Stern, 2006). In the following, Acute Medicine LH, provides some insight into whether this distinction or definition is indeed even relevant:

LH: “Day-to-day, in the clinical environment this distinction is probably not that important. What is more important is what is done for the patient. The Acute Medicine ANP or junior doctor must provide a good standard of practice and care. This would include promptly providing advice or arranging investigations or treatment

and where necessary hand over of the patient” (Source: 004.250916JBLHTRFT.docx).

The ‘handing over’ of a patient often occurs at the changeover of shifts. Generally, the patient has been already assessed, treatment has usually been initiated and there may be some results of investigations outstanding (for example a chest x-ray, blood results, or a CT scan) that require the results chasing and if appropriate changes to the patient’s management made.

LH: “There are some (clinicians) who are very good. You know what to expect when you go to see the patient that they have handed over. Other times this goes less well and the initial assessment was lacking. The patient may have deteriorated significantly by the time you get around to chasing the outstanding results and assessing responses to initial interventions. To be honest, this is what worries me in my own practice as well. I am hoping that I have done a good job when I hand patients over. I am pretty sure most of us feel the same” (Source: 004.250916JBLHTRFT.docx).

Hence, what could initially naively be interpreted as derogatory criticism of the clinical performance and clinical decision-making of other clinicians, is revealed more appropriately as confidence in the competence of the Acute Medicine ANPs themselves and their own clinical performance and clinical decision-making. Therefore, the quest for clinical competence manifests itself as an observed behaviour in clinical practice. A description of competence can be derived according to the tasks of each clinical encounter. Key features of the clinical consultation with the patient such as history taking, physical examination, use of laboratory tests, patient management and record keeping provides an insight into the purpose and consequence of the behaviours of a clinician. Competence encompasses various things like clinical knowledge, skills and even values and professional attitude and their application in an actual clinical setting or environment. “Being able to do this is what I would consider competence and being able to do this is what I would consider being competent” (Source:

004.250916JBLHTRFT.docx). This presents unique challenges for those with perceived variable clinical competence.

Nevertheless, this contemporary internal conflict regarding personal competence and the struggle which the data reveals appears to take place in the mind of the Acute Medicine ANPs when confronted with patients is what characterises indecisiveness and consideration of multiple alternative possibilities where there is a reliance or preference for System 2.

Sense of uncertainty and doubt

Being indecisive and the consideration of multiple alternative possibilities is characterised by classic System 2 and the taking longer to make clinical decisions, seeking more information before making a clinical decision and a heightened sensitivity to uncertainty where it is more likely to interpret ambiguous stimuli as negative (Ferrari & Dovidio, 2001; Ferrari & Pychyl, 2007; Rassin et al., 2007; Rassin & Muris, 2005; Rassin, Muris, Booster & Kolsloot, 2008). Mann, Burnett, Radford and Ford (1997) and Schwartz et al. (2002) believe that decision-making behaviours that prolong the decision process, such as buck-passing, procrastination and the exhaustive search to reveal the absolute best option known as maximizing, are likely traits related to indecisiveness. Germeijs and Verschueren (2011) and Germeijs, Verschueren and Soenens (2006) associated these with high levels of anxiety and low self-confidence in the decision-maker. These are featured in the previous field notes involving Acute Medicine ANP LH. Similar comparisons can be made with the classical model of rationality where in situations that are complicated or ill-defined, humans use characteristic and predictable methods of reasoning (Atkin & Borgbrant, 2009). This requires knowledge of all the relevant alternatives and certainty in the present and future evaluation of the consequences no matter how diverse and heterogeneous in a predictable world without surprises (Gigerenzer & Gaissmaier, 2011). Within the literature, Germeijs and de Boeck, (2003, p.113) highlighted that indecision with regard to a specific circumstance or clinical situation does not necessarily imply that one has problems with making decisions in other situations. "Sometimes, decisions can be easy, but we all have experienced situations where deciding is difficult and stressful" (Germeijs & de

Boeck, 2003, p.113). These are relevant to clinical decision-making in Acute Medicine.

Conceptualising indecisiveness that impacts on clinical decision-making as a sense of uncertainty and doubt that inhibits or delays action has several essential features. The importance of any clinical decision is variable and often subjective and specifically personal to each individual Acute Medicine ANP. Each may experience different doubts in identical clinical situations. Comparing a clinical decision outcome to its potential and uncertain alternative appears to be an important component of clinical decision-making. Taghavifard, Damghani and Moghaddam (2009, p.13) described decision-making as an important and often difficult task. Intolerance of uncertainty has been found to be associated with an inflated need for information (Dugas et al., 2005).

These individual differences are likely to reflect differences in the propensity to perceive outcome uncertainty. This surrounds the potential outcomes of the potential clinical decisions required. Variations of this uncertainty tolerance to intolerance between the Acute Medicine ANPs are likely to reflect differences in their susceptibility to perceive outcome uncertainty. The following comments document the thoughts of Acute Medicine ANP TN regarding indecision and indecisiveness and tolerance of uncertainty:

TN: "I have no idea of what is wrong with this lady. I don't want to write blah blah blah query cause. 'Query cause' (written as ? cause) is not a clinical impression. You do not require any clinical skills or expertise to write something query cause. What do you think?" (Source: 018.171016JBRSSHGTRFT.docx).

Conversations about what the potential causes of a patient's problem can be interesting. "Usually the gathered participants of the conversation attempt to pigeon-hole the patient's symptoms into a known disease or syndrome. There is always someone who contributes the most obscure or dramatic of causes" (Source: 018.171016JBRSSHGTRFT.docx). One must also have to bear in mind that we are considering our clinical impressions based on the assessment of

another clinician of variable experience or inexperience. We are assuming that the history and the interpretation of the patient's verbal and non-verbal communication was accurately taken in context. "This is where misinterpretations and the misleading part of history taking from patients can potentially occur. The result is that the process breaks down. One does need to keep an open mind. Inexperienced clinicians are poor at taking clinical histories. That is why they are considered inexperienced" (Source: 018.171016JBRSSHGTRFT.docx).

Case Study 5: Vague history of events or vague historian

During the formal interviews with the Acute Medicine ANPs, all acknowledged that this scepticism was exacerbated by their often-perceived inability to fully control the outcomes or consequences. The degree of uncertainty or certainty varies depending upon how much knowledge each is able to establish regarding the presented clinical situation requiring a clinical decision to be made. Croskerry (2009, p.1022) suggested that the clinician rarely has all the necessary information to make an informed rational clinical decision. "The history provided by the patients themselves often appears to be flawed" (Source: 0124.08102016JBLHTRFT.docx).

An example of this is reflected in the following case study involving Acute Medicine ANP RB:

RB entered to the room where an elderly man was sitting in a chair. He was at least in his 80's. He was very pale and frail. His over-sized clothes hung on him and he had an 'old timer' green and brown flat cap on. I decided to observe from the hallway through the open door. I was attempting to play a lesser part in the clinical scenario to see whether I could have less influence and perhaps the ANP could work more naturally.

RB sat next to the patient and took the clinical history. RB documented the history as he went. The patient was not very forthcoming with great deal of detail regarding the reason for his hospital attendance.

RB: “Are you breathless?”

Patient: “A bit”

RB: “Do you smoke?”

Patient: “Sort of”

RB: “Have you lost weight?”

Patient: “May be”

And so on. It appeared to be a very tedious process with little engagement from the patient and questions being met with short worded vague answers (Source: 003.220916JBRBDRI.docx).

The terms ‘vague history of events’ or ‘vague historian’ have been frequently used by the Acute Medicine ANPs throughout the clinical scenarios, discussions, informal and formal interviews. It appears that the clinical assessment, diagnosis and management of some, mainly older patients presents a number of challenges during the clinical consultation. Although many remain physically and mentally alert and lively with advancing age, there are increased incidences of functional, cognitive and psychological problems. “Taking an adequate clinical history of events can be very complex and time-consuming especially if the patient has multiple medical problems, poly-pharmacy and communication problems” (Source: 027.200117JBSSTRFT.docx).

RB continued to explain his thinking:

RB: “What do you think?”

JB: “It is not important what I think. What do you think?” (I replied indicating that I am the researcher, you are the responsible clinician).

Returning to the case study:

The patient looked chronically unwell, meaning he was very pale, eyes were sunken, clothes were clearly several sizes too big, meaning he had lost a significant amount of weight. He eventually revealed that had had

little appetite and his bowels were inconsistent. He had a background of COPD. He still smoked the occasional cigarette when he was not to breathless, however he was now short of breath when even getting dressed. He lived alone. He had no carers. (Source: 003.220916JBRBDRI.docx).

RB pondered: “COPD plus something else I think may be cancer??? I’m not sure. I probably don’t have enough information or the full story yet. He doesn’t look very well. He has that look, you know? This is difficult. We need to do the right thing. What to do?”

‘The Rule Out Worst-Case Scenario (again)’

COPD is a relatively straight forward diagnosis and is characterised by long-term breathing problems and poor airflow (Algusti, 2017). The clinical history from the patient stated that he was complaining of shortness of breath and that the patient already had a previous known history of COPD. “Cancer on the other hand, arguably is an important diagnosis not to miss” (Source: 003.220916JBRBDRI.docx). Though COPD is a terminal disease, cancer may not necessarily be if identified and treated appropriately. The severity of illness and potential outcomes of lung cancer diagnosis and treatment are personal and case specific dependant on multiple factors rather than a generalisation. However, studies with cancer patients and health professionals suggest that lung cancer in particular attracts a certain stigma because of its potential poor prognosis and established link with smoking (Chambers et al., 2012; Chapple, Ziebland & McPherson, 2004). Considering the potential of cancer (worst case scenario), RB is erring “on the side of caution and increases the likelihood of detection of diagnoses that must not be missed” (Croskerry, 2002, p.1186).

Case Study 6: Working diagnosis

The formal interviews with the Acute Medicine ANPs demonstrated that from this initial interaction with the patient, further thinking, clinical decision-making and behaviour is largely driven by a search for a 'working diagnosis' via the taking of the history of presenting illness and past medical history. "A working diagnosis is the provisional diagnosis of the most likely nature of the disease from the patient's clinical history, the physical examination, signs and symptoms prior to the confirmation by various laboratory and diagnostic investigations" (Source: 027.200117JBSSTRFT). Identifying a working diagnosis is often challenging, as patient clinical histories can be unreliable and many clinical signs and symptoms are nonspecific.

Not necessarily opposite ends of the spectrum

As illustrated previously under the title of Decisiveness - Clinical Scenario 3: A clear plan of action (p.114), Acute Medicine ANP HG acknowledged that the diagnosis of symptomatic anaemia was easily identified. The low haemoglobin and symptoms of lethargy and shortness of breath on exertion were obvious. HG explained to the patient that a blood transfusion was necessary to increase the haemoglobin to improve her symptoms of lethargy. The decisive conclusion to transfuse the patient appeared to be easily made. However, evidence of indecision in regards to investigating the underlying cause of the patient's anaemia is highlighted in the following:

I asked how was this going to be investigated.

HG: "I am not sure".

HG then inserted a cannula and took further venous blood samples. HG then completed the blood form requesting a repeat FBC, U&E, Liver Function Test (LFT), glucose and coagulation. HG hesitated as she stared at the blood form. She appeared unsure of what investigations needed to be requested.

HG: “These will do for now. There are other blood test to do. I am not quite sure what though. The causes of anaemia are almost endless. At some stage the patient might need other diagnostic investigations. I am not sure whether she would tolerate a colonoscopy and endoscopy. Perhaps we might have to do a CT scan? I will speak to the Consultant to ask what other blood tests and what other investigations are needed” (Source: 028.060217JBHGTRFT.docx).

Indecisiveness concerning the potential outcomes of a clinical decision and decisiveness concerning the choosing of options are not necessarily opposite ends of the spectrum. As previously discussed, assisted by anchoring and availability heuristics, HG was decisive in her clinical decision to transfuse the patient to treat the symptoms of anaemia, however the above conversation suggests that she was indecisive in regards to the understanding the necessary investigations required to identify the cause of the patient’s anaemia.

Ambiguity is provided by the availability of several alternatives

Identifying the necessary investigations is a clinical decision of greater complexity than the clinical decision to transfuse the patient. The above dialogue suggests that to a degree, HG is unfamiliar with this part of the clinical presentation. Ambiguity is provided by the availability of several alternatives (a CT scan, colonoscopy and endoscopy and various specific blood tests) to investigate the cause of the patient’s anaemia. In the absence of an anchor, abstract hypothetical thinking is required that System 1 is unable to provide. System 2 is required to co-ordinate the flow of this information through the working memory. Evans (2009) described this stream of consciousness as slow, sequential and correlated with cognitive capacity measures to tease out and analyse the various possibilities.

Indecision anxiety

There has previously been a reluctance within the literature to concentrate specifically on indecisiveness as it does not fit neatly into the current paradigms in clinical, cognitive or social psychology (Anderson, 2003, p.139). Healthcare is

burdened, as highlighted in the following reflective field notes, by the assumption and pressure that clinicians make the 'best' choice, the right diagnosis and the appropriate clinical decisions when needed (Smith et al., 2004).

“Bringing your husband or wife to hospital can create immense feelings of anxiety and uncertainty for those who are often powerless to change or impact on the situation. A little knowledge is actually a curse as one ponders the potential problems, often imagining or fearing the worst possible outcome. The cause for much anxiety is that most 'big serious problems' started small and inconspicuous. The little twinges in the chest, the funny looking spot on the side of your nose, the urinary hesitancy when getting up to pass urine in the middle of the night. By themselves they do not add up too much. Over time they become normal habits or distinguishing features. Often these have been ignored for years. One day or someday they will catch up” (Source: 028.060217JBHGTRFT.docx).

To place the above into context, these high expectations are understandable when considering that identifying and appropriately treating the right diagnosis can dramatically affect the lives and livelihoods of patients. Arguably, this provides an explanation as to why all of the Acute Medicine ANPs associated feelings of anxiety with clinical indecision and uncertainty regarding multiple treatment alternatives.

Rassin (2006) and Schwartz (2004) explained that it is plausible that there are individual differences in the extent to which people experience such clinical decision difficulties. It is also important to note that people may suffer from decision difficulties in a specific area. In this case, HG was indecisive regarding the investigations that were required rather than the clinical decision to transfuse blood. Supporting the previous statement from Crosskerry (2002), the following comments from the field notes confirms that once the initial interaction with the patient had been initiated, the first clinical decision is whether or not immediate action was required:

HG: “I knew from the GP blood tests that the patient was anaemic. The diagnosis had been made. Slow progressive symptoms of anaemia are quite vague, like feeling tired, weak, lethargic, breathless on exertion, or even needing a nap during the day. Fortunately, there was no history of collapsing or maelena to suggest a more dramatic and obvious cause of anaemia like trauma or GI (gastrointestinal) bleeding. I knew the patient required a blood transfusion. I am just not sure what other investigations in regards to blood tests etc. are required” (Source: 028.060217JBHGTRFT.docx).

Most patients when presenting with anaemia receive a barrage of investigations to determine the cause. The causes of anaemia are almost endless and include trauma, gastrointestinal bleeding, iron deficiency, vitamin B12 deficiency, thalassemia, neoplasms of the bone marrow, sickle cell anaemia, malaria and certain autoimmune diseases (Janz, Johnson & Rubenstein, 2013).

Parallels can be drawn with a subjectively less critical example away from the clinical setting of Acute Medicine. Schwartz (2004) described how he contemplated the difficulty in purchasing a pair of jeans when bombarded with the choices of slim fit, easy fit, relaxed fit, baggy, extra baggy, regular, stonewashed, acid-washed and finally button or zipper fly. Appropriately named ‘The paradox of choice’ (Schwartz, 2004), the availability of multiple alternatives (similar to a HG contemplating various blood tests, CT scans and invasive endoscopic gastrointestinal procedures), ultimately made the buying the pair of jeans quite difficult.

Case Study 7: Interpretation of the available information and volition

Throughout the more complex case studies, the Acute Medicine ANPs have acknowledged feelings of anxiety and indecisiveness when there is uncertainty in regards to the availability and interpretation of the clinical information and the variation in the treatment alternatives and potential outcomes of clinical decision-

making. In addition to the thoughts of Croskerry (2009, p.1022), that the clinician rarely has all the necessary information to make an informed rational clinical decision, perhaps it is also the interpretation of the available information that is responsible for the uncertainty. This lack of confidence in the clinical assessment and hence interpretation of the available information regarding the patient is reflected in the following case study involving Acute Medicine ANP TN:

TN reviewed the patient's results. This information was not available earlier during the post take ward round. The patient's blood tests were grossly deranged. High inflammatory markers, deranged liver function tests and deranged renal function. The patient had now been transferred from A&E to a side room on AMU.

TN was unsure of what to do. The assessment earlier that morning and corroborated by the Medical Consultant on the post take ward round seemed to be too obvious. The patient in question was an elderly man in his 80's. Prior to a recent hospital admission, he had been fit and well, fully independent on very few medications and no significant co-morbidities. He had been recently discharged from the care of the surgeons on a prolonged course of Metronidazole as he was Glutamate Dehydrogenase (GDH) positive but Clostridium Difficeal negative.

TN: "I am sure there is more to this. The patient's confusion is new. There was no history of cognitive impairment. The patient has a fever. The diarrhoea has been a problem for several weeks. The patient's blood tests are now grossly deranged" (Source: 023.070117JBTNTRFT.docx).

To act or not to act?

The conundrum for TN is characterised by the description by Baumeister, Bratslavsky, Muraven and Tice (1998), that making choices and clinical decisions to act or not to act, assuming responsibility for the patient, initiating behaviour and making plans of action and to carrying out those plans are crucial functions of the self-involve volition. Cemented in System 2, volition involves voluntary

action to “control the environment” (Dogge, Schaap, Custers, Wegner & Aarts, 2012, p.501). Aarts and van den Bos (2011); Haggard and Tsakiris (2009); and Wegner (2002) described this voluntary action as central to social belief systems and imposing an influence on the external world. Similar to previous discussions around patient advocacy, TN appeared to be consumed by a sense of responsibility and accountability with her interpretation of the up-to-date information regarding the patient’s abnormal blood results and the earlier assessment by the Medical Consultant.

The Acute Medicine ANPs are continually influenced and exposed to these similar clinical situations with patients and the expectations of their Acute Medicine environment. Arguably, these external demands have exerted a pervasive influence on the actions of TN and provided guidance for her behaviour.

Returning to the case study:

TN: “Whether these clinical findings had been evolving or whether the original clinical examination missed something is not here nor there. Both of these scenarios occur frequently. Clinician’s interpretations of findings even when they appear to be the same vary all the time” (Source: 023.070117JBTNTRFT.docx).

TN went and reassessed the patient. The patient was deteriorating rapidly and ended up being transferred to Critical Care (Source: 023.070117JBTNTRFT.docx).

This type of cognitive effort is taxing to the cognitive system (Kahneman, 2011, p.41). The psychological theory of ‘volition’ as one of the self’s crucial functions can be traced back to Sigmund Freud (1856-1939) and the description that the “ego as the part of the psyche that must deal with the reality of the external world by mediating between conflicting inner and outer pressures” (Baumeister et al., 1998, p.1253).

Case Study 8: Undermining personal autonomy

It is apparent within the data that there are circumstances where the burden of these clinical demands becomes too intense. Deci and Ryan (2000) and Schimel, Arndt, Banko and Cook (2004) believe that when this occurs, we lose sight of our intrinsic psychological needs and there is the risk of personal autonomy to be undermined. “Volitional mechanisms may allow individuals to shield themselves against the autonomy-undermining influence of external demands” (Koole, 2004, p.101). “System 2 does not mean a cognitive system completely under our volition; but rather it is where volition can be applied” (Järvillehto, 2015, p.27).

A further example of this interpretation of the available information is portrayed in the following case study involving Acute Medicine ANP PS and a patient with a cardiac dysrhythmia. Individuals who are substantially proficient at volitional action control may be able to maintain this autonomous self even under highly demanding circumstances (Koole, 2004, p.101) similar to this clinical scenario. However, the field notes demonstrate the difficulties in clinical decision-making that arise through the complexities in clinical decision-making alternatives, including the clinical examination of the patient and the significance of the clinical findings. Koole (2004, p.101) continues to explain that conversely, personal autonomy may become more easily undermined by these external demands where there are volitional deficits:

PS sat in the office reading the A&E notes before seeing the patient. The patient had been diagnosed with a recent Transient Ischemic Attack (TIA). He had been started on some secondary preventative medications (Clopidogrel and Simvastatin). He was waiting an outpatient appointment in the TIA Clinic. He had attended A&E today and was referred to Acute Medicine because during the night he felt that his heart was racing and when he measured his BP it was high. Investigations in A&E were unremarkable. The BP was ok and his ECG was sinus rhythm.

PS: “This is a bit of a wishy washy (potentially inappropriate) referral. I am not sure why he has been referred to us to be honest.

It looks like most things have been sorted in terms of treatments and follow up. Nevertheless, I suppose we better go and find out for ourselves”.

PS confirmed the history as documented in the A&E notes. PS then began to examine the patient whilst he was seated in the chair. PS asked the Trainee ANP (TANP) to check his observations (blood pressure, heart rate, temperature, respiratory rate, oxygen saturations). On the monitor it was showing the patient’s heart rate was 160 beats per minute. PS asked the patient if he felt ok. PS then began to palpate the patient’s radial pulse.

PS: “You are a bit tachy (heart is beating fast). We better repeat the ECG”.

JB reflected:

“PS completed the clinical examination of the patient while the TANP connected the electrodes and printed out the ECG. Throughout the consultation PS continued to clarify the history and repeatedly asked if the patient felt ok. Within the clinician-patient relationship one would tend to believe that ‘reassurance’ is purely directed towards the patient and the patient’s health concerns. During this interaction I am not convinced that this was a one-way process. PS asked the patient if he had chest pain, felt breathless, was dizzy or lightheaded. PS looked flushed, anxious and a bit clammy herself. I suspect that she was seeking reassurance for herself that the patient was not deteriorating. Fortunately, (for the moment anyway) the patient denied feeling any of these symptoms to suggest that he was unwell” (Source: 019.221016JBPSDRI.docx).

Returning to the case study:

PS then continued to look at the ECG. She looked puzzled. The rate was greater than 160 beats per minute. The complexes were narrow.

PS: “I am under a bit of pressure with all these people watching me”.

PS, the patient, the TANP and I all chuckled (awkwardly).

PS quietly asked me: “What do you think?”

JB: “You are right. He is very tachycardic”.

Returning to the case study:

PS excused herself from the consultation room with ECG in hand and went into the office to sit down and collect her thoughts. The TANP and I followed. The patient was left lying on the stretcher. The consultation room door was left open.

TANP: “What are you going to do?”.

PS: “Wellummmm. Obviously the patient is not an Ambulatory Care patient. He needs moving to CCU”.

TANP (gesturing towards the ECG): “What are you going to do about this though?”.

JB reflected:

“The perplexed and confused expression on the face of PS suggested that she was unsure how to proceed. I do not think she was comfortable with the line of questioning either. She appeared uncomfortable and flustered. It would be interesting to find out whether her performance was hindered by my presence or whether it was more related to ‘gaps in her knowledge’ or her interpretation of the clinical information or reservations regarding her competence to make the right clinical decision. My gut feeling is that it is a combination of all of these. For the time being, PS has chosen not to choose” (Source: 019.221016JBPSDRI.docx).

Simple postponement or avoidance of the clinical decision-making?

The narrative appears to contain a clinically complex scenario where the patient has features of clinically instability. Despite collecting multiple pieces of information from the patient history, clinical examination and clinical investigations it would appear that PS is unable to make a decisive clinical decision at this stage regarding the ECG findings and the next course of action. Anderson (2003, p.139) suggested that decision-making avoidance has manifested itself as a tendency to avoid making any choice by postponing it or by seeking an easy way out that involves no action or no change. Beattie, Baron, Hershey and Spranca (1994, pp.129-130) believed that this concept was derived from the “desire to make or avoid decisions, independent of any consequence that they achieve”. “Delays transform into lost opportunities and adhering to the status quo is frequently unjustified given advantageous alternatives” (Anderson, 2003, p.139). Indeed, there is quite extensive literature on seemingly senseless postponing, also known as procrastination. In this instance however, this may have been a simple postponement of the clinical decision. Hence, the term ‘procrastination’ would appear somewhat derogatory. Rassin (2006, p.6) stated that some people when faced with complex decisions are reluctant to start activities or initiate courses of action because of insecurities regarding their capacity to complete them.

Returning to the case study:

Fortunately, now the Medical Registrar (with a cardiology background) popped his head into the office. He quickly looked at the ECG.

Medical Registrar: “Let’s give some adenosine”.

PS: “Not on here we aren’t”.

TANP: “What is adenosine?”

Medical Registrar: “Or perhaps we could get him to blow into a syringe first”.

[This technique is a vagal manoeuvre designed to stimulate the vagus nerve. Stimulating the vagus nerve delays conduction across the atrioventricular node (of the heart) with the intention of restoring the normal cardiac rhythm].

PS, the TANP and the Medical Registrar then went back to the Consultation room to see the patient. The patient (who was oblivious to the previous discussions) still looked well. He was given a 20ml syringe and asked to blow as hard as he could into it (Source: 019.221016JBPSDRI.docx).

JB reflected:

“The patient was sat in a chair. He was not connected to a cardiac monitor. The patient had a BP cuff and an oxygen saturation probe insitu. Both the heart rate and BP therefore were monitored. Cardiac rhythm was not monitored. I found this a bit strange given that it was an abnormal cardiac rhythm that was causing the clinical concern. Nevertheless, the heart rate quickly settled to 80 beats per minute and the repeat ECG was normal sinus rhythm. I suspect that PS’s heart rate had also settled. She appeared less flustered” (Source: 019.221016JBPSDRI.docx).

Hoping the answer pops up and reveals itself

PS reflected upon the influences and challenges of this clinical decision-making and her personal difficulties during the formal interviews:

PS: “To be honest, I was not sure what to do. The patient looked well despite the fast heart rate. The ECG and the patient did not quite fit. I was not sure whether the rhythm was an SVT (Supraventricular Tachycardia) or something else. Sometimes the course of action for a stable patient is not straight forward. It is a very challenging and sometimes awkward task to compare several courses of action for any given problem and then select one action to be implemented. Especially, when I was uncertain about the ECG. Sometimes you are hoping the answer pops up and reveals

itself. At times, the task may prove too challenging to manage all by yourself. I was grateful and perhaps a little fortunate that the Medical Registrar came when he did. Though the environment in terms of monitoring was not ideal as you mentioned, his cardiology background probably provided him (and me) with the confidence to sort it out with what is considered a basic intervention” (Source: 019.221016JBPSDRI.docx).

PS demonstrated features of clinical indecision which resulted in a management plan of decision avoidance rather than watchful waiting for the tachycardia to resolve itself. Ritov and Baron (1990) suggested that decision makers have a tendency to prefer options that cause no change in the state of the world and or require no action on their part (the status quo). Repeated preference for this line of clinical decision-making option would be unsurprising if this had served PS well in previously similar clinical situations. A large majority of persons repeat initial choices in successive decision situations (Anderson, 2003, p.143). Rassin (2006, p.7) acknowledged that, sometimes waiting can actually be rewarded with additional useful information as “new insights may arise with passing of time”. This ‘passing of time’ allowed an opportunity for another clinician (Medical Registrar) to be introduced to the case study. This hence, leads into the connection between indecisiveness and shared clinical decision-making.

Case Study 9: Shared clinical decision-making during moments of indecision in the critically unwell patient

Edwards, Jones and Higgs (2004) claimed that clinical decision-making is a collaborative process, involving shared and parallel decision-making with patients and clinical colleagues. Multiple studies (for example; Légaré, Ratté, Gravel & Graham, 2008; Politi, Clark, Ombao, Dizon & Elwyn, 2010; Zikmund-Fisher et al., 2010) have advocated shared clinical decision-making as an ideal model of clinical treatment decision-making. This could incorporate clinician-clinician shared clinical decision-making or clinician-patient shared clinical decision-making.

The previous case studies suggest that in the context of a potentially life threatening illness or event, there are important clinical decisions to be made at key points and several treatment options exist with different possible outcomes and substantial uncertainty. During several discussions, all of the Acute Medicine ANPs expressed that they were often confronted with their own internal conflict and questions of: 'What is the right clinical decision?' and 'Have I considered all the appropriate options?' When in an environment of 'shared clinical decision-making', uncertainty and indecisiveness can be contained and become less influential over clinical decision-making as reflected in the following extended narrative and clinical scenario. During a critical encounter of clinical uncertainty and indecision Acute Medicine ANP TN was willing to adopt a clinician-clinician shared clinical decision-making approach when faced with a patient who was potentially critically unwell:

TN briefly 'eye balled' the patient as the porter and A&E staff nurse pushed the patient past the AMU reception desk towards the bed bay. TN had the patient's A&E notes in her hand and had briefly 'scanned' through them.

TN: "I have decided to see a patient who is really sick".

JB: "What do you mean? Do you normally pick and choose?"

TN: "A little bit in the last hour of a shift. It is more productive and safer from a safety netting point-of-view to see a patient and complete an assessment and treatment for them than rather have to hand a lot of work over to the night shift or stay and go home ridiculously late".

JB: "Do you think this lady is really sick?"

TN understatedly replied: "She looks pretty crappy. I need to sort her out now rather than leave her to wait and see the night team".

Returning to the case study:

The patient had now been transferred from the A&E trolley to the comfort of an AMU bed. The patient had three family members around her. One of these was her elderly husband. He was sat next to her concerned and

holding her hand. The patient looked distressed. She was obese, clammy, sweaty and clearly unwell. Managing acutely unwell patients during visiting times can be particularly challenging. Maintaining privacy and dignity is impossible.

TN had already read thoroughly the A&E documentation and assessment. The A&E doctor had written down a diagnosis of 'Upper GI bleed and Chest Infection'. The patient had presented to A&E with a three-day history of dark vomiting and severe abdominal pain. She was a poorly controlled Type Two Diabetic on insulin. She had only been discharged from a Medical Ward last week after having an admission for a Lower Respiratory Tract Infection (LRTI). TN passed comment that surprisingly her blood results were unremarkable. Specifically, the patient's haemoglobin was the same as on discharge and the patient's urea was only marginally raised (haemoglobin and urea are markers of blood loss). TN reviewed the patient's vital signs. Heart rate was 111, blood pressure was 88/56, temperature was 38.2, respiratory rate 30, oxygen saturations were 96 per cent and the blood glucose was 22.9. The chest x-ray was unremarkable with no signs of infection, congestion or free gas below the diaphragm.

TN closed the curtains around the bed space. The patient's three family members were contained within this curtain space. The relatives of the other patients were still at the other bedsides. TN politely asked the patient's husband to move so that his wife could be thoroughly examined from the patient's right. The husband was slim, frail and mobilised with a stick. Nevertheless, his wife needed to be examined and the cause for her problems identified. It was quite an effort for him to stand. TN assisted him up off the chair and supported him to the other side of the patient's bed.

TN then examined the patient and asked questions at the same time to clarify the history of events. The history was consistent with what had

been documented by the A&E doctor. The clinical examination however varied.

Examination of the patient's abdomen was probably the most dramatic part of the assessment. The patient was morbidly obese. Her abdomen however was still very distended and tender all over. The patient flinched like she had just been kicked in the stomach. TN auscultated her abdomen to assess her bowel sounds. They appeared to be absent.

TN: "You do not look very well. I am not very sure quite why. I suspect it has something to do with your bowels. I do think I need some help though. What do you think?"

TN directed this question at JB.

TN then left the patient's bedside and went to the AMU control room where there was a computer to review blood results and x-rays again. There is also the space and opportunity to collect thoughts and potentially find an Acute Medicine Consultant.

The following JB reflective account describes this process:

"The way various clinicians go about working through problems varies tremendously. The Clinical Director who also works as an Acute Medicine Consultant prefers complete silence and often sticks his fingers in his ears when thinking through a problem. Others, including TN like to talk through each piece of the problem, building a case for one line of thought and then building another case to counter that thought. Some make a clinical decision immediately and manipulate all the evidence to support that. For example; the A&E doctor in this case may have thought, coffee ground vomit, epigastric pain on aspirin equals Upper Gastrointestinal (UGI) Bleed. Also recent admission under Medicine and then re-presenting to hospital means failed discharge and then re-admit under Medicine. Not dissimilar, TN appeared to be pondering; a grey, clammy, elderly, obese,

vomiting, diabetic patient with low blood pressure, a high temperature and a distended abdomen would suggest a diagnosis of abdominal pathology” (Source: 040.310317JBTNTRFT.docx).

TN stated: "She might have an ischaemic bowel or she might have a bowel obstruction. This is a bit of a worry. This is making me feel a bit uneasy. Has perforation been excluded because the chest x-ray was ok? What do you think????"

JB reflected:

“TN was visibly uneasy and anxious. This demonstrates some of the problems and isolations of working in Acute Medicine and AMUs. Isolation may sound a strange concept to introduce given that we are in the middle of an overcrowded department. Previous discussions with other Acute Medicine ANPs TM, LH, JC and KH have highlighted feelings and experiences of isolation. I do not believe necessarily that this means that they feel unsupported. I suspect rather that there is an expectation that they can handle whatever problems are posed and if they need help they will ask. The reality is that this is a sick patient. TN needs to make a clinical decision about her care” (Source: 040.310317JBTNTRFT.docx).

Returning to the case study:

Fortunately, the Acute Medicine Consultant arrived.

Acute Medicine Consultant: "I hear you have a sick patient".

TN then accompanied the Acute Medicine Consultant back to the patient to re-evaluate, re-examine and develop a plan.

The following JB reflective account describes the thinking of the Acute Medicine Consultant:

“The Acute Medicine Consultant quickly agreed with the thoughts of the TN. During a brief discussion with TN he also indicated that the salient features of grey, clammy, elderly, obese, vomiting, diabetic patient with low blood pressure, a high temperature and a distended abdomen would suggest that the primary problem lies within the abdomen.

The Acute Medicine Consultant asked TN to prescribe the patient some analgesia, intravenous fluids, antibiotics and then organise a plain x-ray of the abdomen. If that was unremarkable then a CT scan would be necessary. The Acute Medicine Consultant also asked TN to speak to the Surgical Team to arrange a surgical review. The Acute Medicine Consultant then left the patient’s care to TN and moved on to reviewing other patients” (Source: 040.310317JBTNTRFT.docx).

Information gatherer, recorder and interpreter

There are several specific characteristics that relate specifically to shared clinical decision-making within this extended narrative. The obvious characteristic is that it involved at least two participants - the Acute Medicine ANP TN and the Acute Medicine Consultant. TN as the information gatherer, recorder and interpreter of the clinical findings was confronted with a patient with a serious and potentially critical clinical illness.

There was substantial indecisiveness and uncertainty by TN as to the most appropriate clinical management plan in view of the time critical pressure to make a clinical decision regarding several competing alternatives. The field notes acknowledged that there was a suspicion that TN was experiencing a degree of psychological and physiological vulnerability. TN herself verbalised thoughts of ‘worry’ and feeling ‘uneasy’ within the extended narrative. This was potentially attributed to multiple factors: i) the patient being clinically unstable (high temperature, low blood pressure and tachycardic); ii) uncertainty regarding the multiple primary causes for the patient’s clinical instability (bowel obstruction, ischaemic bowel or perforation); iii) what treatment and investigations were required; and iv) who can help?

The following describe the reflective thoughts of TN with the benefit of hindsight:

During an informal discussion later, TN acknowledged with the benefit of hindsight that she should have explained to the patient and family that she was very unwell and that the source of her problems probably had something to do with her abdomen and more specifically her bowel.

TN: “Having realised this, I should have explained that the patient would require further imaging of the abdomen. This would initially consist of an x-ray and then possibly a CT scan. The patient would also require analgesia (despite presenting to A&E with pain, the patient had yet to receive any analgesia), antibiotics to treat a possible infection, intravenous fluids to improve blood pressure and administration of insulin to control blood glucose levels and then I would have looked for the Consultant to review the patient” (Source: 040.310317JBTNTRFT.docx).

Anderson (2003, p.151) remarked that individuals when making decisions anticipate less negative emotions such as regret and anxiety when the clinical decisions made are potentially reversible, or have at least an alternative. This is in contrast to clinical decisions which are made under the weight of irreversibility and are ultimately permanent. Hence, seeking the involvement of the Acute Medicine Consultant in shared clinical decision-making allowed TN to change or share the clinical decision responsibilities before permanent actions had been carried out. TN acknowledged during the formal interviews that this hypothetically could have included the prescription of analgesia and aggressive fluid bolus to the hypotensive patient, the appropriate or not appropriate prompt involvement of Anaesthetics and Critical Care, or the withdrawing of treatment altogether. “The right to reconsider other options and alter the clinical decision based on more information can be helpful in the process of decision-making” (Source: 040.310317JBTNTRFT.docx).

However, more clinical choices paradoxically invite more indecisiveness, anxiety, reconsideration and fears of regret (Schwartz, 2004). When clinical decisions are

seen as more reasonable or justified through the course of shared clinical decision-making, it is reasonable to suggest that the Acute Medicine ANP may experience less regret over them or anticipated regret. The involvement of the Acute Medicine Consultant in the clinical decision-making may be particularly important when confronted with a patient with serious illnesses and potentially uncertain outcome.

Summary

During the formal interviews all of the Acute Medicine ANPs highlighted the difficulty of comparing several potential clinical decision outcomes and then selecting one course of action to be implemented. Arguably, uncertainty is the fact of life (Golub, 1997). As is outcome uncertainty (Germeijs & de Boeck, 2003; Pitz & Harren, 1980). Difficulties in clinical decision-making may arise through the complexities in the clinical decision alternatives and the limited information processing capacity of a decision-maker can be strained when considering the consequences of only one course of action (van Gigch, 2002). These alternatives require that the implications of various courses of action or even non-actions being visualised and compared. The potential unknown factors can intrude upon the problem situation. A significant contribution to these unknown factors are patients themselves and the history of events they provide

In Acute Medicine these seldom are outcomes known with certainty. The data suggests that the degree of outcome certainty varies depending upon how much knowledge each Acute Medicine ANP is able to obtain. One extreme of the spectrum is decisiveness and the opposite extreme is uncertainty. Between these two extremes are problems under risk (Taghavifard et al., 2009, p.4).

CHAPTER 6.

Summary, Discussion, Limitations and Conclusions

Introduction

There is little evidence and a significant gap in the literature that describes what specific clinical decisions ANPs make in the context of Acute Medicine. This doctoral thesis has employed an ethnographic case study approach to examine the influences on clinical decision-making by ten Acute Medicine ANPs from three NHS sites in relation to acute clinical patient-care in Acute Medicine.

The purpose of this chapter is to summarise clinical decision-making, the context of the research study, the current state-of-play in the literature, Dual-Process Theory and the study design. Hierarchy and the AMU people, the Acute Medical On Call Take and the Acute Medical On Call Team, the Acute Medicine ANP clinical decision-making process including the key findings of Decisiveness and Indecisiveness will be discussed in the context of Acute Medicine. Methodological issues including strengths and limitations will be addressed in the discussion regarding reliability, validity and generalisability versus comparability and translatability. In conclusion recommendations for future research will be made.

Context of the research study

The Acute Medicine ANP role has become one of the innovative strategies employed by the NHS to address the challenges of Acute Medicine. This initial drive to reduce the hours worked by junior doctors has resulted in initiatives that have extended and expanded the traditional scope of the nurse within hospital-based settings (RCN, 2012). The intricate vagaries of the 'Advanced Nursing Practice' debate and the need for regulation and standardisation forms the backdrop of this study and therefore lies outside the scope of this study. Specific philosophies that underpin the necessary education and preparation for academic and clinical practice though discussed frequently in various forums appear a long way from becoming homogenised in the near future.

It was acknowledged that although many studies have examined and developed theories on decision-making in nursing and in medicine there has been no published research into the clinical decision-making of the Acute Medicine ANP. Fundamental to the quality of care and the ongoing contribution of the Acute Medicine ANP to Acute Medicine are well-reasoned, accurate and meaningful clinical decisions in relation to the presenting clinical problems.

In the acute care setting of Acute Medicine where patients can be critically ill and unstable or have relatively minor complaints and are stable, the making of accurate clinical decisions is considered essential. With increased accountability for clinical decision-making behaviours, it is necessary to understand what factors that influence the Acute Medicine ANP clinical decision-making to maximise the potential of their contribution to Acute Medicine. Hence, searching for an understanding of clinical decision-making by the Acute Medicine ANPs motivated and drove this research. The Department of Health (2010), HEE (2015) and NHS England (2016) have emphasised that ANPs in all clinical areas are at the forefront of policies to modernise the healthcare workforce both internationally and in the UK.

Clinical decision-making

Decision-making is a broad term that applies to the process of making a choice between options as to a course of action (Thomas et al., 1991). Clinical decision-making by the Acute Medicine ANP can be a complex process requiring the defining of choices between limited options concerning diagnosis, intervention and resources. Clinical decisions can be characterised by situations of uncertainty where not all the information needed to make them is or can be known.

The instrumental view of rationality assumes that the primary notion of making judgments and decision-making is rational action to achieve goals (Koehler et al., 2004). This is of critical importance when these decisions are associated with the health and well-being of patients' lives and livelihoods. Life is generally regarded as precious. Hence, understatedly good decisions are preferable to bad decisions. Good decision-making maximises satisfaction or positive utility

and thus minimising dissatisfaction or negative utility. Our mental processes and actions are considered rational when they meet the cognitive standards of normative theories and rules (Koehler et al., 2004, p.4). Multiple authors as previously illustrated have identified that normative behaviour is central to the study of human cognition when examining rationality. There are bounds to the amount of information that we as humans can take on board (Brandstätter, Gigerenzer & Hertwig, 2006; Pashler, 1998) including the Acute Medicine ANP. Perception, motor control, memory, reasoning and language are processing functions of the brain that have limited capacity (Pashler, 1998; Vlaev, 2018). Therefore, when confronted with multiple clinical decision alternatives, the Acute Medicine ANP may be limited to a certain degree in addressing one at any given moment. To manage the composite environment surrounding these clinical decisions, heuristics provide simplifying strategies or 'rules of thumb' to short-circuit a rational decision process (Bazerman & Moore, 2013).

The current state-of-play in the literature

To inform the research into the influences of clinical decision-making of Acute Medicine ANPs in Acute Medicine, a literature review was undertaken to systematically describe and critique the literature surrounding the influences of clinical decision-making by ANPs in acute clinical care settings. The selected literature was heavily influenced by theoretical discussion around definitions and conceptualisation of Advanced Practice, the quest for autonomy, the potential medicalisation of the nursing profession through role and function substitution influencing scope of practice and the application or integration of evidence based practice. This may suggest that the ANP workforce is to be more appropriately aligned with the field of medicine and therefore the culture and context of clinical decision-making are under similar scrutiny.

However, despite identifying what the role of ANPs should be, what ANPs should be able to do and the characteristics that are required, there is little evidence describing what clinical decisions ANPs make in the context of acute patient care and what influences these clinical decisions. By critically examining the theoretical foundations of decision-making founded in relation to clinical decision-making and Dual-Process Theory, it was believed that a deeper theoretical

understanding of the culture and context of clinical decision-making for the Acute Medicine ANPs was possible in order to further establish the processes of decision-making for future practice.

Dual-Process Theory

It was anticipated that the Acute Medicine ANPs make clinical decisions multiple times on a daily basis when making judgements about the assessment and care of patients in Acute Medicine. These clinical decisions incorporate two distinct kinds of reasoning located along the continuum from unconscious and intuitive approaches to deliberate and analytical approaches. Hence, within the literature Dual-Process Theory is the predominant approach to clinical decision-making.

The Dual-Process Theory explains clinical decision-making through two (dual) complementary processes. System 1 is regarded as an intuitive approach and is strongly associated with heuristics and biases. These exploit associative learning where previous experience is stored in long-term memory. Anchoring relies on an initial piece of information to make subsequent clinical decisions. System 1 is “fast, frugal, requires little effort and frequently gets the right answer” (Croskerry, 2009, p.1023).

System 2 is employed in clinical situations where patients present with greater complexity, where the Acute Medicine ANP is unfamiliar with the patient clinical presentation and where an anchor or pattern recognition as described in System 1 is not available. However, patients, like people and personalities, are often unfamiliar and unsuitable to be placed conveniently into one box. Nor is it viable to completely divide these two into non-conscious and conscious thinking. The Dual-Process Theory therefore does not imply that one single reasoning mode accounts for a diagnostic decision or that one particular mode is always preferable over the other (Croskerry, 2012, p.4). However, there is a tendency to default to the state requiring the least cognitive effort (Stanovich, 2004). The Acute Medicine ANPs seem to make clinical decisions more in line with medical professionals and are under the same scrutiny, the question is does the Dual

Process Theory explain the clinical decision-making behaviours of the Acute Medicine ANP?

Study Design

In recent times, researchers of nursing have begun to recognise the value of qualitative research to better appreciate and understand the subjective participant experiences that cannot be objectively quantified or measured (Munhall, 2007; Parse, 2001; Streubert-Speziale & Carpenter 2007). Epistemological assumptions enquired as to the nature of the relationship between 'myself' as the researcher and what could be known about the clinical decision-making by the Acute Medicine ANPs. The ontological assumption was that Acute Medicine was a unique clinical, social and cultural environment. Where hospitals and the people themselves are bureaucratic and nuanced culturally, systematically and physically. Acute Medicine and clinical decision-making was constructed and given cultural meaning via the complex processes of social interaction and the fashioning meaning out of events and phenomena by the Acute Medicine ANPs themselves.

The research participants consisted of ten Acute Medicine ANPs from three NHS sites. An ethnographic case study design was employed as an interpretive methodology to address the research question - 'What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?' The research study was conducted in the context of the natural world of the research participants. This natural world included the domains of Acute Medicine that incorporates AMU, Ambulatory Care and A&E. The emergent findings from the data analysis were discussed using evidence from the variety of data sources to provide a picture of clinical decision-making by the Acute Medicine ANPs in Acute Medicine.

Each clinical encounter between an Acute Medicine ANP and a patient was defined as a case study. Roles or responsibilities of the Acute Medicine ANP that were outside this were not the focus of the research. The interpretation of the behaviour of the Acute Medicine ANP was based on watching, observing,

listening and talking to them as the participants of the research so that the data was an authentic reflection of them making clinical decisions.

Key findings: The Complex and Nuanced Healthcare Environment of Acute Medicine

Acute Medicine, AMU People and Hierarchy

The link between the Acute Medicine environment and the clinical decision-making for the Acute Medicine ANPs cannot be overstated. Hospitals provide a unique environment of bureaucracy and technological appurtenances, where people are removed from their day to day lives to an intense place of truth, self-discovery and the drama of life and death experiences. There is diversity and heterogeneity of cultures in these institutions that have developed in “response to challenges of external adaptation and internal integration” (Corritore, Goldberg & Srivastava, 2019, p.5) through the ongoing process of socialisation and enculturation (Ashford & Nurmohamed, 2012; Srivastava, Goldberg, Manian & Potts, 2018). Cilliers (2001, p.4) argues that the “relationship between our descriptions of the world and the world itself is, however, more complex”. This would suggest that despite all efforts and perhaps what is the beauty of the methodology, this doctoral thesis is merely one primitive representation of the clinical decision-making world of the Acute Medicine ANP influenced by my own priori background as the researcher. Certainly, there are various positions from qualitative researchers ranging from the most ‘objective’ and taking into account personal biases and feelings to understand their influence (Field & Morse, 1995; Spradley, 1979), to the most ‘subjective’ where subjectivity should not be perceived as a limitation but rather a rich source of data to be capitalised upon (Cassell, 1977). At the least, ethnography must be interpreted for its’ subjectivity and that I have an awareness of the analytic focus on my relationship with the field of study.

Nevertheless, the ontological assumption is that Acute Medicine is a unique clinical, social and cultural environment. Meaning manifests in the form of deeply rooted assumptions and beliefs, as well as in the normative and behavioural

expectations that these beliefs and assumptions prescribe (Schein, 2010). Within the inimitable hospital milieu, Acute Medicine is characterised by an atmosphere of unrelenting tension, multi-faceted exigencies and even a certain hustle and bustle associated with other intense non-hospital environments. Dramatic comparisons to the 'The New York Stock Exchange' were made during informal discussions because there are high pressure demands for urgent and emergency care. These are to be delivered within operational policies influenced by diverse dynamics encompassing the patients themselves, the public, logistical constraints, economy of clinical space and resources, other healthcare professionals, the inimitable hospital processes, other clinical specialities and the bricks and mortar of the physical environment itself. The Acute Medicine ANPs and the AMU people actively collaborate in the construction and maintenance of this cultural meaning through the complex processes of social interaction and the fashioning of meaning out of events and phenomena. This is responsible for creating the complex and nuanced healthcare environment of Acute Medicine that comprises AMU and also the logistically separate nevertheless intimately connected A&E.

Clinical decision-making in such a dynamic hospital environment by its' nature, is a motivated, cognitive process. The Acute Medicine ANPs approach to clinical situations with patients and the clinical problems they presented was significantly influenced by the unique characteristics of these clinical environments and the way their knowledge and experience was organised. Examples, within the data encompassed clinical decisions regarding resuscitative or urgent measures. These included the prescription of intravenous antibiotics, intravenous fluids and non-invasive ventilation to critical patients in A&E resus and the provision of urgent clinical and therapeutic interventions to patients considered stable on AMU and in Ambulatory Care. These clinical decisions are made in an environment of unrest where patients are queued up down the corridor on stretchers. Other desperate patients are queued up at the reception desk. There are 'piercing daggers' intimidating staff from the those waiting in the waiting room. Replacing the usual dry northern banter are desperate exclamations of wonder in regards to the endless source of the patients and concerns over where they are going to safely be relocated to.

Clinical decision-making in such environments is a process that requires complex integration of multiple sources of information in a habitat enclosed by other members of Acute Medicine. However, this reality can be extremely complex and dynamic cultural mosaic consisting of related events or people with variable strengths of association or relationship with or to each other. Central to this complex system are organisational hierarchies and the rational delivery of healthcare associated tasks.

The collective goal of providing high quality healthcare to Acute Medicine patients is achieved through the collaboration and co-operation of a list of other healthcare professionals including receptionists, housekeepers, pharmacists, radiologists, radiographers, sonographers, phlebotomists, student nurses, catering staff, estates, healthcare assistants, porters and medical colleagues. Hence, 'rationality' or as described by Russell (1997) 'perfect rationality' constrains the actions of these healthcare professionals to provide the maximum expectation of success given the information available to them to perform their various tasks. However, Mannion, Davies and Marshall (2005) suggest that virtuous circles of high-performance lead to a bounded culture that reinforces high expectations. There are motivating influences behind all human behaviour (Croskerry, 2005). In healthcare these are associated with making the 'best' possible choices, having the patient's 'best interest' or 'virtue of benevolence' at heart. Spirals into decline are perceived as failings in performance that lead to demoralisation, resignation and subsequent poor standards of this complex system (Mannion et al., 2005). Where this rational knowledge comes from for these healthcare professionals is not well understood (and lies outside the scope of this research), though it is acknowledged that it contributes significantly to the healthcare environment of Acute Medicine.

Hierarchies are considered to form an important part of the structure of complex systems (Cillier, 2001). Hospitals and subsequently Acute Medicine would certainly be considered complex systems where hierarchies "establish unambiguous routes of communication" (Cillier, 2001, p.6). However, the data would suggest that they are not clearly defined or "nested" like Russian Matryoshka dolls as may have been assumed (Lane, 2006). Nevertheless, the

AMU shift co-ordinator exemplifies the belief that AMU is a complex system that is nurse led. This is evidenced through the organising and co-ordinating the activities and care of the patients, the nursing staff, the junior and senior medical staff and the Acute Medicine ANPs themselves. However, symbolically referencing the Russian Matryoshka dolls analogy, these individuals (or dolls) are not encompassed by another individual (or doll). The AMU shift co-ordinator is not overtly the 'outer doll'. These relationships take on a subjectively less traditional structure and interpenetrate each other across different hierarchies. Therefore, there is intricacy in illustrating the hierarchy accurately in terms of prime and subordinate parts.

There is an undertone that the doctors are less committed to the cause and 'plod along despite the atmosphere reeking in exigency' (p.81). Examples are given in relation to various tasks. The taking of blood samples, inserting cannulas, performing ECGs, the taking of venous blood gases and inserting indwelling catheters are tasks rarely performed by doctors. Consequently, this may suggest that the notion of hierarchy is resisted or at least a blurring of hierarchical boundaries as demonstrated by the housekeeper who is required to guide junior doctors through the completion of paperwork and MRI safety questionnaires and buy discount tuna sandwiches for Medical Consultants. Even the pharmacists, armed with a red pen haunt junior doctors to amend their prescription errors and omissions. The complexity of these problems encountered in a particular task is a function of the variables involved. This recurrent or cyclic process could be as explained by Cillier (2001, p.7), that the, "cross-communications between hierarchies are not accidental, but part of the adaptability of the system".

Another similar perspective is offered by Social Cognitive Theory (Bandura, 1991) and that self-regulatory systems lie at the heart of causal processes that provide the basis for purposeful action of Acute Medicine and the AMU people. These social factors and social encounters between junior doctors, housekeepers, Medical Consultants and pharmacists affect the operation of this self-regulative system (the system being Acute Medicine). Causative personal factors in the form of cognitive, affective and biological events and behavioural patterns all operate as interacting determinants that influence one another

(Bandura, 1999). Behaviourist may suggest that this is conditioned or learnt behaviour regulated by external stimuli.

Wood and Bandura (1989, p.407) argue that there are challenges concerning “how to use human talent and how to guide and motivate human effort”. The principal processes are influenced by a multiplicity of interrelating factors that are socially mediated through the co-ordinated efforts. These people form beliefs about what they can and cannot do and perhaps should and should not do. “Alternative routes of communication are vital in order to subvert hierarchies that may have become too dominant or obsolete” (Cillier, 2001, p.7). Each of these individuals have characteristics and responsibilities that are unique to their role and personality. In executing their role, these individuals have to deal with numerous obstacles, frustrations, hindrances and setbacks that often carry perturbing self-evaluative implications. These affective factors can undermine self-conceptions and motivation in ways that impair the clinical environment and the intricate synthesis of multiple mutual and recursive sources of information. Wood and Bandura (1989, p.408) described that these “performers (in this case Acute Medicine and the AMU people) must draw on their existing state of knowledge in constructing tentative composite rules for how various motivational factors may affect outcomes”. “The imposed physical and sociostructural environment is thrust upon people if they like it or not. Although they have little control over its presence, they have leeway in how they construe it and react to it” (Bandura, 1999, p.23). Hence, these ‘ways of working’ have naturally evolved over time. Therefore, self-perpetuating the wave after wave of doctors working in Acute Medicine who do not take blood samples, insert cannulas, perform ECGs, take venous blood gases or insert indwelling catheters.

Magee and Galinsky (2008) described hierarchy as a defining and pervasive feature that its value is underestimated in most organisations. Within the data it was acknowledged that despite established medical hierarchy there is increasing recognition across the NHS of the need to develop urgent care outside these traditional models. There are features throughout the data that would suggest there are times when it is unclear where the Acute Medicine ANPs themselves actually reside within the hierarchy of Acute Medicine. The multifaceted nature

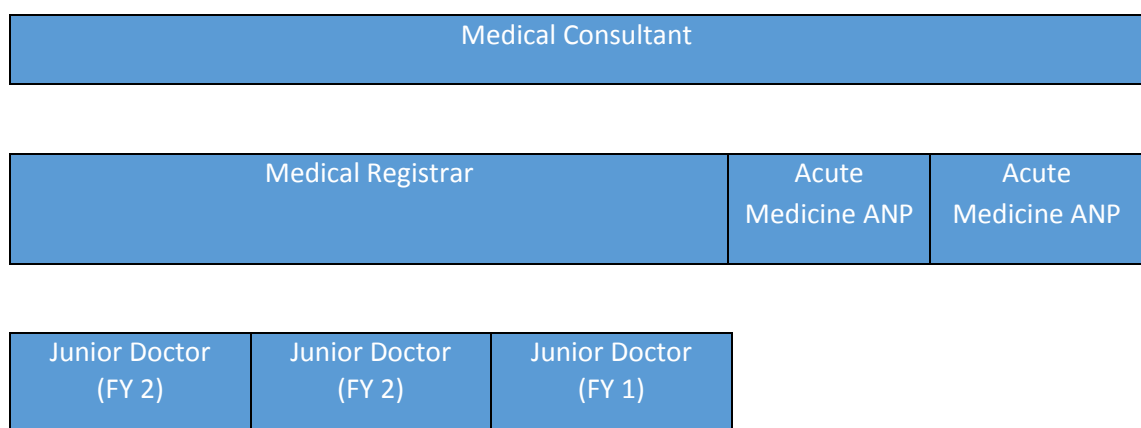
of the activities of Acute Medicine and the AMU people and their association and influence on the clinical decision-making of the Acute Medicine ANPs introduces complexities in relationships when examining The Acute Medical On Call Take and the Acute Medical On Call Team.

The Acute Medical On Call Take and the Acute Medical On Call Team

Amongst the medical and non-medical healthcare professionals there is an existence of complexity in the relationships and personalities of the Acute Medical On Call Team consisting of a Medical Registrar, three other junior doctors and one to two Acute Medicine ANPs (*refer to Figure 6.1*):

In terms of purpose and work role function, the Acute Medicine ANPs themselves appear to fit within the hierarchy of the Acute Medical On Call Team that coordinates the Acute Medical On Call Take. This in many ways supports the case forwarded by ter Maten-Speksnijder et al. (2014) for ANPs as potential medical replacements who work as independent, comprehensive care providers. Therefore, the culture, context and expectations of clinical decision-making by the Acute Medicine ANPs is potentially comparable with the medical members of the Acute Medical On Call Team.

Figure 6.1: The Acute Medical On Call Team



The positioning of the Acute Medicine ANPs on the same tier as the Medical Registrar reflects their permanent place in the Acute Medical On Call Team and

the stabilising effect they have on the performance of the Acute Medical On Call Take that is overseen by the Medical Consultant. Graphical descriptions however have their limitations. The undertone to much of the narrative data would suggest that the onus of responsibility and personal expectations of responsibility throughout the Acute Medical On Call Team are indifferent or at least 'clinician' dependent. Returning to the thoughts regarding complex systems (hospitals as institutions and Acute Medicine being complex systems), it is questionable whether that this 'The Acute Medical On Call Team' model or diagram is a true reflection of the reality.

“Since our models cannot “fit” the world exactly, there are many degrees of freedom in which they can move. They are, however, simultaneously constrained by the world in many ways. There is feedback from the world that tells us something about the appropriateness of our models. The situation is the following: there is on the one hand freedom in modelling, and on the other hand, constraints from reality, but the two are not independent from each other” (Cilliers, 2001, p.4).

Implying that the hierarchy above may be appropriate dependent on the individuals working as part of The Acute Medical On Call Team at specific times. Perhaps, comparable to this doctoral thesis itself, this model or diagram attempts to grasp the structure of a complex and, as previously discussed, bounded system. Boundaries (in a bounded system) frame a function of activity and constitutes that which is bounded. The Acute Medical On Call Team model manages the Acute Medical On Call Take. This is co-ordinated by the Medical Registrar under the supervision of the on call Medical Consultant. Meeting the challenges of the Acute Medical On Call Take and delegating tasks appropriately is considered characteristic of an efficient Acute Medical On Call Team. This incorporates a diversity of presenting clinical scenarios in regards to patients referred from Primary Care (mainly from GPs) and A&E and the 'handing over' of clinical responsibility that make up the majority of acute unscheduled admissions intimately connecting the system with an environment often described as less than ideal.

Within this, clinical information is frequently exchanged for the purpose of transferring responsibility between healthcare professionals inside and outside of the Acute Medical On Call Team. The narrative within the data describes a process between Primary Care and Acute Medicine as inconvenient and inefficient. Clinical information regarding the patient can be complex and exaggerated or described inaccurately to ensure that the transfer of clinical responsibility to Acute Medicine and the Acute Medical On Call Team takes place. There are incidences when the patient's symptoms are misrepresented and there are incidences when the referring clinician has not even seen the patient. This fuels an environment of scepticism and caution regarding sources of information and challenges the Acute Medicine ANP ethos and belief of feeling ultimately responsible for the patients they encounter and accountable for their clinical decision-making.

The Acute Medicine ANPs

Throughout the data there was an underlying tone of almost a 'rags to riches story' and 'proving doubters wrong' where the early days for the Acute Medicine ANP represented difficulties in establishing professional identity. This was also negatively influenced by the expectations (if any) from other professional groups (including doctors, other nurses and managers), the intense clinical environment and that there remains (even to this day) relatively few Acute Medicine ANPs (ten Acute Medicine ANPs participated in this research). Nevertheless, despite the absence of quantitative research into Acute Medicine ANP clinical performance in terms of patient numbers seen in Acute Medicine in the literature, there is a positive impression attached to the statistical evidence provided. In addition, there is narrative within the data that indicates that the clinical demands and expectations of the Acute Medicine ANP is increasing in regards to the number of acute medical admissions and the clinical acuity of acutely unwell patients. This is in a clinical environment that is constantly challenged and under strain where a trolley or bed space is considered a scarce luxury. The prediction by ter Maten-Speksnijder et al. (2014) that ANPs in 2020 will be expected to work as independent, comprehensive care providers to substitute a significant percentage of the standardised medical care seems within the realms of reality.

Ingrained into the adaptability of Acute Medicine 'ways of working' and the interplay of and the cross-communications between hierarchies as described by Cillier (2001) and the Social Cognitive Theory as proposed by Bandura (1991), there appears to be a change in the conception of ability with which the Acute Medical On Call Team approaches the complex activities (*refer to Table 8*) associated with the Acute Medical On Call Take and the complex decision-making environment of Acute Medicine.

One perspective is that the Acute Medicine ANP are developing in an environment where there are opportunities to expand their knowledge and competencies. Another perspective relates to the constant undertone of a sink or swim survival mentality. Within the media the NHS is represented by images of adverse events, mishaps, near misses and other easily quantifiable aspects. Doom and gloom is associated with clinical environments like Acute Medicine that provide urgent and emergency care. At times the Acute Medicine ANPs acknowledged that they felt exposed, isolated and unable to find some senior support and guidance when assessing, treating and investigating patients. Forming the essence of the Acute Medicine ANP human motivation is the previously described 'positive face of the intrinsic resistance' (p.109) and the 'robust coping with the human and the technical dangers associated with their daily activities' (p.109). This is not to be confused with the pursuit of the mythical unicorn that is autonomous clinical practice that the literature is laden. However, there is evidence of the Acute Medicine ANPs having a sense of clinical authority to make clinical decisions in accordance with their professional knowledge base. Skår (2010) argues that this is a defining characteristic of professional autonomy. This proves more difficult to address as the more experienced each Acute Medicine ANP becomes the less guidance from Medical Consultants is available outside of a 'quick review' and 'rubber stamping' of the outlined management. The defining of this relationship is often unclear despite the earlier claims that the on call Medical Consultant is ultimately responsible for all the patients admitted during the Acute Medical On Call Take. The Acute Medical On Call Take is managed by the Acute Medical On Call Team (this includes the Acute Medicine ANPs). The relationship between each Acute Medicine ANP and the Medical

Consultant is actually variable and similar to The Acute Medical On Call Team hierarchical model, hence implying that this may be appropriate dependent on the individuals involved.

Table 8: Additional Acute Medicine ANP Responsibilities

AMU post take ward round jobs
Take GP referrals via phone
Manage the daily activity of Ambulatory Care
Support the AMU nursing staff
Support the Acute Medical Consultants
Nurture the junior doctors through the stress of an Acute Medical On Call Take
Expand clinical skills to incorporate other specialist technical skills

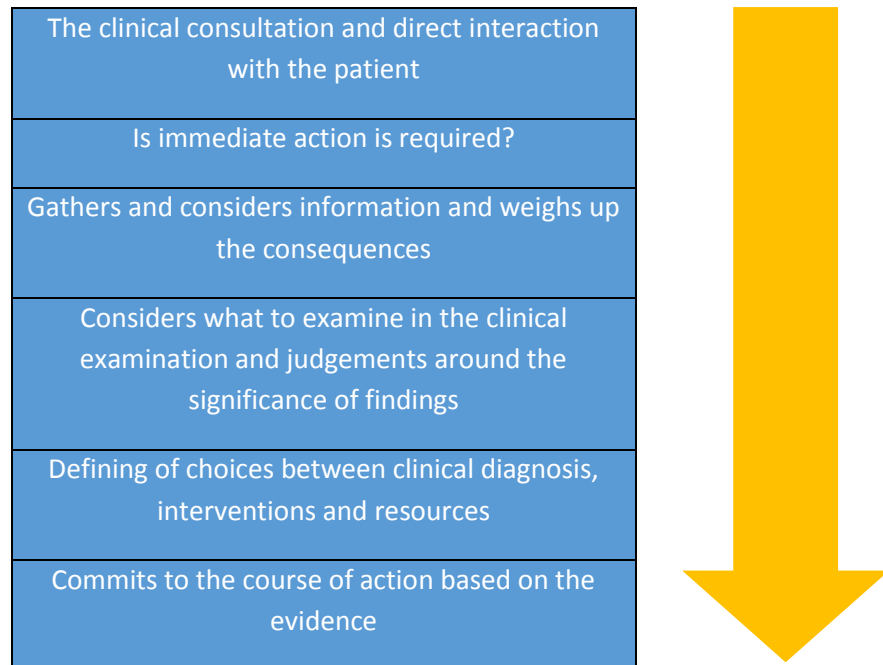
Nicholls (1984) suggested that this impression of ability intensifies evaluative concerns about one's personal competence. This can have potentially diverse effects on cognitive functioning. Arguably, negative comments regarding the diminishing clinical experience of junior doctors and the associated low expectations of their expertise, must have an effect on their cognitive functioning and subsequently that of the Acute Medicine ANPs. "It requires a strong sense of efficacy to deploy one's cognitive resources optimally and to remain task oriented in the face of repeated difficulties and failures" (Wood & Bandura, 1989, p.408). The challenge for the Acute Medicine ANP is to integrate these undefined opportunities and apply them discernibly to each member of the Acute Medical On Call Team. This arguably contributes to the difficulty in placing the Acute Medicine ANP in the Acute Medicine or AMU medical or non-medical workforce hierarchy.

The Acute Medicine ANP clinical decision-making process

For the Acute Medicine ANPs, clinical decision-making is a process of diverse levels of complexity that they undertake multiple times on a daily basis when they make judgements about the assessment and care that they are providing to patients in Acute Medicine and the clinical management plans they implement.

The clinical decision-making by the Acute Medicine ANP can be explained by the Acute Medicine ANP clinical decision-making process (refer to Figure 6.2).

Figure 6.2: Acute Medicine ANP clinical decision-making process



Once the clinical consultation and direct interaction with the patient is initiated, the first clinical decision for the Acute Medicine ANP is often whether or not immediate action is required. This can be a complex process requiring the defining of choices between clinical diagnosis, interventions and resources. Throughout the data, clinical decision-making appeared to be a deliberate mental choice in which the Acute Medicine ANP gathers and considers information, weighs up the consequences and commits to the course of action based on the evidence (Barton, 2006; Pritchard, 2006; Tiffen et al., 2014). Influencing factors that the Acute Medicine ANP had to consider included what to examine in the clinical examination and judgements around the significance of findings. Clinical decision-making features can also be defined in terms of stability, certainty, familiarity, urgency, congruence, perceived risk and relevance (Connolly, Arkes & Hammond, 2000; Eraut, 2004).

Key findings: Clinical Decision-Making in Context

Decisiveness and indecisiveness are opposing traits

Acute Medicine ANP clinical decision-making is influenced by the clinical context and is characterised by multiple evolving features that result in clinical decision-making that is certain and decisive or uncertain and indecisive. Clinical decisions involve making action related choices. Elements of Decisiveness (the ability to commit to a decision) and Indecisiveness (the consideration of multiple alternative possibilities), can be found at various stages of the clinical decision-making process even within the same case study suggesting that decisiveness and indecisiveness are opposing rather than independent traits. Each case study highlighted elements and influences of clinical decision-making demonstrated by observations from field notes, quotes from the informal and formal interviews and supported by the literature including Dual-Process Theory.

Theme 1: Decisiveness – The ability to commit to a decision

With greater knowledge regarding the background information and certainty regarding the potential outcomes of the clinical decisions made invites more decisiveness in the process of clinical decision-making for the Acute Medicine ANP. The optimal clinical decision-making environment is one where there is no gap between what is known and what needs to be known and hence is associated with System 1.

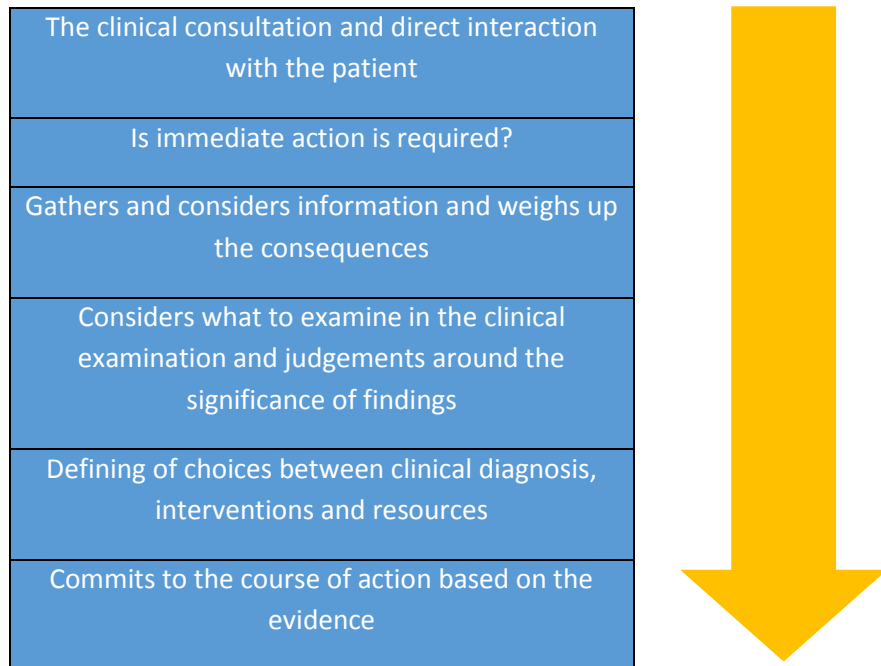
Theme 2: Indecisiveness - The consideration of multiple alternative possibilities

Indecisiveness and the associated difficulties in clinical decision-making for the Acute Medicine ANP arise through limited knowledge of the problem, vague history of events or information and the complexities in alternatives. There is internal conflict regarding personal competence that heavily influences their own clinical performance and their ability to make decisive clinical decisions and is associated with System 2.

Is immediate action required?

Once *'The clinical consultation and direct interaction with the patient is initiated'*, the first clinical decision for the Acute Medicine ANP in all the case studies was to determine whether *'Is immediate action was required?'* (refer to Figure 6.3).

Figure 6.3: Acute Medicine ANP clinical decision-making process



The question is whether the patient has an imminent life-threatening condition that poses a potential critical event. This is a binary question answered with System 1. “The situation has provided a cue: This cue has given the expert access to information stored in memory and the information provides the answer” (Simon, 1992, p. 155). The Acute Medicine ANP then *'Commits to the course of action based on the evidence'*.

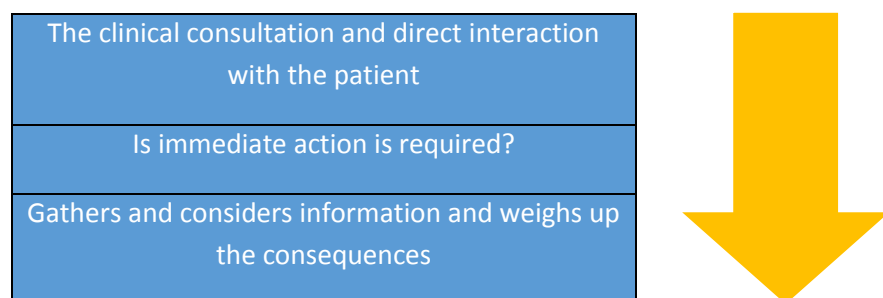
In Chapter 5, Case Study 1: A clear plan of action (p.115) the extended narrative provided an example of an intuitive process based on expertise in recognising familiar cues in the context of the surrounding environment. The Acute Medicine ANP quickly and instinctively identified that the patient was breathless - *'Gathers and considers information and weighs up the consequences'*. Immediate action was required. Intuitive System 1 actions were employed. There was little time

spent dwelling in the stages; *'Considers what to examine in the clinical examination and judgements around the significance of findings'*; and *'Defining of choices between clinical diagnosis, interventions and resources'* of the Acute Medicine ANP clinical decision-making process. "Intuition is nothing more and nothing less than recognition" (Simon, 1992, p. 155). Hence, the relevance here is that identifying that the patient was breathless was nothing more and nothing less than recognition. It is a skilled form of action. All the Acute Medicine ANPs articulated during the formal interview process that the making of these less complex decisive clinical decisions despite the potential substantial consequences is characterised by the relative absence of uncertainty and anxiety because the problem is well defined and unambiguous. Put simply, "The patient was having difficulty breathing. Therefore, I needed to help sit them up and put the oxygen on properly" (027.200117JBSSTRFT.docx).

Multiple sources of information

Once the urgent phase has been addressed through System 1, regardless of whether the patient has an imminent life-threatening condition that poses a potential critical event, the clinical decision-making begins with structuring of the decision problem. The Acute Medicine ANP *'Gathers and considers information and weighs up the consequences'*. Clinical decision-making is an ongoing process that requires the complex integration of *multiple sources of information* linking to potential gains or subjective positive utility and potential losses or subjective negative utility. For the Acute Medicine ANP difficulties in clinical decision-making present themselves through the complexities and uncertainties provided by the clinical decision-making alternatives (refer to Figure 6.4):

Figure 6.4: Acute Medicine ANP clinical decision-making process



Hence, the importance for the Acute Medicine ANP of taking an adequate clinical history of the events. This however, can be complex and time-consuming when there are communication difficulties (language barrier, cognitive impairment), the patient has multiple medical problems, is taking multiple medications (polypharmacy), are *vague historians*, or the patient is critically unwell with a fluctuating level of consciousness. There may also be “little engagement from the patient and questions being met with short worded vague answers” (Source: 003.220916JBRBDRI.docx). The interpretation of the patient’s verbal and non-verbal communication may be misinterpreted and taken out of context. “The history provided by the patients themselves often appears to be flawed” (Source: 0124.08102016JBLHTRFT.docx). The process can also break down when considering clinical information based on the assessment of another clinician (of variable competence and experience).

Anchoring and availability biases

The relevant *anchoring and availability biases* can usually be found in the patient’s current history of events leading to hospital, or previous medical history and hospital attendances. Anchoring occurs when the Acute Medicine ANP relies on an initial piece of information to make subsequent clinical decisions. A combination of salient features of a presentation often result in pattern recognition of a specific disease or condition (Croskerry, 2002). For example, “All patients with a background of COPD who present with shortness of breath and wheeze generally receive very similar treatments” (Source: 027.200117JBSSTRFT.docx). This is then combined with the media’s portrayal of ‘influenza/flu’ and the ‘NHS Winter Crisis’ to result in Tamiflu (treatment for influenza/flu) being added to the ‘concoction of baseline pharmacological interventions’. Whether this is a System 1 or System 2 is open to interpretation. System 2 has low processing capacity and hence requires high effort and the exclusion of attention to other matters including the consideration of time of year, the media interest and whether influenza/flu should be considered and subsequently treated.

Eva (2002) argued that clinicians who are considered of greater experience appear to be more subject to an anchoring effect as they are able to recognise

specific diseases or conditions via pattern recognition and salient features. Differing levels of experience between each Acute Medicine ANP was not explored in detail by this research. However, it would be reasonable to suggest that any Acute Medicine ANP who had worked through previous 'NHS Winter Crises' would support the thoughts of Monteiro and Norman (2013, S27) that memory functions in accessing prior knowledge and hence, diagnosis is primarily recognition of similar and familiar previously seen signs and symptoms. Thus, there is evidence of an inherent tendency in the perception of the frequency of these events that leads to a systematic bias to treat patients who present with these characteristics at this time of year. The clinical decision-making event is influenced by the distinct association with a previous experience.

There are examples within the data where the Acute Medicine ANP does not have all the necessary information to make an informed rational clinical decision. There is ambiguity provided by the availability of several alternatives of treatment or investigation (for example; a CT scan, colonoscopy, endoscopy and various specific blood tests) for the patient. It is during this phase where indecisiveness tends to present. In conceptualising indecisiveness, there is a sense of uncertainty and doubt that inhibits, or delays action. As described by Smith et al. (2004), there is the healthcare burden of expectation to make the 'best' choice, the right diagnosis and the appropriate clinical decisions when needed. Comparing a clinical decision outcome to its potential and uncertain alternative is an important component of clinical decision-making. This can be difficult and challenge the acceptance of a sense of uncertainty and doubt in the Acute Medicine ANP. Intolerance of uncertainty is associated with an inflated need for information. When considering multiple alternatives, the Acute Medicine ANP uses System 2 and hence clinical decision-making takes longer as there is a search for more information before making a clinical decision

As previously stated, the Acute Medicine ANP is more decisive in the process of clinical decision-making when there is no gap between what is known and what needs to be known. The degree of uncertainty or certainty varies depending upon how much knowledge and information can be established regarding the presented clinical situation. The absence or limitation of unknown factors lends

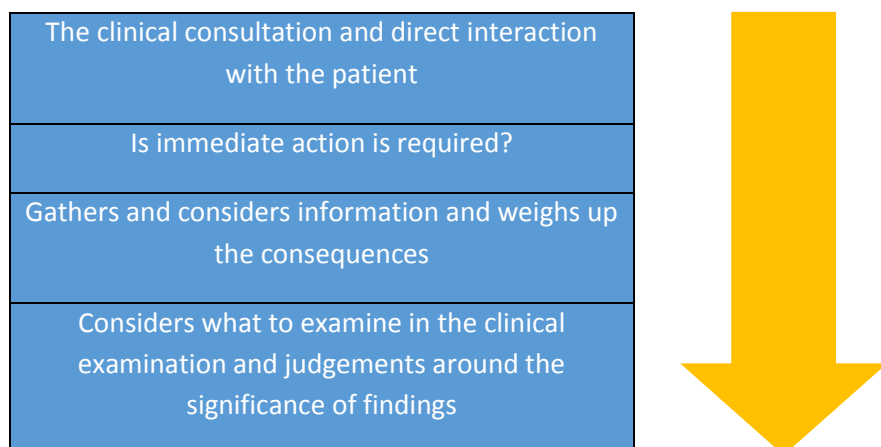
itself to less potential for uncertainty to intrude upon the clinical decision-making process. Familiarity and availability of information regarding the patient speeds identification of the clinical diagnosis and decisiveness.

Several of the Acute Medicine ANPs preferred to collect information from previous hospital attendances, blood results, radiological investigations, A&E and paramedic notes prior to *'The clinical consultation and direct interaction with the patient'*. It "makes sense to gather this information if you can beforehand". The purpose of investigations is to help to find out what the problem is" (Source: 027.200117JBSSTRFT.docx).

Working diagnosis

This clinical decision-making behaviour is driven by the search for a *working diagnosis*. Hence, there is the *availability of information* that includes blood test results that demonstrate raised infection and inflammatory markers and the chest x-ray showing subtle radiological changes. The Acute Medicine ANP *'Considers what to examine in the clinical examination and judgements around the significance of findings'*. Therefore, examination of the patient's chest revealing dullness on percussion and crackles or bronchial breathing during auscultation all are characteristic features of pneumonia (*refer to Figure 6.5*):

Figure 6.5: Acute Medicine ANP clinical decision-making process



The Acute Medicine ANPs have a prior understanding of signs, symptoms and diagnostic tests associated with particular diagnoses. *Confirmation bias* is evident as the Acute Medicine ANP starts with a hypothesis and actively pursues data to support and confirm these initial thoughts. All pieces of the available information are considered to determine the most plausible explanation for the illustrated pattern. As is characteristic of System 1, many parts of this clinical decision-making process were firmly established as the clinical features were plainly evident. System 1 and its rapid and automatic nature has an association with this prior knowledge and belief. With greater believed certainty regarding the outcome and previous exposure to similar circumstances with similar patterns brings more decisiveness in the clinical decision-making. The working diagnosis identified and stated. From here a *clear plan of action* produced through decisive committed clinical decision-making is made.

Competence and indecision anxiety

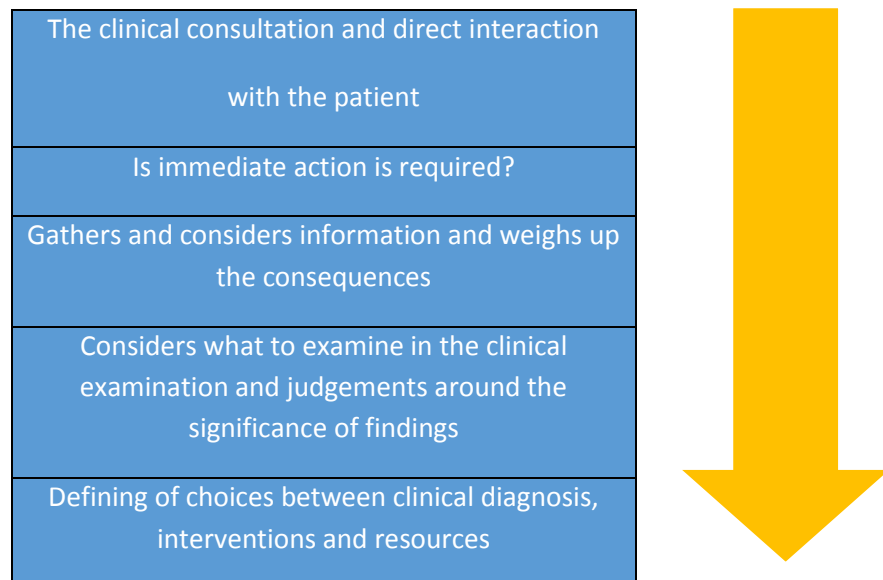
Amongst the Acute Medicine ANPs, there was a consistent undertone of a sense of trying to do their best under the beneficence umbrella of healthcare and demonstrating *competence* or *competent behaviour* in the context of the Acute Medicine clinical setting rather than fear of error. The literature suggests that there are inherent difficulties in defining and assessing competence. Pragmatically however, safe clinical practice would be a foundational clinical attribute. The Acute Medicine ANP quest for confidence in their own clinical competence manifests itself as an observed behaviour in their clinical practice.

For the Acute Medicine ANP to identify familiar clinical situations and to identify thoughts of certainty then being accurate and meticulous are important characteristics when taking a clinical history, conducting a physical examination and interpreting laboratory tests in order to compile a patient management plan and prescribe medications. Various examples highlight the importance of pattern recognition that is associated with what Croskerry (2009) described as the pathognomic presentation for a specific disease process. The literature suggests that this potentially exposes the Acute Medicine ANP to the vulnerability of specific bias. Much of this literature describes such bias in a negative light however still refer to strategies such as 'The Rule Out Worst-Case Scenario'

(ROWS), that is a form of pattern matching resulting from known characteristic presentation for a particular disease. However, common things are common because they are common. The Acute Medicine ANPs have acknowledged that the notion of ‘common’ and ‘decisiveness’ are linked and that the combination of these two lends itself to the notion of experience. *Availability bias* may occur in response to recent experiences with like clinical cases (Mamede et al., 2010).

Similar to Croskerry (2002) and his explanation of ‘The Rule Out Worst-Case Scenario’ (ROWS), for “most presentations the Acute Medicine ANP has available and carries a mental template of potential diagnoses that should be excluded” (Source: 27.200117JBSSTRFT.docx). This includes COPD, ACS, PE, Atypical Chest Pain, Hyponatremia, DKA and Community Acquired Pneumonia. Bounded in System 1, the “point that this highlights is that such presentations present few surprises” (Source: 034.230217JBHGTRFT.docx). The Acute Medicine ANPs are able to draw from a base of experience-generated knowledge to define choices between clinical diagnosis, interventions and resources (*refer to Figure 6.6*):

Figure 6.6: Acute Medicine ANP clinical decision-making process



Instinctive ways of processing and addressing information (System 1) are encouraged through repeated exposure to the same stimuli or problems. As

described by Sheridan and Reingold (2012, p.439), this leads to a “subjective phenomenal awareness” and “the unconscious processing on a priori basis”.

The generation of experience

The generation of experience involves reflecting on *common situations with similar patterns*. The reasoning processes of System 1 are connected to experience, priori knowledge and likely reflection. Reflective practice is deeply engrained in nursing. Reflecting-in-action, Schön, (1991) believed that nurses (the Acute Medicine ANPs are from a nursing background) use tacit knowledge, in which the ‘science’ and ‘theory’ informing the clinical decision-making is embedded in the activity itself. Formal exploration of ‘reflective practice’ and ‘models of reflection’ that have become an “recurring theme, or even, possibly, a bandwagon” (Hanningan, 2001, p.278), was a limitation of this doctoral research. Nevertheless, the availability heuristic of familiar symptoms of disease and other characteristics of the patient (generated through previous experience and *real time information*) contribute to familiarity, certainty, limited variables, stability, congruence and perceived low risk when considering a diagnosis.

Sick or critical patients are often not that complex

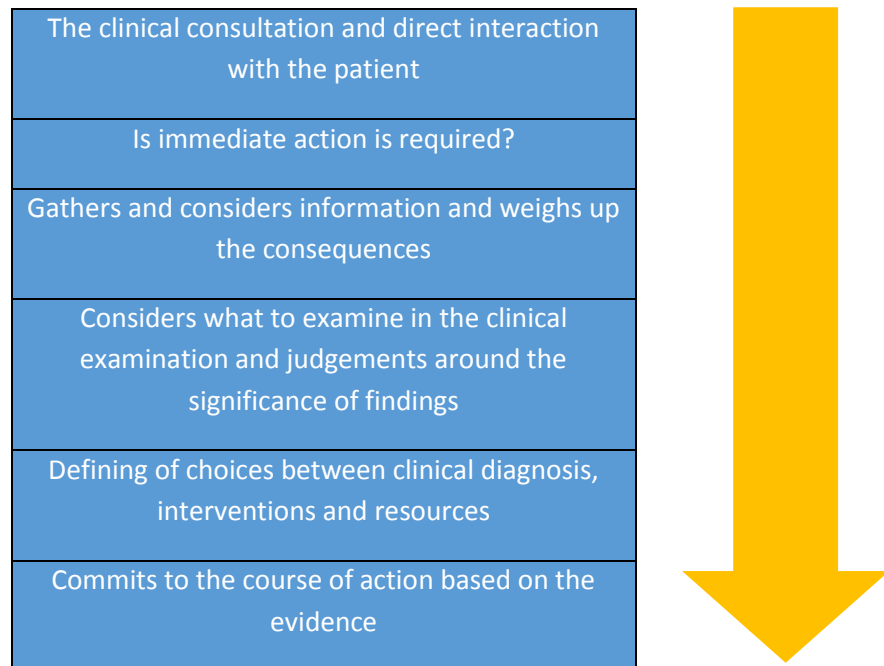
Arguably, through formal and informal processes of reflecting upon previous experiences of critical patients in an A&E resus environment, the Acute Medicine ANPs have established that patients often present with similar patterns of critical illness. “From the data it appears that clear and decisive clinical decisions are made with greater ease if there is an absence of multiple treatment options” (Source: 028.060217JBHGTRFT.docx). Within the data there were several examples where this was relative to sick or critical patients where often the treatment alternatives are limited. Hence, clinical decision-making associated with *sick or critical patients are often not considered that complex* despite being associated with patient lives and livelihoods and patient morbidity and mortality that diagnostic error contributes to. As previously acknowledge, expertise plays a role in anchoring bias. Critical patients in an A&E resus environment often present with similar patterns of critical illness. “Many of the clinical decisions are straight forward and almost made for you as there are not actually many alternatives” (Source: Source 58). This reliance on the non-analytical reasoning

of System 1 tends to increase with experience and was a feature of the clinical decision-making case studies involving Acute Medicine ANP SS. “Over time I have been exposed to more and more clinical situations and am able to understand the potential outcomes” (Source: Source 58). The Acute Medicine ANPs gathers and considers information, weighs up the consequences and commits to the course of action based on the evidence (*refer to Figure 6.7*):

The Acute Medicine ANPs are exposed to many mechanisms that underlie *specific knowledge domains* that have been embedded in the cognitive and behavioural repertoire. “A person is said to employ the availability heuristic whenever he [she] estimates frequency or probability by the ease with which instances or associations could be brought to mind” (Tversky & Kahneman, 1973, p.208). Without conscious effort by the Acute Medicine ANP, fast intuitive judgment of System 1 is able to unfold the rich database of their previous experience. Tversky and Kahneman (1973, p.209) described these bonds of association that are strengthened by repetition as perhaps the “oldest law of memory known to man”. For many it can evoke some mystical connotations as a source of knowledge, a ‘what we know without knowing’, an automatic or implicit process of thinking and finally a distinct faculty of the human mind (Betsch, 2008, p.3). This prior understanding and familiar pattern recognition with limited variables and stability contributed to what is described as narrowing the knowledge gap and confidence of relative certainty.

The patients themselves and the history of events that they provide significantly contributes to the complexity of anomalous or atypical information. For the Acute Medicine ANP, the abstract hypothetical thinking of System 2 is required in the absence of an anchor to co-ordinate the flow of this information through the working memory. The primary task of the Acute Medicine ANP is diagnosing illnesses and providing interventions to improve the condition of patients in Acute Medicine. The Dual-Process Theory incorporates many aspects of this clinical decision-making spectrum from certainty and decisiveness to uncertainty and indecisiveness.

Figure 6.7: Acute Medicine ANP clinical decision-making process



Methodological Issues, Strengths and Limitations

This doctoral thesis has employed an ethnographic case study approach to examine the influences on clinical decision-making by a small group of only ten Acute Medicine ANPs from three NHS sites in relation to acute clinical patient-care in Acute Medicine. The ethnographic case study design of this research attempted to describe systematically the characteristics of variables and phenomena within clinical decision-making by Acute Medicine ANPs and the healthcare environment of Acute Medicine. It is still questionable however, whether this small qualitative study can be considered replicable and hence generalisable. Much of the criticism surrounding ethnographic research concerns its dependence on small samples which is believed to render it incapable of validity and generalisability (Hamel, Dufour & Fortin, 1993; Yin, 1994). LeCompte and Goetz (1982, p.31) state that the treatment of validity and generalisability by ethnographers has previously been “sporadic and haphazard”.

Reliability, Validity and Generalisability

Reliability is concerned with the replicability of scientific findings and hence, is dependent upon the both external and internal design difficulties being resolved. The first question therefore is whether another independent researcher (or alas doctoral student) would unearth the same findings or the same constructs given the same or similar research environment? This may prove difficult as described by Nazaruk (2011, p.75), the “subjectivity of the researcher determines the outcome and establishes the mood”. Hegelund (2005) discussed the application of the concepts of objectivity and subjectivity in ethnographic theory and found that applying a particular subjective perspective to ethnography is central and indeed inevitable, therefore the generation of knowledge can be approached from many angles. It is acknowledged that the social interaction between myself as the ethnographer and the Acute Medicine ANP research participants influenced the way the ethnographic case studies were constructed.

The second question therefore, is whether another independent researcher (or alas another doctoral student) given the same set of constructs, would match and generate the data in the same way? Nazaruk (2011, p.75) stated that by “handling the information in the way in which he does ...shapes knowledge with a pinch of intimate details and self-referential information”. The personal element is difficult to avoid. From a contemplative perspective, a natural question to arise is to the extent to which an ethnographer’s findings can be said to be objective. The starting point required both insider and background knowledge and previous experience within the field. Having worked in Acute Medicine since 2001 and now in the ‘midst of a group’ researching the Acute Medicine ANP, one could occupy any position along the continuum from pure observer to pure participant. “From case study to case study the position that I indeed occupied varied. Perhaps this reflexivity is an attempt to pledge objectivity through reducing the effects of my presence during the clinical situations (Source: 017.141016JBSSTRFT.docx).

Hence, validity here is concerned with the accuracy of these findings concerning ‘What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?’ All scientific ways of knowing strive for authentic results

regardless of the discipline or the methods used for data collection and analysis. Arguably, more questions than answers are raised in establishing the extent to which conclusions made by this doctoral research effectively represents the empirical reality and assesses whether the constructs devised represent the Acute Medicine ANP experience. This could be attributed to the indifference associated with 'reflexivity', 'subjectivity' and 'objectivity' as previously only touched upon.

Lofland and Lofland (1995), argued that a basic realist position is not threatened by the inevitable actuality that all human perception is shaped by the language and personal history of the observer. Even this self-critical, candid and reflexive discussion regarding the 'Methodological Issues, Strengths and Limitations' of this doctoral research contains an innate natural bias from my own professional background and my own writing that shapes these selections and omissions. Zaman (2008, p.152) cites the conflict described by Bernard (1994):

“Who is, after all, objective in this world? No human being can be completely objective. We cannot rid ourselves of our experiences. We can however, become aware of our experiences, our opinions, and our values. As a result, bias is a human condition, a danger for both insider and outsider researcher”.

This distinction may not necessarily be important in the greater context. However, Lofland and Lofland (1995) described it as “unscientific” as well as “maddening” to initiate data collection without any paradigm or natural language that precisely contrasts data and noise. The ethnographer who aimlessly gathers without logical direction will find no happiness in the process (Kirk & Miller, 1986, p. 66). In embedded research, good intentions do not always result in smooth social interaction but sometimes produces awkward outcomes (Li, 2008). In the field there are distinctive and unavoidable ethical conundrums.

One needs to also consider that ethnographic research occurs in natural settings. The natural setting here for the Acute Medicine ANPs are clinical situations with patients in Acute Medicine. Throughout, Acute Medicine has been described as

a complex and nuanced healthcare environment. It is unlikely that the unique clinical situations as described throughout the narrative in the data can be reconstructed precisely. Even “the most exact replication of research methods may fail to produce identical results” (LeCompte & Goetz, 1982, p.35).

Other types of research legitimise their generalisations through design controls, sample size and assumptions of equivalence. These Acute Medicine ANPs however, have not been sampled randomly from a wider population to which the findings can be applied. There is an absence of standardised controls. Establishing the reliability of the data of the ethnographic case study design is complicated by the nature of the data and the research process. “Embedded within the fieldwork experiences, being involved and actively influencing these clinical scenarios and probably the participant’s responses to them will provide some interesting data and discussion regarding the validity of these findings (Source: 012.081016JBPSDRI.docx). “Many anthropologists have come to realise that in a hospital, participant observation in the true sense of the term is an oxymoron” (van der Geest & Finkler, 2004, p.1999). Therefore, in acknowledging the philosophies for life, the values and the ontological and epistemological perspectives of the researcher, it is understandable that it is difficult to describe this doctoral research as generalisable.

Comparability and Translatability

The application of *comparability* and *translatability* of findings is a more realistic objective rather than attempts of generalisability and transference of findings to non-participants not investigated as part of this doctoral research. The characteristics of the Acute Medicine ANPs were defined so that the constructs generated can serve as a basis for comparison and comparability with other potentially similar research participants (other types of ANPs working in other acute clinical areas). Veracity was established through focusing specifically on the Acute Medicine ANPs and their clinical decision-making behaviours during acute clinical events with patients in Acute Medicine. Time spent in the field was the single most potent tactic to enhance veracity. The data emphasised the interplay among the Acute Medicine ANPs, other variables and the clinical environment of Acute Medicine. Comparability is established by systematically

examining causal and consequential influences on the clinical decision-making of the Acute Medicine ANPs. Participant reactivity is a consequence of the methodology and the behaviours of the Acute Medicine ANP and myself as the researcher are entwined. The interrelationship among these factors and the intricacies of Acute Medicine constituted the focus of this doctoral research.

Translatability is therefore dependent on explicit identification of the research methods, the characteristics of the construct and the groups so that comparisons can be conducted confidently. *Priori* constructs and relationships were not assumed. Conceptual categories, themes and subthemes were generated and refined. Observations were made during the clinical incidents and were correlated with the informal interviews directly after and the formal interviews at a later time to clarify and triangulate the data and to ensure that all facets of the construct were included in order to assess accuracy and to enable critical-reflection. Triangulation was also enhanced through the involvement of the Acute Medicine ANPs in the construction of the themes and interpretation of the data.

Therefore, while features of this doctoral research and the individual participants may not be directly generalisable, analysis of 'What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?' at this level has allowed the identification of constructs, patterns of behaviour and attitudes that may resonate and thus be comparability and translatability with other similar healthcare environments and the ANPs that ply their trade in them.

Recommendations for future research

This doctoral research is unique to the profession of the Acute Medicine ANP and to the field of Acute Medicine.

Ethnographic case study design research under the larger umbrella of qualitative research is interpretive in nature and it is therefore imperative that these findings are validated by further research in the field of Acute Medicine and similar acute clinical settings before the findings can be applied in practice and to education

for the Acute Medicine ANP. The development of the theoretical framework may assist with this.

Further ethnographic case study research on the same small group of ten Acute Medicine ANPs from these three NHS sites would potentially provide interesting data on how the influences on clinical decision-making in relation to acute clinical patient-care in Acute Medicine develops and evolves as their level of clinical experience and responsibility increases. Perspectives change as time changes. Time changes people.

Conclusion

The Acute Medicine ANP role has become one of the innovative strategies employed by the NHS to address the challenges of Acute Medicine. There continues to be challenges to specifying the philosophies underpinning the academic requirements and clinical education and preparation. National organisations like HEE have encountered complexity in endeavouring to regulate and to standardise these roles nationally. The current literature is heavily influenced by theoretical discussion around definitions and conceptualisation of Advanced Practice, the quest for autonomy, the medicalisation of the nursing profession through role and function substitution influencing scope of practice and the application or integration of evidence based practice.

There is no evidence in the literature of research into clinical decision-making by Acute Medicine ANPs. The ongoing contribution of the Acute Medicine ANP in Acute Medicine is dependent on the making of well-reasoned, accurate and meaningful decisions in relation to the presenting clinical problems. This is fundamental to quality of care. It is the understanding of clinical decision-making by the Acute Medicine ANPs that motivated this doctoral research.

An ethnographic case study design was employed as an interpretive methodology to address the research question - 'What are the factors that influence the clinical decision-making behaviours of the Acute Medicine ANP?'

The emergent findings from the data analysis were discussed using evidence from the variety of data sources to provide a picture of clinical decision-making by the Acute Medicine ANPs in Acute Medicine. The discussion was organised around the themes identified in the data and addressed the following research aims and objectives:

- To use an ethnographic case study design to explore the clinical environment of the Acute Medicine ANP working in Acute Medicine.
- To use an ethnographic case study design to explore the clinical decision-making behaviours when caring for acute patients in Acute Medicine.
- To seek an understanding of factors that influence the clinical decisions and actions of Acute Medicine ANPs as they make clinical decisions in the context of real life practice.
- To inductively explore and identify the factors that affect Acute Medicine ANP clinical decision making behaviours.
- To explore similarities and differences in the types of clinical decisions made by Acute Medicine ANPs.
- To explore the perceived internal limitations of Acute Medicine ANP clinical decision-making authority and scope of practice.

Acute Medicine is characterised by an atmosphere of unrelenting tension, high pressure demands for urgent and emergency care. Clinical decision-making by the Acute Medicine ANP is a process of diverse levels of complexity that they undertake multiple times on a daily basis when they make judgements about the assessment and care that they are providing to patients in Acute Medicine and the clinical management plans they implement. Dual-Process Theory as the predominant approach to clinical decision-making within the literature.

The Acute Medicine ANP is more decisive in the process of clinical decision-making when there is no gap between what is known and what needs to be known. System 1 is connected to experience and priori knowledge. The greater believed certainty regarding the outcome and previous exposure to similar circumstances with similar patterns brings more decisiveness in the clinical

decision-making. The degree of uncertainty or certainty varies depending upon how much knowledge and information can be established regarding the presented clinical situation. The absence or limitation of unknown factors lends itself to less potential for uncertainty to intrude upon the clinical decision-making process. The abstract hypothetical thinking of System 2 is required in the absence of an anchor. Familiarity and availability of information regarding the patient speeds identification of the clinical diagnosis and decisiveness.

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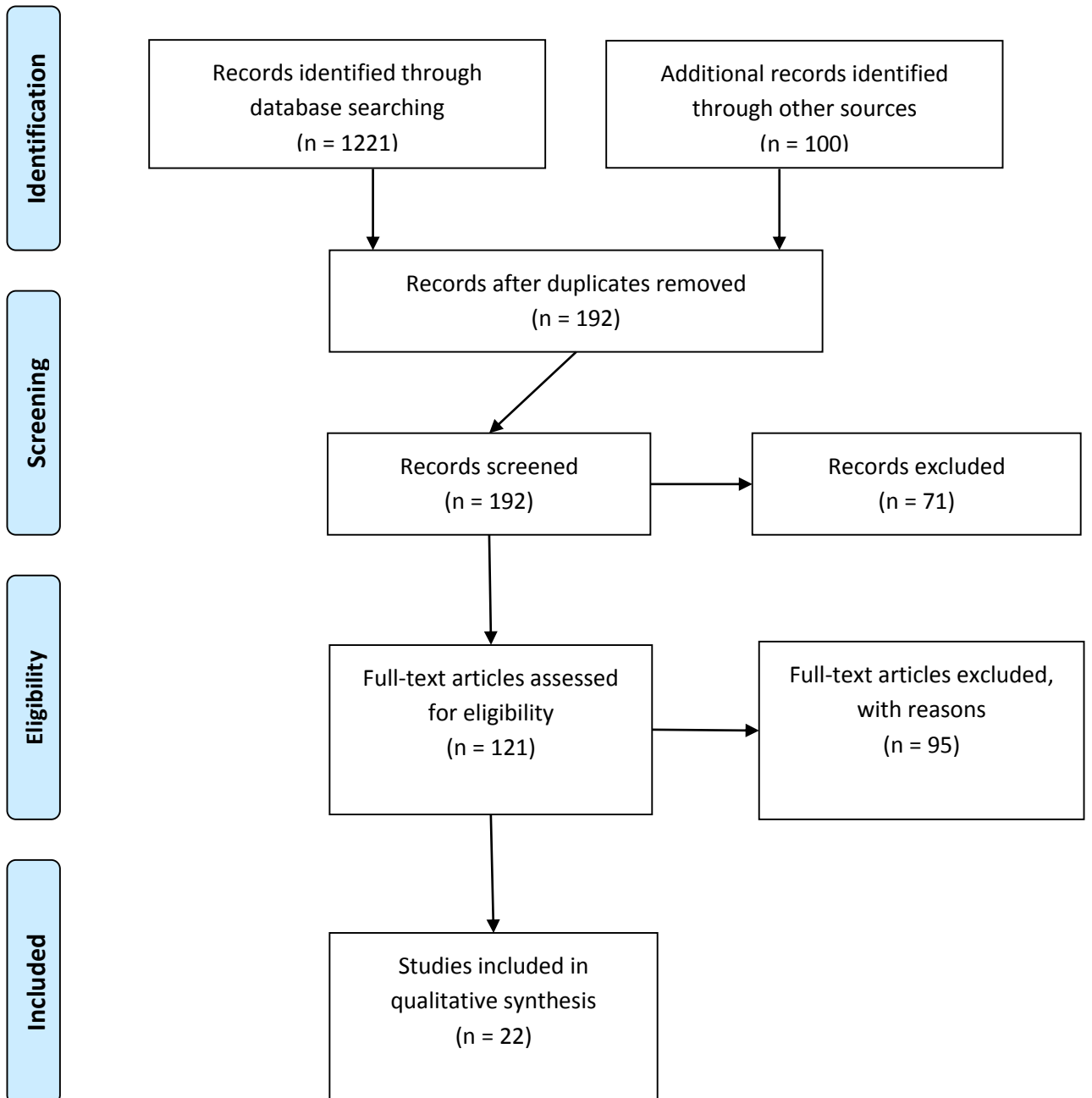
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Appendices

Appendix 1: PRISMA Flow Diagram



Appendix 2: Long (2005) Evaluation Tool for ‘Mixed Methods’ Study Design

Bibliographic Details	<ul style="list-style-type: none"> • Author, title, source, year
Purpose	<ul style="list-style-type: none"> • What are the aims of this paper? • If the paper is part of a wider study, what are its aims?
Key Findings	<ul style="list-style-type: none"> • What are the key findings?
Evaluative Summary	<ul style="list-style-type: none"> • What are the strengths and weaknesses of the study and theory, policy and practice implications?
The Study	<ul style="list-style-type: none"> • What type of study is this? • What is the intervention? • What was the comparison intervention? • Is sufficient detail given of the nature of the intervention and comparison intervention? • What is the relationship off the study to the area of the topic review?
Context: I: Setting	<ul style="list-style-type: none"> • Within what geographical and care setting is the study carried out? • What is the rationale for choosing the setting? • Is the setting appropriate and/or sufficiently specific for examination of the research question? • Is sufficient detail given about the setting? • Over what time period is the study conducted?
Context II: Sample	<ul style="list-style-type: none"> • What was the source population? • What were the inclusion criteria? • What were the exclusion criteria? • How was the sample selected? • Is the sample appropriate to the aims of the study? • If there was more than one group of subjects, how many groups were there, and how many people were in each group? • Is the achieved sample size sufficient for the study aims and to warrant the conclusions drawn? • What are the key characteristics of the sample?
Context III: Outcome Measurement	<ul style="list-style-type: none"> • What outcome criteria were used in the study? • Whose perspectives are addressed? • Is there sufficient breadth and depth?
Ethics	<ul style="list-style-type: none"> • Was Ethical Committee approval obtained? • Was informed consent obtained from participants of the study? • How have ethical issues been adequately addressed?
Comparable Groups	<ul style="list-style-type: none"> • If there was more than one group was analysed, were the groups comparable before the intervention? In what

	<p>respects were they comparable and in what were they not?</p> <ul style="list-style-type: none"> • How were important confounding variables controlled? • Was this control adequate to justify the author's conclusions? • Were there other important confounding variables controlled for in the study design or analyses and what were they? • Did the authors take these into account in their interpretation of the findings?
Data Collection Methods	<ul style="list-style-type: none"> • What data collection methods were used in the study? • Is the information collected with sufficient detail and depth to provide insight into the meaning and perceptions of informants? • Is the process of fieldwork adequately described?
	•
Data Analysis	<ul style="list-style-type: none"> • How were the data analysed? • How adequate is the description of the data analysis? • Is adequate evidence provided to support the analysis? • Are the findings interpreted within the context of other studies and theory?
Researcher's Potential Bias	<ul style="list-style-type: none"> • What was the researcher's role? • Are the researcher's own position, assumptions and possible biases outlined?

(Adapted from Long, 2005)

Appendix 3: Matrix of Publications

PUBLICATION	PURPOSE	SAMPLING DATA COLLECTION & ANALYSIS	FINDINGS	EVALUATIVE SUMMARY THEMES
<p>Becker, D. (2006). Activities performed by acute and critical care advanced practice nurses: American Association of Critical-Care Nurses study of practice. <i>American Journal of Critical Care</i>, 15 (2), pp.130-148.</p> <p>USA Mixed Methods</p>	<p>To describe critical care advanced practice by revising descriptors to encompass the work of both acute care nurse practitioners and clinical nurse specialists and to explore differences in the practice of clinical nurse specialists and acute care nurse practitioners.</p>	<p>65 Advanced Nurse Practitioners</p> <p>Survey</p> <p>Descriptive statistics</p>	<p>CNSs rated as more critical activities involving clinical judgment and clinical inquiry. Acute care Advanced Nurse Practitioners focused primarily on clinical judgment.</p>	<p>Certification initiatives should reflect differences between clinical nurse specialists and acute care nurse practitioners. Self acknowledges that the most significant limitation of our study is the limited number of ACNP respondents. Therefore, the results of this study specifically related to the roles of ACNPs reflect the subset of certified ACNPs who participated. However, despite the number of participants, the results are consistent with the results of both the ANCC study and Kleinpell study.</p> <p>ACNP Clinical Decision-Making Evidence Based Practice</p>
<p>Begley, C., Elliott, N., Lalor, J., Coyne., I, Higgins, A., & Comiskey, C. M. (2013). Differences between clinical specialist and advanced practitioner clinical practice, leadership, and research roles, responsibilities, and perceived outcomes (the SCAPE study). <i>Journal of Advanced Nursing</i>, 69 (6), pp.1323-1337.</p>	<p>To report a study designed comparing the roles, responsibilities, and perceived outcomes of Clinical Nurse Specialists, Clinical Midwife Specialists, and Advanced Nurse Practitioners.</p>	<p>23 Clinical Nurse Specialists and Advanced Nurse Practitioners, interviews with 21 clinicians and 13 Directors of Nursing or Midwifery. A survey was completed by 154 service-users.</p> <p>Interviews and survey Case study</p>	<p>Advanced Nurse Practitioners give a higher level of care, particularly at a strategic level.</p>	<p>Advanced Practitioners do give a higher level of care, particularly at strategic level. The self-described relatively small sample size of 154 in the in the service-user survey was the limitation of the study as some findings did not reach statistical significance. The strengths of triangulation between qualitative and quantitative data and representativeness of the sample decrease these limitations.</p> <p>ANP Clinical Decision-Making Evidence Based Practice Autonomy</p>

UK Mixed Methods				
Cajulis, C. B., & Fitzpatrick, J. (2007). Levels of autonomy of nurse practitioners in an acute care setting. <i>Journal of the American Academy of Nurse Practitioners</i> , 19 (10), pp.500-507. USA Mixed Methods	The purpose of this descriptive study was to determine the level of autonomy of Nurse Practitioners providing care to an adult patient population in an acute care setting.	54 NPs Questionnaire The Dempster Practice Behaviours Scale was used to measure the autonomy of the NPs.	41% participants had very high levels of autonomy, 31.5% had extremely high levels of autonomy, and 19% had moderate levels of autonomy	The results of this study provided preliminary evidence of the level of autonomy of NPs providing inpatient care to adult patients in an acute care setting. The Magnet-Designated Medical Centre is a "favourable work environment to practice; thus, the study results may not represent the average NP workforce working in an acute care setting". ANP Clinical Decision-Making Autonomy Scope of Practice
Chapa, D. (2013). Using pre-appraised evidence sources to guide practice decisions. <i>Journal of the American Association of Nurse Practitioners</i> , 25 (5), pp.234-243. USA Qualitative Literature Review	To describe pre-appraised evidence sources or a top-down approach to obtaining the best available evidence. To describe how to incorporate pre-appraised evidence into clinical decision making with the Best Practice Decision Guide.	Literature Review Narrative	Nurse Practitioners make numerous practice decisions on a daily basis without needing to engage in each element outlined in the decision guide	Information on the major issues and dilemmas encountered at each step is presented, including evaluation of clinical practice guidelines and the consideration of relevant studies to particular patients or subpopulations. Recommendations for other resources to use in the appraisal process and in making final practice decision are also described. NP Evidence Based Practice
Conway, A., & Richardson, A. (2004). The respiratory nurse specialist role at a medical assessment unit. <i>Nursing times</i> , 100 (24), pp.53-54. UK Qualitative	To describes the development and implementation of two Respiratory Nurse Practitioner roles at a medical admissions unit	2 Respiratory Nurse Practitioners Service Evaluation Descriptive narrative	Patients are seen more rapidly and receive timely and optimal treatment including health education.	The study indicates that the initial outcomes of the service had been positive. No numerical data is given. Did not analyse the clinical decisions and the potential alternatives of such actions. There are comments regarding increased numbers of patients placed in appropriate respiratory beds, more appropriate referral to other

Descriptive, Editorial				respiratory specialists, more appropriate investigation of patients and rapid initiation of treatment. Reduced waiting times is also highlighted however, “a detailed formal study is currently being undertaken”. RNP Scope of Practice
Davies, B., & Hughes, A. M. (2002). Clarification of advanced nursing practice: characteristics and competencies. <i>Clinical Nurse Specialist: The Journal for Advanced Nursing Practice</i> , 16 (3), pp.147-152. UK Case study	The purpose of this article is to share the definition of advanced nursing practice that resulted from discussion by faculty members teaching clinical specialisation within a graduate program.	Case study Case study, Literature review Descriptive narrative	Optimizing client care is the overriding priority for advanced nursing practice.	The case study compared the approaches between the ANP and CNS in relation to patient compliance with low fat diet and different approaches to anti-arrhythmic agents and intuition. Several areas of competence were identified: clinical expertise, critical thinking and analytic skills, clinical judgment and decision-making, leadership, communication, problem solving, collaboration, education and research and program development. ANP Clinical Decision-Making Scope of Practice
Dulko, D., Hertz, E., Julien, J., Beck, S., & Mooney, K. (2010). Implementation of cancer pain guidelines by acute care nurse practitioners using an audit and feedback strategy. <i>Journal of the American Academy of Nurse Practitioners</i> , 22 (1). pp.45-55.	This study evaluated the effect of an audit and feedback intervention on Nurse Practitioner implementation of cancer pain Clinical Practice Guidelines and on hospitalized patients' self-report of pain and satisfaction with pain relief.	8 Nurse Practitioners, 2 groups of 96 patients Survey Statistical	Nurse Practitioner adherence to Clinical Practice Guidelines increased during audit feedback. Pain intensity did not significantly differ between groups.	Patients were non-randomized but blinded. Descriptive statistics and frequency distributions were generated for demographic data. The BPI-Short Form (BPI-SF) was used as the measure of pain intensity and interference. The intervention did not result in a significant reduction in pain severity. The study was conducted on services that were predominately NP managed over a brief three-month period. It is unclear whether the results of this intervention would have persisted past

USA Quantitative				<p>this time frame. Additionally, quality of life and concurrent symptoms were not measured. Pain was not evaluated over time or between interventions. The study may have been underpowered to detect differences in pain severity.</p> <p>NP Autonomy Scope of Practice</p>
<p>Facchiano, L., & Hoffman-Snyder, C. (2011). Evidence-based practice for the busy nurse practitioner: Part three: Critical appraisal process. <i>Journal of the American Academy of Nurse Practitioners</i>, 24 (12), pp.704-715.</p> <p>USA Qualitative Literature</p>	<p>To provide an introductory overview of the critical appraisal process, relevant clinical measurements, and critical thinking skills that can enhance Nurse Practitioner confidence in the clinical decision making process.</p>	<p>Descriptive narrative</p>	<p>Critical appraisal skills can assist Nurse Practitioners in interpreting available research, determining its validity reliability, and applicability to their clinical practice.</p>	<p>Multiple online literature data bases were accessed targeting Evidence Based Practice (EBP). A three step process of evidence based appraisal was used. Highlighted that making EBP more user friendly is paramount for utilisation of best evidence.</p> <p>NP Clinical Decision-Making Evidence Based Practice Autonomy</p>
<p>Gardner, A., Hase, S., Gardner, G., Dunn, S, V., Carryer, J. (2008). From competence to capability: a study of nurse practitioners in clinical practice. <i>Journal of Clinical Nursing</i>, 17 (2), pp.250-258.</p> <p>Australia New Zealand</p>	<p>This research aimed to understand the level and scope of practice of the Nurse Practitioner in Australia and New Zealand further using a capability framework.</p>	<p>15 Nurse Practitioners</p> <p>Interviews Secondary analysis Descriptive narrative</p>	<p>This study suggests that both competence and capability need to be considered in understanding the complex role of the nurse practitioner.</p>	<p>The study suggests that both competence and capability need to be considered in understanding the complex role of nurse practitioners. An analytical framework was established from the five attributes. A small sample of 15 NPs from Australia and New Zealand was interviewed. This represents less than a quarter of the total registered NPs in both countries (Australia 64 and New Zealand 11). Secondary analysis is an</p>

Qualitative				<p>efficient and cost effective use of researcher time and reduces respondent burden, however it lacks control over data collection methods and potential for encroaching bias.</p> <p>NP Scope of Practice</p>
<p>Gardner, J., Mooney, J., & Forester, A. (2013). HEAL: a strategy for advanced practitioner assessment of reduced urine output in hospital inpatients. <i>Journal of Clinical Nursing</i>, 23 (11), pp.1562-1572.</p> <p>UK Discursive paper Literature review</p>	<p>To produce a model for Advanced Nurse Practitioners to follow in the assessment and management of patients with a reduced or low urine output.</p>	<p>Clinical guidelines</p> <p>Descriptive narrative</p>	<p>This model can be used by Advanced Nurse Practitioners to guide assessments and ensure that patients are appropriately managed in response, with minimal additional training.</p>	<p>Model can be used by advanced practitioners to guide assessments and ensure that patients are appropriately managed in response with minimal additional training. Presented a "new model for immediate triage" assessment and treatment for reduced urine output, using history, EWS and laboratory results, or HEAL, with clear points for referral where appropriate. It provides a step-by-step guide and with in-depth explanation regarding the causes of anuria and oliguria and places a heavy emphasis on EWS.</p> <p>ANP Clinical Decision-Making Autonomy</p>
<p>Juretschke, L. J. (2001). Ethical dilemmas and the nurse practitioner in the NICU. <i>Neonatal Network</i>, 20 (1), pp.33-38.</p> <p>USA Qualitative Case Study</p>	<p>This case study elucidates some of the principles needed to guide ethical decision making for Neonatal Nurse Practitioners.</p>	<p>Case study – 10-day old female, and parents</p> <p>Observation Descriptive narrative</p>	<p>The changing role of the nurse and the added responsibilities of advanced practice nursing will put more of the burden of ethical decision making on nurses.</p>	<p>An eight step ethical decision-making framework was incorporated to address the ethical decisions surrounding additional interventions in the context of a do not attempt resuscitation order (DNR). Patient advocacy and potential conflict with the child's parents was addressed with an emphasis on the Code of Medical Ethics and the American Nurses Association Committee on Ethics guidelines.</p> <p>NNP Autonomy</p>

				Scope of Practice
<p>Kapu, A. N., Wheeler, A. P., & Lee, B. (2014). Addition of Acute Care Nurse Practitioners to Medical and Surgical Rapid Response Teams: A Pilot Project. <i>Critical Care Nurse</i>, 34 (1), pp.51-60.</p> <p>USA Pilot Study Mixed methods</p>	<p>To assess the impact of adding an Acute Care Nurse Practitioner to the Rapid Response Team.</p>	<p>24 Intensive Care Nurses</p> <p>Surveys Mixed methods</p>	<p>Acute Care Nurse Practitioners added value to the Rapid Response Team by providing diagnoses and prescriptive management beyond the scope of the original Rapid Response Team.</p>	<p>A brief case study was utilised to demonstrate an example of a scenario where the ACNPs would be employed to address the concerns of a bleeding hypovolemic, hypotensive patient. Heavy emphasis on the use of EWSs. Multiple graphs and flow charts are used to portray the responses from the charge nurses and nurse managers surveyed. The authors did not identify any limitations regarding the study design, however within the project it was felt that there were “an insufficient number of ACNPs to respond to all calls around the clock” and an absence of a “backup plan when an ACNP was involved in an ICU procedure or caring for a critically ill patient in unstable condition in the ICU”. This demonstrated the insufficiency in the employed numbers if ACNPs and the potential cost implications to achieve total attendance of rapid response calls by ACNPs.</p> <p>ACNP Evidence Based Practice Scope of Practice</p>
<p>Lambing, A. Y., Adams, D. L., Fox, D. H., & Divine, G. (2004). Nurse practitioners' and physicians' care activities and clinical outcomes with an inpatient geriatric population. <i>Journal of the American Academy of Nurse</i></p>	<p>This study investigated care activities and clinical outcomes for hospitalised geriatric patients treated by Nurse Practitioners compared with those treated by intern and resident physicians.</p>	<p>8 Nurse Practitioners, 18 interns and residents</p> <p>Questionnaire Quantitative statistical analysis</p>	<p>Results of this study clearly support the position that Nurse Practitioners deliver effective care to hospitalised geriatric patients, particularly to those who are older and sicker</p>	<p>Self-reports concerning 10 primary activity categories indicated that NPs spent a higher percentage of time doing progress notes and care planning than did physicians and that physicians spent more time on literature reviews. NPs placed more emphasis on the importance of advance directive discussions while physicians were more concerned by functional status. Medical record documentation showed</p>

<p><i>Practitioners</i>, 16 (8), pp.343-352.</p> <p>USA Mixed Methods Descriptive Comparative</p>				<p>NPs to be more attentive to physical and occupational therapy referrals. NPs cared for more musculoskeletal and psychiatric problems. Physicians cared for more cardiac patients. Readmission and mortality rates were similar. There was a significant difference in the number of participants from each group who completed the professional care provider questionnaire, 8 NPs versus 18 physicians. Legitimate comparisons between the groups may have been influenced by the potential inexperience of the interns versus the acknowledged wealth of experience of the NPs. Additionally, the study did not explore patient satisfaction.</p> <p>NP Clinical Decision-Making</p>
<p>Mantzoukas, S., & Watkinson, S. (2007). Review of advanced nursing practice: the international literature and developing the generic features. <i>Journal of Clinical Nursing</i>, 16 (1), pp.28-37.</p> <p>UK Qualitative Literature Review</p>	<p>To review the nursing literature on the notion of advanced nursing practice and provide clarifications on the concept of Advanced Nurse Practitioners by developing its' generic features</p>	<p>Narrative synthesis</p>	<p>7 generic features: (i) the use of knowledge in practice, (ii) critical thinking and analytical skills, (iii) clinical judgement and decision-making skills, (iv) professional leadership and clinical inquiry, (v) coaching and mentoring skills, (vi) research skills and (vii)</p>	<p>The retrieved material was screened and indexed to develop seven thematic units that formed the generic features of the ANP. Heavy bias towards the influence of advanced nursing practice and its' association with the practice of ANPs from the USA, UK, Canada, Holland Australia, Brazil and Ireland.</p> <p>ANP Clinical Decision-Making Scope of Practice</p>

			changing practice	
Maylone, M. M., Ranieri, L., Quinn Griffin, M. T., McNulty, R., & Fitzpatrick, J. J. (2011). Collaboration and autonomy: perceptions among nurse practitioners. <i>Journal of the American Academy of Nurse Practitioners</i> , 23 (1), pp.51-57. USA Mixed Methods	This descriptive study was designed to investigate the relationship between Nurse Practitioners perceptions of collaboration with physician colleagues and level of autonomy NP practice	99 Nurse Practitioners Dempster Practice Behaviour Scale (DPBS) and the Collaborative Practice Scale modified for advanced practice. Descriptive cross sectional Mixed methods	Nurse Practitioners rated both their perceptions of collaboration with physician colleagues and levels of autonomy as high. There was no significant correlation between these variables	A convenience sample of 99 NPs attending a national clinical conference completed the Dempster Practice Behaviour Scale (DPBS) and the Collaborative Practice Scale modified for advanced practice nurses. "A five-dollar gift certificate for a national coffee shop or book store was offered as an incentive to participate". The small sample size of 99 is acknowledged by Maylone et al (2010) has a limitation of the study particularly as 1200 attended the conference. This is in addition to the five-dollar gift certificate as motivation to participate. This may not be representative of the general NP population. NP Autonomy Scope of Practice
Pritchard, M. J. (2006). Professional development. Making effective clinical decisions: a framework for nurse practitioners. <i>British Journal of Nursing</i> , 15 (3), pp.128-130. UK Informative summary	Use of analytical frameworks in nursing	Informative descriptive summary	By using this framework, the author has developed and expanded his clinical decision-making skills and has more confidence to carry out his ever-expanding clinical role.	Explores a clinical decision-making framework. A six step process is examined. Background or "impetus" behind nurses including ANPs undertaking clinical decisions is given including collaborative policy changes. No examples of clinical decisions using the framework is given to demonstrate applicability to ANP practice. ANP Clinical Decision-Making
Rashotte, J., & Carnevele, F. A. (2004). Medical and nursing clinical decision	In this paper we explore the complex forms of knowledge involved in diagnostic and interventional	Descriptive narrative	There is no difference in diagnostic and interventional decision	Explored the complex forms of knowledge involved in diagnostic and interventional decision-making by comparing the

making: a comparative epistemological analysis. <i>Nursing Philosophy</i> , 5 (2), pp.160-174. Canada Literature Review	decision-making by comparing the processes in medicine and nursing, including Nurse Practitioners.		making or ways of knowing, between Nurse Practitioners and doctors.	processes in medicine and nursing, including NPs. A complex epistemological analysis of decision-making is presented by examining several perspectives and comparing them for their use in the nursing and medical literature. NP Clinical Decision-Making
ter Maten-Speksnijder, A., Grypdonck, M., Pool, A., Meurs, P., & van Staa, A. L. (2014). A literature review of the Dutch debate on the nurse practitioner role: efficiency vs. professional development. <i>International Nursing Review</i> , 61 (1). pp.44-54. Netherlands Literature Review	To explore the debate on the development of the Nurse Practitioner profession in the Netherlands.	Review of 14 policy documents, 35 opinion papers from nurses, 363 opinion articles from physicians and 24 Dutch research papers concerning Nurse Practitioners from 1995 to 2012. Content analysis	The Nurse Practitioner role was presented as a solution for healthcare and workforce problems.	Explored the debate on the development of the NP profession in the Netherlands. It reviewed policy documents, opinion papers from nurses, opinion articles from physicians and Dutch research papers concerning NPs from 1995 to 2012. The spiral of analysis was employed as a systematic analytic strategy. The literature review did not include any publications from NPs themselves or any unpublished material. Acknowledge that they “probably left involvement in health policy development to the professional nursing organizations”. NP Autonomy Scope of Practice
Tiffen, J., Corbridge, S. J., & Slimmer, L. (2014). Enhancing Clinical Decision Making: Development of a Contiguous Definition and Conceptual Framework. <i>Journal of Professional Nursing</i> , 30 (5), pp.399-405.	The purpose of this article is to begin the process of developing a definition and framework of clinical decision-making.	Information processing theory	The clinical decision making definition and framework proposed here are works in progress.	Homogenous convenience sample of NPs who were currently practising and teaching from the same institution were asked for their written feedback on the definition. This may have limited the breadth and depth of responses and limited the opportunity to clarify comments. Similar limitations can be applied to the small group of experts. Acknowledges that this group should have been larger. A

UK Literature Review				<p>deficiency of the definition and framework itself is that, “although the definition and framework are meant to be broad, they do not explicitly consider external influences or potentially the collaborative manner in which many decisions occur”.</p> <p>Clinical Decision- Making Evidence Based Practice</p>
<p>Weber, S. (2007). A qualitative analysis of how advanced practice nurses use clinical decision support systems. <i>Journal of the American Academy of Nurse Practitioners</i>, 19 (12), 652-667.</p> <p>USA Qualitative analysis</p>	<p>The purpose of this study was to generate a grounded theory that will reflect the experiences of Advanced Practice Nurses working as Critical Care Nurse Practitioners and Clinical Nurse Specialists with computer-based decision-making systems.</p>	<p>10 Nurse Practitioners, 13 Clinical Nurse Specialists.</p> <p>Semi-structure interviews Grounded theory</p>	<p>Clinical decision systems provide an objective, scientifically derived, technology-based backup for human forecasting of the outcomes of patient care decisions prior to their actual decision making.</p>	<p>Qualitative grounded theory research methods and convenience sampling was employed to examine the use of system data in the making of decisions surrounding life sustaining measures, levels of care and transfer to non-critical care areas. The small number of 10 ANPs and 13 CNSs that participated were predominantly female and of white, non-Hispanic background. These were recruited from 16 Critical Care Units. Conclusions from the study identified that ANPs and CNS working in these Critical Care Units choose to employ clinical decision systems into practices, as “scientifically derived, technology-based backup for human forecasting of the outcomes of patient care decisions prior to their actual decision making”. Applicability to other areas of care outside Critical Care Units was not considered.</p> <p>ANP Clinical Decision-Making</p>
<p>Williamson, S., Twelvetree, T., Thompson, J., & Beaver, K. (2012). An ethnographic study exploring</p>	<p>To examine the role of ward based Advanced Nurse Practitioners and how they impact on patient care and nursing practice.</p>	<p>5 Advanced Nurse Practitioners, 14 ward nurses, 5 patients</p>	<p>Advanced Nurse Practitioners are the lynchpin and facilitate patient care,</p>	<p>A thematic analysis was conducted that identified that the ward-based ANPs were “a lynchpin” with “ANPs facilitating most aspects of patient care” Small qualitative study</p>

<p>the role of ward-based Advanced Nurse Practitioners in an acute medical setting. <i>Journal of Advanced Nursing</i>, 68 (7), pp.1579-1588.</p> <p>UK Qualitative Ethnographic</p>		<p>Observation and interviews Descriptive narrative</p>	<p>nursing and medical practice.</p>	<p>conducted with 5 ANPs from 1 study site thus limiting generalisability of findings. Limited to ANPs prompted intervention with patients triggering Early Warning Scores (EWS). Scope of practice was limited to doing blood tests, ECGs, ordering a chest X-ray and IV fluids “before the doctors actually get to the ward”.</p> <p>ANP Clinical Decision-Making Autonomy Scope of Practice</p>
<p>Yost, J., Thompson, D., Ganann, R., Aloweni, F., Newman, K., McKibbin, A., Dobbins, M., & Ciliska, D. (2014). Knowledge Translation Strategies for Enhancing Nurses' Evidence-Informed Decision Making: A Scoping Review. <i>Worldviews on Evidence-Based Nursing</i>, 11 (3), pp.156-167.</p> <p>Canada Scoping Literature Review</p>	<p>To conduct a scoping review to identify and map the literature related to strategies implemented among nurses in tertiary care for promoting Evidence Informed Decision-Making, knowledge, skills, and behaviours, as well as patient outcomes and contextual implementation details.</p>	<p>Registered nurses, advanced practice nurses, clinical nurse specialists and nurse practitioners.</p> <p>Narrative synthesis</p>	<p>The body of research was mapped by design, clinical areas, strategies, and provider and patient outcomes to determine areas appropriate for a systematic review.</p>	<p>The included studies came from a vast array of countries however were restricted to those written in English. The findings were consistent with previous literature on knowledge translation strategies and EIDM. Acknowledge that other similar research may employ different indexing terms to describe knowledge translation research that was not implemented as part of the search strategy and hence potential research that may have met the inclusion criteria may have been missed.</p> <p>ANP Clinical Decision-Making</p>

Appendix 4: Details of Consultation Models

Model	Key Structure	Comments
Weiner (1948)	Key steps to improving communication: <ul style="list-style-type: none"> • Information source • Transmitter • Receiver • Destination • Feedback • Clarification • Reflection 	Weiner (1948) described communication as a cognitive process where communication is initiated by the sender and interpreted by the receiver
Maslow (1954)	Hierarchy of human needs	Maslow (1954) argued that all humans have needs that could be classified into a pyramidal hierarchy.
Balint (1957)	Doctor-patient relationship Transference and counter transference	The key to Balint (1957) is to acknowledge that both the doctor and the patient have feelings that they bring to the consultation and that these impact on the consultation. The common thread running through and linking these concepts is the importance of listening and the belief that 'attentive listening can make patients feel better.'
Berne (1964)	Transactional Analysis Three Ego States <ul style="list-style-type: none"> • Parent • Adult • Child 	Berne (1964) provides an overview of what is happening in the interaction between doctor and patient. The consultation is a 'game' of social exchange. At any time, we will all be in one of three ego states (or states of mind). The key to transactional analysis is ascertaining which ego state the doctor is in, which ego the patient is in and whether this is appropriate for the context of the consultation.
Byrne and Long (1976)	The six phases of the Consultation: <ul style="list-style-type: none"> • Establishes a relationship with the patient • Discovers the reason for attendance • Verbal and physical examination • Consider the condition • Detail treatment or investigation • Terminate the consultation 	Byrne and Long (1976) analysed the range of verbal behaviours doctors used during the consultation and identified a spectrum ranging from a heavily doctor-dominated consultation (with minimal contribution from the patient), to a virtual monologue by the patient untrammelled by any input from the doctor. Between these extremes, there is a graduation of styles from closed information-gathering to non-directive counselling.
Stott and Davis (1979)	Theoretical Framework <ul style="list-style-type: none"> • Management of present problem • Modification of help seeking behaviour • Management of continuing problem • Opportunistic health promotion 	The virtue of the model is that it can be easily memorised, understood and used. It is task orientated to maximise the opportunity of a consultation to provide comprehensive care.
Helman (1984)	Patient centred medicine	Helman promotes a holistic approach centred on the patient's narrative and

	<ul style="list-style-type: none"> • Understanding the patient's meaning of illness • Improving communication • Increasing reflexivity • Treating illness and disease • Respecting diversity • Reflect on the context 	emphasises lay theories of illness, which involve the individual, the natural world, the social world and even the supernatural world in contrast to a purely medical one.
Pendleton, Schofield, Tate and Havelock (1984, 2003)	<p>The seven tasks to achieve in a consultation</p> <ul style="list-style-type: none"> • To define the reason for the patient's attendance • To consider other problems • To choose an appropriate action for each problem • To achieve shared understanding of the problem with the patient • To involve the patient in the management and to encourage and enable appropriate responsibility • To use time and resources appropriately • To establish and maintain a relationship with the patient 	The original model moved away from an authoritarian biomedical stance and emphasised that an effective consultation was one in which the patient and doctor both worked co-operatively to define problems and their management.
Neighbour (1987)	<p>Five stages:</p> <ul style="list-style-type: none"> • Connecting - establishing rapport with the patient • Summarising - getting to the point of why the patient has come using eliciting skills to discover their ideas, concerns, expectations and summarising back to the patient. • Handing over - doctors' and patients' agendas are agreed. Negotiating, influencing and gift wrapping. • Safety-netting - ensure a contingency plan has been made for the worst scenario - "What if?" • Housekeeping - clear the mind of the psychological remains of one's consultation to ensure it has no detrimental effect on the next - "Am I in good enough shape for the next patient?" 	Pragmatic and holistic model that looks at the 'inner consultation' and the behaviour of the doctor.
Fraser (1994, 1999) The Leicester Assessment	<p>Seven prioritised categories of the consultation competence:</p> <ul style="list-style-type: none"> • History taking • Physical examination • Patient management 	The seven categories of LAP are an assessment tool for teaching and assessing consultation competence. It is used to teach the consultation through feedback that involves the

Package (LAP)	<ul style="list-style-type: none"> • Problem solving • Behaviour and relationship with patients • Anticipatory care • Record keeping 	generation, collection and interpretation of evidence when compared to valid performance criteria.
Stewart, Brown, Weston, McWhinney, McWilliam and Freeman (1995, 2003)	<p>Six components:</p> <ul style="list-style-type: none"> • Exploring both disease and illness experience • Understanding the whole person • Finding common ground • Incorporating prevention and health promotion • Enhancing the patient-doctor relationship • Being realistic 	The framework addresses both the patient's agenda and the doctor's agenda and has been widely influential in education and research.
Kurtz, Silverman and Draper (1996) The Calgary-Cambridge Observation Guide	<p>Five main tasks:</p> <ul style="list-style-type: none"> • Initiating the session • Gathering information • Building the relationship • Explanation and planning • Closing the session 	The Calgary-Cambridge Observation Guide is based on a 'patient centred approach that promotes a collaborative partnership. It seeks to move away from medical paternalism to concentrate on what doctors can do in the consultation to facilitate the patient's involvement.

Appendix 5:



Participant Information Sheet

Study Title:	Clinical Decision-Making by Advanced Nurse Practitioners in Acute Medicine.
Chief Investigator	James Barnard
Phone Number	07506674600
Study Sponsor:	Sheffield Hallam University

I would like to invite you to take part in my research study. Before you decide I would like you to understand why the research is being done and what it would involve for you. Talk to others about the study if you wish. Ask us if there is anything that is not clear.

In spite of extensive literature in other acute settings identifying what the role of Advanced Nurse Practitioners (ANPs) should be, what ANPs are able to do and what desirable characteristics are required, there is little evidence describing what clinical decisions ANPs make, what factors and influences are associated with these clinical decisions and what are the perceived limitations to their authority in the context of acute patient care. There has been no research of this kind into ANP clinical decision-making in Acute Medicine.

The aim of this ethnographic study is to identify and explore the factors and influences that affect ANP clinical decision-making behaviours and identify the perceived limitations of their clinical decision-making authority when caring for acute patients in Acute Medicine.

With increased accountability for clinical decision-making behaviours, it is necessary to understand what factors influence ANP clinical decision-making to maximise the potential of their contribution to Acute Medicine. It is feasible to anticipate that the findings from this research will increase the understanding of clinical decision-making by ANPs, the factors affecting this and how clinical autonomy and role development may need to evolve and expand.

Name:	
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1. What is the purpose of this research study?

The aim of this ethnographic study is to identify and explore the factors and influences that affect ANP clinical decision-making behaviours and identify the perceived limitations of their clinical decision-making authority when caring for acute patients in Acute Medicine.

2. What are the benefits to you taking part in this research study?

This study will add to the organisations growing reputation for encouraging ground breaking research that contributes to the body of knowledge surrounding new models of care delivery and restructuring of the health force concerned with addressing the quality of acute care delivery. With increased accountability for clinical decision-making behaviours, it is necessary to understand the processes by which ANP clinical decisions are made and what factors influence them to maximise the potential of their contribution to Acute Medicine. It is feasible to anticipate that the findings from this research will increase the understanding of clinical decision-making by ANPs, the factors affecting this and how clinical autonomy and role development may need to evolve and expand. This study will provide you with an opportunity to share your views and opinions regarding your clinical decision-making behaviour and your clinical work as an ANP.

3. Do you have to take part in this research study?

You are free to decline to participate or withdraw from the study at any time without explanation or consequences of any kind. You may also refuse to answer any questions you do not want to answer.

4. What will happen if I agree to take part in this research study?

By voluntarily consenting to participate in this study you will consent to:

- Being observed by the researcher during clinical encounters with patients.
- Being asked questions concerning your clinical decision-making behaviours during semi-structured informal interviews following these clinical encounters.
- Being asked questions concerning your clinical decision-making behaviours during structured formal interviews. This will be audio-recorded.
- The findings from this research being published in the public domain and the sharing of this data with research colleagues and academic supervisors.

5. Expenses and payments

You will not be paid for taking part in this research study.

6. What are the possible disadvantages and risks of taking part in this research study?

The study is not intended to provoke any physical or emotional discomfort. However, you will be observed during clinical encounters with patients and you will be asked questions regarding your clinical decision-making during semi-structured informal interviews following these clinical encounters and later structured formal interviews. All efforts will be made to ensure your confidentiality and you will have the opportunity at your request to review the findings and reports before their public release to gauge the extent to which you feel privacy has been appropriately preserved. In the event of physical and/ or mental injury resulting from the participation in this research, the named researcher or Sheffield Hallam University will not provide any medical, hospital or other insurance for participants in this research study, nor will the named researcher or Sheffield Hallam University provide any treatment or compensation for injury sustained as a result of participation in this research study, except as required by law.

7. What if there is a problem or you wish to make a complaint?

If you have any questions, please contact:

Principal investigator:

- James Barnard, email: baileysonrice@hotmail.com or phone number: 07506674600
- Sheffield Hallam University, Faculty of Health and Wellbeing

- Alternatively, you can contact my supervisors: Peter Allmark (Chair Faculty Research Ethics Committee): email: p.allmark@shu.ac.uk; or phone number: 0114 225 5727: or Stephen Brummell (Senior Lecturer, Sheffield Hallam University).

8. How will information regarding myself be kept confidential?

The research and data collection will occur via observations and conversations with ANPs during their clinical encounters with patients, semi-structured informal interviews and structured formal interviews.

Hand written field notes will be taken by the researcher concerning the observations of the clinical encounters and semi-structured informal interviews. These field notes will then be expanded and typed onto a computer word processing program the following day on a secure laptop dedicated to this study. The structured formal interviews will be audio-recorded. This will then be transcribed using a professional transcribing service. All the collected data will be secured using the SHU Research Data Archive (SHURDA) in line with SHU's Research Data Management Policy. Names will not appear on any documents. The hand written field notes will then be shredded and disposed of in the confidential hospital waste. All efforts will be made to ensure confidentiality and the ANPs and the organisation will have the opportunity to review the findings and reports before their public release to gauge the extent that the ANPS and the organisation feels that privacy has been appropriately preserved.

The documents relating to the administration of the research study, including this signed consent form, will be kept in a folder called a site file or project file. This will be locked away securely. The folder might be checked by people in authority who want to make sure that researchers are following the correct procedures. These people will not pass on your details to anyone else. The documents will be destroyed seven years after the end of the study (this is the current guidance for NHS projects).

9. What will happen to the results of the research study?

The data obtained during this research will be shared with research colleges and academic supervisors. It is intended that the findings will be published in the public domain.

10. Who is sponsoring this research study?

I (James Barnard) am a Professional Doctorate student at Sheffield Hallam University. My research is self-funded.

11. Who has reviewed this research study?

All research based at Sheffield Hallam University is looked at by a group of people called a Research Ethics Committee. This Committee is run by Sheffield Hallam University but its members are not connected to the research they examine. The Research Ethics Committee has reviewed this study and given a favourable opinion.

12. Further information and contact details

If you have any questions, please contact:

- Principal investigator: James Barnard, email: baileysonrice@hotmail.com or phone number: 07506674600
- Sheffield Hallam University, Faculty of Health and Wellbeing
- Alternatively, you can contact my supervisors: Peter Allmark (Chair Faculty Research Ethics Committee): email: p.allmark@shu.ac.uk; or phone number: 0114 225 5727; or Stephen Brummell (Senior Lecturer, Sheffield Hallam University

Participant Consent Form

Study Title:	Clinical Decision-Making by Advanced Nurse Practitioners in Acute Medicine.
Chief Investigator	James Barnard
Phone Number	07506674600
Study Sponsor:	Sheffield Hallam University

Name:	
-------	--

Please read the following statements and put your initials in the box to show that you have read and understood them and that you agree with them	Please initial each box
I confirm that I have read and understood the information sheet dated (.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	
I understand that my involvement in this study is voluntary and that I am free to withdraw at any time and without any reason.	

To be filled in by the ANP I consent to taking part in the above research study	
To be filled in by the person obtaining consent I confirm that I have explained the nature, purposes and possible effects	

of this research study to the person whose name is printed above.	
---	--

Filing instructions 1 copy to the ANP 1 original in the Project or Site file
--

Appendix 6:



Research Student Registration Details

Name: Mr James Barnard

Contact Address: XXXXXXXXXXXX
XXXXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

Contact E-mail address: James.Barnard@student.shu.ac.uk

SCJ Code: 14035407/4

Director of Studies: Mr Steve Brummell

Course 66RDPRST01R1 DPROF PROF STUD

Stage: DOCTORAL PROJECT REPROT TITLE DPS3 EXPECTED

Start of Registration: 26/Aug/2013

Original Expiry: 31/Jul/2020 Current Expiry: 31/Jul/2020

Days in Registration: 889

Totals Days Suspended:

Days Extended Including Days Suspended:

Days Left: 1642

Full Title of Thesis:

An Ethnography of Clinical Decision-Making by Advanced Nurse Practitioners on Acute Medical Admission Units

Appendix 7: HRA Approval Letter

NHS
Health Research Authority

Mr James Barnard
Chief Investigator/Professional Doctorate Student Sheffield
Email:hra.approval@nhs.net
Hallam University
XXXXXX
XXXXXX
XXXXXX
XXXXXX
XXXXXX
01 July 2016

Dear Mr Barnard

Letter of HRA Approval

Study title: An Ethnography of Clinical Decision-Making by Advanced Nurse Practitioners on Acute Medical Admission Units
IRAS project ID: 199218
Sponsor: Sheffield Hallam University

I am pleased to confirm that HRA Approval has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications noted in this letter.

Participation of NHS Organisations in England

The sponsor should now provide a copy of this letter to all participating NHS organisations in England.

Appendix B provides important information for sponsors and participating NHS organisations in England for arranging and confirming capacity and capability. Please read *Appendix B* carefully, in particular the following sections:

- *Participating NHS organisations in England* - this clarifies the types of participating organisations in the study and whether or not all organisations will be undertaking the same activities
- *Confirmation of capacity and capability* - this confirms whether or not each type of participating NHS organisation in England is expected to give formal confirmation of capacity and capability. Where formal confirmation is not expected, the section also provides details on the time limit given to participating organisations to opt out of the study, or request additional time, before their participation is assumed.
- *Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria)* - this provides detail on the form of agreement to be used in the study to confirm capacity and capability, where applicable.

Further information on funding, HR processes, and compliance with HRA criteria and standards is also provided.

IRAS project ID199218

It is critical that you involve both the research management function (e.g.R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details and further information about working with the research management function for each organization can be accessed from www.hra.nhs.uk/hra-approval.

Appendices

The HRA Approval letter contains the following appendices:

- A - List of documents reviewed during HRA assessment
- B - Summary of HRA assessment

After HRA Approval

The attached document "*After HRA Approval-guidance for sponsors and investigators*" gives detailed guidance on reporting expectations for studies with HRA Approval, including:

- Working with organisations hosting the research
- Registration of Research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics and is updated in the light of changes in reporting expectations or procedures.

Scope

HRA Approval provides an approval for research involving patients or staff in NHS organisations in England.

If your study involves NHS organisations in other countries in the UK, please contact the relevant national coordinating functions for support and advice. Further information can be found at <http://www.hra.nhs.uk/resources/applying-for-reviews/nhs-hsc-rd-review1>.

If there are participating non-NHS organisations, local agreement should be obtained in accordance with the procedures of the local participating non-NHS organisation.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please email the HRA at hra.approval@nhs.net. Additionally, one of our staff would be happy to call and discuss your experience of HRA Approval.

HRA Training

We are pleased to welcome researchers and research management staff at our training days-see details at <http://www.hra.nhs.uk/hra-training/>

Yours sincerely

Dr Claire Cole
Senior Assessor
Email:hra.approval@nhs.net

Copy to: Mr Brian Littlejohn, Sheffield Hallam University (Sponsor Contact)
XXXXXXXXXXXX (Lead NHS R&D contact)

Participating NHS organisations in England

IRAS project ID 199218

Appendix A-List of Documents

The final document set assessed and approved by HRA Approval is listed below

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering letter on headed paper [Covering Letter]	1	29 January 2016
IRAS Checklist XML[Checklist_28042016]		28 April 2016
Letters of invitation to participant [Letter to XXXXXXX]	1	26 January 2016
Letters of invitation to participant [Letter to XXXXXXX]	1	26 January 2016
Letters of invitation to participant [Letter to XXXXXXX]	1	26 January 2016
Participant information sheet(PIS)[ANP Consent]	3	30 June 2016
Participant information sheet(PIS)[PIS/CF]	3	30 June 2016
REC Application Form[REC_Form_28042016]		28 April 2016
REC Application Form[REC_Form_30062016]		30 June 2016
Referee's report or other scientific critique report [SHU Rapporteur1]	1	26 January 2016
Research protocol or project proposal [Research Proposal]	1	26 January 2016
Summary CV for Chief Investigator(CI) [CI CV James Barnard]	1	26 January 2016
Summary CV for supervisor (student research) [Supervisor/s CV]	1	26 January 2016
Summary, synopsis or diagram (flowchart)of protocol in non- technical language [Summary]	1	05 March 2016

Appendix B - Summary of HRA Assessment

This appendix provides assurance to you, the sponsor and the NHS in England that the study, as reviewed for HRA Approval, is compliant with relevant standards. It also provides information and clarification, where appropriate, to participating NHS organisations in England to assist in assessing and arranging capacity and capability.

For information on how the sponsor should be working with participating NHS organisations in England, please refer to the, participating NHS organisations, capacity and capability and Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria) sections in this appendix.

The following person is the sponsor contact for the purpose of addressing participating organization questions relating to the study:

Mr Brian Littlejohn (researchsupport@shu.ac.uk;01142254050) or
Mr James Barnard (james.barnard@rothgen.nhs.uk; 01709428266)

HRA assessment criteria

Section	HRA Assessment Criteria	Compliant with Standards	Comments
1.1	IRAS application completed	Yes	IRAS form was not ticked so REC form correctly was submitted. There are 2 REC forms as the original REC form was not signed by the CI. The second form only has the CI signature as the other signatories were on the original submission.
2.1	Participant information/consent documents and consent process	Yes	No comments
3.1	Protocol assessment	Yes	Applicant has confirmed no data will be stored on the private laptop owned by the CI.
4.1	Allocation of responsibilities and rights are agreed and documented	Yes	Although formal confirmation of and rights are agreed and capacity and capability is not expected documented of all or some organisations participating in this study (see Confirmation of Capacity and Capability section for full details), and such organisations would therefore be assumed to have confirmed their capacity and capability should they not respond to the contrary, we would ask that these organisations proactively engage with the sponsor in order to confirm at as early a date as possible. Confirmation in such cases should be by email to the CI and Sponsor confirming participation based on the relevant Study documents and information within this Appendix B.
4.2	Insurance/indemnity arrangements assessed	Yes	No Insurance as this is a staff study and arrangements assessed this is clear in the PIS. Where applicable, independent contractors (e.g. General Practitioners) should ensure that the professional indemnity provided by their medical defense organisation

			covers the activities expected of them for this research study
4.3	Financial arrangements assessed	Yes	No funding will be provided to sites
5.1	Compliance with the Data Protection Act and data security issues assessed	Yes	No comments
5.2	CTIMPS – Arrangements for compliance with the Clinical Trials Regulations assessed	Not Applicable	No comments
5.3	NHS Research Ethics Committee favourable opinion received for applicable studies	Not Applicable	Originally applied for Proportionate Review but REC informed the applicant that the study did not require REC review
6.2	CTIMPS – Clinical Trials Authorisation (CTA) letter received	Not Applicable	No comments
6.3	Devices – MHRA notice of no objection received	Not Applicable	No comments
6.4	Other regulatory approvals and authorisation received	Not Applicable	No comments

Participating NHS Organisations in England

This provides detail on the types of participating NHS organisations in the study and a statement as to whether the activities at all organisations are the same or different.

There is one site type for this study. All study activities as detailed in the study documents will take place at participating NHS organisations.

The Chief Investigator or sponsor should share relevant study documents with participating NHS organisations in England in order to put arrangements in place to deliver the study. The documents should be sent to both the local study team, where applicable, and the office providing the research management function at the participating organisation. For NIHR CRN Portfolio studies, the Local LCRN contact should also be copied into this correspondence. For further guidance on working with participating NHS organisations please see the HRA website.

If chief investigators, sponsors or principal investigators are asked to complete site level forms for

participating NHS organisations in England which are not provided in IRAS or on the HRA website, the chief investigator, sponsor or principal investigator should notify the HRA immediately at hra.approval@nhs.net. The HRA will work with these organisations to achieve a consistent approach to information provision.

Confirmation of Capacity and Capability

This describes whether formal confirmation of capacity and capability is expected from participating NHS organisations in England.

The HRA has determined that participating NHS organisations in England are not expected to formally confirm their capacity and capability to host this research, because all study activities will be carried out by the Chief Investigator and no specific arrangements are required to be put in place.

- The HRA has informed the relevant research management offices that you intend to undertake the research at their organisation. However, you should still support and liaise with these organisations as necessary.
- Following issue of the HRA Approval letter, and subject to the two conditions below, it is expected that these organisations will become participating NHS organisations 35-days after issue of this Letter of HRA Approval (no later than 5 August 2016):
- You may not include the NHS organisation if they provide justification to the sponsor and the HRA as to why the organisation cannot participate
- You may not include the NHS organisation if they request additional time to confirm, until they notify you that the considerations have been satisfactorily completed.
- You may include NHS organisations in this study in advance of the deadline above where the organisation confirms by email to the CI and sponsor that the research may proceed.
- The document "Collaborative working between sponsors and NHS organisations in England for HRA Approval studies, where no formal confirmation of capacity and capability is expected" provides further information for the sponsor and NHS organisations on working with NHS organisations in England where no formal confirmation of capacity and capability is expected, and the processes involved in adding new organisations. Further study specific details are provided in the Participating NHS Organisations and Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria) sections of this Appendix.

Principal Investigator Suitability

This confirms whether the sponsor position on whether a PI, LC or neither should be in place is correct for each type of participating NHS organisation in England and the minimum expectations for education, training and experience that PIs should meet (where applicable).

A Local Collaborator should be in place at each participating NHS organisation in order to facilitate access for the chief investigator.

GCP training is not a generic training expectation, in line with the [HRA statement on training expectations](#).

HR Good Practice Resource Pack Expectations

This confirms the HR Good Practice Resource Pack expectations for the study and the pre-engagement checks that should and should not be undertaken.

The CI will require an NHS-to-NHS letter of access for participating organisations where he does not have a contractual arrangement.

Other Information to Aid Study Set-up

This details any other information that may be helpful to sponsors and participating NHS organisations in England to aid study set-up.

The applicant has indicated that they do not intend to apply for inclusion on the NIHR CRN Portfolio.

Appendix 8: Letters of access from the NHS provider

XXXXXXXXXXXXXX

Joint Research Office with XXXXXXXXXXXXXXXX

Tel: xxxxxxxxxxxx Fax: xxxxxxxxxxxx

Email: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

19 July 2016

Mr James Barnard

Chief Investigator/ Professional Doctorate Student Sheffield Hallam University

XXXXXXXXXXXXXX

XXXXXXXXXXXXXX

XXXXXXXXXXXXXX

Dear Mr Barnard

Study Title: An Ethnography of Clinical Decision-Making by Advanced Nurse Practitioners on Acute Medical Units
Chief Investigator: Mr James Barnard
Sponsor: Sheffield Hallam University
XXX Reference: 0791/2016/HRA
Rec Reference: n/a
IRAS ID: 199218

The Research & Development Department at xxxxxxxxxxxxxxxxxxxxxxxxxxxx are writing to acknowledge that we have been notified of this study and have no objections to the Trust's participation.

We understand that the HRA has determined that participating NHS organisations in England do not need to formally confirm their capacity and capability to undertake their role in this research. We are issuing this letter on the information provided by HRA approval letter (01 July 2016), with no review of study documents on the assurance provided by HRA Approval.

Please note you must ensure all study personnel, not employed by xxxxxxxxxxxxxxxxxxxxxxxxxxxx hold either a letter an honorary contract with the Trust or a letter of access issued by the Trust, before they have access to any facilities, patients, staff, their data, tissue or organs.

You should notify the R&D department when your research is completed.

I would like to take this opportunity to wish you well with your project. If you have any questions or we can be of any further assistance to you, do not hesitate to contact the R&D office.

Yours sincerely

XXXXXXXXXXXXXX

XXXXXXXXXXXXXX

Research & Development Manager

Mr James Barnard

XXXXXXXXXXXXXX

XXXXXXXXXXXXXX

XXXXXXXXXXXXXX

11th October 2016

Dear James,

RE: R&D Reference: Project No: 16-01-03

Study Title: Ethnography of Clinical Decision-Making by Advanced Nurse Practitioners on Acute Medical Admission Units.

REC Reference: NA

IRAS No: 19982

Chief Investigator: Mr James Barnard

Sponsor: Sheffield Hallam University

I am pleased to inform you that your Doctorate research study has been reviewed and it has been agreed that this study can be conducted on site.

Documentation

Your authorisation has been granted based HRA Approval letter 01st July 2016 and the following documents:

- Study Protocol: No version
- Participant consent forms: Version 3
- Participant information sheet: Version 3
- Minor Amendment approval 20th Sep 2016

Trust authorisation is granted on the understanding that the study is conducted in accordance to the Research Governance Framework, Health Research Authority guidelines, ICH GCP (where applicable) & NHS Trust Policies

I would like to take this opportunity to wish you well with your project. If you have any questions or we can be of any further assistance to you, do not hesitate to contact the Research office.

Yours sincerely

XXXXXXXXXXXXXX

Signed on behalf of xxxxxxxxx

Associate Medical Director, Standards of Medical Care

Research & Development Lead

List of Abbreviations

A&E	Accident and Emergency
AACN	American Association of Critical-Care Nurses
ABG	Arterial Blood Gas
ACNP	Acute Care Nurse Practitioner
ACP	Advanced Care Practitioner
ACS	Acute Coronary Syndrome
AMU	Acute Medical Unit
ANP	Advanced Nurse Practitioner
BP	Blood Pressure
CAP	Community Acquired Pneumonia
CCC	Care Co-ordination Centre
CCRRT	Critical Care Rapid Response Team
CCU	Coronary Care Unit
COPD	Chronic Obstructive Pulmonary Disease
CO ₂	Carbon Dioxide
CNS	Clinical Nurse Specialist
CRD	Centre for Reviews and Dissemination
CT	Computerized Tomography
DKA	Diabetic Ketone Acidosis
DNR	Do Not Resuscitate
EBP	Evidence Based Practice
ECG	Electrocardiogram
EIDM	Evidence-Informed Decision Making
EWS	Early Warning Score

FBC	Full Blood Count
Flu	Influenza
GI	Gastrointestinal
GIM	General Internal Medicine
GP	General Practitioner
GDH	Glutamate Dehydrogenase
Hb	Haemoglobin
HCA	Healthcare Assistant
HDU	High Dependency Unit GIM
HEE	Health Education England
HRA	Health Research Authority
IRAS	Integrated Research Approval System
ITU	Intensive Care Unit
IV	Intravenous
LFT	Liver Function Test
LRTI	Lower Respiratory Tract Infection
MI	Myocardial Infarction
MRI	Magnetic Resonance Imaging
MRSA	Methicillin-Resistant Staphylococcus Aureus
mcg	Micrograms
mgs	Milligrams
mls	Millilitres
Na ²⁺	Sodium
NHS	National Health Service
NMC	Nursing and Midwifery Council
NP	Nurse Practitioner
PE	Pulmonary Embolism

RBCs	Red Blood Cells
RCN	Royal College of Nursing
RCP	Royal College of Physicians
RNP	Respiratory Nurse Practitioner
ROWS	The Rule Out Worst-Case Scenario
SAM	Society for Acute Medicine
SAMBA	Society for Acute Medicine Benchmarking Audit
SHURDA	SHU Research DATA Archive
SN	Staff Nurse
SVT	Supraventricular Tachycardia
TANP	Trainee Advanced Nurse Practitioner
TIA	Transient Ischaemic Attack
UGI	Upper Gastrointestinal
UK	United Kingdom
USA	United States of America
U&E	Urea and Electrolytes
VBG	Venous Blood Gas
WHO	World Health Organisation

