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Knowledge mobilisation in discharge decision-making by advanced nurse practitioners in a UK emergency department: an ethnographic study

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Contents

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ABSTRACT

The global increase in advanced nurse practitioner (ANP) roles has been driven by medical workforce shortages, as well as a desire by nurses for career progression and to improve patient care. In the UK, the role has experienced widespread ambiguity regarding titles, educational standards, scope of practice, and regulation. One healthcare setting that has recently introduced the ANP role is the emergency department (ED). EDs are under increasing pressure due to our aging population and subsequent increase in long-term conditions.

Knowledge mobilisation (KM) research aims to understand how knowledge is created and adapted to the local context, how it is implemented in practice and factors that influence those processes. Knowledge may be formal (research and guidelines), or informal (experiential and contextual). Clinicians are more likely to use new knowledge if it is relevant to their practice and processed through discussions with colleagues.

The objectives of this PhD study were to understand the ANP role in the ED context, to explore processes of KM and identify factors that facilitated KM in discharge decision-making by ANPs. An ethnographic methodology was used in order to gain rich, in-depth data, in context. Observations and semi-structured interviews were undertaken in an ED in a large teaching hospital in the north of England. Five ANPs were observed in their clinical work over a 10-month period and ANPs, senior nurses, and ED consultants were interviewed (n=13). Data was transcribed and analysed thematically.

A theoretical framework was developed to help explain the findings, incorporating clinical mindlines, boundary blurring, and legitimate peripheral participation. Findings are presented in three key themes; knowledge in practice, knowledge in boundary blurring, and knowledge in situated learning. The findings will inform ANPs, employers, educators, researchers, and policy makers about the mechanisms used by ANPs to access knowledge, the importance of local agreement on the position of ANPs on a boundary blurring continuum, and the facilitators of situated learning in an inter-professional community of practice.

ABBREVIATIONS

ACP - Advanced Clinical Practitioner

ANP - Advanced Nurse Practitioner

BNF - British National Formulary

BTS - British Thoracic Society

CLAHRC - Collaboration for Leadership in Applied Health Research and Care

COPD - Chronic Obstructive Pulmonary Disease

CT - Computerised Tomography

DVT - Deep Vein Thrombosis

ECG - Electro-cardiogram

ED - Emergency Department

ENP - Emergency Nurse Practitioner

FDRT - Front Door Response Team

GP - General Practitioner

KM - Knowledge Mobilisation

LTC - Long Term Condition

NHS – National Health Service

NICE - National Institute for Clinical Excellence

NIHR - National Institute for Health Research

NMC - Nursing and Midwifery Council

NMP - Non-Medical Prescriber

PE - Pulmonary Embolism

RCN - Royal College of Nursing

RCEM - Royal College of Emergency Medicine

SIGN - Scottish Intercollegiate Guidelines Network

UC - Unscheduled Care

UKCC - United Kingdom Central Council for Nursing and Midwifery

CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

This doctoral research study explores knowledge mobilisation (KM) in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED). The key driver for undertaking this research was the recent emergence of the ANP role in EDs in the United Kingdom (UK) and the lack of national regulation of such roles. It was also motivated by the author's previous clinical experience as an ANP in primary care and interest in nurses' preparation for their expanding roles (King 2004).

ANPs and other emerging advanced non-medical roles have been implemented primarily as a solution to the medical workforce shortage. A number of different titles for advanced nurses are used in the literature, including nurse practitioner, advanced practice nurse, clinical nurse specialist, nurse specialist, professional nurse, expert nurse, and nurse consultant (Pulcini et al. 2010); however, in this thesis the umbrella term of ANP will be used. The role has been widely implemented in primary and secondary care in the UK since the 1980s (Pearson and Peels 2002a) and more recently introduced in the ED. ANPs experience significant boundary blurring with medicine (Department of Health 2001, Royal College of Emergency Medicine 2017), including making discharge decisions, judgements traditionally made by doctors (Svensson 1996). Key policy makers in England plan to increase the investment in growing the advanced clinical practitioner (ACP) workforce over the next few years (Health Education England et al. 2017).

It is generally accepted that nurses should apply the best available knowledge to their practice. Knowledge mobilisation (KM) is defined as how knowledge is produced, shared and accessed for use in the clinical setting and is concerned with reducing the theory- practice gap by improving research dissemination and implementation (Rowley et al. 2012). Previous research on KM has focused on improving how research is translated into clinical practice. Several models have been developed to improve research dissemination, however less is known about

how ANPs actually mobilise knowledge in practice. Clinicians in primary care have been found to develop ‘clinical mindlines’ in processing and sharing knowledge (Gabbay and Le May 2004). ‘Situated learning’ has been proposed as a mechanism by which new members of a community of practice develop expertise (Lave and Wenger 1991). This study considers the impact of boundary blurring on knowledge requirements, and the barriers and facilitators to knowledge access in discharge decision-making.

The setting for this study is a large emergency department (ED) in the North of England. The ED context was chosen, as it is an environment where ANPs are required to make quick decisions about the management of patients presenting with a wide variety of undifferentiated conditions[1]. EDs are under tremendous pressure and some are running at full capacity (NHS England 2014). One reason for this is the aging population and increase in patients with long-term conditions (LTCs) (Department of Health 2010b). Few studies have explored how knowledge is used in practice and none have used observational studies in the ED to explore discharge decision-making by ANPs.

Ethnographic methods are used in this study to gain rich, in-depth data. Firstly, a narrative literature review was undertaken using an iterative approach. This was commenced prior to entering the field and continued during data analysis to make sense of the findings. A theoretical framework was constructed from the narrative review of the literature. The framework, included three key concepts; clinical mindlines (Gabbay and Le May 2004, Gabbay and Le May 2011, Wieringa and Greenhalgh 2015, Greenhalgh and Wieringa 2011), boundary blurring (Strauss et al. 1963, Svensson 1996, Allen 1997, Nancarrow and Borthwick 2005), and legitimate peripheral participation (Lave and Wenger 1991, Wenger 2002, Stephens and Delamont 2010, Ranmuthugala et al. 2011).

Data collection involved undertaking observations and semi-structured interviews over a ten-month period. This enabled the researcher to gain an understanding of how knowledge is used in discharge decision-making by ANPs in the ED. Field notes

[1] Undifferentiated conditions refer to those where the cause of the presenting problem is unclear (Green and Holden 2003).

and interview transcripts were stored and managed using Quirkos computer software (version 1.4.1) (Turner 2004). Data was analysed thematically (Braun and Clarke 2006). The findings are presented under three key themes which draw on sociological theory to aid understanding of the research data; ‘knowledge in practice’, ‘knowledge in boundary blurring’ and ‘knowledge in learning’.

The findings from this study of discharge decision-making by ANPs in the ED will inform future ANP practice, policy, education and research and will therefore also improve public health; an essential focus of any research on knowledge mobilisation (Estabrooks 1998).

1.2 AIM AND OBJECTIVES

Aim

The aim of this study was to explore knowledge mobilisation (KM) in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED).

Objectives

- To understand the ED context, including the reasons for implementation of the ANP role, the discharge pressures, and the scope of the ANP role in discharging patients from the ED.
- To explore knowledge mobilisation; how knowledge was produced, shared, and accessed in discharge decision-making by ANPs in the ED.
- To explore any barriers and facilitators to knowledge mobilisation by ANPs.

1.3 THESIS OUTLINE

This first chapter has introduced the motivations for undertaking this research study, key concepts, and outlined the aim and objectives. Chapter 2 provides a background to the context of the emergency department (ED), the advanced nurse practitioner (ANP) role, and knowledge mobilisation (KM).

The narrative literature review is presented in chapter 3. Initial searches included the terms advanced nurse practitioner, emergency department, knowledge mobilisation, boundary blurring and professional identity. During analysis, further literature searches were undertaken to make sense of the findings. New search terms included indeterminate knowledge, and communities of practice. The review is presented as a narrative synthesis.

Chapter 4 presents the reasons for adopting an ethnographic approach to this study. The epistemological and ontological approaches to the research are discussed. The methods adopted to address the research aims and objectives are presented including co-production, sample selection, recruitment, data collection, analysis, and ethical considerations.

Following a short introduction to the findings and definitions of key terms (chapter 5) the findings are presented in chapters 6, 7 and 8. Chapter 6 (knowledge in practice) focuses on the preference for shortcuts amidst the mess and complexity of knowledge access in discharge decision-making by ANPs. Chapter 7 (knowledge in boundary blurring) presents the findings on how the tensions between the different motivations for ANP role development influence how boundary blurring is viewed. It also explores how boundary blurring is carried out in practice, including the retention of elements of nursing in the role, regulatory challenges, and the knowledge gaps experienced by ANPs. Chapter 8 (knowledge in learning) considers the factors that facilitate knowledge mobilisation through situated learning. ANPs benefited from participating in an inter-professional community of practice; learning from ED consultants, gaining peer support from other ANPs, and building indeterminate knowledge through clinical experience.

The discussion in chapter 9 focuses on the contribution of the findings to knowledge in light of previous literature, the strengths and weakness of the study and the implications for clinical practice, education, policy and research. Recommendations for future research are put forward. Chapter 10 presents the study conclusions; how this research has added to the literature on boundary blurring, knowledge mobilisation, and the development of the ANP role.

1.4 CHAPTER SUMMARY

This first chapter has introduced the motivations for undertaking the research study, both from a personal perspective and the identification of a gap in the literature. The author's previous clinical work as an ANP in primary care was a key driver, as was her natural interest in preparing nurses for their expanded role, along with the emergence of the ANP role in the fast-paced ED.

It is important to understand how ANPs make discharge decisions, a role previously undertaken by medicine but adopted by nursing through boundary blurring. Ethnography is an appropriate method to explore this under-researched area of knowledge mobilisation by ANPs and to identify factors that help or hinder discharge decision-making in the ED. The background to the study is now presented in chapter 2 followed by a narrative literature review in chapter 3.

CHAPTER 2 BACKGROUND

2.1 INTRODUCTION

The aim of this ethnographic study was to explore knowledge mobilisation (KM) in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED). This chapter provides a background to the policy and professional context of the ED and the ANP role in the UK, and the concept of knowledge mobilisation.

The starting point for this study was the recent introduction of the ANP role in the ED in the UK (The College of Emergency Medicine 2015), the lack of national regulation despite significant boundary blurring with medicine (King et al. 2017), and a dearth of literature on how ANPs access knowledge in discharge decision-making.

2.2 BACKGROUND TO THE EMERGENCY DEPARTMENT IN THE UK

The National Health Service (NHS) in the United Kingdom (UK) has offered free healthcare to all at the point of access (paid for by taxes) since 1948 (NHS 1946). It aims to help people recover from illness, improve health, and stay as well as possible despite long-term conditions (Department of Health 2008a). The cost of the NHS has increased hugely since its conception, partly because of the expansion of specialist services and other new developments. However, the NHS faces an annual cap on spending dependent on competing claims from other government departments, therefore, as with all health care systems, it has limited resources that need to be rationed (Klein 1996). Consequently, healthcare organisations are regularly looking for cost-saving solutions to providing patient care, including workforce innovation and reconfiguration. Funding for healthcare in the UK is devolved to the four nations of England, Scotland, Northern Ireland and Wales. The nature of workforce pressures for each country will differ but solutions are a priority for all nations (Health Education England 2015).

The number of ED attendances in England is on the rise. In 2014, there were 22 million visits every day, an increase of 3500 a day from five years previously (NHS England 2014). A more recent document has put this figure at 23 million (Health Education England et al. 2017). This rise in attendance has been attributed to the

aging population and increase in long-term conditions (LTCs) (George et al. 2006, Department of Health 2008b, Department of Health 2010b). The prevalence of having a LTC increases with age (Department of Health 2008b). The numbers of over 65 year olds in the UK is almost 12 million (Office for National Statistics 2017), accounting for 47% of emergency admissions (NHS Benchmarking Network 2016). It is predicted that by 2025 there will be 42% more people over 65 and a rise in those with LTCs from 15 million to 18 million (Department of Health 2010b). LTCs cost 70% of the health service budget, therefore are central to the NHS focus for improvement (NHS England 2014).

For the purpose of this study, a discharge-decision is defined as 'the decision to send patients from the emergency department to another location, such as admission to a hospital bed, home with no follow up, home with GP follow up, referral to fracture clinic, referral to an outpatient clinic, or transfer to another healthcare provider. Discharge decision-making involves a range of competencies including technical assessment, tacit skills and evaluation of when and where to discharge patients, which have traditionally been the remit of the medical profession (Svensson, 1996). Organisational pressures on discharge decision-making are waiting time targets and workforce shortages. Waiting time targets and standards of care have been set nationally with the aim of improving the quality and efficiency of emergency care (Department of Health 2000, Department of Health 2001, The College of Emergency Medicine 2011, NHS England 2014). ANPs, alongside doctors, will be required to meet the four-hour waiting time target in their discharge decision-making. Further pressures on EDs in the UK are nursing and medical workforce shortages (Public Health England 2017). A shortage of doctors has been cited as one of the main drivers for the development of ANP roles in the ED (The College of Emergency Medicine 2015). The introduction of non-medical roles in the ED was inevitable in light of this increased pressure.

2.3 BACKGROUND TO THE ADVANCED NURSE PRACTITIONER ROLE

One solution to the increasing pressure on emergency care was the introduction of advanced nursing roles (Sheer and Wong 2008). These move away from traditional working practices, with their barriers to team working, and duplication of workload

(Department of Health 2001). An integrated model of access to emergency care was set out, designed with patients; with the aim of providing care by the professional best able to deliver the service (Department of Health 2001). The emergency department (ED) has adopted several non-medical roles including the emergency nurse practitioner (ENP), the advanced nurse practitioner (ANP) and the physician associate (PA) (The College of Emergency Medicine 2015). The differences between these roles are presented in table 2.3.

Table 2.3 Advanced non-medical roles in the Emergency Department

	Emergency Nurse Practitioner (ENP)	**Advanced Nurse Practitioner/Advanced Clinical Practitioner (ANP/ACP)**	**Physician's Associate (PA)**
Role/ area of practice	Traditionally work in the "minors" area seeing a range of injuries and illnesses defined by local parameters.	Work across all areas of the ED. Seeing all patients who present with undifferentiated problems with appropriate supervision.	Work in all areas of the ED under supervision. Able to see most patients but require closer support for patients that are more complex.
Training	Ideally undertake a period of learning at a higher education establishment, focused on the care of minor injuries and illness. Independent prescribing useful, although they may utilise a wide scope PGD in some trusts. Supervised practice is essential.	Required to have undertaken courses in advanced assessment and independent prescribing, which will typically be at Masters level. A period of supervised practice is an essential part of the training.	Degree entry (bioscience). Diploma course and national PA examination. Period of supervised practice and assessment post-graduation is essential.
Equivalent 'Agenda for change' grade	During Training: 6-7 When qualified: 7	During Training: 7-8a When qualified: 8a	During training: 6 When qualified: 7

Required qualifications	Certificate in minor injuries / illnesses from a recognised educational establishment or local training that is accredited.	MSc Advanced Practice or equivalent depending on educational establishment. Ideally an independent prescriber.	UK national examination.

(Adapted from the College of Emergency Medicine 2015)

ANP roles have been introduced globally in response to several drivers such as medical workforce shortages, gaps in healthcare provision for certain patient groups and nurses' desire for career development (Ketefian et al. 2001, Schober and Affara 2006, Currie et al. 2010, McMurray 2011). The role emerged in the UK in the mid-1980s (Furlong and Smith 2005). Definitions of advanced practice have moved from a focus on nursing (International Council of Nurses 2002) to a broader view of advanced 'clinical' practice encompassing several health and care professional groups (Health Education England 2017a). More recently, other advanced clinical practitioner (ACP) roles have emerged such as advanced pharmacists and physiotherapists (Health Education England 2017a). This current study has focused on the ANP role, as the study setting did not employ any other non-medical professions as ACPs. This has enabled a more focused discussion on issues related to the profession of nursing. However, the findings may be transferrable to other professions who provide ACP roles.

Since being introduced there has been a lack of clarity about the ANP scope of practice and educational requirements in the UK, and globally, partly as a consequence of the lack of national role regulation (King et al. 2017). Health policy in England has set out nationally agreed standards for ANP and ACP development (Department of Health 2010a, Health Education England 2017a) aimed at enhancing patient safety, delivering high quality care, and encouraging consistency in the use of advanced practice titles. However, these recommendations are not compulsory.

ANP roles can be found in a wide range of healthcare settings, from primary care to secondary care and from specialists to generalists (Gerrish et al. 2011). This study will focus on the ANP role in the ED, which involves autonomously assessing, treating and discharging patients with undifferentiated conditions (Brook and

Rushforth 2011). Discharge decision-making by ANPs challenges traditional boundaries between nursing and medicine (Allen 1997). Boundary blurring between ANPs and medicine occurs by vertical substitution; the sharing of roles between professions of different levels of power (Nancarrow and Borthwick 2005). The broadening of tasks and decisions undertaken by nurses will undoubtedly be influential in reconstructing the professional identity of nursing (Johnson 2012). Sheer and Wong (2008) state that the challenge for each country is to clearly define the ANP role, provide relevant education, and establish the scope of practice and regulations.

This study focuses on discharge decision-making by ANPs as it is an advanced clinical judgment recently adopted by nurses from medicine, as it was previously a core 'medical' skill that nurses did not traditionally undertake (Svensson, 1996). It is a decision which has implications for patient safety and reducing unnecessary hospital admissions (O'Cathain et al. 2014), with critical implications for patient flow, and other parts of the healthcare system.

2.4 BACKGROUND TO KNOWLEDGE MOBILISATION

This study aims to explore knowledge mobilisation (KM) in discharge decision-making by ANPs in the ED. Knowledge is defined by Popper (2002) as 'the possession of truth'; however, he argues that all sources of knowledge have the potential to lead us to error.

"Knowledge is mixed with our errors, prejudices, dreams and hopes, all we can do is grope for truth even though it is beyond our reach" (Popper 2002, p39).

An appreciation of the need to make decisions despite a lack of certainty, through 'indeterminate knowledge' is particularly important in healthcare due to the complex nature of clinical decision-making (Traynor 2009). It is also important to recognise the social construction of knowledge. Hammersley (1992) argues that we can be reasonably confident that knowledge is valid, based on assumptions and purposes that are socially constructed. Similarly, Currie and White (2012) define knowledge as a resource used by social actors within networks of relationships to solve problems in context.

Few will argue that healthcare decision-making can be made without accessing knowledge; however, there has been much debate about the 'best' sort of knowledge to apply to clinical decisions in practice (Sackett et al. 1996, Pope 2003, Graham and Tetroe 2010). The Cooksey Report (HM Treasury 2006); an independent review of the funding of health research in the UK highlights two gaps in the translation of health research into clinical practice. The first gap is between research ideas and the development of new approaches or products, and the second gap is between developing new approaches (evidence), and their introduction into clinical practice. This second gap is also known as the 'knowledge to action' (KTA) gap that can occur between relevant stakeholders, for example researchers and clinicians, and the resulting action (Graham et al. 2006). The study of knowledge mobilisation is concerned with closing the KTA gap (Straus et al. 2009b). This is complicated by the variety of forms of knowledge accessed in practice including research knowledge, experiential knowledge and contextual knowledge (Davies and Nutley 2008). Rycroft-Malone et al. (2004) state that it is important to acknowledge the different sources of knowledge and incorporate them into patient care and treatment. It is clear that in order to improve the use of relevant knowledge in clinical practice there needs to be an understanding of how decisions are made by ANPs.

The study of knowledge mobilisation aims to understand how knowledge is created and adapted to the local context, then implemented in clinical practice and the factors that influence those processes (Graham and Tetroe 2010). KM can be explored from two different perspectives, first, from the development and implementation of new knowledge, and the impact that new knowledge has in practice, and second from the perspectives of knowledge-users, exploring how their decisions are impacted by knowledge (Davies and Nutley 2008). The latter perspective has been taken in this study, in exploring how ANPs, the knowledge-users, make discharge decisions in the ED. This approach has been chosen as it allows for the development of an in-depth understanding of how knowledge is mobilised in discharge decision-making by nurses in this relatively new role. This will inform future research dissemination and the support of ANPs in clinical practice.

2.5 CHAPTER SUMMARY

This background chapter has introduced emergency care in the UK, the emergence of advanced nursing roles, and the study of knowledge mobilisation. The number of patients attending EDs is increasing and there are not enough doctors to meet the demand. This has led to the introduction of non-medical roles including ANPs in primary and secondary care.

The ANP role in the UK has been plagued by ambiguity of titles, scope of practice, educational preparation and work-based support. In the ED, the role generally involves treating any patient presenting with an undifferentiated condition. This role therefore exhibits significant boundary blurring with medicine, particularly in the diagnosis and discharge elements.

Knowledge mobilisation research aims to close the knowledge to action gap. This study focuses on knowledge mobilisation from the knowledge users' perspectives; exploring how knowledge is produced, shared and accessed by ANPs in discharge decision-making and factors that influence those processes. The first stage of the study was to commence a narrative literature review, which is presented next in the next chapter.

CHAPTER 3 NARRATIVE LITERATURE REVIEW

3.1 INTRODUCTION

This chapter provides a narrative review of the literature on the context of the emergency department, the advanced nurse practitioner (ANP) role and knowledge mobilisation. Firstly, the method of review is described, with a summary of the search strategy, followed by a narrative synthesis of the literature. A theoretical framework, developed from the literature review, is presented in section 3.5, providing a useful lens by which the findings are discussed

3.1.1 Narrative review methods

A narrative literature review was undertaken using an iterative approach. The review aimed to understand the background to the study context (the emergency department, advanced nurse practitioners (ANPs), and knowledge mobilisation), and to explore and identify any gaps in existing knowledge. Later the review was used to make sense of the findings (Grant and Booth 2009). Narrative reviews aim to provide an authoritative understanding of a phenomenon to communicate to fellow experts in the field. They are most useful prior to studies that require clarification and insight in order to deepen understanding of issues using qualitative methods (Greenhalgh et al. 2018).

The initial approach taken in this narrative review was to read broadly around the subjects of advanced nursing practice, emergency departments, knowledge mobilisation, and ethnography. Discharge decision making was not included as a search term in this narrative review as the focus of the research was to explore the processes of knowledge mobilisation that informed DDM, not the decision per se. The outcome of the actual discharge decision was not the focus of the research, but the processes of knowledge mobilisation that led to the decision were. Previous authors have highlighted the value of reading widely in ethnographic research (O'Reilly 2005, Gabbay and Le May 2011). O'Reilly (2005) states that, in ethnography, the best way to remain open-minded and inductive, yet informed, is to

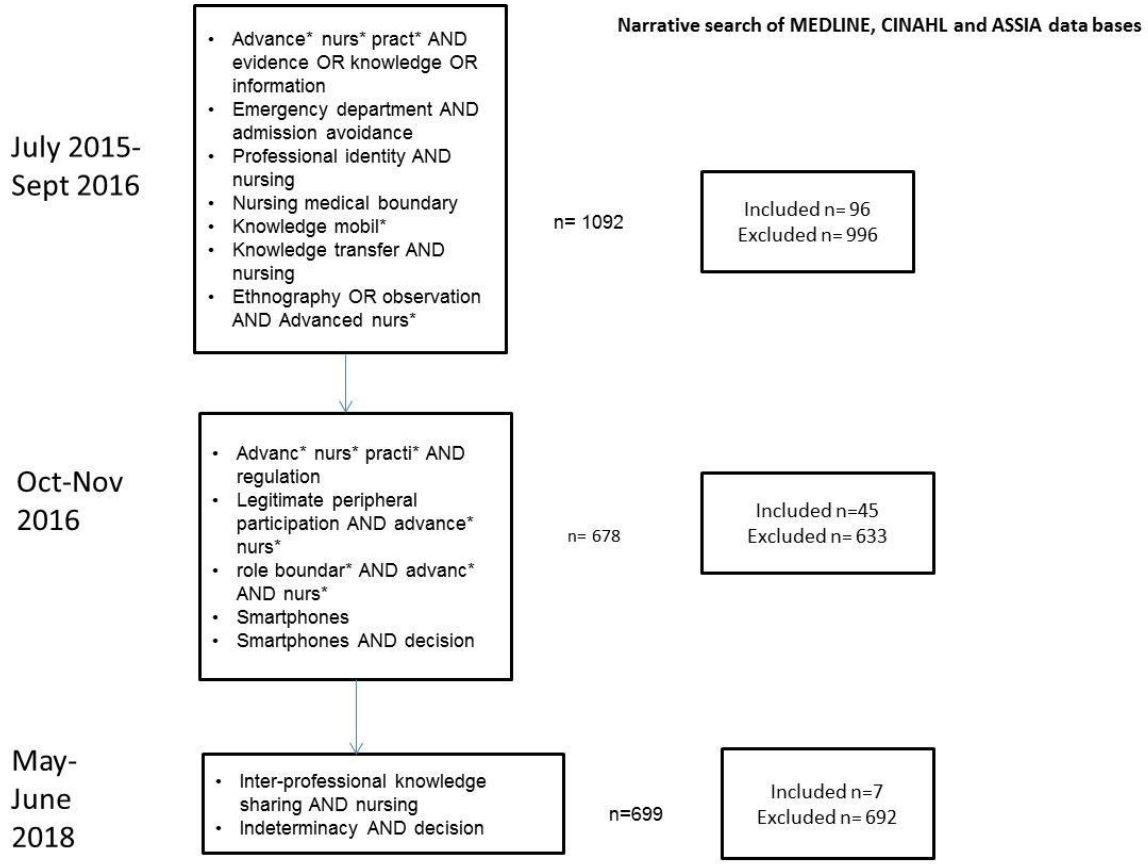
read literature on previous theories on a subject, while staying aware of the risk of developing preconceptions.

The SALSA (search, appraisal, synthesis, analysis) framework was used to identify and appraise key literature (Grant and Booth 2009). Following an initial search, additions were made to the narrative literature review in an iterative way to make sense of the findings (O'Reilly 2005, Booth et al. 2016, Greenhalgh et al. 2018). Figure 3.1 shows the search terms used in the narrative review. Papers were excluded if they focused on other professional groups, or undergraduate nurse training. Greenhalgh et al. (2018) warn against using an explicit search strategy with strict inclusion and exclusion criteria prior to undertaking qualitative studies, arguing that such strategies are a potential barrier to interpretive reflection. This search method was also discussed with, an expert in ethnographic methods in health care who confirmed that an iterative approach to performing a narrative review without explicit inclusion criteria was appropriate for an ethnographic study such as the one presented here (Davina Allen, personal communication 16th April 2018).

Three databases were searched for relevant literature; Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline, and Applied Social Sciences Index and Abstracts (ASSIA). The search terms are presented in figure 3.1.

Papers were also included following searches of reference lists of retrieved papers. Relevant grey literature was reviewed from the Department of Health, NHS England, Health Education England, NHS Scotland, NHS Wales, the Nursing and Midwifery Council (NMC), the Royal College of Nursing (RCN) and the Royal College of Emergency Medicine (RCEM). Several qualitative methods journals and textbooks were also consulted following recommendations by the supervisory team, who are experts in the field of advanced nursing practice, ethnography, and knowledge mobilisation. References were managed using Endnote computer software (version X8).

Figure 3.1 Search strategy



Research articles were appraised using a checklist to ensure that those included had clear aims, used appropriate research designs, methods of analysis and ethical considerations, with a clear statement of findings and impact (Critical Appraisal Skills Programme 2018). Discussion based papers were not critically appraised using the CASP framework as they were not methodologically based, although it was important to include these papers in order to enhance understanding of the context of the study. All research-based articles were critically appraised using the CASP tool regardless of methodology. Thus, both qualitative and quantitative articles were appraised.

A limitation of the literature review, therefore, was that an inclusive approach was adopted. Discussion-based articles were included, as well as rigorous empirical research to provide important context and insight. This meant the review leaned towards relevance rather than exclusively on quality. This strategy has been supported in the literature on applied evidence reviews (Malterud, 2001a, Greenhalgh et al. 2018). Greenhalgh et al. (2018) argue that underpinning evidence should not be limited to primary research, or systematic literature reviews, which will

not capture the totality of the processes affecting human behaviour/interactions in healthcare.

The CASP tool was a useful guide to give confidence in the quality of included research papers and the strength of the evidence. However, due to the inclusive approach adopted none were excluded based of quality as they all met inclusion criteria and provided conceptual and contextual insight. Any articles that were not relevant and did not provide such insight were excluded prior to appraisal (see figure 3.1). This inclusive strategy provided a deeper understanding of social and organisational processes relating to knowledge mobilisation, the emergency department and ANPs. Valuable literature may have been missed if a more systematic approach had been taken (Greenhalgh et al. 2018).

Synthesis of relevant literature consisted of a narrative summary (Grant and Booth 2009). New literature searches were performed throughout the data collection period in an iterative manner as themes emerged, in order to discuss the findings in light of relevant research (Braun and Clarke 2006).

The narrative review serves two purposes, to identify any gaps in the literature and to increase understanding of emerging themes. The next sections outline the findings of the narrative review, presenting the gaps in the literature, using the following headings, the context of the ED in the UK, the advanced nurse practitioner role, and knowledge mobilisation. The literature is then revisited during the discussion of the research findings (chapter 9).

3.2 CONTEXT OF THE EMERGENCY DEPARTMENT IN THE UNITED KINGDOM

3.2.1 Current pressures on UK emergency departments

Patients with urgent health care needs in the United Kingdom (UK) have access to a wide range of services including emergency departments (EDs), general practice (GP) surgeries, primary care out of hours (OOH), walk in centres, district nurses and social care (O'Cathain et al. 2014). Those who attend the ED present with a variety of health problems such as cardiac and respiratory problems, infections (urinary, skin, and other local infections), ophthalmology, ear, nose and throat problems,

diabetes, overdose, injuries ranging from minor cuts and bruises to major head injuries (House of Commons Briefing Paper 2015). Some go directly to the ED, whilst others arrive via other services, for example the GP or OOH services.

National health policies have influenced the design of emergency healthcare and professional working in the UK. Changes to emergency care have been driven by concerns about the patient waiting times at various stages of the process; from calling an emergency GP, ambulance transport to hospital, undergoing assessment and treatment, and waiting for medication before going home (Department of Health 2001). Increasing demand for emergency care has led to pressure at both ends of the hospital system. An increase in emergency admissions causes cancellation of planned surgery, and a lack of empty beds in the hospital results in patients remaining on trolleys in the ED for long periods (Department of Health 2001).

In response to the long waiting times experienced by patients, a waiting time target of four hours (from attendance to discharge) was set out in the 'NHS Plan' and 'Reforming Emergency Care' policy documents (Department of Health 2000, Department of Health 2001). Waiting time targets and quality standards were later modified to focus on timeliness, quality of care, safety, clinical effectiveness, and patient experience (The College of Emergency Medicine 2011).

One solution to the increasing pressure in the ED to assess, treat and discharge patients in a timely manner was the implementation of the emergency nurse practitioner (ENP) role (Department of Health 2001). The ENP scope of practice in the UK includes assessing minor injuries, ordering and interpreting X-rays, and dispensing medications using patient group directives (PGDs) such as analgesia, antibiotics, and tetanus vaccines (Hoskins 2011). The advanced nurse practitioner (ANP) role has more recently been introduced into emergency care (The College of Emergency Medicine 2015). This role differs from the ENP role in the ED, as it is not limited to minor illness and injuries, but has a much broader, autonomous, scope of practice (International Council of Nurses 2002, The College of Emergency Medicine 2015). Although the ANP role is mentioned here in the context of changes to the ED workforce, it is discussed in more detail in section 3.3.

Further strategies for improving emergency care services in England have been set out in the 'Five Year Forward View' document (NHS England 2014). These include increasing access to GPs and ANPs and better integration between the ED, primary care OOH (out of hours), urgent care centres, NHS 111 (free telephone line for urgent healthcare advice) and the ambulance service (NHS England 2014). It is clear from national policy, and recent investment that ANPs and other non-medical advanced practitioners are viewed as one of the key strategies for meeting the increased demand for emergency services in England (Health Education England 2015, Health Education England et al. 2017). It is important to understand the factors that have increased the pressure on EDs. The next section presents the reasons for the increase in numbers of patients accessing the ED in the UK.

3.2.2 Reasons for rising emergency department (ED) attendance

There are several reasons for the increase in attendance to emergency departments (EDs). Firstly, an increase in long term conditions (LTCs), associated with the aging population. Secondly, patients feel they have no other options, and experience barriers to accessing primary care.

It is widely understood that our aging population and subsequent increase in long-term conditions (LTCs) are causing increased pressure on EDs. A LTC is one that cannot currently be cured, but can be managed with medication and other therapies. LTCs include diabetes, asthma, hypertension, coronary heart disease, heart failure, stroke and transient ischaemic attack (TIA), chronic obstructive pulmonary disease (COPD), epilepsy, cancers, severe mental health problems, chronic kidney disease, multiple sclerosis, and Parkinson's disease (Department of Health 2008b). Patients with LTCs are frequent users of emergency care, and they account for 70% of inpatient beds a year in the UK (Department of Health 2008b, Department of Health 2010b).

The aging population has not only been associated with an increase in ED attendances, but also an increase in the length of hospital stay, contributing to the increasing pressure on EDs (George et al. 2006, Lowthian et al. 2011). George et al. (2006) explored the effect of the aging population on ED speed and efficiency by comparing data from a UK hospital collected in 1990 and 2004. They found that

older patients (over 70 year olds) were 4.9 times more likely to be admitted to hospital than those 30 years old or younger and they stayed in hospital 6.9 times longer. Time taken to manage patients, and the numbers of investigations requested were also found to increase with age. Similarly, a systematic review of trends in emergency attendance in Australia found that aging was a key reason for the increase in ED presentations (Lowthian et al. 2011). Other factors included loneliness and lack of social support, a move towards community care for mental health patients, limited access to primary care, and convenience.

Others have described an association between the increasing use of unscheduled care and an increase in LTCs (Langer et al. 2013, Hunter et al. 2013, Drinkwater et al. 2013). In their qualitative literature review Langer et al. (2013) found that the main reason for patients contacting 'unscheduled care' (UC) was an acute exacerbation of their LTC. They accessed UC as they felt they had no other option at the time and saw the hospital as a place of expertise and safety. There were tensions between patients' views of UC, as one of a range of options in the management of their health problems, and policymaker views as reflecting a failure of self-management.

Patients experience barriers to alternative healthcare services and view the ED as their only option (Hunter et al. 2013). Barriers to accessing primary care include receptionist gatekeepers, transport costs and mobility problems, and the perception that GPs lack specialist knowledge. The authors concluded that ED attendance behaviour was not likely to be influenced by education alone, as previously suggested by UK health policy, but by a change in the patient's experiences in order to influence their perceptions of available services (Hunter et al. 2013). These studies illustrate that as well as clinical factors there are many social influences on patient attendance to the ED. This highlights the influence of non- clinical knowledge (such as patients' perceptions, experiences and social circumstances) on UC attendance and on discharge-decisions.

Clinicians working in unscheduled care do not feel it is their responsibility to educate patients about the most appropriate use of services. In one study in England GPs, OOHs GPs, ED doctors, practice nurses, nurse specialists, and case managers all identified emergency care as a necessary part of managing exacerbations of LTCs (Drinkwater et al. 2013). There was a tension between the need for patients to

access emergency care in a crisis and targets to reduce attendance (financial incentives for GPs). Suggestions put forward by participants for reducing UC attendance were very broad and included optimising the patient (by promoting self-management), optimising the system (for example improving triage and charging a fee to use emergency care) and negotiating the system (nurses would use their informal networks with other services). ANPs were not included in the sample and were not mentioned as a solution to attendance to unscheduled care. It may be that the study site did not employ ANPs.

This section has presented the key factors that have increased ED attendance in the UK; the aging population and increase in LTCs along with the organisational and social influences on ED attendance. A further challenge to the provision of emergency care is the falling numbers of healthcare professionals in the UK, discussed in the next section.

3.2.3 Medical and nursing workforce shortages

In addition to the increasing numbers of patients with more complex health problems (LTCs) attending the ED, there are also concerns about a shortage of doctors and nurses in England available to care for those patients (Public Health England 2017). Currently there are around 40,000 nursing vacancies (Royal College of Nursing 2018b). Medicine is also experiencing workforce shortages, there are 100,000 vacancies across the NHS in England, with a predicted rise to 350,000 by 2030 (The Health Foundation et al. 2018). Problems with recruitment and retention of nurses are reported to be due to poor pay, increased workload and inadequate professional development (House of Commons Health Committee 2018).

The political drive to provide more cost-effective healthcare has led to an increase in the expansion of non-medical roles including the physician associate (PA) and advanced clinical practitioner (ACP) roles, which in addition to advanced nurse practitioners (ANPs) includes other professions working at an advanced level, such as pharmacists and physiotherapists (Health Education England 2017a).

Another role that is being introduced to address the shortfall in nurses is the nursing associate role. The aim is for them to bridge the gap between unregulated health care assistants and registered nurses. Two pilot cohorts of 1000 trainee NAs have

been funded across 35 sites in England, and the first trainees will qualify in January 2019 (Council of Deans of Health 2017).

In light of the challenges of the aging population and workforce shortages, the next section addresses some of the initiatives used to reduce the pressure on the ED.

3.2.4 Strategies to reduce pressures on emergency admissions

Avoiding unnecessary emergency admissions is a key goal for the NHS, both for financial reasons and to reduce the demand on hospital resources (e.g. to avoid cancelling planned surgery) (National Audit Office 2013). The term ‘unnecessary admissions’ has been defined as admissions that are either ‘preventable’ or ‘avoidable’ (O'Cathain et al. 2014). It is important to explore strategies that reduce unnecessary admissions (O'Cathain et al. 2014). National policy initiatives include increasing access to extended hours primary care, increasing the numbers of 24-hour mental health services linked to EDs, strengthening care home support, and enhancing the NHS 111 service (NHS England 2017). The introduction of the ANP role is one of the key strategies to managing the increasing pressure on EDs (Health Education England et al. 2017), and is the focus for this doctoral research study. However, it is important to understand some of the other strategies to reduce pressures on emergency departments presented in the literature.

There is limited evidence to show what actually works to reduce avoidable emergency admissions (National Audit Office 2013). A recent comparative case study found regional variations in avoidable emergency admissions, including availability of GP OOH services, senior doctor review, and discharge coding (O'Cathain et al. 2015). It also found in some cases that admission was easier and quicker than dealing with several different external agencies in facilitating a patient’s discharge home. They concluded that avoidable admissions might be reduced if initiatives to address some of those factors are implemented. In another study, deprivation was the greatest factor in unnecessary admissions (O'Cathain et al. 2014). The most common health problems leading to potentially preventable admissions were non-specific chest pain, non-specific abdominal pain, acute mental health crisis, and chronic obstructive pulmonary disease (COPD). All these conditions have a greater prevalence in populations living in areas of deprivation.

Admissions avoidance teams are becoming an important part of the ED workforce, and many hospitals have introduced specialist frailty units, which focus on the care needs of older people (NHS Benchmarking Network 2016).

These studies highlight how knowledge of a patient's social problems, including deprivation can influence discharge decision-making, and suggests that strategies should focus on improving communication with other support services, and educating clinicians in managing the most common conditions (O'Cathain et al. 2014, 2015).

It is clear from the literature that knowledge of common conditions improves appropriate patient discharge, and communication with other services is important in managing patients with complex social needs. Previous literature fails to address how knowledge is accessed and used by ANPs in situations of uncertainty in discharge decision-making in the ED. The current study contributes to this gap in the literature.

3.2.5 Summary

The ED is under increasing pressure mainly due to the aging population and increase in long-term conditions. It requires new strategies to assess patients in a timely manner and address the shortfall in the medical and nursing workforce. Advanced nursing roles are a part of that solution. This review highlights the importance for ANPs to make an appropriate discharge decision, avoiding unnecessary emergency admissions. The next section will present the literature on the development of the ANP role, the regulatory challenges, and boundary blurring between nursing and medicine.

3.3 ADVANCED NURSE PRACTITIONER ROLE

3.3.1 Definition of Advanced Nurse Practitioner

Definitions of advanced nursing practice remain broad, due to the nature of the drivers for role implementation. This has led to widespread confusion surrounding their scope of practice and educational requirements. The advanced nurse practitioner (ANP) role has been implemented globally, in response to a number of

drivers, including medical workforce shortages, changes in health care policy, a desire by nurses to increase their knowledge and clinical skills, and to improve patient care (Nancarrow and Borthwick 2005, Schober and Affara 2006).

A survey by the International Council of Nurses in 2003 revealed that advanced nursing practice has been plagued by confusion and ambiguity around role titles, scope of practice, regulation and educational requirements (Schober and Affara 2006). The International Council of Nurses (2002) defines the ANP as:

"A registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level".

Recently a multi-professional framework has been developed to promote standards for advanced clinical practice (ACP) in England (Health Education England 2017a). This includes a new definition for advanced clinical practice, which incorporates the four pillars of advanced practice and a requirement to manage complete clinical care, emphasising the high level of autonomy. The term 'clinician' has replaced 'nurse' as the framework is intended for use by other non-medical professions.

'Advanced clinical practice… is a level of practice characterised by a high level of autonomy and complex decision-making. This is underpinned by a master's level award or equivalent that encompasses the four pillars of clinical practice, management and leadership, education and research, with demonstration of core and area specific clinical competence…Advanced clinical practice embodies the ability to manage complete clinical care in partnership with patients/carers. It includes the analysis and synthesis of complex problems across a range of settings, enabling innovative solutions to enhance patient experience and improve outcomes p8' (Health Education England 2017a).

This framework refers to a range of health and care professionals, however no details of which professions are provided, other than that, some will not have statutory regulation, and therefore will not be registered with a professional body. The guidance recommends that such professionals should not be excluded from

working at an advanced practice level. Despite introduction of this new overarching title of ACP, this thesis focuses on the ANP role. However it is acknowledged that in other settings and departments locally and internationally similar roles are undertaken by healthcare professional who are not nurses, such as paramedics, physiotherapists and physician associates (Health Education England 2017a).

The following sections present a narrative review of the history of ANP role development, scope of practice, educational preparation, mechanisms of professional regulation, and issues around boundary blurring and professional identity. This provides important context to the role of the participants in this ethnography.

3.3.2 Advanced Nurse Practitioner role development

The advanced nurse practitioner (ANP) role has been introduced into the emergency department (ED) in the United Kingdom (UK) relatively recently (Royal College of Emergency Medicine 2017). It first presented in the United States of America (USA) and Canada in the mid-1960s in primary care, later emerging in hospital settings (Griffin and Melby 2006, Pulcini et al. 2010). In the UK, the role was implemented in the mid-1980s and in New Zealand and Australia in the 1990s (Furlong and Smith 2005). Many factors have influenced the introduction of ANP roles globally, including; a shortage of doctors, a need to improve access to primary care, to improve care for particular patient groups, changes in government policy, inter/ intra-professional collaboration, nurse career progression, and positive evaluations of the role (Ketefian et al. 2001, Schober and Affara 2006, Currie et al. 2010, McMurray 2011). Countries where ANP role development has been hindered, such as Latin America, Africa and China have been found to have high ratios of doctors to nurses and under-developed post-registration nurse education programmes (Sheer and Wong 2008). Therefore they lack the key drivers of medical workforce shortage and professional aspirations for development.

In the UK, early discussions about expanding the role of nurses were driven by a government commitment to improving working conditions and training for junior doctors by reducing their working hours (Read 1995, McDonnell et al. 2015). In her

report on new voyages in nursing, Read (1995) describes advanced practice as being concerned with:

"Adjusting the boundaries for the development of future practice, and advancing clinical practice, research and education to enrich nursing practice as a whole p6".

UK national policy has contributed to ANP role development with a redesign of the health service set out in 'The NHS Plan' (Department of Health 2000) proposing an end to the fixed boundaries between doctors and other health professionals. New nursing roles in primary care were put forward in the policy document 'Liberating the Talents' (Department of Health 2002). It set out plans for nurses to undertake tasks historically performed by General Practitioners (GPs) such as ordering tests and X-rays, making referrals, admitting and discharging patients, prescribing medicines, performing minor surgery and triaging patients. It was proposed that primary care nurses would expand their roles to perform three core functions; first contact assessment, chronic disease management, and health promotion to reduce inequalities (Department of Health 2002). As a result of these changes in policy, opportunities to expand the role of nursing opened up; a key driver for boundary blurring (Nancarrow and Borthwick 2005).

3.3.3 Scope of advanced nurse practitioner roles

Previous literature reveals ambiguity about what ANPs actually do. The 'scope of practice' describes the knowledge, attitudes, skills, and mechanisms of accountability, required to undertake a role (Schober and Affara 2006). The ANP scope of practice has been found to vary globally depending on the particular healthcare needs of the population and preferences of medical colleagues (Daly and Carnwell 2003, Marsden et al. 2003, Schober and Affara 2006, Maddox et al. 2016). Traditionally nurses act on the clinical decisions of others, in particular doctors, rather than their own clinical judgement (Currie et al. 2010). However, the ANP scope of practice includes skills and decisions traditionally undertaken by doctors (Schober and Affara 2006, Heale and Rieck Buckley 2015).

An international literature review on advanced nursing roles revealed that ANPs diagnose health problems, perform comprehensive physical assessments and treat, or refer patients as required (Daly and Carnwell 2003). In the UK, the ANP role

requires autonomous decision-making, involving history taking, assessing and diagnosing, and forming a management plan; ordering and interpreting tests, and prescribing medications (Latter et al. 2007, Department of Health 2010a, Brook and Rushforth 2011). Independent non-medical prescribing is defined as:

"Prescribing by a practitioner… responsible and accountable for the assessment of patients with undiagnosed or diagnosed conditions and for decisions about the clinical management required, including prescribing" (Department of Health 2006, p2).

The lack of clarity around ANP scope of practice has implications for the preparation of ANPs and the knowledge required to undertake the role. There is a need for further exploration of how ANPs access knowledge in meeting the requirements of their advanced the scope practice. This study aims to further the literature in this field.

3.3.4 ANP regulation

The UK is in the minority in not providing national regulation of ANP scope of practice, educational preparation and title protection (Pulcini et al. 2010, Barton and Mashlan 2011). Debate about ANP regulation has been ongoing in the UK for over 20 years (Barton and Mashlan 2011).

ANPs in the UK are currently regulated by local governance processes, which have not always been successful, as illustrated by the misuse of advanced titles in some cases (Royal College of Nursing 2012, King et al. 2017). In the UK, nursing and medical professional bodies, and government policy are attempting to provide standards for ANP practice, titles, training, and supervision (Royal College of Emergency Medicine 2017, Royal College of Nursing 2017, Health Education England 2017a).

Traditionally, professional self-regulation has been conducted by professional associations, who have the power to discipline members by expelling them from their role (Freidson 1984). It has been argued that clear standards and regulation are essential to recognising ANPs as professionals, and to ensure safe practice for patients (Pearson and Peels 2002b). The International Council of Nurses (2002)

recommends that each country should have specific regulations on the right to diagnose, authority to prescribe, authority to refer or admit patients to hospital, and title protection. Formal recognition of advanced nursing roles is provided by professional organisations in 28 out of 32 countries surveyed (Pulcini et al. 2010).

The RCN have stated that they are opposed to the use of the ANP title where a nurse has not completed the appropriate educational preparation (Royal College of Nursing 2012). Advanced nursing roles have emerged worldwide using a wide range of titles. In a cross sectional survey of advanced nurses in 32 countries, 13 different titles were identified including; nurse practitioner, advanced practice nurse, clinical nurse specialist, nurse specialist, professional nurse, expert nurse, and nurse consultant (Pulcini et al. 2010). There were also found to be global variations in scope of practice, prescribing authority and licencing requirements. Others have also highlighted this confusion and wide variation in ANP practice (Pearson and Peels 2002b, Marsden et al. 2003, Furlong and Smith 2005, Hoskins 2012). Subsequently, the role of the ANP has been described as complex and ambiguous (Cummings et al. 2003, Mantzoukas and Watkinson 2007). Role ambiguity is thought to contribute to inter-professional conflict (Jones 2005, Griffin and Melby 2006). Clear role definitions and expectations have been highlighted as crucial to the success of the ANP role (Jones 2005).

Previous studies have used surveys to explore the regulation of ANP roles globally, identifying wide variation, with three main categories of regulation; central government, decentralised by professional bodies, or locally by employers (Heale and Rieck Buckley 2015, Maier 2015). ANP registration, titles, and scope of practice are regulated in many countries, including Ireland, the Netherlands, Australia, Canada and the USA (Pearson and Peels 2002a, Hoskins 2012, Maier 2015). In the UK and Finland the responsibility for ANP regulation lies with local employers, however there are national registers of those with prescribing qualifications (Maier 2015). The lack of national regulation in England has led to wide variation in practice, difficulty in role clarity, and problems in tracking workforce data, especially as ANP roles are developing opportunistically (Maier 2015). An ethnographic study of the development of advanced nursing practice in Singapore found that ambiguity about the role led to indecision and uncertainty (Schober et al. 2016). Maier (2015) argues

that clear ANP regulation is crucial in role development and in communicating competencies to other professionals to enhance acceptance and implementation in practice.

A further consequence of the lack of national regulation of ANPs in England is a wide variation in remuneration (Marsden et al. 2013, Fawdon and Adams 2013). Since 2004, NHS staff in the UK (except doctors, dentists, and senior managers) have been paid according to the Agenda for Change pay scale, guided by a knowledge and skills framework (Department of Health 1999). The RCN (2012) recommends that a nurse working autonomously as an ANP should be paid at a band 8a. It appears that employers are not always adhering to those guidelines with pay varying from band 6, to band 8a (Marsden et al. 2013, Fawdon and Adams 2013). The RCN (2012) warns ANPs that caution should be taken when applying for ANP jobs, as some prospective employers persist in:

"*Offering so-called ANP posts for which no specific educational preparation is required, and for which the remuneration on offer is not appropriate for a nurse as competent and highly qualified as an ANP (p7)*".

It has also been argued that regulation of the ANP role is crucial for public protection, due to the high-risk nature of the role of 'medical diagnosis' (Brook and Rushforth 2011). In addition, it is proposed that the public should expect similar regulated standards from nurses in autonomous roles similar to medicine, especially as doctors are required to meet certain standards of education, which are regulated (Brook and Rushforth 2011, General Medical Council 2015).

A report by The Council for Healthcare Regulatory Excellence (2009) defended the decision not to regulate the ANP role based on the role being an extension of the skills assessed at initial registration. Their report goes on to suggest that regulation should be considered if the risks to patients differs from those ordinarily associated with the profession. A more recent report has proposed a transformation of the regulation of all health and social care professionals, making it easier for practitioners to work across professional boundaries (Professional Standards Authority 2016).

Initiatives recently introduced by UK policy makers have contributed to the standardisation of ANP practice (Health Education England 2017a, Royal College of Nursing 2017). Health Education England (2017a) have published a multi-professional framework listing the competencies required for advanced clinical practice and the RCN have recently introduced a 'credentialing' scheme for ANPs where they can formally log their experience, competence and qualifications (Royal College of Nursing 2017). Reasons for introducing credentialing were to provide formal recognition of ANPs' skills and experience, for ANPs, employers, colleagues and the public (Royal College of Nursing 2017). This new process has been piloted in two phases to test the assessment criteria and recently rolled out nationally (Pearce 2017). The requirements for credentialing are outlined in the table 3.4.

Table 3.4 ANP credentialing requirements

ANP credentialing requirements
A relevant Master's qualification
An independent non-medical prescribing qualification registered with the NMC
An active member of the NMC
A relevant job plan, which reflects the four pillars of advanced level practice: clinical practice, leadership, education and research.

Adapted from the Royal College of Nursing (2017)

There will be a transitional period until 2020 where nurses who do not meet all of the above criteria may still credential by submitting a portfolio of evidence. Those who meet the standards can be identified on a publicly available list of ANPs (Royal College of Nursing 2017). This process of credentialing is voluntary so although it will identify those who *are* meeting the RCN's requirements of advanced practice, it will not mean that those who are not listed are not meeting the requirements. This still leaves the ANP title open to misuse and confusion. The introduction of credentialing, although voluntary, could be seen as a step towards a more structured and formalised process of regulation of the expanded roles and responsibilities of ANPs (Pearce 2017). Some would argue that national regulation would provide further clarity to the required educational standards, scope of practice and titles (Brook and Rushforth 2011, Carney 2016).

A potential problem with the current procedures is that the process of RCN credentialing is voluntary and will cost nurses a fee every three years (Pearce 2017) and, as it is in the early stages of implementation, the uptake of this service is yet to be evaluated. It may also be unclear for ANPs whether they should credential with the RCN, or one of the specialist medical colleges, currently only offered by the Royal College of Emergency Medicine (RCEM 2017).

Lack of national regulation has been identified as a barrier to the ANP role, and previous authors have urged that regulation must be clear, addressing the full scope of practice (Maier 2015, Heale and Rieck Buckley 2015). In addition to providing clear standards and protecting the public from harm regulation should facilitate flexible roles within the workforce (Professional Standards Authority 2016).

Despite role ambiguity and confusion, it is perceived that ANPs have the potential to improve health care as they are in a good position to provide cost-effective, front line health care (Schober and Affara 2006). They have also been described as the 'sleeping giants' of the healthcare system in meeting the global need for increased access to quality healthcare (Pulcini et al. 2010).

3.3.5 Preparation for advanced nursing practice

One consequence of the lack of national regulation of ANPs in the UK is widespread variations in the standards of ANP training. These variations have been reported both globally and nationally, with UK programmes being developed independently of each other (Griffin and Melby 2006, Gerrish et al. 2011). This variation has contributed to confusion about the scope of the ANP role and competence required to meet the level of practice (Department of Health 2010a). Subsequently there have been calls for clarification and standardisation in order to legitimise the role (Griffin and Melby 2006, Lloyd-Rees 2016).

Master's level preparation has been set as a minimum standard in many countries, but not yet in the UK (Cole and Ramirez 2002, Furlong and Smith 2005, Pulcini et al. 2010), although there is a consensus that master's level education will be expected in the future in the UK (Royal College of Nursing 2012, Health Education England 2017a). ANPs are prepared at master's level in Canada, Singapore, New Zealand,

Switzerland, Sweden and most of the USA, meanwhile other countries such as Australia and the UK recognise that this level of education would be beneficial (Sheer and Wong 2008). Although not yet compulsory in the UK, master's level preparation has been found to increase nurses' feelings of competence and expertise (Gerrish et al. 2011), and is recommended by policy makers (Health Education England 2017a, Royal College of Nursing 2017).

It is recognised internationally that the ANP role involves high levels of decision-making and judgment, expert clinical practice and professional leadership, requiring an innovative curriculum that keeps up to date with the changing socio-political environment (Kessenich 2000, Ketefian et al. 2001, Furlong and Smith 2005). It has been argued that the content of the ANP master's course should include both clinical and theoretical knowledge that covers the core concepts of the role (Griffin and Melby 2006), and skills in evidence based practice (EBP), and interpersonal and leadership skills (Gerrish et al. 2012). In the UK the competencies for ANP practice have been outlined as critical thinking, applying knowledge and skills to a broad range of clinically and professionally challenging situations, and working across professional boundaries (Department of Health 2010a).

In supporting employer-led governance in the UK, the RCN has designed a framework of standards and competencies to be used by Higher Educational Institutions (HEIs) to develop educational programmes for ANPs (Royal College of Nursing 2012). They recommend that any nurse planning to train as an ANP should attend an RCN accredited institution. The Nursing and Midwifery Council (NMC) code of professional practice (Nursing and Midwifery Council 2018) outlines professional standards that nurses and midwives must uphold. It includes sections on prioritising people (including respecting confidentiality), practising effectively (including evidence based practice), preserving safety (for example arranging prompt access to emergency care), and promoting professionalism. Since April 2016, all nurses renewing their registration with the NMC are required to provide evidence for revalidation, which adds an extra level of accountability to professional practice (Nursing and Midwifery Council 2017).

Recently there have been attempts to standardise the educational preparation of ANPs in the UK, based on the four pillars of practice, leadership, education and

research (Health Education England 2017a). The recommendations are that ANPs will have undertaken a Masters level programme (typically part time over 2 years), or have submitted a portfolio of evidence that they are working at that level (Health Education England 2017a, Royal College of Nursing 2017).

Some medical specialities have taken matters into their own hands and developed bespoke training programmes for ANPs. For example, the Royal College of Emergency Medicine (RCEM, 2017) has developed a training programme for Advanced Clinical Practitioners (ACPs), aimed at training advanced nurses and paramedics working in the emergency department (ED). The new version of the Emergency Medicine ACP curriculum states that ACPs will be expected to work at the level of a CT3 trainee doctor, previously ST3, and the training will mirror that of medicine (Royal College of Emergency Medicine 2017). The curriculum is very detailed with a comprehensive list of competencies and practical procedures, and the training is expected to take a minimum of three years to complete. The course involves showing proficiency in a wide range of competencies, which are assessed locally by an ED consultant supervisor, followed by a final external assessment by RCEM after three years. This scheme, although supported by the RCN, is regulated by the medical profession, which raises the question of who should be responsible for regulating ANP roles.

It is well recognised that ANPs require opportunities for work-based learning in addition to formal university education. Due to the boundary blurring nature of the ANP role, it is necessary for them to be supervised by medical mentors (Department of Health 2006). The British Medical Association and NHS Employers (2011) have provided a guide for consultant job planning. One of the elements of the work is ‘supporting professional activities’ which includes participation in training and medical education, and local clinical governance activities. This support is not only required during training, but as an ongoing resource. In their ethnographic study, exploring the transition from registered nurse to nurse practitioner MacLellan et al. (2015) found that nurse practitioners new to the role commonly experienced a lack of confidence and self-doubt. They suggest that mentoring should continue after training, through the transition period and beyond, potentially mitigating feelings of self-doubt, and improving confidence and competence.

Previous studies have explored formal ANP training, however less is known about how ANPs access and use knowledge during clinical decision-making, and the identities of their preferred sources of knowledge. Furthermore, the advanced scope of practice and varying employment practices leaves ANPs in a vulnerable situation in the context of a lack of national regulation.

3.3.6 Evaluation of advanced nurse practitioner roles

Studies have revealed that care provided by nurses in advanced roles evaluates well when compared to doctors (Horrocks et al. 2002, Hoskins 2011, McDonnell et al. 2015, Lovink et al. 2017). An international systematic review comparing care given by nurse practitioners with doctors in primary care (Horrocks et al. 2002) found that patients were more satisfied with care provided by nurse practitioners. Nurses spent longer with patients than doctors and there were no differences in prescriptions and referrals, and no increase in return consultations. However extended non-medical prescribing was not introduced in the UK until 2005, therefore nurses in UK studies in this review would have been limited in the conditions they were managing (Department of Health 2005). A more recent international systematic review explored care provided by medical substitutes to elderly patients in primary care (Lovink et al. 2017). Medical substitution roles were found to achieve at least as good care outcomes as doctors in providing healthcare for the aging population.

In the ED, the emergency nurse practitioner (ENP) role has also evaluated well. A review of the international literature exploring patient satisfaction of non-medical roles found that the ENP role evaluated well in terms of patient satisfaction and acceptance compared to the role of doctors (Hoskins 2011). A study exploring the attitudes of doctors and nurses to the proposed development of the ANP role in the ED found they felt ANPs would have a positive impact on waiting time targets; 94% of nurses and doctors surveyed felt ANPs would reduce waiting times for patients with minor injuries (Griffin and Melby 2006).

A number of benefits to the ANP role were identified in a collective case study evaluating the implementation of ANP roles in an acute hospital in England (McDonnell et al. 2015). ANPs were found to have a positive impact on patients, staff and the organisation. Patients valued the holistic care provided by ANPs, and there

was no evidence of reduced compassion (or other elements of traditional nursing). Junior doctors and nurses benefited from the knowledge of ANPs, and ANPs shared the workload of junior doctors. ANPs were not found to generate new knowledge, which is important to understand when exploring knowledge mobilisation. This study focused on ward-based nurses; therefore, the impact of ANPs in the ED may differ due to their unique scope of practice. Another ward-based study used ethnography to explore the ANP role and found that ANPs were pivotal in providing holistic care that was more valuable than mere substitution of junior doctors (Williamson et al. 2012). They were found to support junior doctors and other nurses, acting as role models.

It is important to note that previous studies have either focused on different settings, primary care and acute wards (Horrocks et al. 2002, Griffin and Melby 2006, McDonnell et al. 2015, Lovink et al. 2017), or different roles (ENPs) (Hoskins 2011) to the current study. There is a gap in the literature related to how ANPs make discharge decisions in the ED, which is addressed in the current study.

3.3.7 Boundary blurring

The literature on boundary blurring is important in the study of ANPs as their role incorporates tasks that were previously undertaken by medicine (Department of Health 2002). It explains how professions overlap, negotiate and share roles. Workforce boundaries can evolve in four directions, diversification, specialisation, and vertical or horizontal substitution. *Diversification* involves taking on new tasks that have not previously been 'owned' by another group, and *specialisation* involves adopting an increased level of expertise through training in a specific area (Nancarrow and Borthwick 2005). Substitution occurs when work is taken on that was traditionally performed by another profession. In *horizontal substitution,* work is undertaken that is normally performed by a worker of similar expertise, power and income; for example physiotherapists and occupational therapists who perform generic roles. *Vertical substitution* is the adoption of tasks across disciplinary boundaries where expertise, power and autonomy are not equal (Nancarrow and Borthwick 2005). In blurring the traditional boundaries with medicine in the ANP role, nurses have expanded their role by vertical substitution, traditionally involving the delegation of less pleasant, or 'dirty work' by doctors (Hughes 1958).

In boundary blurring in the ANP role it is important to establish legitimacy, determine feasibility and identify support in gaining jurisdiction (Schober et al. 2016). Schober et al. (2016) developed a conceptual framework for advanced practice nursing following an ethnographic study of the implementation of ANP roles in Singapore. One of the findings from their study was that role clarity was crucial, as ambiguity led to isolation, and a lack of acceptance by the nursing and medical profession. However, over time medical resistance was found to decrease as understanding increased.

Nurses in EDs have learnt to blur professional boundaries with medicine. A recent ethnographic study undertaken in a Norwegian emergency department (ED) (Johannessen 2018) found that triage nurses informally blur their boundaries with medicine despite formal jurisdictional boundaries; learning medical work of assessment and diagnosis to improve the efficiency of the organisation. Boundary blurring in this case was found to benefit both the medical and nursing professions.

The adoption of tasks previously undertaken by medicine is often referred to as medical substitution (Nancarrow and Borthwick 2005, Hoskins 2011, Lovink et al. 2017), however one study found that ANPs viewed their role as adding to the service, not replacing any roles (Maddox et al. 2016). The extent of medical substitution in boundary blurring is an important concept to consider in understanding how the ANP role is played out in clinical practice.

3.3.7.1 Boundary negotiation

Previous studies have explored how nursing and medicine negotiate their role boundaries, and the challenges faced by nurses in expanding their role (Strauss et al. 1963, Svensson 1996, Allen 1997 Norris and Melby 2006, Pulcini et al. 2010, McMurray 2011, Ferlie et al. 2012). Boundary blurring by vertical substitution can involve either mutual agreement or contested boundary disputes (Nancarrow and Borthwick 2005). Early studies on boundary blurring in the healthcare setting found that it occurs by a process of negotiation between nurses and doctors (Strauss et al. 1963, Svensson 1996). In the hospital context where rules were forgotten, stretched, negotiated and argued, social order was continually reconstituted by negotiation, or give and take (Strauss et al. 1963). Health workers were found to share, and agree

on a common goal; *"to return patients to the outside world in better shape"* (Strauss et al. 1963. p154). Negotiation occurred when there was disagreement, for example about the most appropriate treatment for a patient, or how well a patient was improving. Senior nurses were observed to bargain by negotiation face-to-face with doctors, and the social order of the hospital involved the continual termination or review of agreements and establishment of new ones. Strauss et al. (1963) concluded that the uniqueness of individual patients, and subsequent medical uncertainty, led to tailor made care, requiring agreement in cases where rules or guidelines were not appropriate.

Building on the work of Strauss et al. (1963), Svensson (1996) proposed that evolving boundaries in healthcare should be interpreted using a 'negotiated order perspective'. Svensson (1996) interviewed 45 nurses about their relationship with doctors and discovered that the cohesive nature of nursing versus the short junior doctor placements gave nurses 'knowledge of patients' that the doctors lacked. This strengthened the negotiating power of nurses regarding patient management. It also led to nurses undertaking much of the 'service work' for doctors such as organising patient referrals. Svensson (1996) found large grey areas where it was not clear who should undertake certain tasks, therefore boundaries were regularly tested. One example of this was the administration of drugs by nurses to patients following a phone conversation with a doctor, when the rules stipulated that a prescription should be signed.

In contrast to Svenssons' (1996) interview findings, Allen (1997) did not observe much face to face negotiation between nurses and doctors at occupational boundaries. She suggested that organisational 'turbulence', common in the hospital setting, makes the rigid division of labour very difficult to implement and proposed a broader approach to understanding nurse-doctor interactions; that social order is continuously accomplished rather than solely negotiated between individuals. Allen (1997) used ethnographic methods to explore inter-professional negotiation processes in the hospital setting. Her findings showed that doctors were happy for nurses to take on activities that were regarded as 'low status', or 'dirty work' as described by Hughes (1958), for example administering intravenous antibiotics, venepuncture, cannulation, and performing electrocardiograms (ECGs), however

most doctors and nurses felt that making diagnoses was the responsibility of the doctor.

Boundary blurring was an inevitable consequence of the absence of doctors in clinical practice (Allen 1997). Allen (1997) found that patient care was improved when experienced nurses made diagnostic decisions in the absence of medical colleagues. For example, nurses would ‘prescribe’ additional intravenous fluids to patients if there was no doctor present, and then request a doctor’s signature afterwards. Doctors were also found to seek advice from experienced nurses about drug dosages, and were challenged by nurses if a prescription differed from the familiar regime. They valued the knowledge and skills exhibited by experienced nurses, describing how nurses often requested appropriate drug prescriptions for patients (Allen 1997). This is an example of the informal knowledge developed by experienced nurses through extensive work in a particular healthcare setting (discussed further in section 3.4.4.1).

Historically nurses have experienced resistance by some doctors when developing advanced skills through boundary burring which can negatively impact knowledge mobilisation (Norris and Melby 2006, Pulcini et al. 2010, McMurray 2011, Ferlie et al. 2012). For example, Norris and Melby (2006) found that doctors were reluctant to allow nurses to undertake needle thoracocentesis in UK emergency departments. However, they were comfortable with nurses performing more traditional skills such as suturing. Pulcini et al. (2010) and McMurray (2011) also found opposition to ANP roles from doctors and their organisations in particular the referral and diagnostic elements of ANP work. Opposition has been attributed to role ambiguity (Barton 2006) and inter-professional competition (McMurray 2011). Medical dominance has been identified as a significant obstacle to the implementation of advanced nursing roles (Schober and Affara 2006). Similarly, Currie and White (2012) argue that occupational boundaries may pose a challenge to effective knowledge brokering, particularly by the medical profession, suggesting that this may be influenced by differences in educational training, career structure and socialisation for professional groups.

Schober and Affara (2006) put forward a number of strategies that may improve the relationship between ANPs and the medical profession. These include outlining a

clear scope of practice for the ANP role, involving key stakeholders in developing a list of competencies for the role, informing other members of the team of the services that the ANP role will offer, and arranging collaborative workshops to discuss patient cases. These collaborative workshops could contribute to inter-professional communities of practice. Similarly, other studies have identified that the most important factors in introducing the ANP role are support from medical consultants and clarity of role boundaries and clear role definition by inter-professional collaboration prior to implementing the role (Griffin and Melby 2006, Norris and Melby 2006). Barton (2006) suggests that managers and educators should be aware of the influence of professional boundary blurring on the relationship between ANPs and their medical mentors. It has been suggested that inter-professional conflict in boundary blurring may be overcome by understanding sociological theories around professionalization (Hoskins 2012).

Previous studies on boundary blurring have found that medicine has been reluctant to pass on tasks and decisions that enable them to distinguish themselves from nursing (Strauss et al. 1963, Svensson 1996, Allen 1997, Norris and Melby 2006, McMurray 2011). Those studies have either explored different health care settings to the current study, or used different data collection methods. They have focused on the distribution of clinical tasks in their exploration of boundary blurring, rather than knowledge. Little is known about knowledge mobilisation in boundary blurring between ANPs and doctors; how knowledge access is negotiated between the professions in the emergency department. The next section explores the literature related to the professional identity of nursing in order to add to the context of boundary blurring between nursing and medicine.

3.3.7.2 Professional identity of nursing

Boundary blurring involves a shift of nursing into the terrain of medicine, therefore it is important to understand how the professions of nursing and medicine have defined their roles over the years. Traditionally the nursing profession has endeavoured to differentiate its knowledge from that of medicine, with medicine maintaining clinical autonomy, and nursing embracing the concept of holistic care

(Freidson 1988, Fleming and May 1997, Britten 2001, Allen 2007, Traynor 2009). A consequence of the growth of hospital medicine was a clear hierarchy within the healthcare workforce with medicine dominating the others (Freidson 1988). Medicine remains at the apex of the organizational pyramid, with a social advantage over other occupations including nursing (Currie et al. 2008). Some argue that nurses are still perceived as 'handmaidens' and that nursing's inferior status stems from the responsibility of doctors for making a medical diagnosis (Allen 1997, Currie et al. 2008).

Medical dominance has been viewed as a significant obstacle to the implementation of advanced nursing roles (Barton 2006, Schober and Affara 2006, McMurray 2011, Schober et al. 2016). There is a tension among doctors between promoting a clinical role in the advanced nurses, and challenging the traditional authority of medicine. An ethnographic study exploring doctor's experiences of mentoring nurse practitioners (Barton 2006) found that medical mentors pass on, and therefore relinquish sole ownership of certain clinical skills. Findings revealed confusion about the professional identity of nurse practitioners; whether they were nurses, doctors, or a new emerging professional group. Medical confidence in the new role was found to grow over time as boundaries were renegotiated.

ANPs have been found to negotiate occupational spaces during their struggle to re-professionalise. An ethnographic study of ANPs in primary care identified two key factors in the emergence of such spaces, firstly service demands (poor access to health care and a shortage of doctors) and secondly a desire for greater autonomy and career progression for nurses (McMurray 2011). Despite organisational support, all participants experienced medical resistance to referring patients to hospital, with referral letters being returned with a request for a doctor to countersign. Objections were attributed to concerns over inter-occupational competition, rather than patient safety.

Professions are constructed by identifying problems, devising strategies to solve them, and adopting that work as their own (Abbott 2010). Professionalism involves having ownership of particular areas of complex knowledge, expertise, and autonomous decision-making (Davies 2002, Evetts 2003, Traynor et al. 2010b). It is common in profession building for occupations to attempt to broaden their mandate

(or conduct) in order to improve their status, however this can be met with some resistance (Allen 2007) therefore the nursing profession needs to adapt and protect its role from competitors (Ayala et al. 2014). For example, medicine has traditionally been happy to pass on ‘dirty work’ or skills they no longer want to undertake, but less keen to pass on higher-level decision-making (Hughes 1984, Allen 1997). In a review of observational studies Allen (2007) explored how the actual work of nurses compared to various claims made by the nursing profession. The review included 54 studies exploring the actions of nurses, and revealed eight bundles of nursing activity (figure 3.3.7).

Figure 3.3.7 Bundles of nursing activity (adapted from Allen, 2007)

Nursing Activity
1. Managing multiple agendas 2. Processing patient movement 3. Helping patients fit in to the organisation 4. Managing the work of others 5. Mediating occupational boundaries 6. Communicating information 7. Maintaining documentation 8. Prioritising and rationing resources

The review concluded that there was a lack of evidence on direct clinical care and nurse-patient relationships. The former was explained by a lack of studies focusing on clinical skills undertaken by nurses and the latter was explained by a gap between theory and the evidence regarding the holistic, nurse-patient relationship. It was suggested that definitions of the nursing profession should be based on an examination of the knowledge and skills that nurses actually use, rather than based on theoretical models of what nursing ought to be (Allen 2007).

Allen (2007) suggests that future research should investigate the characteristics and complexity of nursing in a range of healthcare settings in furthering nursing’s profession building, and should add to the research base for occupational claims. Similarly Traynor et al. (2010b) suggest that further research should observe nurses in everyday settings to increase our understanding of professional autonomy. In

addition to this it has been suggested that future research of nursing development should focus on areas of contact with other professions to explore how their interaction defines the profession's success and how that is affected by the success of the other professions (Ayala et al. 2014).

Nursing has traditionally distinguished itself from medicine; however, boundary blurring in the ANP role will undoubtedly impact the professional identity of nursing. It is time to rethink whether such professional distinctions are necessary or accurate in current definitions of nursing roles. It has been suggested that boundary blurring and subsequent knowledge sharing may enable less powerful professions to advance their positions (Currie and White 2012). It is therefore important to observe what nurses are actually doing in order to contribute to discussions about professional identity (Allen 2007).

3.3.8 Summary

It is clear from the literature that the ANP role is plagued by ambiguity, of title, scope of practice, educational preparation, and regulation. The development of the role globally has been driven by medical workforce shortages, unmet healthcare needs of certain patient groups, positive evaluations of the role, and a desire among nurses to progress their careers.

Changes in national policy have contributed to the development and standardisation of the ANP scope of practice and training requirements; however the professional regulators of nurses, the Nursing and Midwifery Council (NMC) have avoided taking responsibility for registering or regulating ANP practice in the UK. This lack of compulsory national regulation makes it difficult to study this expanding sub group of the nursing workforce. There is clearly a need for clarity in ANP education, which is in turn dependent on clarity about the scope of the role.

Although previous studies have explored the ANP scope of practice in other setting such as primary care there is a gap in the literature on the ANP role in the emergency department. Boundary blurring undoubtedly influences the professional identity of nursing, and the mechanisms by which nurses learn from other professions to build their knowledge and skills. The next section explores the literature related to the concept of knowledge mobilisation.

3.4 KNOWLEDGE MOBILISATION

3.4.1 Types/sources of knowledge and knowledge mobilisation

Knowledge sources can be divided into two key forms: firstly propositional, formal, theory based (such as research journals, or clinical guidelines), and secondly non-propositional, informal, from experience (Eraut 1985). It is generally believed that applying propositional research knowledge to clinical practice improves patient care, and that nurses should, make use of the best available research knowledge (Graham et al. 2006, McDonnell et al. 2013). Clinicians are more likely to use new knowledge if it is relevant to their practice and meets learning needs that they themselves have identified (Department of Health 2004), and processed by and discussed with colleagues (Gabbay and Le May 2004). One study of ANPs in England found they rely heavily on evidence that has been synthesized into guidelines, transmitted through education programmes, and deemed relevant by colleagues (Gerrish et al. 2011).

It is important to distinguish between information, knowledge, and evidence. Knowledge has been described as how the flow of information is organised, in light of the context and beliefs of the user (Nonaka 1994). Evidence is defined as knowledge that is used to argue or persuade others (Davies and Nutley 2008). Knowledge may be mobilised for a number of different purposes: it may be used conceptually (to change the way people think); instrumentally (to change practice); or persuasively (to attain power or profit) (Graham et al. 2006).

'Knowledge mobilisation' (KM) is concerned with improving the dissemination and implementation of research, and is a term used interchangeably with 'knowledge transfer', 'knowledge translation', 'knowledge exchange', and 'implementation, dissemination and diffusion' (Rowley et al. 2012, Ward 2017). The term 'research utilisation' defined as *"the use of research findings in any and all aspects of one's work* p19" (Estabrooks 1998) has been criticised for only being concerned with translating 'research' into action, ignoring other forms of knowledge (Graham et al. 2006).

Knowledge mobilisation negotiates the mess and complexity of clinical decision-making, as opposed to a linear movement of knowledge into practice (Gabbay and

Le May 2011, Greenhalgh and Wieringa 2011). In their critical literature review Greenhalgh and Wieringa (2011) discuss the limitations of the term 'knowledge translation', which they claim, implies an over-simplistic view of the research practice gap, failing to take account of its complexity. They argue that the term is underpinned by the assumptions that 'knowledge' consists of objective research findings, and 'practice' involves a set of rational decisions, which can be served by research facts. They put forward the complexity of clinical decision-making, with the recurring clinical question of *"what is it best to do, for this individual, at this time, given these particular circumstances? p505"* (Greenhalgh and Wieringa 2011). They propose that researchers of the links between knowledge and practice should take account of practical wisdom, tacit knowledge[2], power relationships, and knowledge partnerships.

Others refer to 'knowledge management' (Gabbay and Le May 2004), however Currie and White (2012) argue that this term fails to address the challenges of 'managing knowledge'. Ward (2017) defines knowledge mobilisation as *"moving knowledge to where it can be most useful p 477"*. This ambiguity of terms may provide a barrier to moving the subject of KM forward due to difficulties in understanding the processes, and reviewing the relevant literature (Straus et al. 2009a, Graham et al. 2006). Estabrooks (1998) emphasised that, despite the various terminology the motivation for researching KM must be focused on improving public health.

For the purpose of this study, the term 'knowledge mobilisation' is used in contrast to the alternative terms, as it appears to be the most appropriate for this context (Ward 2017). In the context of the emergency department, the motivation for studying knowledge mobilisation is to increase our understanding of how knowledge is produced, shared and accessed, to inform ANPs to make the best discharge decision for each patient they encounter.

The following sections synthesise the literature on how knowledge is used in clinical practice. The concepts of evidence based practice versus indeterminate knowledge,

[2] Tacit knowledge is defined as knowledge that is outside of our awareness (Spradley 1980)

are presented, followed by frameworks of knowledge mobilisation and the theory of legitimate peripheral participation in situated learning.

3.4.2 Evidence based practice versus indeterminate knowledge

Research is just one source of knowledge used in clinical practice; however, its value and issues around implementation have received much attention in the literature. In the 1970s Archie Cochrane, a British epidemiologist, promoted the development of systematic reviews, to encourage clinicians to base their decisions on the strongest available research evidence, which at the time were regarded as randomised controlled trials (Bucknall and Rycroft-Malone 2010). 'Evidence-based medicine' (EBM), defined as *"The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients"* (Sackett et al. 1996, p71) was promoted to enable doctors to keep up to date with clinical information by becoming life-long learners (Sackett and Rosenberg 1995).

EBM has faced criticism over the difficulty that clinicians have in applying the results of quantitative randomised controlled trials to clinical practice (Pope and Mays 1995, Dicenso et al. 1998, Malterud 2001b, Gabbay and Le May 2011). The push to apply research knowledge to practice has been criticised for sometimes being clinically inappropriate (Gabbay and le May 2011). It is argued that qualitative methods are more appropriate for understanding patient's experiences, attitudes and beliefs than the quantitative evidence valued highly by EBM (Dicenso et al. 1998). Malterud (2001b) claims that clinicians should recognise that scientific knowledge is not always the most appropriate information source when providing patient care. Later the term 'evidence-based nursing' (EBN) was introduced as a much broader term, encompassing other forms of knowledge as well as research, such as knowledge from colleagues, personal experience, and clinical judgement (Estabrooks 1998).

More recently the term 'evidence based practice' (EBP) emerged, to consider several factors in addition to the source of knowledge, including the clinician, context, communication, and patients (Bucknall and Rycroft-Malone 2010). EBP has been defined as a problem-solving approach to health care; integrating the best evidence, alongside clinical experience and patient preferences (Melnyk et al. 2014). In response to the EBP movement, the professions of medicine and nursing have

argued that it fails to value expertise in clinical decision-making. It is viewed as a potential threat to indeterminate knowledge, and criticised by its inability to deal with complexity (Traynor 2009). Indeterminacy (or uncertainty) requires professional judgement, or tacit knowledge gained through social processes, and is argued to be integral to medicine, in contrast to lower status technical knowledge, more often found in nursing in the form of clinical guidelines (Traynor 2009). These distinctions have also been referred to as the 'art' and 'science' of medicine (Pope 2003, Traynor 2009), and have been described by Greenhalgh (2002) as 'uneasy bedfellows' with many doctors choosing to align themselves with either clinical experience or research based practice in their clinical decision-making.

There is an ongoing debate about the most appropriate sources of knowledge to inform clinical decision-making. In light of this tension between evidence-based practice and the value of indeterminate knowledge, it is important to understand how ANPs actually use knowledge in their decision-making to facilitate access to relevant knowledge.

3.4.3 Frameworks for knowledge mobilisation

One response to the research-practice gap has been the development of various frameworks and models to guide knowledge dissemination (Graham and Tetroe 2010). Although the focus of this study of knowledge mobilisation (KM) is on knowledge users, it is important to understand how research knowledge is pushed into clinical practice and how it is viewed alongside other knowledge sources. Frameworks are summarised chronologically.

Firstly, Kitson et al. (1998) developed the 'promoting action on research implementation in health services' (PARiHS) framework, which outlined three key elements to implementation of evidence in clinical practice; evidence, context and facilitation. Each element is given a low or high rating and it is proposed that implementation is most successful when there is strong evidence, in a supportive context using effective methods of facilitation. Another model, developed by DiCenso et al. (2005) puts clinical expertise in the centre of evidence implementation, surrounded by and overlapping with four key influences; clinical context, patient's preference, healthcare resources and research evidence.

Later, Graham et al. (2006) developed a framework integrating the concepts of knowledge creation (symbolised by a funnel) and knowledge application (represented by an action cycle around the funnel). Knowledge creation or the production of knowledge, consists of inquiry, synthesis and product (such as practice guidelines), and includes research, contextual and experiential knowledge (Graham and Tetroe 2010). The funnel depicts a knowledge sieve, which filters knowledge into a more synthesised, usable form (e.g. clinical guidelines). The action cycle includes seven phases; identify problem, adapt knowledge to local context, assess barriers and facilitators, implement interventions, monitor, evaluate knowledge use, and sustain knowledge use. Boundaries between the creation and action parts of the framework are fluid and can influence each other (Graham and Tetroe 2010).These frameworks all include the elements of evidence, context and experience, however they do not provide strategies to ensure that knowledge is mobilised into practice.

A later model, normalisation process theory (NPT), considers the social processes by which new ways of working are embedded into everyday practice (May et al. 2009). It provides a set of sociological tools that can be applied to the implementation of new practices in settings such as healthcare. The theory is concerned with three core problems: implementation, embedding, and integration. In NPT a particular practice is replicated after investment by ‘agents of action’, a process that may be promoted or inhibited (May et al. 2009).

Recognising the importance of social networks in knowledge mobilisation, Rowley et al. (2012) developed an organisational learning approach, arguing that previous frameworks overlook the different perspectives of the various professionals involved. Organisational learning theory describes the generation of knowledge within the environment where it is going to be implemented, enabling co-production and making it easier to address contextual barriers and facilitators (Rowley et al. 2012). A further strategy to overcoming barriers to KM, developed by McLean and Tucker (2013) is ‘integrated knowledge translation’ (IKT). This framework involves collaborations between researchers and clinicians, in which research-users are involved in the entire research process, resulting in increased relevance and use of research. These frameworks have provided an understanding of how KM has been approached from an ‘implementation’ perspective, providing valuable insight into

factors which influence the process, such as the identification of knowledge gaps, how knowledge is synthesised, and the influence of context and social interactions.

This chronological synthesis of KM frameworks shows that newer models have taken into account clinical expertise, effectiveness of implementation, and the perspectives of knowledge users. The frameworks do not, however enable the researcher to observe what knowledge is actually being used in decision-making (Davies and Nutley 2008). Bucknall and Rycroft-Malone (2010) argue that more attention should be given to implementation and promotion of research knowledge, and recommend that those researching KM should ensure that research is applied to improving clinical practice and health. It has been suggested that future KM research should focus on the decisions nurses make in order to explore how knowledge is being used (Thompson et al. 2005). The current study does this by observing discharge decision-making by ANPs in the ED.

3.4.4 Knowledge-use in healthcare practice

The evidence based practice (EBP) movement has focused heavily on improving research uptake, arguing that clinical decision-making should involve the appraisal and application of relevant research findings (Melnyk et al. 2014). However in reality it has been found that clinical decisions are informed by many other types of knowledge (Gabbay and Le May 2004), and are influenced by value judgements and clinical uncertainty (Bucknall et al, 2008).

Previous studies, using questionnaires have found that nurses access knowledge from a wide range of sources, including patients and other professionals, local policies and procedures, in-house training courses/conferences, newly prescribed treatments, nurse-training, intuition, journal articles, audit reports, textbooks, clinical experience, information from the internet and the media (Estabrooks 1998, Gerrish et al. 2008). The next two sections will describe how formal and informal knowledge are applied to clinical decision-making.

3.4.4.1 Informal knowledge

The term ‘informal knowledge’ describes knowledge from practical and contextual experience (tacit knowledge), and advice from colleagues. Tacit knowledge has

been described as knowledge that is outside of our awareness, or non-propositional (Spradley 1980, Eraut 1985). Previous studies have found that tacit knowledge is important in clinical decision-making (Estabrooks 1998, Gabbay and Le May 2004, Gerrish et al. 2012).

Despite a push for EBM, Sackett et al. (1996) recognise that clinical expertise is essential alongside external evidence, as without expertise the evidence may be inapplicable and inappropriate for an individual patient. Gerrish et al. (2008) used survey data to explore the factors influencing evidence-based practice in junior and senior nurses in the UK. They found that nurses relied heavily on personal experience and communication with colleagues, rather than formal sources of knowledge. These findings were similar to those of Estabrooks (1998) who found that a large proportion of the knowledge used by nurses is not based on scientific research findings. Gabbay and Le May (2004) also found that the most common source of knowledge used in decision-making in primary care was socially constructed tacit 'knowledge in practice'; informed by experience and interactions with colleagues, patients, and drug representatives.

Indeterminate knowledge is tacit knowledge used to make decisions in situations of uncertainty (Traynor 2009), used particularly by expert clinicians (Greenhalgh, 2014). This is not a new concept, as Benner (1996) recognised the value of clinical judgement in experienced nurses, in contrast to scientific theoretical reasoning, observing that judgements made by experienced nurses were based on knowledge of many previous patients in similar situations. A more recent study by Traynor et al. (2010b) found that, in light of the changing context of healthcare, clinical judgements are largely based on intuition; however those judgements are tempered by more technical, formal explanations. Greenhalgh et al. (2014) discuss the difference between novice clinicians, who work methodically towards a diagnosis and experts who, in contrast make rapid differential diagnoses based on intuition.

Previous studies have highlighted the influence of social networks of trusted colleagues on knowledge access by nurses (Lave and Wenger 1991, Gerrish et al. 2008, Gabbay and Le May 2011, Currie and White 2012). Specialist nurses and other colleagues have been identified as important knowledge sources in decision-making by ward nurses, offering a knowledge translation function (Thompson et al.

2001). Nurses have also been found to access knowledge from more experienced colleagues, rather than search for research or guidelines (Gerrish et al. 2008). Gabbay and Le May (2011) found that storytelling during informal discussions was a common method of sharing knowledge; however they warn that stories should be received with caution, as they are also an easy way to spread misinformation. They argue that the skill of the clinician should be to learn from the knowledge of trusted colleagues. In addition to face-to-face support from colleagues, there is also a move towards the use of social media in sharing and accessing knowledge between colleagues. Greenhalgh et al. (2011) suggest that secure social networking sites may be important in developing the clinical mindlines of clinicians.

One process by which knowledge is mobilised between colleagues in clinical decision-making is by knowledge sharing or brokering. 'Knowledge brokering' has been defined in organisational literature as *"the translation of knowledge in the course of day to day professional practice"* (Currie and White 2012, p1335), and has been described as either external or internal. External knowledge brokering refers to the brokering of formal knowledge from outside the organisation, for example research, or best practice from another organisation; and internal brokering relates to practice-based, tacit knowledge, occurring in real time as participants develop a shared understanding about their practice (Currie and White 2012). Some organisations have introduced a formal role of knowledge broker to improve the communication between researchers and practitioners, building relationships between key stakeholders (Dobbins et al. 2009). This literature gives insight into how, in new roles, knowledge is shared or internally brokered across professional boundaries.

Further informal knowledge sources described in the literature are those gained from the local context. For example, knowledge about the organisational culture, professional networks, feedback from colleagues and formal sources such as local policy audit data, and clinical practice guidelines (Rycroft-Malone et al. 2004). Patients and carers have also been identified as important knowledge sources, and their preferences regarded as central to evidence based decision-making (Sigma Theta Tau International 2008).

Some caution should be taken when relying on informal knowledge alone during clinical decision-making. Popper (2002) argues that intuition or tacit knowledge may show us things very clearly, but conversely may also lead us to make mistakes. Similarly, intuition has been identified as an appropriate and desirable response for decision-making, however should not be relied upon alone, especially in situations of uncertainty (Thompson 2009).

Little is known about who clinicians prefer to ask for advice, and how networks are accessed. It has been suggested that future research should look at the qualities and roles of people regarded as 'clinically important information agents' (Thompson et al. 2001, Gerrish et al. 2008); and the use of local knowledge by clinicians, and how it is integrated with other knowledge (Rycroft-Malone et al. 2004). Greenhalgh et al (2014) suggest that clinical training must include the development of expert judgment and shared decision-making skills.

3.4.4.2 Formal knowledge and new technology

Formal knowledge comes from training courses, guidelines and research (Eraut 1985). As presented in section 3.4.2 the application of evidence-based guidelines in healthcare decision-making has been promoted over the past 20 years (Sackett and Rosenberg 1995). Barriers to the use of formal knowledge to clinical practice include the unmanageable volume of evidence, and the lack of relevance in cases of complex multi-morbidity (Greenhalgh et al. 2014). It has also been found that such knowledge potentially becomes very old and very quickly out of date (Estabrooks 1998, Rycroft-Malone et al. 2004). However more recently, internet technology has provided nurses with a vast access to knowledge, ranging from research journals and national guidelines to opinion-based blogs. Previously nurses were found rarely to use online databases as sources of information (Thompson et al. 2001). However, a recent cross-sectional survey revealed that nurses have good access to online databases, including evidence-based guidelines (Veeramah 2016).

Despite a plethora of formal knowledge sources and their support by the EBM movement, barriers to their application into clinical practice have been identified. These include lack of time, lack of confidence in critical appraisal, lack of authority to implement findings, organisational constraints, lack of support by colleagues, lack of

access to research, and lack of relevant evidence (Funk et al. 1991, Hutchinson and Johnston 2006, Gerrish et al. 2008, Rowley et al. 2012). It is also recognised that research knowledge does not provide absolute certainty, and is unlikely to be used in practice if it is merely presented to clinical practitioners (Rycroft-Malone et al. 2004). Dissonance between research evidence and clinical experience may also reduce the uptake of research knowledge, and the experiences of patients may contrast with research 'best practice' (Rycroft-Malone et al. 2004). Another barrier to the application of formal knowledge has been identified as a lack of standardised educational preparation (Lloyd-Rees 2016).

Recent developments have enabled nurses to use smartphone applications (apps) in their clinical decision-making. There are over 100,000 medical apps available (Kamerow 2013). They offer a convenient way for nurses to access emails, journals, drug formularies, clinical decision tools and medical calculators (Wyatt and Krauskop 2012, Moore and Jayewardene 2014). It has been suggested that medical smartphone apps have the potential to change the way healthcare professionals deliver evidence-based practice in the future (Buijink et al. 2013). A recent scoping review highlighted that little research has explored the use of smartphones by nurses in decision-making (Dexheimer and Borycki 2015).

There have been some reservations to the use of smartphones in healthcare organisations. One New Zealand study found that nurse managers had concerns about the professional and ethical use of such devices (McNally et al. 2017). Others worry about the lack of national regulation of smartphone apps (Wyatt and Krauskop 2012, Buijink et al. 2013, Moore and Jayewardene 2014). One study suggested that healthcare providers need to take responsibility for ensuring that apps meet quality standards, are accurate and current (Wyatt and Krauskop 2012). Buijink et al (2013) argue that regulation of apps is urgently needed to ensure patient safety, particularly when they are used to make decisions about diagnosis and management. They propose that it would be useful for government health authorities to provide a certificate guaranteeing quality. Another study identified how nurses undertake their own informal risk assessment, by comparing smartphone tools with known protocols, and using apps that have been recommended (Moore and Jayewardene 2014). They warn that this informal risk assessment by clinicians will be necessary in practice,

until smartphone apps are regulated or officially risk assessed and approved by organisations.

The literature has revealed a plethora of knowledge sources available to nurses. The challenge for researchers is to identify what sources are being chosen, and how they are being used to make clinical decisions (Rycroft-Malone et al. 2004, Thompson et al. 2008). Studies have revealed the benefits and challenges of formal and informal sources of knowledge, however they have not explored how ANPs use knowledge in the ED. The current study does this by focusing on knowledge mobilisation in discharge decision-making.

3.4.5 Legitimate peripheral participation and situated learning in communities of practice

Learning from colleagues in clinical practice is an important aspect of knowledge mobilisation. In boundary blurring by vertical substitution the more powerful professions often share their knowledge with those who are expanding their roles (Nancarrow and Borthwick 2005). One mechanism by which this occurs is by 'situated learning' in which learning takes place by participation in communities of practice (Lave and Wenger 1991). Ferlie et al. (2012) define communities of practice as:

"Groups of people who, through working together, develop into a cohesive work community with mutual understandings p1304."

Lave and Wenger (1991) developed the theory of 'legitimate peripheral participation' to help understand learning, by incorporating the social practices involved in 'situated (or apprentice style) learning' (Lave and Wenger 1991). A member's position in the community of practice will lead to empowerment or disempowerment dependent on whether their participation is more or less peripheral and how their professional identities are constructed (Lave and Wenger 1991). Lave and Wenger (1991) recognised three key concepts that were evident during situated learning in everyday situations: 'changes in professional identity, 'knowledge in practice' and 'communities of practice'. Mann (2011) describes situated learning as both individual and collective, occurring within a community, with people and artefacts as resources, allowing for the acquisition of experiential and more formal knowledge.

The term ‘community of practice’ was originally coined by Lave and Wenger (1991), who proposed that learning involves a complex interaction between novice and expert during a process of socialisation. Wenger (1998) defined three elements to ‘communities of practice’: joint enterprise, mutual engagement, and the sharing of resources, experiences, tools, and practice. The term was later redefined as:

“Groups of people who share a concern, a set of problems or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis... These people don’t necessarily work together on a day-to-day basis, but they get together because they find value in their interactions, as they spend time together, they typically share information, insight, and advice. They solve problems. They think about common issues. They explore ideas and act as sounding boards to each other. They may create tools, standards, generic designs, manuals, and other documents; they may just keep what they know as a tacit understanding they share... Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice.” (Wenger 2002, p4-5).

The position of learners in a community of practice is initially legitimately peripheral, but moves to full membership as new knowledge and skills are developed (Lave and Wenger 1991).

3.4.5.1 Communities of practice in knowledge mobilisation

Knowledge mobilisation is much more complex than a simple choice of evidence versus experience, and formal versus informal knowledge. Several authors have emphasised the value of communities of practice to learning in the healthcare context (Goodwin et al. 2005, Li et al. 2009, Gabbay and Le May 2011, Mann 2011, Ranmuthugala et al. 2011). Some have used ethnographic methods to explore communities of practice (Goodwin et al. 2005, Gabbay and Le May 2004). Gabbay and Le May (2004) used ethnography to explore how individual and collective healthcare decisions are derived in primary care. They were motivated by their concerns about the disconnect between evidence based practice and the ‘*messy world of clinical practice’* (Gabbay and Le May 2011, p5). Their participants included

nine GPs, three practice nurses and one phlebotomist, along with associated medical staff. They found that clinicians rarely accessed formal knowledge from research or guidelines, but relied on 'clinical mindlines'; a term they developed to describe the complex accumulation and processing of knowledge by GPs and nurses in primary care in their decision-making. Clinical mindlines are defined as:

"Collectively reinforced, internalised tacit guidelines, which were informed by brief reading, but mainly by their interactions with each other and with opinion leaders, patients and pharmaceutical representatives and by other sources of largely tacit knowledge that built on early training and their own and colleagues experience" (Gabbay and Le May 2004, p329).

Gabbay and Le May (2004) observed how clinicians developed collective mindlines via communities of practice who shared practical interests, problems and passions and talked informally to each other as a way of sharing knowledge. They found that individual clinical mindlines were further developed through sharing and checking new knowledge with trusted colleagues through a community of practice. Clinical mindlines describe a complex network of knowledge, which clinicians access through teaching or training sessions, experience, patients' views, colleagues, drug representatives, local and central guidelines, opinion leaders, journals, media, and textbooks (Gabbay and Le May 2011). These mindlines are not formed individually, but are collectively constructed, refined and modified through interactions with colleagues, local experts, and patients (Gabbay and Le May 2004). Mindlines are more flexible and complex than formal guidelines and can be called upon instantaneously (Gabbay and Le May 2011). A systematic review revealed that other studies have used the theory of clinical mindlines in a number of ways; to describe why clinicians rarely use formal clinical guidelines, to discuss theoretical and philosophical concepts, and to propose methods of improving evidence based practice (Wieringa and Greenhalgh 2015).

Gabbay and Le May (2004) state that clinicians need to make sense of knowledge both individually and/or collectively before it is incorporated into routine clinical practice termed 'knowledge in practice'. Their findings built on previous research by Nonaka (1994), who proposed that new information is made contextually meaningful by a process of socialisation, externalisation, combination, and internalisation

(SECI), during which new knowledge is combined with existing knowledge before it is used.

In their ethnographic study of anaesthetic practice, Goodwin et al. (2005) identify how the structure of clinical work influences the availability of knowledge resources. They studied anaesthetists, operating department practitioners (ODPs) and nurses. On one occasion, they observed an ODP making decisions based on their knowledge of a patient; however the doctor exhibited greater knowledge of the patient, gained from a pre-operative visit at which the ODP was not present. They found that the position of ODPs and nurses in the community of practice is capped, due to their limited resources, particularly related to prescribing and diagnosis. They argue that boundary blurring was unsupported due to the organisational constraints on their scope of practice (Goodwin et al. 2005).

Characteristics of communities of practice include social interaction, knowledge sharing, knowledge creation, and identity building (Li et al. 2009). The purpose of establishing communities of practice are to share knowledge, and change clinical practice (Ranmuthugala et al. 2011). They either are set up formally or operate informally, with the common aim of improving practice and the exchange of knowledge. The benefits of naturally occurring communities of practice have been exploited by formally developing them for the purpose of translating knowledge into action (Ranmuthugala et al. 2011). For example, communities of practice can be specifically developed to facilitate the implementation of innovations by co-production (Rowley et al. 2012).

In their systematic review, Ranmuthugala et al. (2011) found the most common method of interaction in communities of practice was by face-to-face contact, closely followed by email and web-based systems. They concluded that communities of practice might have a role in improving healthcare performance. They suggest that understanding the barriers and facilitators of a particular community of practice will maximise their potential, recognising that factors will be unique to each community of practice, so a facilitator of one community of practice may be a barrier for another. The role of communities of practice was found to be diverse, including gaining post-registration competencies, breaking down professional and organisational barriers, and sharing knowledge.

Most of the literature on communities of practice has focused on the intra-professional acquisition of knowledge and skills (Mann 2011). One challenge related to inter-professional knowledge sharing is how to connect disparate communities of practice within organisations (Currie and White 2012). This is particularly important in vertical boundary blurring between professions with unequal power relations (Nancarrow and Borthwick 2005). Confidence in undertaking advanced roles has been associated with opportunities for training (Maddox et al. 2016). In their qualitative study exploring factors influencing nurses' and pharmacists' willingness to take responsibility for prescribing, Maddox et al. (2016) found a lack of confidence was associated with a lack of opportunities for training, and to debrief with their supervisors after treating patients. The authors emphasise the importance of clinical supervision, and an improved team culture, in increasing the confidence of non-medical prescribers.

Previous studies have revealed that knowledge mobilisation is complex; however this needs to be explored in other healthcare contexts (Gabbay and Le May 2011). There is a gap in the literature on how ANPs use formal and informal knowledge in their clinical decision-making, in light of their boundary blurring role. Currie and White (2012) argue that internal knowledge brokering has been under-researched, and suggest more studies should explore this in the institutional context. Little is known about inter-professional communities of practice in the emergency department. The current study explores the social interactions involved in knowledge mobilisation in discharge decision-making.

3.4.5.2 Capoeira as a metaphor for legitimate peripheral participation

One study identified from the literature review used ethnography to explore how learning takes place by situated learning in the Brazilian martial art Capoeira (Stephens and Delamont 2010). Capoeira was found to display situated learning by legitimate peripheral participation and the development of indeterminate knowledge.

Capoeira is a combination of a dance, a fight and a game, in which participants stand in a circle, known as a roda, where some play instruments, others sing or clap, and two members meet in the centre of the circle to fight (Stephens and Delamont 2010). African slaves in Brazil used Capoeira to develop their survival skills,

therefore the fight is disguised by dance. Stephens and Delamont (2010) found that members initially stand on the edge of the roda, observing the game of capoeira as legitimate peripheral participants, then move towards full participation by observing the masters closely, understanding the rules of the game, and occasionally engaging in capoeira with more experienced participants. To become a master takes at least 20 years, emphasizing the importance of developing indeterminate knowledge through experience (Stephens and Delamont 2010). The interactions observed during the learning of Capoeira can be translated (as a metaphor) to situated learning by ANPs in the ED setting.

3.4.6 Summary

The study of knowledge mobilisation in healthcare is concerned with bridging the knowledge-to-action gap. Over the past few years, health care researchers have endeavoured to find the best ways to support clinicians in their use of relevant knowledge in decision-making, however less is known about how knowledge is used by clinicians in practice, and few have used ethnography to study knowledge mobilisation in the clinical setting. Previous studies have identified the wide range of informal and formal sources of knowledge used in clinical decision-making, and the tension between the promotion of research in healthcare decision-making and the observation in reality that decisions are complex, therefore not likely to fit into specific guidelines.

Situated learning in clinical practice and other settings has been described using the notion of legitimate peripheral participation in communities of practice. This concept has not been explored in decision-making by ANPs in the ED. Knowledge mobilisation in primary care has been described using the theory of clinical mindlines, however there is a need to study it in other contexts as they may differ. For example, other settings may exhibit very little communication between clinicians, and a strong reliance on clinical guidelines.

3.5 THEORETICAL FRAMEWORK

Based on the narrative review, a theoretical framework was developed (see table 3.5), providing a useful lens by which to conduct the study and interpret the findings (Wa-Mbaleka 2017). This framework enabled the researcher to remain mindful of the social context of knowledge mobilisation (Gabbay and Le May 2011), the impact of inter-professional boundary blurring (Svensson 1996, Allen 1997) and the role of communities of practice in situated learning (Lave and Wenger 1991).

Table 3.5 Theoretical framework

Theory	**Description**	**Reason for selection**
Clinical mindlines/knowledge in practice (Gabbay and Le May 2004, Gabbay and Le May 2011, Wieringa and Greenhalgh 2015, Greenhalgh and Wieringa 2011).	Clinical mindlines are *"collectively reinforced, internalised tacit guidelines, which were informed by brief reading, but mainly by their interactions with others and by other sources of largely tacit knowledge that built on early training and their own and colleagues experience"* (Gabbay and Le May 2004).	This theory influenced the study design and provided insight into the challenges of knowledge mobilisation (KM) in complex healthcare settings.
Boundary blurring (Strauss et al. 1963, Svensson 1996, Allen 1997, Nancarrow and Borthwick 2005).	Boundary blurring has previously been found to take place by processes of negotiation. This is useful in understanding nurse- doctor interactions and the formal division of labour between nursing and medicine.	This literature provided an understanding of the impact of inter-professional boundary blurring on knowledge mobilisation.
Legitimate peripheral participation (LPP) (Lave and Wenger 1991, Wenger 2002, Ranmuthugala et al. 2011).	Lave and Wenger (1991) argue that learning takes place by participation in communities of practice. Members are initially legitimately peripheral, but move to full participation as new knowledge and skills are developed.	LPP provides insight into how ANPs move towards full participation through situated learning in communities of practice.

3.6 CHAPTER SUMMARY

This narrative literature review has informed the background to the study, providing a context to emergency care in the UK, the implementation of the ANP role, and models of knowledge mobilisation. The ED in the UK is experiencing significant pressure from an aging population and subsequent increase in long-term conditions, alongside medical and nursing workforce shortages, and waiting time targets. One solution to improving patient access to emergency care is the introduction of the ANP role. The role is characterised by ambiguity of title, scope of practice and education. This is partly a consequence of a lack of national regulation of the role and the unique challenges associated with inter-professional boundary blurring.

Boundary blurring has been discussed in relation to how the ANP scope of practice is negotiated and the resistance put forward by medicine. One consequence of boundary blurring is knowledge gaps, as the ANP role requires further knowledge beyond basic training. Knowledge mobilisation (KM) research aims to close the knowledge to practice gap. Previous researchers have developed models and frameworks to aid implementation of research into practice, however these are less useful in the current study which is exploring KM from the knowledge-users' perspective. Few have explored how knowledge is actually used by nurses, or how it is mobilised across professional boundaries.

The concept of 'clinical mindlines' has revealed that knowledge is collectively constructed, context-specific, and influenced by local organisational constraints. Such an exploration of KM has not been performed in an ED, or with ANPs. Legitimate peripheral participation is used to describe the movement of members from the periphery to a more central position in communities of practice as knowledge and skills develop through situated learning.

3.6.1 Research question

This review has provided a background to the study, and highlighted the gap in the literature. The following research question was developed; *'How is knowledge mobilised in discharge decision-making by ANPs in the ED?'* The next chapter describes the ethnographic approach that has been used to answer this question.

CHAPTER 4 METHODOLOGY AND METHODS

4.1 INTRODUCTION

This study explores knowledge mobilisation (KM) focusing on how knowledge is moved to where it is most useful in influencing discharge decisions in the context and beliefs of the users, ANPs (Nonaka 1994, Davies and Nutley 2008, Ward 2017). The literature has provided a lens by which to explore the research question *'How is knowledge mobilised in discharge decision-making by ANPs in the ED?*'

In this chapter the research design, aim and objectives are presented first. Followed by a description of the underpinning philosophy and ethnographic methodology. Then the research methods and ethical considerations are outlined.

4.1.1 Research design

This study used the ethnographic data collection methods of observation and semi-structured interviews over a ten-month period. Five ANPs were shadowed in their day-to-day clinical work and interviewed one to one. Senior clinicians (ED consultants and senior nurses) identified as having knowledge of the ANP role in the ED context or influencing knowledge mobilisation in discharge decision-making were also interviewed. The setting for the study was an emergency department (ED) in the North of England, UK. Data was analysed thematically and a theoretical framework was used to interpret the findings.

4.1.1 Aim and Objectives

As a reminder, the aim of this study was to explore knowledge mobilisation in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED). The objectives were:

- To understand the ED context, including the reasons for implementing the ANP role, the discharge pressures, and the scope of the ANP role in discharging patients from the ED.
- To explore knowledge mobilisation; how knowledge was produced, shared, and accessed in discharge decision-making by ANPs in the ED.
- To explore any barriers and facilitators to knowledge mobilisation by ANPs.

4.2 PHILOSOPHY

This section sets out the ontological and epistemological approaches taken in this study to understand the social world of advanced nurse practitioners (ANPs) in the emergency department (ED) (Ritchie et al. 2014). 'Ontology' describes how we understand the nature of reality, or the social world (Creswell 2013a, Ritchie et al. 2014). This study is embedded in a ***subtle realist*** ontological perspective (Hammersley 1992, Ritchie et al. 2014). In subtle realism it is argued that neither realism nor relativism alone offer adequate theoretical bases for ethnographic study (Hammersley 1992). An external reality is believed to exist, made known to the researcher by the *socially constructed* meanings of participants; therefore, this perspective contains some aspects of realism and some of constructivism (Ritchie et al. 2014). This study has sought to explore how participants experience knowledge mobilisation in discharge decision-making, by constructing an understanding of their accounts through the collection and interpretation of the data (Hammersley 1992).

Epistemology is concerned with how we learn about the social world, and the basis of that knowledge (Ritchie et al. 2014). To some extent, epistemology is at the heart of this thesis, as the aim of the study is to understand how ANPs come to 'know' about discharge decisions. Therefore, the nature of knowledge and knowledge mobilisation have been discussed in more depth in sections 2.4, and 3.4. In order to understand the subjective experiences of participants this study adopts an interpretivist stance (Creswell 2013a). This means both the participants' and the researcher's interpretations of the social world are taken into account in this study by combining non-participant observation and semi-structured interviews (Ritchie et al. 2014).

4.3 ETHNOGRAPHIC METHODOLOGY

An ethnographic methodology was used to explore how knowledge is mobilised in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED). Anthropologists initially used ethnography in the late nineteenth century, and it was later adopted by sociologists, to study social systems by immersion in the culture and social practices of participants (Spradley 1980, Hammersley and Atkinson 2007). In ethnography, generally the researcher observes

the daily lives of participants for an extended period of time (Hammersley and Atkinson 2007). Spradley (1980) describes ethnographic research as a cycle that includes setting research questions, collecting data, writing and analysing field notes, and writing up. New questions emerge from the analysis and the cycle is repeated. Ethnography not only refers to the research methods, but also the product; the written account (Fetterman 2010). It is a methodology often used to study and give voice to disadvantaged groups (Dixon-Woods 2003), and has been recommended for the study of clinical decision-making, where choices are made between using formal and informal knowledge sources (Greenhalgh and Wieringa 2011). In this study, the researcher was also working as an ANP in primary care, and was therefore aware of some of the associated challenges. This placed the researcher in a good position to observe, interpret and give voice to the experiences of participants (discussed further in the reflective account in section 4.6.7).

4.3.1 Strengths of Ethnography

The strength of ethnography lies in the opportunity to explore complex social interactions (Allen 2007, Hammersley 1992). This research methodology was chosen for several reasons. Firstly, it provides rich, in-depth data, in context, as opposed to the more structured data collection of surveys and quantitative methods, where it has been argued, the researcher imposes their own assumptions about the culture being studied. In ethnography the researcher is open to new knowledge and understanding that challenges prior assumptions and beliefs (Hammersley 1992). Secondly, ethnography allows the combination and triangulation of qualitative methods; in this study observation and interviews. This makes it possible to explore complex attitudes and behaviours that may be missed using observation or interviews alone (Hammersley 1992, Allen 1997, Allen 2007). Finally, other research methods are less able to explore the impact of group interaction on the behaviour of participants, which is a crucial objective of this study (Hammersley 1992, Gabbay and Le May 2004). Ethnography has been found to be particularly useful in understanding issues in the healthcare setting; to explore what is actually happening in reality, rather than what is said to occur (Allen 2007, Gabbay and Le May 2011). Previous studies have used ethnographic methods to explore healthcare settings (Allen 1997, Gabbay and Le May 2004, Schober et al. 2016) but none has focused on the ANP role and knowledge mobilisation in discharge decision-making in the ED.

The methods for data collection in this study are similar to those used by Gabbay and Le May (2004) in their study of GPs and practice nurses in primary care. They used ethnographic methods of observation and interview. Ethnography has been found to be particularly useful in researching activities of communities of practice (Greenhalgh and Wieringa 2011).

In their systematic review and discussion of the use of clinical mindlines in research, Wieringa and Greenhalgh (2015) argue that knowledge creation is organic, so cannot be controlled. The challenge for this study, therefore, was not to prescribe the optimal methods of knowledge creation and translation, but to collect data in order to describe how knowledge is currently being produced, shared, and accessed in discharge decision-making by ANPs. Then, from the findings, propose how knowledge mobilisation, might be facilitated to emerge and evolve (Greenhalgh and Wieringa 2011). Ethnographic methods of observation and interviews were chosen as the best approach to achieving this.

4.3.2 Observational data collection

Observational fieldwork was chosen as the principal method of data collection. Allen (1997) argues it is an essential method in developing a sociological understanding of the negotiation of social orders in healthcare. Participant observation, pioneered by the anthropologist Malinowski, is the core data collection method in ethnography; allowing the researcher to become immersed in the community they are studying (Fetterman 2010, Ritchie et al. 2014). Observational data can improve our understanding of knowledge about particular professional groups that is embedded in clinical practice and social interactions (Fry et al. 2017). It provides rich data on the actions, routines and rituals of participants, providing a deeper understanding than that gained from interview data (Ritchie et al. 2014).

Observational fieldwork can be undertaken in a variety of ways. Fry et al. (2017) distinguish between the participant observer (who undertakes the role being researched), and non- participant observer (who observes the scene without active involvement). Previously Gold (1958) described four observational roles; complete participant, participant as observer, observer as participant, and complete observer (non-participant). Advantages of being a non-participant observer, rather than a

complete participant are that a complete participant may be too immersed in the setting, less able to detach and view it as a 'learner' (Schatzman and Strauss 1973). Although, by these definitions, the chosen method would be as a non-participant observer it was apparent that this definition lacked a true sense of the researcher's involvement. Wind (2008) argues that the term 'non-participant' in observing the clinical setting fails to take account of the negotiated interaction, and the sensitivity and openness that the ethnographer brings to the field, so describes the role as 'negotiated interactive observation'. This more accurately describes observational data collection in this study as it includes the interaction of the researcher with the participants in clarifying how knowledge is accessed in discharge decision-making in the field. Observations enable the in-depth exploration of the social interactions involved in discharge decision-making by ANPs in their natural work setting.

Initial observations usually describe the setting (equipment, noise levels, and posters), people (numbers, appearance, and mood), and activities (work, discussions, and team interactions). It is important as a researcher to try to appreciate all events, which may not be noticed by those who work in the setting, due to established routines (Schatzman and Strauss 1973). An important part of the initial observation phase is to explore factors that may influence further data collection and sampling, for example anxiety in participants who may be less keen to be observed. It also provides the opportunity to ascertain how closely to stand to participants without getting in the way, and how often to ask them questions about observations (Schatzman and Strauss 1973).

One of the challenges of observational fieldwork is that practical knowledge is embedded into clinical work and is not easily articulated; therefore, nurses may not always be able to identify where their knowledge has come from in making a decision (Benner 1984, Rowley et al. 2012). The difficulty in identifying sources of knowledge used by clinicians in decision-making has been highlighted by previous studies, as those decisions or actions may have become instinctive and not explicit (Gabbay and Le May 2011). It has been suggested that participants may need to be encouraged by the researcher to explain, or recall the source of their knowledge, or give more detail so the source can be inferred (Benner 1984, Eraut 2000).

4.3.3 Interview data collection

It is common in ethnography to undertake interviews alongside observational fieldwork (Allen 1997) in order to understand participants' interpretations of their experiences, which cannot be explored by observation alone (Ritchie et al. 2014). Semi-structured interviews, using open-ended questions achieve breadth across key issues and depth within issues (Ritchie et al. 2014). They allow the interviewee or interviewer to diverge from the subject, or to pursue a topic in more detail (Pope and Mays 2006).

Although face-to-face interviews are more time-consuming than telephone interviews, the benefits include the opportunity to observe non-verbal communication, detecting any distress or anxiety, and to probe further in response to facial cues (Tod 2010, Ritchie et al. 2014). Interviews can be structured using three types of questions: main (from the interview topic guide), follow-up (to gain more detail) and probes to clarify or expand an answer (Rubin and Rubin 2004). However, it is usual in ethnography for discussion to flow in a more natural way: to have a list of issues to be covered, but not to have set questions (Hammersley and Atkinson 2007). Despite the use of an interview topic guide (Appendix 6), the questions lead to unstructured conversations; therefore, although this method of interview is described as semi-structured it allowed for in-depth exploration of the topic. Certain skills are important in undertaking a successful interview, including active listening, trying to understand meaning and probe for further understanding, and asking questions that follow on from what has been said (Hammersley and Atkinson 2007).

Semi structured interviews allow for a deeper understanding and clarification of the experiences of ANPs in knowledge mobilisation in discharge decision-making, which cannot be gained by observation alone. They also provide opportunities for understanding the context of the ED and the involvement of other healthcare professionals in the processes of knowledge mobilisation.

4.4 METHODS

The first objectives of this study were to understand the context in which the ANPs work, including their scope of practice. It is important in ethnography to gain a rich understanding of context (Spradley 1980). This was achieved by reading broadly and visiting the setting prior to commencing data collection. The next objectives were to explore knowledge mobilisation by ANPs, and factors that influenced those processes. Data collection focused on the social processes affecting knowledge mobilisation in the decision to 'discharge' patients from the ED (including discharge into the community, hospital admission or transfer to an alternative care environment). The processes involved in mobilising both explicit and tacit knowledge were revealed through observation and semi-structured interviews (Spradley 1980). Observational field notes were made and interviews were transcribed verbatim using Microsoft word. Data was analysed thematically and organised into themes using Quirkos software (Turner 2004). Quirkos was used instead of other computer assisted qualitative data analysis software (CAQDAS) packages, as it was found to be easy to use, and visually intuitive. An inductive approach to analysis was taken; looking for patterns in observational field notes and interview transcripts, and generating conclusions (Ritchie et al. 2014).

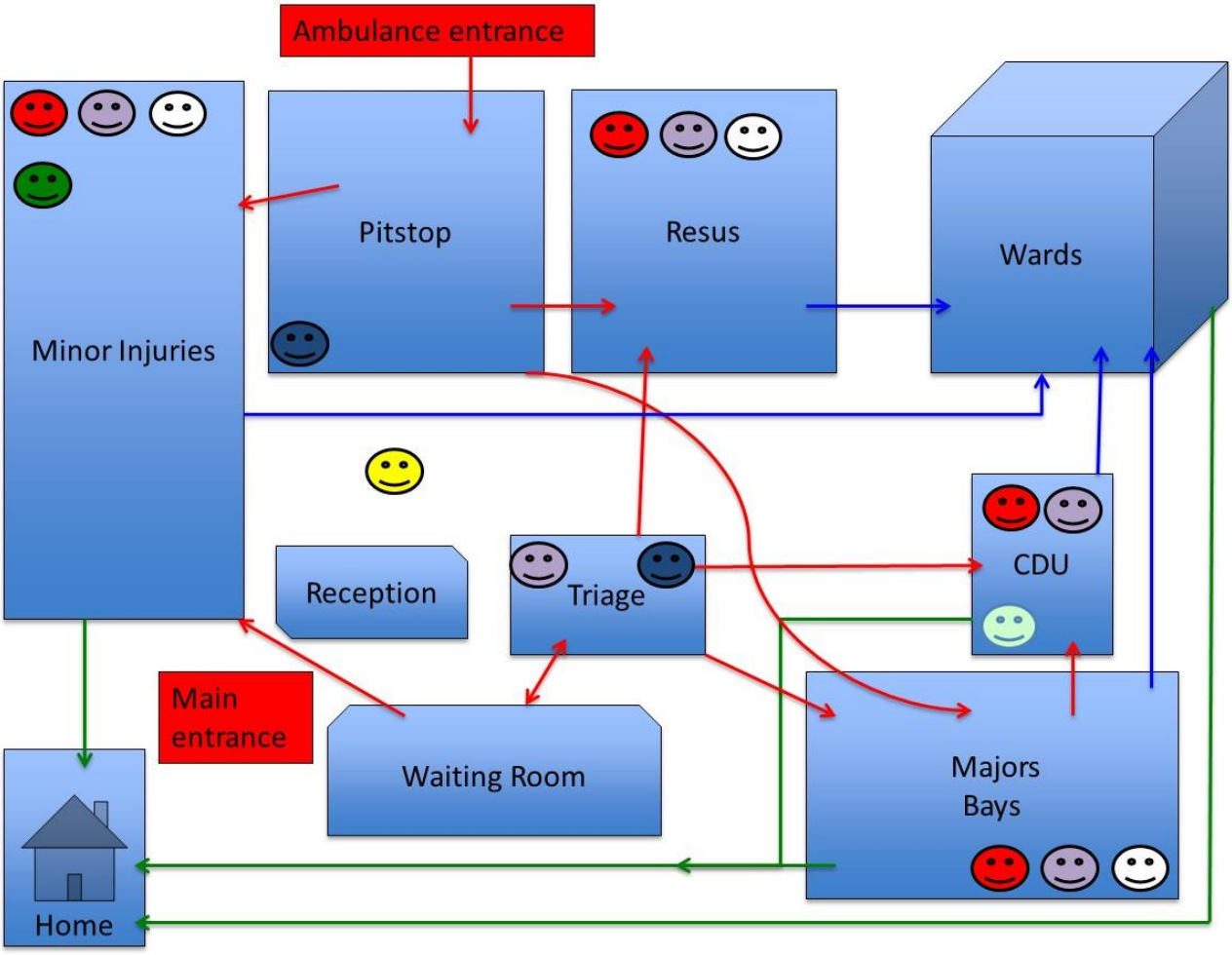
4.4.1 Setting

The study was undertaken in a large South Yorkshire teaching hospital ED, treating adults only. This hospital was chosen as it had implemented the ANP role. Discussions with stakeholders indicated support for the project to be undertaken in that particular department. Ethnographic research requires a detailed description of the context in order for the reader to evaluate the relevance of the findings. This section describes the ED layout (see figure 4.4.1), and the different healthcare professionals working in the department (table 4.4.1). ANPs in this ED experienced the contextual pressures of bed shortages and waiting time targets, which influenced the need for timely appropriate discharge decision-making. There was an organisational drive for discharge decisions to be made quickly in order to minimise the penalties incurred through failing to meet national waiting time targets.

The strength of ethnography lies in the rich data that is collected by spending time in the context of participants. It is therefore important for the reader to be able to visualise the layout of the ED. This section therefore provides a detailed overview of the ED by describing the layout of the department and the patient journey options from attendance to discharge. A summary of professionals working in the ED is presented in table 4.4.1. The diagram below (figure 4.4.1) illustrates the different areas of the ED, the clinicians who work there (see key for roles), and the flow of patients (illustrated by coloured arrows) from attendance to discharge; either home (or another community setting) or to a hospital ward.

The focus of this doctoral study is discharge decision making by ANPs in the ED. As ED environments are extremely complex, a detailed presentation of the ED setting is provided here in order to explain the context and decisions related to the study design. In order to provide such a description knowledge generated from the study data is drawn upon. This is an unusual approach to take, as normally a detailed description of the study setting, drawing on data interpretation, would preface the study findings. In order for the reader to understand the design decisions this detail about the setting is located here, in the methods chapter. Examples of data which have informed this description are provided in Appendix 1.

Figure 4.4.1 Map of ED, staff and patient flow



Key to map of the ED

- Nurse in charge
- Sister or charge nurse
- Staff nurses
- ENPs
- ANPs
- Doctors
- Front door response team
- Patient flow: within the ED
- Patient flow: discharge to wards
- Patient flow: discharge home

Table 4.4.1 Clinical staff in the Emergency Department

Title	Role (discharge)	Area of work	Uniform
Consultant	Overall accountability for patients in the ED Assess, diagnose, treat, discharge	Resus, Majors, MIU, CDU	Navy scrubs
Senior registrar (ST5/6/7)	Assess, diagnose, treat, discharge	Resus, Majors, MIU, CDU	Navy scrubs
Middle grade registrar (ST3/4)	Assess, diagnose, treat, discharge	Resus, Majors, MIU, CDU	Navy scrubs
Junior registrar (ST1/2)	Assess, diagnose, treat, discharge	Resus, Majors, MIU, CDU	Navy scrubs
ANPs (equivalent to F2/S1 or S2/S3)	Assess, diagnose, treat, discharge	Resus, Majors, MIU, CDU	Royal blue scrubs
Junior doctor (F1/F2)	Discuss all (F1s) or some (F2s) patient discharges with a senior doctor	Resus, Majors, MIU, CDU	Navy scrubs
Nurse in charge	Allocate work to nursing staff. Communicate with bed managers	Main nurse's station	Navy uniform
Sister/ Charge nurse	Lead nursing teams in Majors bays and resus	Pit stop, Majors,	Navy uniform
Staff nurse	Expedite tests and discharge decisions, Administer medication	Triage, MIU, Majors, Resus, CDU	Lilac uniform
DVT nurse	Assess, diagnose, treat, discharge patients with DVT/PE according to protocols	CDU	Royal blue uniform
ENP	Assess, diagnose, treat, discharge only minor injuries and illness	MIU	Royal blue uniform
Clinical support worker	Provide basic care; food/drink/comfort, undertake observations/ECGs	MIU, Majors bays, CDU	White and grey uniform
Clinical technician	Phlebotomy, cannulation, ECGs	MIU, Resus, Majors, CDU	White and grey uniform
Medical student	Observe doctors, develop clinical skills	Resus, Majors, MIU, CDU	Smart clothes
Nurse Director	Manager of nursing staff	Office based, occasionally in the ED	Navy uniform, red piping
Front door response team (OTs, physiotherapists, nurses)	Generic skills (stair assessments, providing walking aids, taking observations)	Small office near CDU, most often review patients in CDU	Various uniforms (Green, white, navy)

All patients attending the ED were adults (over 16 years old) as there was a separate children's hospital in the city. The total number of monthly ED attendances in the department in 2017 was approximately 17,500 patients (NHS England, 2017).

The emergency department (ED) is open 24 hours a day, seven days a week. Patients access the department via one of two entrances, the main reception and waiting room, or the pit stop area via ambulance transport. In the waiting room, there are three reception desks. Patients either walk to the desk or are assisted by family or friends, some holding letters from their GP. The rooms leading from the waiting room include triage, the minor injuries unit, and the main department. Large windows give the receptionists a good view of the patients in the waiting area. On booking in, patients are asked to state the reason for their attendance. The receptionists have a list of symptoms that would trigger 'urgent' attention of the triage nurse.

Patients who arrive to the ED by ambulance are brought in via a different entrance; known locally as the pit stop. The ambulance staff hand over the patients to a staff nurse or senior nurse. Patients are then allocated by the nurse to the most appropriate area of the department for further assessment, to the waiting room, minor injuries, clinical decision unit (CDU), majors or resuscitation room; called resus (see red arrows on the ED map). They are then reviewed by another clinician; an emergency nurse practitioner (ENP), an advanced nurse practitioner (ANP), or a doctor in the minor injuries unit (MIU), major's bays or resus. This allocation enables appropriate resources to be available for patients depending on their condition.

Junior doctors are either foundation year one (FY1), foundation year two (FY2), or speciality trainee doctors. Speciality trainees (ST1 to 8) are sometimes referred to as registrars but are still technically junior doctors, until they attain qualification in their speciality as a senior clinician. This can take between six and eight years. Typically they then become consultants or GP principals, and can practice without support. All doctors other than FY1 are able to work as locums (British Medical Association 2017).

The ED computer screen shows a list of patients who have been allocated to MIU from triage, their problem, and whether they have been assigned to see either an ENP (if they had a minor injury or minor illness) or a 'doctor or ANP' (if their problem

is not a minor injury or illness). There are no circumstances where patients are allocated to a doctor rather than an ANP. This suggests that there is a comparable scope of practice between ANPs and their medical colleagues.

Patients who are found to have major, rather than minor illnesses or injuries are referred to the major bays directly from triage or the pit stop, and assessed by the next available doctor or ANP. There is an increase in bedside monitoring equipment in the major bays compared to MIU including suction and oxygen at each bedside.

Patients who are very unwell are transferred to the resus room for assessment. There is much less focus on time pressures to meet the four-hour target in this area. There is a further increase in monitoring and clinical procedural equipment in resus. The tense and urgent atmosphere in the resus bay differs significantly from the other assessment areas. Unlike other areas of the ED, the main goal is to resuscitate and stabilise very unwell patients, not to move them to their next destination.

The routines of the ED ensure that patients are generally allocated to the most appropriate area dependent on the severity of their illness. Those patients with minor problems are allocated to the MIU where many are assessed and treated by ENPs, then often discharged home. Patients who required a greater level of assessment are allocated to the major bays, and those with life-threatening conditions are referred to resus. On occasions when a patient's diagnosis, and therefore discharge decision, is not immediately obvious to the clinician, they are asked to wait in the clinical decisions unit (CDU) for the results of tests. This area functions as an overflow facility, enabling clinicians to stop the clock on the four-hour waiting time target while waiting for a discharge decision to be made or completed. The pressures of the four-hour target and bed shortages are a daily discourse in the department.

The four-hour target is incorporated into the ED computer system, traffic light colours alert clinicians and inform them how long patients have been in the ED. Patient names are initially highlighted in green on arrival, changing to yellow then red as they approach the four-hour target. Names flash red during the patients' fourth hour creating a sense of urgency.

4.4.1.1 Contextual pressures

Patients present to the ED with a wide range of problems, therefore front line clinicians require a broad knowledge base, and access to relevant guidelines and services. The national four-hour waiting time target and the burden of bed shortages put ANPs under significant pressure to make prompt discharge decisions.

Patients rarely present to the ED with obvious, isolated symptoms. Some patients have complex problems that make discharge decision-making more difficult. These include social care problems (frail elderly/ substance misusers), symptoms of confusion, complex health problems, and non-English speakers. Elderly patients are often brought in by ambulance to the ED, often taking longer to discharge than ambulatory patients. Symptoms of confusion make discharge decision-making both challenging and time-consuming. Particularly when those patients are unaccompanied by family or carers. In addition to the complexity of patients attending the ED, further contextual pressures include waiting time targets and bed shortages.

4.4.1.2 Waiting time targets

UK national policy recommends that patients should be discharged within four hours of arriving in the ED (Department of Health 2001), either to another ward, or community setting. There are threats of financial sanctions if the four-hour target is missed. This contextual time pressure of four hours leaves little time for reviewing evidence in discharging patients with a wide range of undifferentiated conditions.

There is a clear tension between senior managers, who are focused on providing an efficient journey for patients without incurring financial penalties, and doctors and ANPs who are focused on discharging patients based on their assessment and clinical judgment.

4.4.1.3 Bed shortages

A further pressure on discharge decision-making by ANPs in the ED is the availability of beds both within the ED and across the wider hospital Trust. Overcrowding in the ED not only puts pressure on ANPs to send patients home, but also influences their ability to access knowledge in making discharge decisions. It is

not uncommon in the winter months for all of the beds in the ED to be full, patients are then required to sit on chairs in the middle of the bays, and there is no patient movement to other wards. On those occasions, elective surgery is cancelled, freeing up beds for emergency admissions.

Despite organisational pressures to make prompt discharge decisions, there is significant resistance to their impact on discharge decision-making by ANPs and consultants. Discharge decision-makers require the time and head space to be able to think clearly. In the fast pace of the ED where patients present with a wide range of problems ANPs are required to quickly find the knowledge they needed to make the most appropriate discharge decision. Therefore, access to knowledge in practice for ANPs in discharge decision-making needs to be readily available and relevant.

4.4.2 Sampling

This study used both convenience and purposive sampling. Convenience sampling was used to select the study setting and ANPs, which provided easy access to the site and data collection (Creswell, 2013). All ANPs working in the emergency department (ED) in the study site were selected and invited to participate in the observation and interviews.

Purposive (or purposeful) sampling was used to recruit clinicians with knowledge of the ED context, and those involved in knowledge mobilisation for interview (Patton 2015). *“The power of purposeful sampling lies in selecting information-rich cases for in-depth study (*Patton, 2015 *p.264).*” This method of sampling involves choosing participants carefully, based on the purpose of the study and the parameters of the population to be studied (Silverman 2013). Some argue that this method of sample selection may lead to bias and small sample sizes can be criticised for their lack of generalizability. However, Silverman (2013) argues that a small sample can explore a certain setting in-depth and raise new questions, the relevance of which can be judged by the reader. The methods used to increase rigour and quality are discussed in section 4.6.

4.4.3 Recruitment

In summary three groups of participants were recruited from the ED for this study.

- ANPs
- Experts on the ANP role in the ED context
- Clinicians who influenced knowledge mobilisation (KM) in discharge decision-making by ANPs (those involved in sharing or producing knowledge resources)

ANPs were invited to participate in the observational and interview data collection in order to understand how they make discharge decisions. Senior clinicians with expert contextual knowledge of the ED and ANP role development were invited for interview. During the fieldwork, clinicians who influenced knowledge mobilisation in discharge decision-making by ANPs were invited for interview.

4.4.3.1 Advanced Nurse Practitioners (ANPs)

Advanced nurse practitioners (ANPs) were chosen as they are the focus of the study (Silverman 2013). All the ANPs and trainee ANPs working in the emergency department were invited to take part in the observations and interviews. They were sent an invitation letter (appendix 2) and information sheet (appendix 3) by email via the ED nurse consultant gatekeeper. They were given the opportunity to participate in being observed and interviewed and were asked to respond by email. Initially none of the ANPs responded to the email invitation. After three weeks, a second invitation email was sent to the consultant nurse who was asked to forward it to all ANPs. Again, there was no response. This lack of response to emails was later found to be one of the barriers to knowledge mobilisation in discharge decision-making. ANPs rarely accessed work emails, reducing their awareness of new or updated local clinical guidelines (discussed in section 6.4.1).

Recruitment was achieved during the initial four weeks of familiarisation in the ED. During that time, all five ANPs enthusiastically agreed to participate in the study by approaching the researcher in person. They explained that they had a vague recollection of the information sheet, but rarely looked at their work email accounts.

A paper copy of the information sheet was given to each of the five ANPs and they were advised to read it prior to giving signed consent.

Table 4.4.3.1 ANP characteristics

	Trainee ANPs	**Experienced ANPs**
Gender	2 female	1 male, 2 female
Years since nurse registration	5-7 years	13-22 years
Years working in the ED	4-7 years	13-22 years
Years since completing ANP course	Still training	2-4 years

ANP characteristics in the table above are presented as a range so as not to identify individual nurses.

4.4.3.2 Senior clinicians with expert knowledge of the ED context

Purposive sampling was used to recruit participants with expert knowledge of the ED context and ANP role. They were chosen through discussions with key stakeholders and through conversations with senior staff during the initial observational visits to the ED. Senior clinicians were invited to participate in semi-structured interviews by sending an invitation letter and information sheet by email. Those who did not respond to the initial invitation were sent another email after three weeks. Four experts agreed to be interviewed; a nurse consultant, medical consultant, lead nurse and hospital trust chief nurse. Four experts declined to take part in the study; the nurse director (said she had left her role and lacked knowledge of the ED), the matron (said she was no longer in post), one ED consultant (said he was too busy, and the clinical director did not reply to the email invitations). There was a 50% success in recruitment of senior clinical experts in the ED context, which can be explained by the pressure that clinicians in the ED experience and the high turnover of senior nurses in the department.

4.4.3.3 Clinicians influencing knowledge mobilisation

Recruitment of healthcare professionals interacting with ANPs in discharge decision-making involved verbally requesting their email address during observations and

then sending an information sheet by email. They were asked to respond within three weeks. Non-responders were sent a reminder email after three weeks.

While the ANPs were being observed, they often asked consultants for advice about patient discharge. Therefore three consultants were asked face to face if they would be willing to participate in the study. They all agreed and were sent formal invitation emails and information sheets. One later declined to participate due to workload priorities. During the fieldwork, it became apparent that ANPs relied heavily on a smartphone 'app' that had been developed by one of the ED consultants. He was invited to take part in an interview, and agreed.

In discharge decision-making, ANPs often referred patients to a member of the front door response team (FDRT) for review of their mobility or social circumstances. The FDRT were a group of nurses, physiotherapists and occupational therapists whose role was to assess patients' social care needs prior to discharge home and to put support in place as required. The two senior members of the team were sent an email requesting them to take part in an interview. One senior nurse in the FDRT responded agreeing to be interviewed. A summary of interview participants is shown in the table 4.4.3.3 below.

Table 4.4.3.3 Characteristics of interviewees

Interviewee C= expert in context K= influences KM	**Role**	**Relationship to ANP**
Senior clinician C1	Senior nurse	Line manager/ clinical educator
Senior clinician C2	ED consultant	ANP clinical supervisor
Senior clinician C3	Senior nurse	Nurse manager
Senior clinician C4	Senior nurse	Nurse manager
Senior clinician K1	ED consultant	Supports ANPs during clinical work
Senior clinician K2	ED consultant	ANP supervisor
Senior clinician K3	Senior nurse	Social care support
Senior clinician K4	ED consultant	Supports ANPs during clinical work

The total number of participants recruited for interview was thirteen; five ANPs, four ED consultants, and four senior nurses.

Written consent was gained prior to observations and interviews (appendix 4). Details of the recruited participants were added to a secure database (Edge) as required by the research governance office in the hospital Trust.

Posters were used to inform patients and other ward staff about the study (appendix 5). They were placed in staff common rooms and the patient and ambulance waiting areas. The receptionists put the poster up on the window where patients book in and mentioned the study to patients as they booked in. The posters were intended to inform patients that the study was focusing on knowledge mobilisation by ANPs. Patients were not recruited and no patient specific data was collected (ethical considerations are discussed further in section 4.5).

4.4.4 Preparation- learning about setting

In preparation for this ethnographic study, a number of activities were undertaken to ensure the appropriateness and feasibility of the design. These activities were consultation with key stakeholders in the ED, a patient and public involvement (PPI) group, and a two-day period of familiarisation to gain some understanding about the ED setting, the ANP role, and the roles of other professionals working in the department. Prior to starting data collection key stakeholders (the lead ANP and a medical consultant) and PPI members were consulted about their research priorities. Visits to the department were then undertaken for two days for three hours each time. The next section provides details of the activities and justifies the approach taken.

4.4.4.1 Co-production: Stakeholders and Patient and Public involvement (PPI)

During the initial planning stage of the study, meetings were organised with senior clinicians from the ED to explore their research priorities, and their perceptions of the relevance of the study. They demonstrated support for the project and raised new ideas related to the research topic, such as ANP professional identity issues. The consultant nurse in the ED, also a university lecturer in advanced nursing practice, was a key advisor and a supportive gatekeeper to the research setting.

The Sheffield Emergency Care Forum (SECF) PPI group was contacted to request their views on the study design, poster, information sheet, and interview guide. PPI groups are useful in identifying research priorities and increasing quality and relevance (INVOLVE 2012). SECF responded to the request with some extremely helpful comments, which were incorporated into the documents, including the creation of two separate posters (one for staff and one for patients), amendments to the information sheet, and to the interview topic guide.

This preparation period was valuable in designing the study and ensuring a smooth start to the study. It enabled the views of key stakeholders to shape the focus, building in their concerns and priorities, and the development of a rapport prior to commencing data collection (Fetterman, 2010).

4.4.4.2 Two-day period of familiarisation in the ED

Observational fieldwork is exploratory, normally taking a minimum of 6 months and usually starts with a familiarisation period where the basic functioning of the culture is explored (Fetterman 2010). Fry (2017) emphasises the benefits of pre-observation visits, prior to data collection, in order to become familiar with the setting and convey interest and enthusiasm for the research. This period of familiarisation was spent with the lead ANP who provided a tour of the department and a description of the ANP role in this particular ED. This exposure to the setting provided valuable sampling insights for the interviews focusing on the ED context. They were also useful in understanding how close to observe ANPs during data collection. The purpose of these familiarisation visits was to inform the design of the study prior to gaining ethical approval, therefore no data was collected.

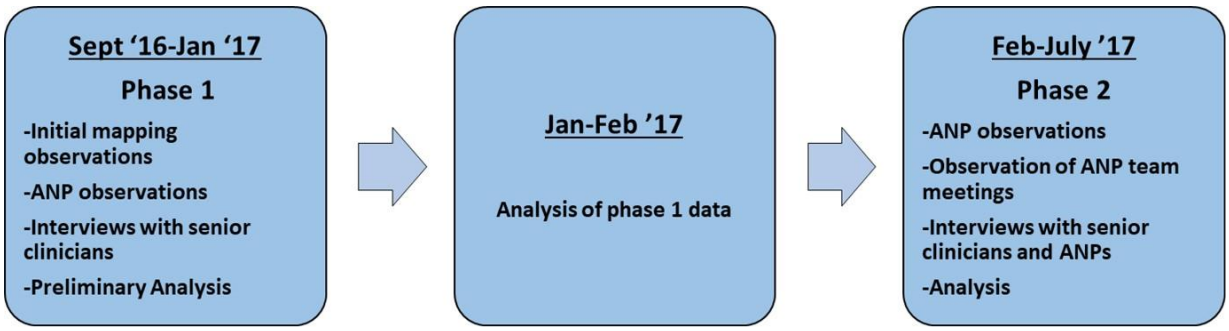
This helped the ANPs to quickly accept the researcher as an insider. They were comfortable discussing their role in the ED; this is reflected in the depth of responses gained from informal chats and interviews. Issues that arose related to the role and responsibility of the researcher will be discussed in the ethics section (section 4.5). 4.4.5 Data collection

The initial research design involved collecting data in two phases, with the first phase focusing on the ED context, and the second phase focusing on knowledge mobilisation. Phase 1 of data collection lasted 4 months (including 2-3 days of data collection a week) and aimed to understand the context of the ED, and phase 2

lasted 6 months (including 2-3 days of data-collection a week) and aimed to understand knowledge mobilisation processes.

However in reality, data covering both issues was collected in both phases. Participants with contextual expertise were interviewed in the first and second phases due to their time commitments, and data related to KM was collected in the first phase, as it was relevant. Therefore, the two phases of data collection merely describe the activities before and after a break in data collection.

Figure 4.4.5 Timeline of data collection



Thus, data was collected using non-participant observations of ANPs (n=5) over a period of 10 months including informal conversations. Semi-structured interviews were also undertaken during that period, with ANPs, senior clinicians who understood the ED context and clinicians who influenced knowledge mobilisation in ANP discharge decision-making (n= 13).

Immersion in the clinical context was felt to be crucial in studying knowledge mobilisation, as recommended by Gabbay and Le May's (2011) in their emphasis of "contextual adroitness".

4.4.5.1 Observational fieldwork

The total duration of observational data collection was 10 months (see table 4.4.5 for details). This provided enough time to understand the complex issues under investigation (Wa-Mbaleka 2017).

The initial four weeks of data collection involved a period of mapping observations. During this time the researcher observed the various areas of the ED to gain an in-depth understanding of the setting (Dixon-Woods 2003). Eight separate occasions of two to three hours were spent in each of the main areas of the ED, the waiting room, pitstop, triage, minor injuries unit (MIU), clinical decisions unit (CDU), the two major bays and the resuscitation room (resus), as summarised in table 4.4.5. This involved observing as a non-participant, at a distance (not shadowing any particular health professional) sitting in one place, making notes on the ED environment, noises, posters, uniforms, and patient flow. Field notes described the health care setting; health workers, their interactions with colleagues and patients, the department, including equipment, posters, noise levels, and the atmosphere (Schatzman and Strauss 1973). Those descriptions informed the diagram of the ED in figure 4.4.1 and the list of professionals in table 4.4.1. Informal conversations with passing staff also provided further understanding of the ED context prior to commencing observations of individual ANPs. This highlighted areas where communication between ANPs, other health professionals, patients and carers was limited (for example ANPs do not work in triage or the pit stop). Each period of observation was labelled with the date, times of observations, and participant codes (Ritchie et al. 2014).

During the four-week mapping period, it became clear that the original objective to focus on patients with long term conditions (LTCs) was not feasible. This focus had originally been suggested by the study funders CLAHRC YH. Informal conversations with ANPs and early observations revealed that patients presented to the department with symptoms rather than conditions, therefore, at times, the cause of the symptoms was not clear. On one occasion an ANP said “we don’t treat long term conditions” highlighting the emphasis on managing the immediate reason for attendance rather than a new or pre-existing disease. A decision was made to include a broader exploration of knowledge mobilisation processes during all discharge decisions by ANPs irrespective of health problem on presentation. Recruitment had taken place by the time it became evident that LTCs were not the focus of ANPs’ DDM. This explains the disconnect between the participant information sheet (PIS) in appendix 3 and the study focus. This change in emphasis was in response to early observations of the role of participants in the field, and was

explained to participants prior to further data collection. This is typical in ethnographic research where the study focus shifts in response to ongoing observations in the field.

After the mapping period, all five ANPs were observed by shadowing them in their normal daily work, and clarifying through informal conversations why they made certain decisions related to discharge. The researcher's position as a non-clinician was clear to staff and patients by wearing smart non-uniform clothes and a badge stating their role as a clinical researcher (Fry et al. 2017).

Observations were scheduled dependent on the ANP shift patterns, including an evening and weekend shift. The periods of observation were 2-3 hours per day. There was a focus on the interactions of ANPs with colleagues, patients and carers in processing knowledge to inform discharge decision-making. Any uncertain aspects of knowledge mobilisation were clarified using brief informal follow up discussions with ANPs throughout their clinical work. Field notes were made on how knowledge was produced, shared and accessed in practice, and the barriers and facilitators to those processes were explored. It was useful to observe where ANPs went to find help if 'stuck', and about the skills of local experts and colleagues (Gabbay and Le May 2011), and note those contacts who appeared important to ANPs in their discharge decision-making.

Hand-written observational field notes were used to record data. A framework was not used therefore field notes described unstructured observations, including notes on as much as possible relating to knowledge mobilisation in discharge decision-making, without predefined categories (Fry et al. 2017). Hammersley (2007) advises that it is not possible to write down everything so the researcher needs to be selective, and ideally notes should be made during observation, or as soon as possible after the interaction. Notes were initially made using pen and paper. They were then typed up later (usually on the same day) and saved on a university computer with clear indication of which notes were descriptions (of events, interactions, verbatim quotes), observer comments (e.g. theories about what is happening) and subjective reflections (thoughts and feelings about the observations) (Ritchie et al. 2014). Both the emic perspective (participants' views) and the etic

perspective (researcher interpretations) have been incorporated in this ethnography (Fetterman 2010).

The initial four weeks of observations were focused on understanding the ED context; the layout and the professional roles, and some of the processes of knowledge mobilisation. Following this period of familiarisation the observations focused on ANPs; they were shadowed in their daily work for periods of 2-3 hours. The researcher's 'insider' status proved an advantage in putting participants at ease and avoiding any problems of hostility or un-cooperation, which can been experienced in ethnographic research (Dixon-Woods 2003).

4.4.5.2 Semi-structured interviews

Semi-structured interviews were undertaken with ANPs, senior clinicians with expert knowledge of the ED setting, and other healthcare professionals who were observed to influence knowledge mobilisation. The interview topic guide (appendix 6) was developed from the literature review, but was open to adaptation, depending on themes emerging from the observations. It focused on how knowledge was accessed, produced and shared within the ED. Interviews were arranged at times convenient to the participants and lasted between 30-60 minutes. They were audio-recorded verbatim and transcribed by the researcher (6 interviews) and a transcriber (7 interviews). The interviews took place in a room near the ED, or another convenient quiet office in the hospital. There was minimal disruption; the researcher's phone was turned off. At the start, participants were reminded of the aims of the project, and informed consent was gained (Tod 2010). It has been suggested that non-verbal behaviour can be missed in audio recordings (Hammersley and Atkinson 2007) therefore notes were made following the interview about the context and any important non-verbal communication. The interviews broadly followed six stages outlined by Ritchie et al. (2014):

1. Introduction: a good rapport was developed with participants by being friendly and relaxed, and clarifying that they were comfortable and had time to be interviewed. It was important to build a good rapport to develop trust, with minimal power imbalance (Ritchie et al. 2014). This was achieved by

engaging in small talk prior to starting the interviews and using an open posture and good eye contact.

2. Introducing the research: the participants were thanked for taking part, the aim and objectives of the study were introduced and confidentiality was discussed. Written consent was gained (appendix 3).
3. Start of interview: contextual background information was gained from participants (their role and how long have they worked in the ED).
4. Main interview: themes were explored using open questions to gain breadth and depth of data. Iterative questioning was used to return to issues raised by participants to clarify or expand on topics important to them (Shenton 2004).
5. Ending the interview: a few minutes notice was given before the end of the interview so participants had the opportunity to raise important issues that had not been covered.
6. After the interview, a reminder was given of what the data would be used for, and contact details for any further questions (also outlined on the information sheet).

Table 4.4.5 Summary of data collection

Date	Observation	Hours
13/9/16	Waiting Room observation	3 hours
15/9/16	Pit stop observation	3 hours
20/9/16	Triage observation	3 hours
22/9/16	Minor Injuries Unit observation	3 hours
27/9/16	Clinical Decision Unit observation	3 hours
28/9/16	Red Bay observation	2 hours
4/10/16	Blue Bay observation	2 hours
6/10/16	Resus observation	3 hours
18/10/16	Meeting between two lead ANPs	1.5 hours
20/10/16	Observation ANP 1.1	2.5 hours
20/10/16	Interview senior clinician C1	20 minutes
25/10/16	Observation ANP 2.1	3 hours
27/10/16	Observation ANP 2.2	2 hours
2/11/16	Observation ANP 3.1	2.5 hours
3/11/16	Observation ANP 1.2	2.5 hours
10/11/16	Observation ANP 1.3	3 hours
16/11/16	Observation ANP 4.1	3 hours
18/11/16	Observation ANP 5.1	2.5 hours
23/11/16	Interview senior clinician K1	35 minutes
29/11/16	Observation ANP 4.2	2 hours
2/12/16	Observation ANP 5.2	2.5 hours
6/12/16	Observation ANP 4.3	2 hours
7/12/16	Observation ANP 5.3	3 hours
12/12/16	Observation ANP 2.3	2.5 hours
15/12/16	Observation ANP 3.2	2.5 hours
21/12/16	Observation ANP 3.3	2 hours
13/01/17	Interview senior clinician C2	30 minutes
	1 month break for analysis	
20/2/17	Observation ANP 1.4	2.5 hours
22/2/17	Observation ANP 3.4	2.5 hours
27/2/17	Observation ANP 1.5	2.5 hours
3/3/17	Observation ANP 4.4	2.5 hours
8/3/17	Observation ANP 3.5	3 hours
10/3/17	Interview ANP 3	45 minutes
15/3/17	Observation ANP 2.4	2 hours
15/3/17	Interview ANP 2	30 mins
17/3/17	Observation ANP 4.5	3 hours
22/3/17	Observation ANP 3.6	2 hours
24/3/17	Interview ANP 4	26 minutes
28/3/17	Observation ANP 2.5	3 hours
31/3/17	Observation ANP 1.6	2 hours
31/3/17	ANP team meeting 1	1.5 hours
4/4/17	Observation of ANP 2.6	2 hours
6/4/17	Interview senior clinician K2	46 minutes
7/4/17	Interview senior clinician C3	24 minutes
21/4/17	Observation ANP 5.4	1.5 hours
21/4/17	Interview ANP 5	30 minutes
26/4/17	Interview ANP 1	20 minutes
29/4/17	Observation ANP 1.7	1.5 hours
2/5/17	Interview senior clinician C4	40 minutes
12/5/17	ANP team meeting 2	1.5 hours
18/5/17	Interview senior clinician K3	20 minutes
5/7/17	Interview senior clinician K4	25 minutes
13/10/17	Respondent validation with ANP 5	60 minutes

Data collection took place over a 10-month period between September 2016 and July 2017 and included 89.5 hours of observational data (over 36 days), and 7 hours of interview data (each interview lasting between 20 and 60 minutes, with an average of 34 minutes). Table 4.4.6 summarises the duration of data collection.

Table 4.4.6 Duration of data collection

Type of data collection	**Number of episodes**	**Duration**
Mapping observations	8	22 hours
Observations of ANPs	28	67.5 hours
ANP meetings	3	4.5 hours
ANP interviews	5	2.5 hours
Senior clinician interviews	8	4.5
Respondent validation	1	1 hour
TOTAL data collection		**102 hours**

The observation phases ended when the researcher felt confident about the breadth of the research findings, and when data saturation was evident (the same themes arose again and again) (Fetterman 2010).

4.4.6 Data analysis

In this study, the data (observational field notes and interview transcripts) was analysed thematically. Ethnographic data analysis involves interpreting the meaning of participants' and organisational practices (Hammersley and Atkinson 2007). In ethnography the data can be viewed as overwhelmingly large, complex, and unstructured; therefore, an effective process of analysis throughout the study is essential in ordering and making sense of the findings (Bryman and Burgess 1994). Thematic analysis starts when the first themes are noticed and ends when the write up is complete (Hammersley and Atkinson 2007). During the process, the researcher constantly moves back and forward between the data set (field notes and interview transcripts), the coded extracts and the analysis. This approach to analysis is derived from grounded theory. Although a grounded theory methodology was not used in this study, some of the analysis techniques are similar to those employed in

grounded theory (Glaser and Strauss 1967). Emerging themes represent meaningful findings in the data set, related to the research question (Braun and Clarke 2006).

The computer assisted qualitative data analysis software (CAQDAS) Quirkos (Turner 2004) (version 1.4.1) was used to organise and code the data (Fetterman 2010). It is acknowledged that the computer package does not think about, or analyse the field notes but is merely a tool for data storage and management (Okely 1994).

Preliminary analysis and interpretation of the field notes and interview transcripts was commenced as soon as the first data was collected. This facilitated an in-depth understanding of clinical routines and how they inform discharge-decisions. The researcher remained open to emerging concepts from the field notes and interview transcripts (Bryman and Burgess 1994). To minimise inferences field notes containing verbatim examples were clearly distinguished from descriptive summaries and researcher interpretation (Hammersley and Atkinson 2007).

Themes were created by searching across the data for repeated meanings and patterns (Braun and Clarke 2006). An inductive approach was taken by coding data without trying to fit it into a pre-existing coding frame (Braun and Clarke 2006). The following six steps developed by Braun and Clarke (2006) were used to guide the analysis.

1. After each period of observation field notes were typed into a word document, ensuring that description, interpretation and reflection were kept separate. Interviews were transcribed verbatim by the researcher and a transcriber. Notes were made about non-verbal communication and the context of the interview. When another transcriber was used, the transcript was re-read by the researcher while listening to the audio recording to check for accuracy. The field notes and interview transcripts were then transferred to the Quirkos software (Turner 2004). A map was also constructed of the Emergency Department (ED) in order to visualise where the ANPs worked in relation to other professionals (see fig 4.4.1).
2. Initially codes were developed using separate projects in Quirkos for ED mapping, observations and interviews identifying significant features in the data set. Extracts were occasionally coded more than once as they fell into

more than one theme, and data that conflicted with dominant themes was also coded. Longer passages of data were included in the analysis to ensure the context was not lost.

3. The list of codes was organised into themes, a new Quirkos project was started in May 2017 using those themes and relevant extracts were grouped together. Themes and sub themes were developed and a small number of transcripts were read by the researcher's supervisors to check against the imposition of the researcher's assumptions (Fry et al. 2017). Some sub-themes had a very small number of quotes, not fitting into other themes, as it is these 'infrequent gems' that give perspective to data (Morse 1995).
4. The themes were reviewed and refined by reading the data set again to check if they worked and if any data had been missed. Hughes (1994) highlights the importance of this step in gaining further analytical insights by regularly asking the question 'what is the main story?', followed by searching the data for relevant examples.
5. The final themes and sub-themes were named, ensuring that data within themes was related and there was a clear distinction between themes (see appendix 8 for the 'canvas view' (screen shot) of the themes in Quirkos).
6. Interpretation involved generating explanations following data analysis (Dixon-Woods 2003). Supervision meetings were invaluable in discussing the interpretation of the codes. The findings were added to the thesis, including data extract examples to illustrate the themes. They were informed by a theoretical framework (Braun and Clarke 2006) and divided into three chapters: 'Knowledge in practice', 'Knowledge in boundary blurring' and 'Knowledge in situated learning'. The findings were presented to the ANPs in feedback discussions throughout the process in an on-going dialogue to check respondent validation. The contributions that the findings make to the literature have been presented in the discussion (chapter 9).

This structure for thematic analysis was useful in the initial stages of developing the themes; however the interpretation of those themes evolved over time during the writing up stage, and following discussions with the supervisory team. In writing up the findings, several examples of a theme were sought, however prevalence was not

a reflection of how important a theme was (Braun and Clarke 2006). Spradley (1980) states that ethnographers make inferences about their observations, about what is perceived (from evidence) and what is assumed (from premises). These cultural inferences need to be tested repeatedly until the researcher is relatively certain that participants share the same cultural meanings (Spradley 1980).

The use of both observational and interview methods of data collection enriched the findings, as extracts from both sets of data have been used to illustrate key themes. This verification through triangulation is discussed in more detail in section 4.6.2. Observations allowed for the identification of key processes of knowledge mobilisation and influencing factors, and interviews were invaluable in adding to those themes and providing further in-depth explanations for the findings.

4.5 ETHICAL CONSIDERATIONS

4.5.1 Ethical approval

A number of strategies have been employed to ensure that the ethical principles of non-maleficence, beneficence, autonomy and justice are met in this study (Murphy and Dingwall 2001). These include gaining informed consent, maintaining confidentiality and anonymity, minimising harm and disseminating the research findings.

Ethical approval for this doctoral research study was gained from the University of Sheffield School of Health and Related Research (ScHARR) research ethics committee. Full NHS ethical approval was not required as the study was undertaken at a single site with NHS staff as participants, however NHS research governance approval was obtained. An honorary contract was set up with the local NHS Trust human resources department and a ‘clinical researcher’ badge was worn at all times during data collection.

4.5.2 Informed consent

In respecting autonomy, participants have the right to be informed about the research they are taking part in. They should be given enough details (but not too technical), in a language they can understand (Silverman 2014). Participants also

have the right to withdraw from a study at any time (Johnson and Long 2010). This was made clear in the information sheet and consent form; however no participants withdrew from the study.

In this study potential participants were contacted by an invitation email (appendix 2), with an attached information sheet (appendix 3). Written consent was gained prior to observational and interview data collection (appendix 4). ANPs signed the consent forms at the start of the first day of observation and interview participants signed the form prior to audio recording the interviews.

Other staff in the ED were informed about the study using posters. The posters were displayed in the ED staff room and reception areas. They explained the aim of the study and advised staff how to request not to be observed. Apart from the ANPs, all other health professionals and support staff were observed without formal consent as the ED was very busy and the study duration was several months. This is supported by research ethics guidelines from the Royal College of Nursing (2009) which state that in some situations it is not possible, nor required, to gain signed consent from everyone, for example in observational studies where many individuals will pass into view.

Patients were informed of the study using similar posters displayed in the patient waiting room and ambulance entrance (appendix 5). Verbal consent was gained from patients prior to observing the ANPs assessing them. Patients were asked by ANPs if they were happy to be observed during consultations; emphasising that the research was focusing on ANP discharge decision-making. ANPs introduced the researcher to patients as a nurse researcher who is studying how ANPs make discharge decisions.

There were times when it was felt by the researcher that patients were unable to give verbal consent or it was inappropriate to observe them, for example, when a patient appeared too unwell, or their condition deteriorated during the consultation. The researcher exercised her own judgement, being sensitive to the clinical situation, as to whether it was appropriate to observe a particular consultation. For example, one ANP planned to perform a rectal examination of a patient, so that patient was not observed in order to maintain their dignity. On another occasion during an

observation of one of the ANPs in the resus bay, a confused gentleman was brought in by ambulance. He was thrashing about on the trolley and shouting out, therefore it was decided by the researcher that he was too unwell to consent to being observed. A similar decision was made when one of the ANPs was caring for an elderly gentleman in resus, his breathing was irregular and he appeared grey in colour, therefore it did not appear appropriate to stand near the ANP at the patient's bedside. Another patient who was not approached during the fieldwork was a male with mental health problems who had been brought in by police with suicidal thoughts. Two police officers flanked him so it felt appropriate to keep a distance from him, remaining at the nurses' station so as not to cause the patient any further anxiety. There were no complaints from patients or their relatives regarding the conduct of the researcher during the study.

The researcher intended to give patients a leaflet summarising the study (appendix 5) if they requested further information, however no patients made that request. No direct quotes were collected from patients, and they were not interviewed. Patient notes were not accessed during data collection.

4.5.3 Anonymity and Confidentiality

Throughout every stage of this study, strategies have been used to promote anonymity and confidentiality of participants. These included effective data management, and removal of names from the data. The hospital setting has been referred to as 'a large teaching hospital in the North of England' to reduce the risk of identifying the site. Participants have been anonymised by referring to them by their job titles (for example senior nurse, or ED consultant) and numbers (such as ANP 2) to reduce the risk of identifying individuals. Although anonymising individuals and organisations can increase confidentiality, it is recognised that this can be more difficult in small qualitative studies (Johnson and Long 2010).

Confidentiality was enhanced by keeping observational field notes, interview recordings and transcripts in a locked drawer, in a locked office at the University, in a building that required an ID card to access. The university desktop computer was password protected. Audio recordings were deleted immediately after transcription.

Data and personal information was handled according to the Data Protection Act (1998) and as per university guidelines on information security.

4.5.4 Minimising harm

In meeting the ethical principles of beneficence and non-maleficence (Murphy and Dingwall 2001), the potential risks were considered, and it was concluded that there would be minimal risk to participants. One consideration was that ANP participants could become stressed from being observed (Hammersley and Atkinson 2007), however it was acknowledged that senior nurses, particularly in teaching hospitals are used to being shadowed during their clinical work while mentoring students. Disruption was minimised by being sensitive to the demands of the busy department and not getting in the way of patient care, or taking up clinicians' valuable time. A good rapport was developed with participants, which enabled the researcher to judge the appropriate times to have informal conversations. The university and hospital guidance on good research practice was followed and participants were given the opportunity to raise any concerns with the researcher, supervisor, or head of department. Participants were given a contact name in the information sheet (appendix 3) to raise any complaints or concerns they may have had about the research process (Williamson 2007).

Although the study was unlikely to cause any harm to patients it was acknowledged that the researcher would intervene if any observed harm occurred to patients or staff and it would be reported as per the hospital 'safeguarding adults' policy (Johnson and Long 2010). There were no occasions where a patient's safety appeared to be compromised. However, there were occasions when a patient was overheard asking to use the toilet, or trying to get out of bed with reduced mobility. In those situations, a nurse or support worker was alerted to the needs of the patient.

Strategies were in place to ensure personal safety during the research study. They included avoiding conflict with staff, patients, or carers, and being aware of exits in the department. A conflict resolution course was undertaken as part of the researcher's clinical training, and she was familiar with the Trust fire safety and lone-working policies. Fortunately, during the study there were no concerns regarding personal safety.

4.5.5 Dissemination of findings

The findings from this study have been and will be disseminated to researchers, educators and clinicians through conference presentations, publications, and by sharing with participants and other ANPs via social media, and through teaching. In order to provide access to a wide range of ANPs and other stakeholders, publications will also be shared on Twitter and via the RCN ANP forum Facebook page (a closed social media group of over 6000 members). It is hoped that by improving the dissemination and implementation of knowledge, patients will benefit from healthcare that is informed by the best available evidence.

4.6 TRUSTWORTHINESS

A number of methods have been used in this study to enhance trustworthiness. Trustworthiness relates to how well a researcher can demonstrate that their findings are worth paying attention to (Lincoln and Guba 1985). Some have suggested that the terms validity and reliability, more often used in quantitative research, are still relevant to qualitative studies in defining the strengths of the findings (Ritchie et al. 2014). However, others argue that, due to differences in epistemology between qualitative and quantitative research, the terms reliability and validity are not appropriate, preferring instead terms such as ‘trustworthiness’, ‘consistency’, or ‘dependability’ (Lincoln and Guba 1985, Hammersley 1992, Shenton 2004). This study uses Lincoln and Guba’s (1985) ‘trustworthiness criteria’ to describe the techniques that have been used to address the issues of credibility, transferability, dependability and confirmability of the findings. Firstly, these terms are defined, then the individual techniques employed to enhance trustworthiness are described in more detail.

Credibility refers to how far the interpretations give a true picture of the phenomena in question and can be strengthened by demonstrating that interpretations of the findings are handled in a robust and consistent way (Shenton 2004, Silverman 2013). In this study credibility was enhanced by adopting well established research methods, including triangulation (using more than one method of data collection and multiple data sources), member checking (feedback to and from participants), providing a thick description, reflexivity, and discussing any ambiguous, conflicting or

inconsistent data with members of the research team (Silverman 2013, Creswell 2013b).

Transferability refers to how far the study findings can be applied beyond the context of the setting (Malterud 2001b). Qualitative research cannot provide statistical generalisability, but aims to produce an in-depth understanding of social processes at a particular time, in a particular context (Lincoln and Guba 1985, Creswell 2013b). There is, however a responsibility for researchers to show how the findings may be transferred to similar setting, patients and stakeholders. This can be achieved by providing a 'thick description', or sufficient description of the context to allow the reader to assess whether the findings can be applied to another setting (Malterud 2001b, Shenton 2004).

Dependability (or reliability) refers to the consistency of the researcher's approach to data analysis, which can be increased by documenting the steps in detail, and checking transcripts for any errors (Shenton 2004, Creswell 2013b). It is not possible in the rapidly changing environment of healthcare settings to ensure that the same results will be obtained if the study was repeated, however strategies can be used to increase the ability of another researcher to use similar methods (Shenton 2004). Following a clear research design and a well-described process of thematic analysis strengthened dependability in the present study.

Confirmability is the extent to which the findings reflect the experiences of participants, rather than the interests of the researcher. Confirmability has been enhanced using triangulation and reflexivity (Lincoln and Guba 1985). A 'canvas view' of the Quirkos codes (screen shot) has also been provided to illustrate emerging themes and enhance confirmability (appendix 8). The findings were also fed back to ANP participants informally during the fieldwork and they concurred with the interpretations.

4.6.1 Prolonged engagement

The first technique to enhance credibility was prolonged engagement. This involves spending enough time in the research setting to enable the researcher to reflect on any personal distortions that may have crept into the data (Lincoln and Guba 1985).

This was also managed during supervision meetings, where data was discussed in relation to the researcher's own experiences, ensuring the interpretations of the findings reflected the experiences of participants. It was acknowledged that prolonged engagement and previous experience of the role might have led the researcher to 'go native' and therefore miss certain phenomena (Lincoln and Guba 1985), however the consequences of this were again mitigated by discussing the findings with the supervisory team.

The period of observational fieldwork lasted ten months, spending two days a week shadowing ANPs in their daily work. During that time, trust was developed quite early in the study, facilitated by the researcher's background as an advanced nurse practitioner (ANP) in primary care. A good rapport was developed between researcher and participants, which was a further consequence of prolonged engagement, and was evident when the researcher was offered a clinical role in the setting (which was politely declined).

4.6.2 Triangulation

Triangulation is a term used in navigation; whereby a position can be found if you have two landmarks and note where the two lines leading from them cross (Hammersley and Atkinson 2007). Similarly, in social research one piece of data may be analysed incorrectly, whereas if other types of data lead to the same conclusion, there is more confidence in the findings (Hammersley and Atkinson 2007). Triangulation increases credibility and confirmability, particularly in ethnographic research, by justifying the development of themes (Fetterman 2010, Creswell 2013b).

This study used three methods of triangulation; 'method triangulation' 'data source triangulation' and 'investigator triangulation' (Stake 1995, Shenton 2004, Hammersley and Atkinson 2007). In 'method triangulation' two types of data collection were undertaken, non-participant observation, and semi-structured interviews. Data source triangulation was achieved by recruiting several participants; five ANPs and eight senior doctors and nurses, enabling the comparison of data from different participants in the study (Hammersley and Atkinson 2007). Although only one researcher was involved in data collection, investigator triangulation was

achieved by discussing emerging findings in supervisory meetings to check the interpretations during thematic analysis (Stake 1995).

4.6.3 Member checking

Member checking or respondent validation involves inviting participants to check the data for accuracy; an important technique in establishing credibility (Lincoln and Guba 1985, Shenton 2004, Hammersley and Atkinson 2007, Creswell 2013b). Fetterman (2010) found this technique useful when he fed back to participants his interpretation of how different nurses' uniforms were viewed as status symbols.

In this study, member checking involved an on-going process of informally checking emerging interpretations with participants during the fieldwork. More formally, at the end of the fieldwork the lead ANP was interviewed to clarify contextual findings. Many qualitative studies embed a formal stage of respondent validation, involving discussions with respondents about their transcripts (Lincoln and Guba 1985). More informal methods of respondent validation are also employed when appropriate (Fetterman, 2010). An informal approach was adopted in this study including discussions with ANPs during the observations, feedback and reflection with participants during interviews and a meeting with the lead ANP at the end of the study. This informal approach was adopted for both practical and methodological reasons. From a practical perspective, it reduced the burden on ANPs in arranging follow up respondent validation meetings. Methodologically, a limitation of more formal methods of respondent validation is that they fail to acknowledge that the researcher holds all of the data and provides an account for a wider audience, which will differ from the individual account of participants (Pope and Mays, 2006). In this study informal approaches were adopted to verify inferences, providing sufficient opportunities to enhance credibility (Shenton, 2004, Fetterman, 2010).

This differs from the more formal method of presenting data to participants, however it remained a useful mechanism to explore the views of ANPs on emerging themes. Throughout the study, there were no disagreements between the researcher and participants on the interpretations of the findings, and member checking was found to add to the researcher's understanding of the ED context and emerging findings.

4.6.4 Thick description

'Thick description' is another technique used to improve the credibility of the findings (Creswell 2013b). It involves fully describing the research setting (Wa-Mbaleka 2017), providing a detailed description of the context and participants (Creswell 2013b). It allows the reader to understand the culture being explored and to decide whether they agree with the researcher's interpretations (Fetterman 2010). Without a thick description it is difficult for the reader to decide whether the findings 'ring true' (Shenton 2004).

In this study, a map of the ED setting has been developed (figure 4.4.1) and details have been given about the department and workforce (table 4.4.1). Verbatim quotes have been included in the three 'findings' chapters to enhance the thick description, by conveying the emotions and meanings of the experiences and perceptions of participants.

4.6.5 Discrepancies

A further technique used to increase the credibility of the findings is by discussing examples of negative or discrepant extracts that contradict themes (Creswell 2013b). Discrepancies may occur when triangulation produces conflicting results, which will need to be reconciled by searching for further data (Fetterman 2010). Negative cases should not simply be considered as outliers as they can provide information needed to give a different view on the same topic. Presenting negative cases shows a determination by the researcher to reporting the findings trustfully (Lincoln and Guba 1985).

In the present study, attention was given to any data that conflicted with the predominant themes, and those discrepancies were used to illustrate a deeper understanding of the phenomenon being explored. For example, most participants complained about the lack of available computers to search for guidelines, however one interview participant highlighted that there were plenty of computers, but they were not used due to an aversion to 'standing' computers (absence of a desk and seat). This was supported by observational field notes, and prompted an exploration of further barriers to computer-use.

4.6.6 Reflexivity

In addition to the above techniques used to enhance credibility, dependability, confirmability and transferability, Lincoln and Guba (1985) also promote the use of reflexivity in enhancing trustworthiness. Reflexivity is the acknowledgement of how the researcher's role, previous experiences and attitudes may influence the data collection, analysis, and write up (Hammersley and Atkinson 2007). It has been suggested that researchers will be sensitive to certain observations based on their previous experiences, the validity of which can be checked by further observations (Schatzman and Strauss 1973). In being reflexive, it is important during the analysis to distinguish between knowledge previously present and knowledge emerging from the data (Malterud 2001b). One way to tackle this, recommended by Gabbay and Le May (2011), is to explicitly reflect on previous experiences as part of the method (see next section 4.6.7).

During data collection, reflexive notes were made following each observational period and interview, describing initial reactions to, and interpretations of the data. In committing to reflexivity, the effect of the researcher's previous experience and attitude has been assessed during all parts of the research process, and included in the discussion of the strengths, limitations, and transferability of the findings (Malterud 2001b). An important approach to reflexivity in this study has been how the researcher's professional and research roles interact, and how to balance the tension between being a nurse and being a researcher. In reducing bias the researcher aimed for 'empathic neutrality', which involves being totally explicit about previous experiences and assumptions, and being as neutral as possible in the interpretation of the findings (Ritchie et al. 2014). It is particularly important in ethnography for the researcher to be transparent about their previous experiences and perspectives on the issue being explored. The next section presents a reflexive account of the researcher's experiences and attitudes prior to commencing data collection.

4.6.7 Reflexive account: The ethnographer's previous experiences[3]

Early in my nursing career I developed an interest in the knowledge required by nurses to undertake their advancing roles. During my first position as a staff nurse in emergency admissions, patient group directives (PGDs) were introduced to enable nurses to administer certain drugs to patients in specific categories without a prescription. This, combined with my degree in pharmacology sparked an interest in nurses' preparation for their expanding prescribing role. As part of my master's degree I performed a qualitative study exploring 'nurses' perceptions of their pharmacology educational needs'. The findings revealed that nurses did not feel they had sufficient knowledge of pharmacology to undertake their role confidently (King 2004).

Later, while working at a 'Walk in Centre' I became involved in the development of PGDs for drugs used in the management of minor illnesses. This role involved reviewing national clinical guidelines and the British National Formulary (BNF), and translating that information into a summary guideline for clinical practice. This experience provided valuable insight into the processes of knowledge mobilisation, in creating and sharing local guidelines that are accessed by nurses in the local context.

During my role as a primary care advanced nurse practitioner (ANP) I have had first-hand experience of the broad scope of practice, and advanced levels of decision-making required by ANPs in that setting. However, the context of the emergency department (ED) is much less familiar to me.

ANP training involved attending university modules in non-medical prescribing, and physical assessment and consultation skills, with periods of clinical supervision by a GP. These courses provided some relevant knowledge, however there remained gaps in my decision-making abilities, including how to order and interpret blood tests, roles that I was expected to undertake by my medical colleagues. This caused a certain level of anxiety, which was relieved by discussing areas of uncertainty with the GPs. There have been times when I have been very aware of the risk associated

[3] This reflexive account is written in the first person, while the rest of the thesis, by convention, is written in the third person.

with the autonomy of the ANP role. I found that knowledge and information sources were abundant in the clinical setting, with access to the internet, training courses, and colleagues to consult. However, there were times when these sources conflicted.

In my most recent role as an ANP in urgent care, I became reliant on a few knowledge sources, which I always had close to hand, including the local microbiology treatment guide for infections, the traffic light guide for assessing sick children (NICE 2013), clinical knowledge summaries, and the online BNF (Joint Formulary Committee 2018). I also sought advice from more senior colleagues when unsure about the management or treatment of a patient. I did not regularly search for research journals to inform my clinical practice, but kept up to date with the latest policy, research, and media news via Twitter. On reflection, I would say that my most valuable knowledge came from previous clinical experience of dealing with patients with similar symptoms.

My views about knowledge mobilisation (KM) have been shaped by my experiences, some of which have been discussed above. Clinical experience of working as an ANP has provided valuable insight into the responsibility that managing undifferentiated conditions brings, and some of the challenges ANPs face.

I have continued to work part time as an ANP in primary care, both to maintain my clinical skills and to gain further insights into KM. It has been valuable to remain immersed in the ANP role while undertaking this study, although I recognise that it brings the risks of over-identifying with the participants (Hughes 1994). I have been explicit about my previous experiences in order to be reflexive during data collection, analysis, and interpretation of the findings.

Having experienced some of the challenges associated with the ANP role I entered the research with a natural interest in how other ANPs manage knowledge in their emerging role, and I felt well placed to explore this is in a new setting.

A further reflexive account of the research process entitled ‘the ethnographer’s dilemma’ is presented at the end of the findings chapters (section 8.6). These

strategies have ensured that the findings have emerged from the experiences of the participants, rather than the preferences of the researcher (Shenton 2004).

4.7 CHAPTER SUMMARY

Ethnography was chosen as the most appropriate methodology to use in this exploration of knowledge mobilisation in the emergency department, facilitating the exploration of complex social interactions. It provided the opportunity to gain rich data on the interactions and decisions made by ANPs in their work. The findings would have lacked depth using interviews alone, and important information would have been missed if questionnaires were used. The methods of sampling, recruitment, data collection and thematic analysis have been presented. Techniques used throughout the study to ensure trustworthiness included prolonged engagement in the field, data and method triangulation, member checking, thick description, addressing discrepancies, and reflexivity. Following a short introductory chapter the next chapters provide the findings of the ethnographic study, giving an in-depth insight into knowledge mobilisation in discharge decision-making by ANPs in the ED.

CHAPTER 5 FINDINGS

This doctoral study set out to explore knowledge mobilisation in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED). In this short introductory chapter an overview of the findings and definitions of key terms are presented.

5.1 OVERVIEW OF FINDINGS CHAPTERS

Key themes emerging from the findings are 'knowledge in practice', 'knowledge in boundary blurring', and 'knowledge in situated learning'. The themes and sub-themes are presented over three chapters (chapters 6, 7 and 8) and summarised in table 5.1.

Table 5.1 Overview of findings

Chapter	Theme	Sub themes
Chapter 6	Knowledge in practice	• Mess and complexity • Medical control over knowledge production and sharing • Preference for shortcuts in accessing knowledge
Chapter 7	Knowledge in boundary blurring	• Boundary blurring in ANP role development • Boundary blurring in practice • Knowledge gaps in boundary blurring
Chapter 8	Knowledge in situated learning	• Learning from consultants • ANP peer support • Development of indeterminate knowledge through clinical experience

Chapter 6 explores 'knowledge in practice'. In discharge decision-making, ANPs were found to access knowledge in messy and complex ways, often drawing on the knowledge and experience of others rather than searching for formal guidelines. Medical control over the processes of knowledge mobilisation contributed to this

complexity. ANPs preferred ***shortcuts to knowledge*** in the form of asking colleagues for advice and using their smartphones to access summaries and decision-tools.

Findings related to 'knowledge in boundary blurring' are presented in chapter 7. This section addresses the tensions arising from the different motivations for role development between stakeholders. It also describes the reality of boundary blurring for ANPs in their role; ANPs viewed their role more as boundary blurring than medical substitution. Finally the knowledge gaps emerging from boundary blurring are presented.

'Knowledge in situated learning' is considered in chapter 8. ANPs developed strategies to manage their knowledge requirements. They learnt to discharge patients autonomously via three key processes; supervision by ED consultants, peer support from other ANPs and the development of indeterminate knowledge through clinical experience.

Interview and observational field note extracts have been used to illustrate the key themes. The significance of the findings have been presented in the discussion (chapter 9) in light of previous literature, and the implications of the findings on nursing practice, education, and research are put forward in the conclusion (chapter 10).

5.2 DEFINITIONS

Prior to presenting the findings it is important to clarify working definitions for the key terms.

5.2.1 Knowledge

For the purpose of this study 'knowledge' is defined as information held by the user in light of their context and beliefs, accessed in a variety of ways, and used to inform discharge decision-making (Nonaka 1994, Graham et al. 2006, Davies 2008).

Forms of knowledge and ways that knowledge is mobilised have been presented as either 'formal' or 'informal'. The former refers to knowledge that is planned and delivered, in promoting evidence based practice, for example via teaching sessions

or written guidelines, and the latter refers to ‘tacit’ knowledge that is accessed from experience, or colleagues in day to day clinical work (Eraut 1985). Indeterminacy (or uncertainty) is used to describe work that requires the application of tacit knowledge in situations of complexity, and has been described as the ‘art’ of healthcare practice (Traynor 2009).

5.2.2 Knowledge mobilisation

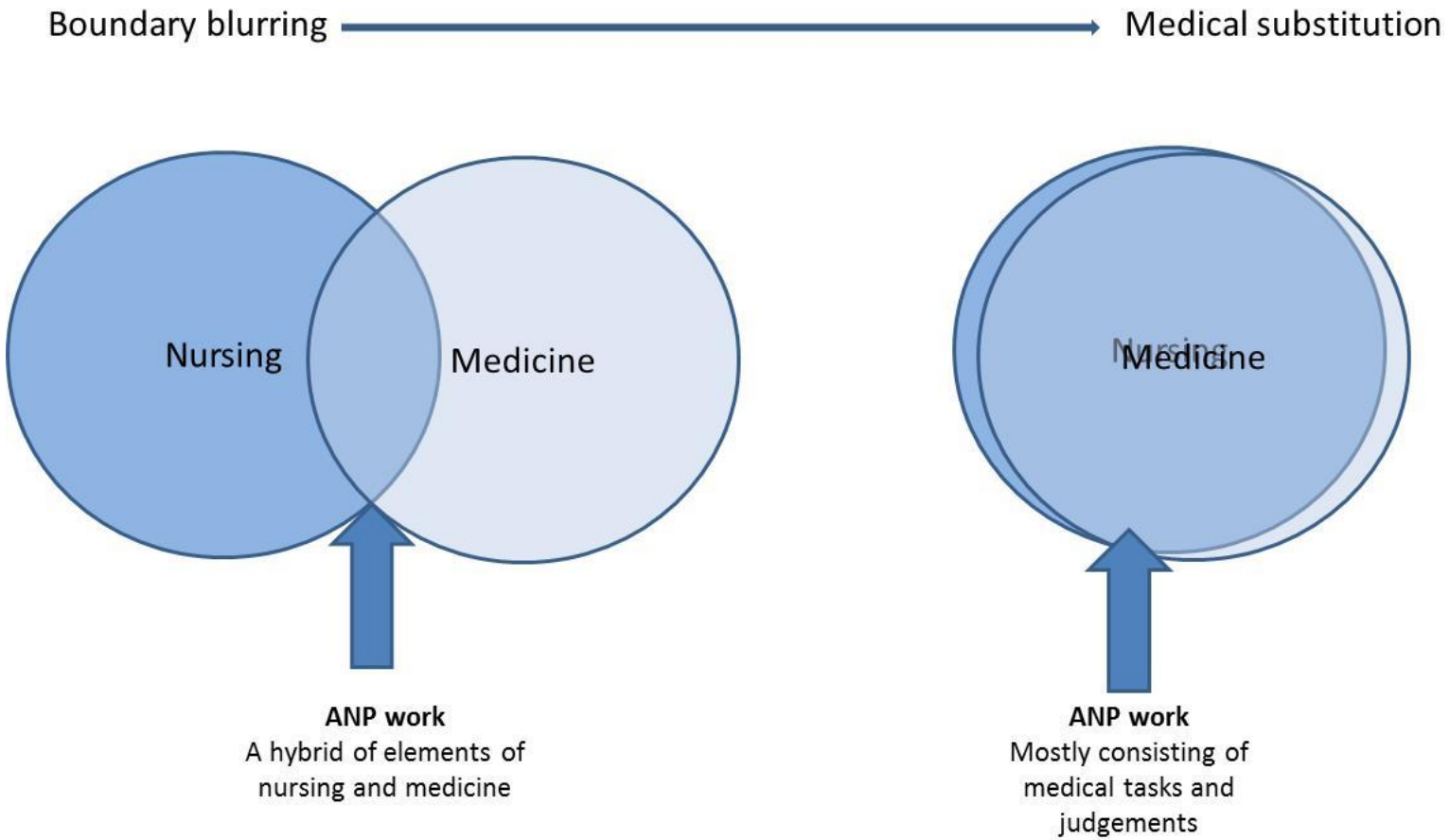
As discussed previously in section 3.4.1 the term knowledge mobilisation has been used interchangeably with knowledge transfer, knowledge translation, knowledge exchange and knowledge management (Gabbay and Le May 2011, Ward 2017). In this study ‘knowledge mobilisation’ is used to describe how knowledge is produced, shared, accessed, and understood in discharge decision-making by ANPs (Nonaka 1994, Graham and Tetroe 2010, Ward 2017). Other terms have been criticised as too simplistic and linear to adequately describe the mess and complexity of clinical decision-making (Gabbay and Le May 2011, Ward 2017).

5.2.3 Boundary blurring

Boundary blurring and medical substitution are key themes that run throughout the findings chapters. In the literature the terms are often used interchangeably (Nancarrow and Borthwick 2005). However, for the purpose of this study a boundary blurring continuum has been developed with boundary blurring at one end, where ANP work incorporates elements of medical and nursing work, and medical substitution at the other end of the continuum, where the ANP role is substituting for doctors, incorporating mostly traditional medical tasks. Medical substitution occurs when nurses replace doctors by doing the same work (tasks and judgements), rejecting their previous nursing role. This is boundary blurring to the point of complete overlap, where nursing is no longer recognised. This definition is illustrated in figure 5.2.

The overlapping part of the circles represents the ANP role. In this study boundary blurring by ANPs involves taking on some traditional medical tasks, while retaining elements of nursing. The level of boundary blurring is not static; it is dependent on the experience of the ANP, and the expectations of the stakeholders involved in ANP role development and implementation.

Figure 5.2 Boundary blurring continuum



5.2.4 Inter-professional community of practice

Communities of practice are defined as groups of people with a shared set of problems, who share knowledge through interactions, and develop common knowledge (Wenger 2002) (see section 3.4.5.1). During ‘situated learning’ members of a community of practice move from being legitimate peripheral participants to full members as they develop relevant knowledge and skills to adequately undertake their role (Lave and Wenger 1991). Often communities of practice include a single professional group, however in this study, members of the medical and nursing profession share similar roles and therefore have similar knowledge requirements. They are members of an inter-professional community of practice.

This chapter has introduced the study findings, the concept of a boundary blurring continuum, and key definitions. The following three chapters present the findings, beginning with knowledge in practice.

Examples from interview and observational extracts have been used to illustrate the key findings (shown in italics). Pseudonyms have been used for participants (using job role and numbers) and for the smartphone app. Square brackets ([ ]) have been used to define terms/abbreviations, and ellipses (…) have been used to identify omissions from quotes. Key points from the findings have been highlighted using bold italics.

CHAPTER 6 KNOWLEDGE IN PRACTICE

6.1 INTRODUCTION

The focus of this first findings chapter is to demonstrate the messy, complex nature of knowledge mobilisation in discharge decision-making by ANPs, explaining the preference for shortcuts.

The phrase ‘knowledge in practice’ was first coined by Gabbay and Le May (2004) in their study of clinical mindlines when describing professional knowledge developed within the context of the healthcare setting. It was later used by Greenhalgh and Wieringa (2011) in their critique of knowledge translation, arguing that research cannot simply be pushed into practice.

In this study, mess and complexity were evident in the mechanisms of knowledge access, production and sharing. ANPs asked colleagues for advice, and used computers and smartphones to access local and national guidelines. They also drew on prior knowledge gained through training courses and clinical experience. Trainee ANPs displayed a heavy reliance on support from ED consultants and more experienced ANPs in their day-to-day discharge decision-making. Smartphones were found to offer a convenient shortcut to accessing summaries of national guidelines and scoring tools; crucial to managing the knowledge gaps faced in boundary blurring.

Although the focus of the study was on discharge decision making by ANPs, it became clear that discharge decisions are influenced and sometimes difficult to separate from diagnostic decisions, illustrating the mess and complexity of knowledge mobilisation. This chapter therefore presents examples of diagnostic decisions that directly contributed to discharge decisions. For example on page 115 an ANP asks a colleague for advice about how to discharge a patient with chest problems. In this case, it was important for the ANP to consider a diagnosis of pulmonary embolism in making an appropriate discharge decision. Therefore, the diagnostic decision was necessary prior to making the discharge decision. Part of the mess and complexity of knowledge mobilisation in discharge decision-making

lies in the connections between diagnosis decisions and discharge decisions. They are different in part but inextricably linked.

Some of the same knowledge is required for both. However, some knowledge is specific to diagnosis and other knowledge is specific to discharge decisions. Examples of diagnosis specific knowledge include clinical guidelines and clinical experience that allow the clinician to rule out some diagnoses and move towards a differentiated diagnosis. Discharge specific knowledge includes an understanding of patients' social circumstances and barriers to referral. Shared overlapping knowledge between diagnosis and discharge decisions are advice from colleagues on severity and illness consequence as well as knowledge on co-morbidities. It is not always necessary to have a diagnosis in order to discharge a patient from ED. ANPs experienced a number of barriers to accessing knowledge in their discharge decisions, adding to the messy and complex nature of knowledge mobilisation. These included inter-professional conflict with clinicians in other departments, feelings of isolation from other ANPs, and problems accessing formal guidelines via desk top computers. It was also evident that medicine maintained control over the processes of knowledge production and sharing, therefore ANPs were not always aware of new or adapted local resources.

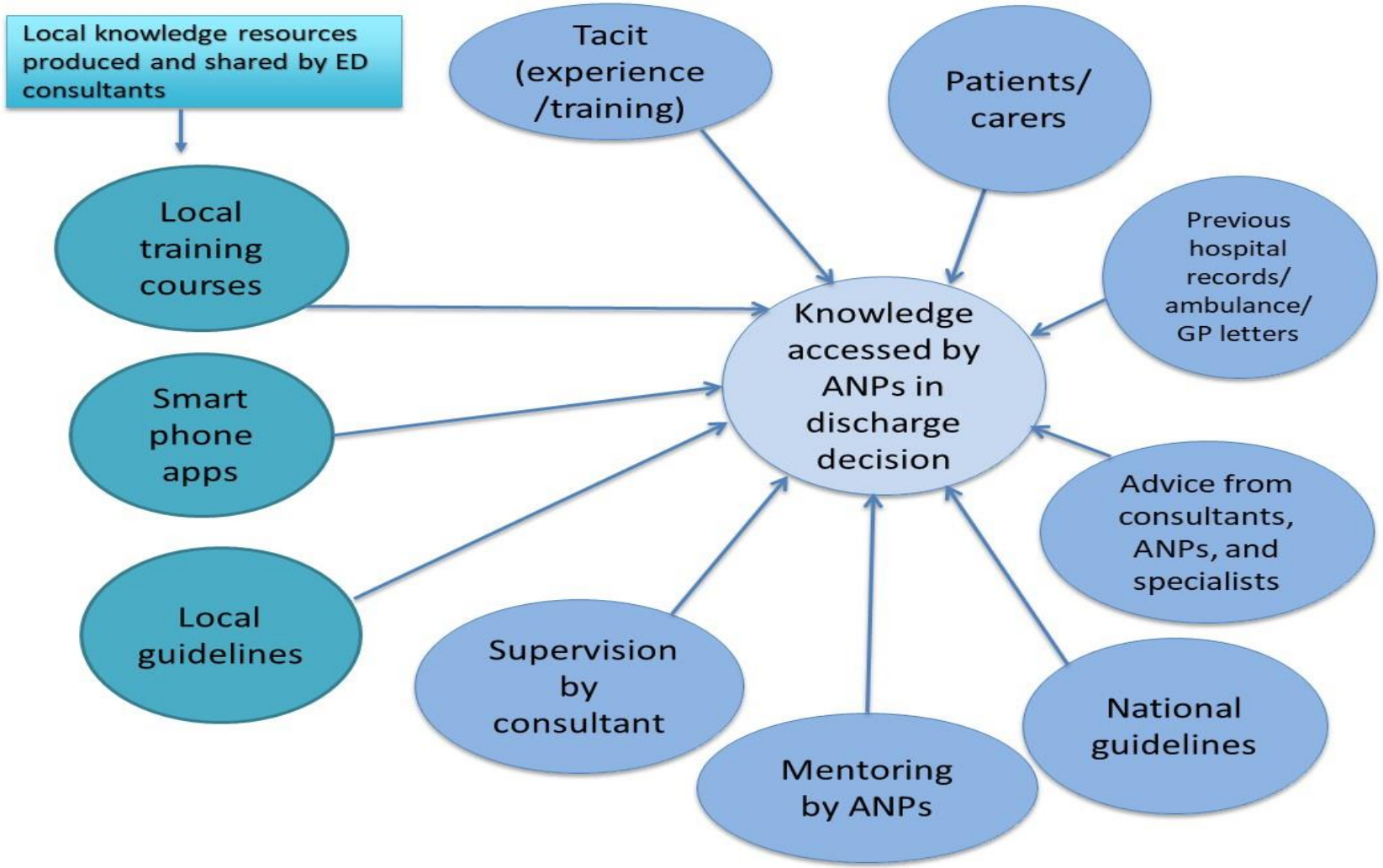
In meeting the requirements of boundary blurring in discharge decision-making ANPs in the ED relied on shortcuts; a similar finding to Gabbay and Le May (2004) in primary care, who found that GPs accessed the latest evidence informally through peer discussions, and meetings. The findings reveal two key shortcuts, one was accessing trusted senior colleagues for informal advice, and the other was accessing summaries of formal guidelines using personal smartphones.

The contextual pressures experienced by ANPs in discharge decision-making have been presented in the description of the research setting (section 4.4.1). A consequence of those discharge pressures was the need for efficient access to knowledge in practice.

6.2 MESS AND COMPLEXITY

The social mechanisms by which ANPs accessed knowledge in discharge decision-making were found to be both messy and complex. ANPs sought informal advice from colleagues (consultants, ANPs, specialists), used technology (computers and smartphones) to access formal guidelines, and drew on their experience and training. They also used hospital notes of previous admissions, triage notes, and knowledge from patients and carers to help inform their discharge decisions. The findings revealed a preference for shortcuts to accessing informal and formal knowledge. Figure 6.2 illustrates how ANPs accessed knowledge in practice, much of which was produced by, and shared with them by ED consultants.

Figure 6.2 Knowledge mobilisation-in-practice



This diagram illustrates the messy, complex nature of knowledge mobilisation in discharge decision-making by ANPs. These processes were not always straight forward as ANPs experienced several barriers to accessing colleagues and technology, which will be discussed throughout this chapter, compounded by the contextual pressures mentioned in sections 4.4.1.

6.2.1 Advice from consultants

There were two mechanisms by which ANPs were supported by consultants in their discharge decision-making. Firstly, trainee ANPs were offered formal one-to-one clinical supervision, during which they worked alongside their consultant supervisors, seeing patients together and discussing the most appropriate management. Secondly, all ANPs were observed to seek out ED consultants for informal advice about particular aspects of patient discharge, during day-to-day clinical work.

In one-to-one supervision sessions ED consultants shared knowledge with trainee ANPs from their own experience and sign posted them to relevant guidelines. Initially this clinical supervision was very close, with ANPs discussing every aspect of patient management with their consultant supervisor. The level of supervision reduced as ANP experience increased.

> *"You started off like they do with medical students, go and take a history then come back and discuss it then they'd supervise you doing physical examinations …and so it was very much on the shop floor, discussions about individual patients and individual conditions. Gradually the leash gets longer and longer and then they say go and see patients and come and see me if you have a problem, which is kind of how the junior doctors operate anyway. So it's gradually just incrementally decreasing the level of supervision and hopefully increasing your level of skills and knowledge". Source: ANP 3 interview*

This one-to one supervision was observed to function like an apprenticeship as the ANPs followed their consultant supervisors to the bedside, then to the computer to order investigations and document care. Following joint assessments of patients the consultants would ask the ANPs questions in order to test and build on their

knowledge and suggest appropriate resources to inform their decisions. Boundary blurring was evidently a driver for the style of ANP training in this particular ED.

The extent of inter-professional knowledge sharing between consultants and ANPs highlighted the perceived value of working alongside more experienced clinicians in this apprenticeship style relationship. ED consultant supervisors were clearly experts in the medical skills and judgments being adopted by ANPs in boundary blurring.

In addition to one-to-one supervision ANPs were also found to access knowledge from ED consultants more informally during their day-to-day discharge decision-making. ANPs sought the advice of consultants when they were unsure of a diagnosis, or if they became concerned that a patient was deteriorating.

> *"The times when I will actually ask a consultant to go and see one of my patients is usually when I have no idea what's going on with them. So I'll see someone, order some investigations and then I'll be like I really don't know what's wrong with this person. It doesn't fit with a known pattern of pathophysiology, or with a known condition, or there's something just nagging at me, like an instinctive 'something's not right', you know, or there's an alarm bell ringing for whatever reason". Source: ANP 3 interview*

This not only reveals a reliance on consultants for support in diagnostic and discharge decision-making, but also highlights the value of instinct; tacit knowledge that is difficult to observe.

In contrast to more experienced ANPs, trainee ANPs asked consultants about discharge decisions very frequently. For example, on one occasion a trainee ANP made it clear that she did not make her own decisions.

> *'ANP 1 told me her knowledge in discharge decision-making comes from the consultant next to her (which she illustrated by pointing at him). Source: Resus observation*

Trainee ANPs clearly experienced knowledge gaps resulting from the medical substitution element of their role, again highlighting the importance of apprenticeship style learning. Some of their medical colleagues found this reliance on their

knowledge a source of frustration.

Experienced ANPs were more comfortable making discharge decisions than trainees, indicating that they were closer to achieving autonomy in this part of their role. They mostly sought advice from their consultant colleagues to check which speciality to send patients to, rather than to make decisions about diagnosis. This illustrates that experienced ANPs had developed effective mechanisms to increase their knowledge, which are discussed further in the findings chapter on knowledge in situated learning (chapter 8). For example, on one occasion an ANP was unsure about which ward to send an elderly patient to who had re-attended with respiratory problems. She asked a consultant for advice and was quickly advised to send the patient back to the ward he had been discharged from.

> *'She [ANP 5] said she planned to admit the patient but wasn't sure whether to refer him back to the respiratory specialists or to the geriatricians, so she would ask a consultant… She told him she had a patient who had been discharged the day before and he [ED consultant] immediately said the patient should be referred back to the respiratory ward. When ANP 5 suggested geriatrics he advised her not to do that as he had previously received an email of complaint when he did'. Source: ANP 5 observation 1*

This finding highlights the importance of gaining contextual knowledge regarding the medical substitution aspect of the ANP role. The experiential knowledge of senior doctors was valuable to ANPs in accessing knowledge in practice.

All ANPs were observed to ask consultants for advice in their discharge decision-making, not just the trainees. ***It was clear that in the fast pace of the ED, ANPs valued and sought out consultants as shortcuts to meeting their knowledge requirements.***

6.2.2 Advice from other ANPs

In addition to asking consultants for advice in discharge decision-making, ANPs also valued advice from more experienced ANPs. ANPs were observed to gain knowledge from their peers by two mechanisms, firstly via a formal mentoring arrangement, where trainee ANPs are allocated a more experienced ANP to provide

support, and secondly by asking for advice during the clinical day. The formal mentoring structure was described by participants during interviews, but rarely observed in practice due to working in relative isolation from other ANPs (discussed further in section 8.3).

On occasions when ANPs did work together during a shift it was clear that trainee ANPs valued the peer support. For example, on one occasion a trainee stopped a more experienced ANP in the corridor to discuss a patient she was assessing who had attended with chest problems. The trainee wanted advice about the most appropriate discharge decision.

> *'ANP 5 bumped into ANP 4 in the corridor who asked her if she could discuss a patient with her. She wanted to know whether to admit a patient who had presented with respiratory symptoms and a history of COPD [chronic obstructive pulmonary disease]. ANP 5 advised her that she should admit the patient as she also needed to exclude a PE [pulmonary embolism]'. Source: ANP 5 observation 3*

The experienced ANP appeared very happy to offer support, engaging in conversation in the corridor and showing an interest in the ANPs question using open body posture and eye contact. She gave advice about how to discharge the patient; focusing on the need to investigate the differential diagnoses. On another occasion a trainee ANP approached a more experienced ANP and asked to discuss her patient as she was unsure of the differential diagnoses, an essential step in making a discharge decision.

> *'The trainee ANP described her patient's history; a 46-year-old female with abdominal pain and diarrhoea. She asked the more experienced ANP "what could it be?" He suggested gastroenteritis, bowel obstruction, or IBS [irritable bowel syndrome], advising her to order blood tests and review the patient again when the results were back. The trainee appeared reassured.' Source: ANP 3 observation 1*

This was a very relaxed conversation, the trainee did not display any fear of interrupting the experienced ANP, and the experienced ANP did not exhibit any frustration at the questions asked by the trainee (emotions sometimes evident in

communication between ANPs and ED consultants). It was clear that this informal intra-professional knowledge sharing was important to trainee ANPs in meeting the medical substitution elements of their role. They did not question the advice from colleagues, or explore in more depth where their knowledge had come from. This illustrated the trust that ANPs had in the knowledge provided by their colleagues with more experience.

Experienced ANPs helped the trainees in their journey towards confidently performing the medical substitution elements of their role. This peer support was not only valuable in accessing knowledge in practice, it was essential in learning how to become autonomous discharge decision-makers.

6.2.3 Specialists were difficult to access

The messiness of knowledge access was evident in the difficulties ANPs experienced in contacting specialist nurses and doctors to support their discharge decision-making. Examples of specialists contacted by ANPs included the hand clinic, ear nose and throat (ENT), oncology, orthopaedics, and gynaecology.

Although making contact with specialists was often difficult, occasionally contact was made quickly and advice given promptly. This indicated how specialist knowledge can be mobilised effectively if things work well. For example, on one occasion an ANP contacted an oncology specialist nurse when she was assessing a cancer patient with suspected neutropenic sepsis. Although the oncology department was based in another hospital, the nurse specialist had already received a computer alert that the patient had presented to the ED and was on her way to assess him.

> *'After phoning the oncology nurses the ANP told me they were already aware of the patient's admission as it shows an alert on their computer. After a few minutes an oncology specialist nurse appeared in resus. The ANP outlined the patient's symptoms and the specialist nurse agreed that, as it had been nine days since his last chemotherapy treatment, he should be treated for neutropenic sepsis until test results confirmed otherwise'. Source: ANP 1 observation 3*

This is a positive example of a system designed to enable ANPs to access specialist knowledge quickly. Another team of nurses and allied health professionals (AHPs) that was easily contacted by ANPs in discharge decision-making was the front door response team (FDRT). This team included nurses, physiotherapists and occupational therapists whose role was to assess patients' social support needs. On several occasions ANPs contacted the team to request assessment of their patients' mobility and social support needs prior to discharge.

> *'The ANP phoned the FDRT and within a few minutes two nurses appeared at the patient's bedside, they said "hello again" to the patient and asked him to walk up and down the corridor. The patient told them he was waiting for a handrail to be fitted in his bathroom. They said they would arrange for an occupational therapist to visit him at home to assess for such equipment'. Source: ANP 2 observation 2*

The FDRT were based in an office in the ED, therefore they could be contacted easily, either by phone or face to face. This highlighted the value of having easy access to specialists who had the knowledge and contacts in social care to expedite patient discharges.

The prompt response by the oncology nurses and the FDRT revealed that specialist support was available to patients with certain health problems. However, it was evident that not all specialities had such systems in place, a cause of frustration for some participants, as illustrated by the following extract from an ED consultant.

> *"If there's a cancer patient on active treatment the oncology nurses are alerted that the patient is in the ED, it would be good if say, the diabetic or COPD team got some sort of electronic alert when one of their patients came to the ED, so they could look at what's happening, rather than having to bleep them". Source: K1 interview (ED consultant)*

Delays in speaking to specialists also caused frustration among ANPs in the fast pace of the ED. On one occasion an ANP encountered problems when trying to arrange a cardiology review for her patient. She spent about 20 minutes trying in vain to contact the specialist arrhythmia nurses via the switchboard, becoming

increasingly frustrated at the delay, as she was unable to continue with any other work while she waited at the desk for a response to the bleep.

> *'ANP 2 appeared frustrated. She put the phone down and told me she was trying to sort out a cardiology review for a 59 year old female patient who had attended the ED with palpitations...She said that she had spoken to the cardiologist who had advised her to speak to the arrhythmia specialist nurses to arrange a review. She told me she had tried their phone number four times and had bleeped them twice with no response. Source: ANP 2 observation 6*

A consequence of these barriers in contacting specialists was a reduction in their use, as highlighted by an ED consultant during an interview.

> *"I think what's unfortunately happened as well, to be fair to them is that you try to contact one [specialist nurse] two or three times and it doesn't work and the fourth time you never bother trying to contact anybody". Source: K1 interview (ED consultant)*

Despite the perceived availability of specialists (nurses, or other health professionals), barriers to effective communication and, therefore, problems accessing specialist knowledge led to the reduced use of valuable resources and potential and actual delays in discharge. This highlights the complexity of accessing relevant knowledge to discharge patients effectively and the need to consider how the organisation might improve communication systems.

It was clear that the system worked very efficiently for oncology patients, and those with social care needs. The mechanisms by which specialists were contacted clearly impacted knowledge in practice. In light of the contextual time pressures discussed previously, ***availability of specialists affected ANPs access to relevant knowledge to inform discharge decisions***.

6.2.3.1 Impact of role ambiguity on discharge

One reason for the difficulties in accessing specialists in discharge decision-making was a lack of understanding about the ANP role. Therefore role ambiguity contributed to the messiness of knowledge access in patient discharge. ANPs were

found to experience resistance by some specialists to accepting patient referrals. For example, on one occasion when an ANP tried to refer a patient to a stroke ward the specialist stroke nurse questioned her judgement. The referral was accepted, but due to the doubts declared by the specialist nurse the ANP double-checked with a consultant whether her decision had been appropriate.

> *'The ANP told me that the stroke nurse had accepted the patient referral, but had questioned her diagnosis, saying that problems swallowing aren't really a sign of stroke and maybe the patient had a throat infection. ANP 1 then asked the consultant if she was right in thinking stroke, the consultant said yes and that she should have asked the stroke nurse, well what else could it be?' Source: ANP 1 observation 5*

There was clearly uncertainty about the remit of the ED ANP role amongst healthcare professionals in other parts of the hospital Trust. Another example of the consequences of role ambiguity to communicating with specialists was given during an interview with an ANP.

> *"I had an awful conversation with a speciality consultant a couple of months ago. It was a weekend and I'd got a haemophilia patient that was bleeding. And I know nothing about haemophilia, and I discussed it with my consultant first who said oh you need to speak to them…. I introduced myself, and it was "I don't even know what one of those is. What even is an ANP?" And he was absolutely awful to me on the phone. By the end of the conversation I think I'd won him round a bit, but why should I? You know". Source: ANP 2 interview*

In this case the ANP clearly identified her knowledge gap *"I know nothing about heamophilia".* Role ambiguity added an unnecessary barrier to accessing specialist knowledge prior to making a discharge decision. Furthermore, ANPs found that some specialists insisted that a doctor should review patients before they could be referred to a ward.

> *"I've had, 'has a doctor seen this patient? No a doctor hasn't seen this patient, I've seen this patient and I feel they need to come to you. I've discussed it with my senior. But has a doctor seen this patient? No, no, that's not what happens. Ah they need a doctor review before they can. What is that going to*

add? They've had the antibiotics, they've had this, they've had that. They've got acute meningitis they need to come to you. No they need a doctor review before they come in'. Or they refuse to accept referrals, or they refuse to talk to you because you're a nurse not a doctor". Source: ANP 1 interview

Lack of understanding around the scope of the ED ANP role across the wider organisation was clearly a significant barrier to patient discharge in this site; a consequence of the autonomous discharge decision-making element of boundary blurring in the ED.

Inconsistencies in the scope of ANP practice in different areas across the organisation may have contributed to role ambiguity. One senior nurse manager described the differences in clinical skills and levels of decision-making between ANP roles in different areas.

"They are very varied. Some of them have advanced clinical skills. Some of them have much more advanced clinical decision-making alongside those skills. And I think probably the easiest way for me to explain what the difference might be, is some of them work in traditional SHO [senior house officer] slots on rotas, and some of them work in registrar slots. So you can see immediately where the decision-making is different". Source: C4 interview (senior nurse manager)

ANP roles were distinguished by the level of doctor that they were substituting on the rota (senior house officer or registrar). This variation in scope and responsibility was a consequence of the lack of national regulation of the ANP role, and the differences locally in the levels of medical substitution. This explains how role confusion amongst healthcare professionals is inevitable, highlighting the importance of role clarity, both departmentally and more widely across the organisation. ***The problems experienced by ANPs in contacting specialists for advice highlights the messy consequences of role ambiguity in accessing knowledge in practice.***

6.2.4 Patients and carers provided important knowledge (clinical history)

In addition to more formal sources, ANPs valued knowledge from patients and carers. ANPs viewed history taking as a key opportunity to find out why the patient

had presented to the ED, and to gain as much knowledge about their previous problems in order to inform their discharge decision. One example reveals how much ANPs relied on the patient history to inform their diagnosis.

> *"Generally, it's like someone comes in and says to you I've got a fever, I've got a productive cough, I feel really poorly, I've got shortness of breath, you think you've got pneumonia. Listening to the chest isn't going to alter what I do or change my decision or anything. So I always think the history from the patient is one of the most important things". Source: ANP 2 interview*

***This knowledge from the patient of their experience of their symptoms was valuable to ANPs*.** However, occasionally patients were unable to clearly state their problem. In some cases, patients' relatives provided further information to the ANPs when patients were unable to articulate their symptoms due to communication difficulties, as illustrated by the following example:

> *'The patient's son said she had dementia so wouldn't be able to explain what happened to her. He told the ANP that she had had two nose bleeds the day before and one this morning which wouldn't stop, so the carers at the nursing home phoned him and said they were phoning an ambulance. He also said that she often picked her nose so that may have been the cause'. Source: ANP 3 observation 4*

This information from the patient's relative was crucial to focusing the ANP's assessment, finding out the cause of the nosebleeds, and determining the discharge decision. This reveals the importance for ANPs to gather all available relevant knowledge in practice. The context of patients and their support networks were key contributors to the discharge decision; adding to the complexity of the decision, and messiness when this knowledge was not available.

6.2.5 Tacit knowledge

ANPs often applied previous, tacit knowledge to patient discharges, facilitating quick decision-making. Tacit knowledge played a fundamental part in how ANPs made discharge decisions, however this was more difficult to identify during the fieldwork. On occasions when ANPs did not obviously search for knowledge in their discharge

decision-making they were asked during informal conversations how they came to their decisions. They responded by describing how they drew on knowledge they had acquired from training courses, and from seeing previous patients with similar problems. Others talked about gut feeling, particularly in the ED context.

> *"A lot of its gut instinct and things as well, you have to rely on, because a lot of the things there aren't, especially the minor stuff, there's no policies or guidelines really…so just gut feeling. Source: ANP 2 interview.*

Indeterminate knowledge compensated for a lack of relevant guidelines in the ED context. It also enabled ANPs to prioritise their care as illustrated by the following extract, when an ANP saw an elderly patient out of order as she was concerned she may need analgesia for a possible hip fracture prior to assessment:

> *'ANP 2 noticed an elderly lady with a possible hip fracture was on the list, so she told me she would see her first, bypassing a younger patient, as she may need pain relief…She said she used to work in orthopaedics so a lot of her knowledge came from that experience and working in the ED'. Source: ANP 2 observation 3*

Therefore, tacit knowledge not only aided diagnosis and discharge decision-making but also motivated ANPs to override organisational systems for patient benefit. This again highlights the messiness of knowledge access and application. On another occasion when a patient attended the ED with dizziness the ANP used her previous knowledge about the different causes of dizziness to assess and discharge a patient.

> *'The ANP asked the patient to describe what he meant by dizzy; was it a spinning feeling or a light-headed feeling…She told me that room spinning it is more likely an ear problem or stroke, and light headedness is more likely a heart problem. I asked how she knew this and she said it was not from any courses, it was from working in the ED and asking more senior colleagues. She said she didn't used to like seeing patients with dizziness but now after more experience she is happy managing them'. Source: ANP 2 observation 2*

Indeterminate knowledge was developed from the training and experiences of ANPs and others through social networks in clinical practice. It was established

through extensive nursing and ANP experience in the ED context, further evidence that 'nursing' is retained in boundary blurring, and increased confidence in discharge decision-making (discussed further in chapter 7).

6.3 MEDICAL CONTROL OVER KNOWLEDGE PRODUCTION AND SHARING

Contributing to the messiness of knowledge mobilisation was the inter-professional relationship between doctors and ANPs in terms of knowledge production and sharing. ANPs in this study were not involved in developing and sharing the local resources that they used in their discharge decision-making, impacting their awareness of, and ability to access them. One ED consultant explained how local guidelines are developed from national guidelines by consultants in collaboration with specialists. The deep vein thrombosis (DVT) guideline was used as an example:

> *"So they're often written in collaboration with other departments… Our DVT one is based on NICE guidelines, but there is a committee that writes it, there's a haematologist, a respiratory doctor an ED doctor, obstetrician and oncologist and we all sit and write it, because it's not just NICE guidelines, there is a Green top guideline for obs and gynae and each directorate has their own focus so we try to write them together if we can". Source: K1 interview (ED consultant)*

Observational fieldwork confirmed that ANPs were not involved in developing local guidelines. However, registrars (doctors who were said to be at a similar level to ANPs) were given the opportunity to be involved in the process:

> *"All of our consultants are involved in re-writing guidelines with some support from our registrar body as well. The idea is to pick up a guideline, revise it and speak to the specialty as well. For example for the GI guidelines we would speak to gastroenterology" Source: K4 interview (ED consultant)*

The development of local guidelines in collaboration with relevant specialists, would undoubtedly provide valuable learning experiences for those involved; opportunities that ANPs were missing. Lack of involvement was found to lead to a lack of awareness that some local guidelines had been developed. ED consultants were found to share new or amended guidelines via email, however ANPs did not

regularly access their Trust accounts as they did not have office desks, and Trust emails could not be accessed via mobile phones.

> *"The problem we've got is all the communication is done by email, and the trust has its own email system which you can't get on your phone. So, for people, you know like consultants and senior nurses who have offices and time to sit and look at their email, most other staff probably won't look at their email at all or will look at it once every few shifts. So, dissemination of stuff becomes fairly unreliable". Source: K2 interview (ED consultant)*

Observational fieldwork provided further evidence of this. For example, on one occasion an ANP was unaware of a local guideline when assessing a patient with a pneumothorax alongside her consultant supervisor:

> *'The consultant asked ANP 4 where to look for guidelines on pneumothorax. She suggested the BTS guidelines. He said that was right but there were also local guidelines based on the BTS guidance. ANP 4 said she had not seen that guideline before. The consultant advised her to read it then they worked through the flowchart for managing a pneumothorax'. Source: ANP 4 observation*

The local guideline incorporated a flowchart summarizing the management of pneumothorax in the local context including the discharge process. Although the ANP knew about the national guideline, a lack of awareness about the local policy may have prevented her from following local procedures when discharging the patient.

In light of the lack of ANP involvement in developing guidelines they were found to rely on ED consultants to communicate changes to local guidelines by word of mouth.

> *"And a lot of it is around one to one awareness, so you see somebody, a patient with a particular condition and you say, actually have you seen this guideline that's available? So it's around that sort of communication, asking people to cascade that information out on a one to one basis". Source: C2 interview (ED consultant)*

It was evident that the clinicians who were most in need of knowledge to support their new scope of practice in boundary blurring faced the greatest barriers to accessing those resources.

Smartphone 'app' development was also controlled by ED consultants; the MED18 app was developed by one of the consultants in the department. Content was based on the developer's own, and medical colleagues' experiences of common presentations to the ED:

> *"What I did was going through the NICE guidelines and other speciality or sub-speciality guidelines, for those conditions I normally see, to see what scoring system was recommended and what people should be doing. Erm, so things like the NICE head injury guideline, there is a scoring system but I've built that as a checklist of things that you say yay or nay to and then it will tell you to do a CT head or not. So it's sort of evolved over time in terms of what went in based on suggestions from other people as well, after I sent the first version out". Source: K2 interview (ED consultant and author of the MED18 app)*

The app had been developed from the experiences of consultants in the ED therefore it was context specific in terms of the presentations it covered. The app enabled users to access summaries of national guidelines and decision-making tools quickly at a patient's bedside. ANPs were not involved in the development or quality assurance of the app, therefore the app did not necessarily meet the knowledge requirements of ANPs.

The third mechanism by which consultants developed local resources was via departmental teaching sessions. ANPs were invited to access inter-professional lunchtime teaching sessions in the department developed by consultants, previously only available to junior doctors.

> *"There is other teaching that goes off in the department that we are more welcome at now. I think initially it was like; no this is not for the ANPs, this is for the registrars or the junior doctors". Source ANP 4 interview*

By inviting ANPs to attend inter-professional teaching sessions it was evident that

ED consultants felt that in boundary blurring the knowledge requirements of ANPs were similar to those of junior doctors.

The control exhibited by doctors over knowledge mobilisation was an inevitable consequence of boundary blurring as ANPs were relatively new to some of the medical substitution elements of their role. ANPs were, however found to be involved in developing and delivering teaching sessions to other nurses and junior doctors within the department (see section 7.3.3).

The findings show that in boundary blurring ANPs relied heavily on medical colleagues to produce and share relevant resources. The lack of ANP involvement may be due to the infancy of the ANP role, and the subsequent focus on developing their own knowledge and skills, rather than developing the knowledge of the department as a whole. One consultant proposed that ANPs might feel intimidated by the medical knowledge required to develop guidelines:

> *"I think when we get down to the nitty gritty technical aspects of writing guidelines they [ANPs] might be a bit intimidated but there's lots of support in the department to help them with that. If it's something that's really hard core medical they could easily team up with a registrar and they could write the guideline as a team with supervision from a consultant". Source: K4 (ED consultant) interview*

There is an assertion here that ANPs would struggle with the academic level of producing a guideline, suggesting that the traditional role hierarchy persists among some consultants. It seems inconsistent to expect ANPs to make advanced clinical judgments, but not to give them the opportunity to develop local guidelines relevant to their discharge decision-making.

Medical staff had control over knowledge mobilisation indicating that the traditional healthcare hierarchy persists in the ED, with the medical profession at the top. Doctors were content to pass on their clinical skills and responsibilities to ANPs but perhaps less keen to relinquish control over the production of knowledge resources. This finding illustrates that a barrier to knowledge mobilisation was the lack of involvement of ANPs in all processes. In the future, as ANP numbers potentially increase, it will be important for experienced ANPs to be involved in

developing resources that will be readily available in the fast-paced context of the ED.

6.4 PREFERENCE FOR SHORTCUTS IN ACCESSING GUIDELINES

In addition to asking colleagues for advice, ANPs regularly searched for formal guidelines to inform their discharge decisions. They used desktop computers and smartphones to look up national and local guidelines and scoring tools. Examples of local guidelines accessed by ANPs via a shared drive on the desktop computers included the management of sepsis, neutropenic sepsis, needle stick injury, blood fluid exposure, paracetamol overdose, renal dialysis, chest pain, and trans-ischaemic attacks (TIAs).

ANPs also used the desktop computers to access scanned copies of ambulance notes, GP letters, previous admission notes and triage assessment forms. The following extract illustrates one occasion when important knowledge about a patient's previous health problems and potential risk to others was accessed from the ambulance notes and previous admission records.

> *"ANP 3 then looked on the computer at the paramedic notes and previous admissions. She told me that she had read that homeless shelter staff had called the ambulance as they had found the patient slumped over a wall shaking and cold. She said the staff had told paramedics he was an intravenous drug user and had a history of epilepsy. She noted from previous admission notes that he had been inappropriate with other patients on previous admissions". Source: ANP 3 observation 1*

Notes and letters from previous encounters with the health service enabled ANPs to be aware of previous effective treatments, to check past medical history and changes in medication, to identify potential risks related to particular patients and to put strategies in place to protect patients and the public from harm.

The next sections present the barriers experienced by ANPs to accessing knowledge via computers and their preference for smartphones. It is evident from the findings that shortcuts facilitated medical substitution, helping ANPs to manage the messy chaotic nature of discharge decision-making in this ED.

6.4.1 Barriers to accessing guidelines via computers

Several barriers to accessing guidelines via computers emerged during the fieldwork. ANPs found they conflicted with other knowledge sources, were too long to read and difficult to access due to competition for computer use.

One example of conflicting knowledge sources occurred when an ANP asked a consultant for advice about discharging a 37-year-old patient with chest pain. The recommendations in a local guideline conflicted with the experience of the ED consultant, who consequently chose to follow his experiential knowledge.

> *'The local guideline stated that if the troponin is >30 with a normal ECG then the patient should be referred to MAU [medical assessment unit]. The consultant said that if his [the consultant's] troponin was 59 he would want to be referred to cardiology. He advised the ANP to refer the patient to cardiology as a non-ST elevation ACS [acute coronary syndrome]'. Source: ANP 4 observation 3*

This reveals the potential for knowledge sources to conflict and the value of indeterminate knowledge; tacit knowledge that is developed from experience and used to make decisions in situations of uncertainty. The ED is characterized by managing uncertainty, therefore indeterminate knowledge was a powerful source in decision-making, as shown by its dominance in conflicts of knowledge.

Guidelines were also found to be too long. ANPs did not have time in the busy ED context to sit and read through large documents to inform their discharge decisions. One example of this occurred when an ANP looked up a national guideline on the desktop computer as recommended by her consultant supervisor prior to assessing a patient presenting with haematemesis.

> *'The ANP found the guideline for upper GI bleed, scrolled through several pages of text and told the consultant it was really long. He said there would be a summary. She kept scrolling through the document then said she couldn't find the summary so would look at it later'. Source: ANP 4 observation 2*

She did not have time during the period of observation to go back to this guideline again. The inaccessibility of guidelines due to their length was not only a problem for

ANPs; it was also experienced by ED consultants, as revealed by the following example.

> *"It definitely takes time to look at guidelines and I personally prefer a single page with a flow chart rather than ten pages. I find it really difficult to find the bit that I need in it". Source: K1 interview (ED consultant)*

The length of national guidelines was a problem for ANPs in discharge decision-making. This suggests that shortcuts to accessing guidelines would be beneficial to ANPs in light of their knowledge gaps in meeting the medical substitution element of discharge decision-making.

ANPs also experienced difficulties gaining access to computers due to competition with other users. Several ED staff used computers to access patient notes, order investigations and input any changes to patient locations. Computers were also essential for documenting all aspects of patient care. One senior nurse described the impact of the competition for computers on knowledge access.

> *"Everything now practically is on the computer, from moving patients, you know if you send a patient to X-ray you have to click on to move the patient, so if you've got a department with over 100 patients in it and all those patients are needing something, that might limit the access to IT to help you gain access to information that you need to make your decision". Source: C1 interview (senior nurse manager)*

In light of the time pressure of discharge decision-making to achieve organizational targets and patient satisfaction ANPs appeared frustrated by the lack of computers when trying to access guidelines.

> "*There's not enough workstations, erm, that are readily available within the department. You're always struggling to get on a computer" Source: ANP 3 interview*

This finding was supported by observational data, which revealed the impact of a lack of computer access on decision-making. On one occasion when all of the computers appeared to be in use one ANP was unable to read the previous hospital

notes of a 90-year-old patient prior to assessing him.

> *'ANP 2 identified the next patient to be seen; a 90 yr. old man who had attended the ED after falling at home. All of the computers were being used so she told me she would see the patient before reading the previous notes'. Source: ANP 2 observation 2*

This apparent shortage of computers had an impact on knowledge access as the desktop computers were the only way to access previous notes and local guidelines, resources that were crucial in enabling ANPs to fulfill their discharge decision-making role.

Although most participants complained about the lack of access to computers, one ED consultant argued that there were enough computers in the department, but clinicians chose not to use them. He referred to several unused wall-mounted computers in the department, which were mostly positioned in patient cubicles.

> *"We've got a computer in every cubicle, the problem is people don't use them, so there are plenty of computers available... It's a traditional thing, when people use a computer they like to sit down at it rather than stand in front of a computer at a patient's bedside…There's probably an element of discomfort in going to look up a guidance right next to your patient, and giving that impression that you don't really know what you're talking about. But certainly there are plenty of computers, plenty, more than enough, but I think it's just where they're located, and the proximity to the patient, and people like to sit down to work at a computer rather than stand". Source: C2 interview (ED consultant).*

Observational findings confirmed that the wall-mounted computers in patient cubicles were rarely used. As suggested by this consultant, ANPs may have not wanted patients to see them searching for guidelines; as this may have reduced patients' confidence in them and threatened their feelings of legitimacy in their new role. ***A consequence of barriers to computer use in the ED was a need for ANPs to find alternative mechanisms for accessing guidelines to gain relevant knowledge in practice in discharge decision-making.***

6.4.2 Preference for smartphones over computers

One of the most important mechanisms by which ANPs accessed knowledge in discharge decision-making was via smartphones. They used their personal smartphones to access guidelines and scoring tools via applications (apps) on a daily basis. In contrast to computers, smartphones were readily available, easy and quick to use and provided summaries of guidelines, often in the form of decision tools. The apps used by ANPs were the MED18 (app name has been changed to maintain anonymity), the British National Formulary (2016), a local antibiotic guide, Medscape, NICE, and Google.

The app used most often by ANPs was MED18, developed locally by one of the consultants in the department. It provided access to a wide range of clinical decision scoring tools which were developed from national guidelines. The following extract provides an example of an ANP using the MED18 app to discharge a patient with chest pain.

> *'The ANP used the cardiac decision tool on the MED18 app to identify the patient as 'low risk' of an MI based on his troponin blood result, ECG, and risk factors. She discharged the patient home'. Source: ANP 2 observation 5*

Another ANP was observed using the MED18 app to decide whether to perform a CT scan for a patient with a head injury prior to discharge.

> *'When she clicked on 'over 65 yrs.' and 'loss of consciousness' the MED18 app advised that a CT scan was required within 1 hour. The ANP said she previously used the local guidelines on the desktop computers, but now relies on the app, developed by one of their consultants [MED18]. She said she used to look at it regularly, but now refers to it every other shift'. Source: ANP 5 observation 1*

This illustrates the preference among ANPs for using smartphone apps rather than desktop computers. It also reveals that the use of formal guidelines decreases over time as both experience and indeterminate knowledge increase.

Although the benefits of smartphones in accessing knowledge appeared significant to ANPs some barriers to their use emerged. ANPs were concerned about

maintaining their professional image; they feared that smartphones may appear unprofessional to patients. One ANP described the methods she used to reduce this perception; including moving away from patients, explaining what she is doing, and using humour.

> *"My main concern was appearing rude. Because we're not in the phone culture and the generation, so I always go away from a patient before I look…, just because I feel people will feel like I'm looking at my text messages! (Both laugh)…Or I'll say to the patient, I'm just looking at guidelines. Because, it's really funny, the abbreviated memory score, you know the memory test, I can't remember them all. So I use my phone as an aid memoir, and I always say to the patient I've already failed this because I need my phone to ask the questions! (Both laugh). So I do feel as though I need to qualify why I've got my phone out, but I think that's an age thing!" Source: ANP 5 interview*

This ANP felt that her concern about appearing rude was a generational issue (compared to younger ANPs). However, as the majority of patients in the ED were elderly, this was an important issue to consider. ANPs may also feel that looking for guidelines on their phones threatens how patients perceive the legitimacy of the ANP role.

Another concern raised by participants related to the use of smart phone apps was their lack of regulation. For example, one senior nurse felt that both existing and new apps should be approved by the department:

> *"We need to ensure that the apps people are using are appropriate and approved apps... We need to capture them somewhere in our architecture to say if you're working as an ANP in ED, these are the approved apps that you can use. If you want to look at introducing another one then there's going to have to be some kind of decision-making framework where, probably to be fair in the ED the consultants would need to sign that off as a safe app". Source: C4 interview (senior nurse manager)*

This senior nurse proposed that the safety of smartphone apps could be locally regulated, suggesting that ED consultants should have that responsibility. This perception that medicine should maintain control over the production and sharing of

resources was discussed in section 6.3. There were also concerns about the wide range of decision-making tools available, and the fact that smartphone apps may not present the locally agreed guidelines for specific conditions such as the Well's score to aid diagnosis of deep vein thrombosis (DVT).

> *"Erm [name of an ED consultant] developed the phone app. So that's why everyone in the ED uses it. I worry a little bit that some of the local guidelines are used a bit less when you've got the app. For example…with Well's score there are two different scores and you wouldn't necessarily know which one the organisation has agreed to have unless you read the local trust guidelines…There are some subtle differences in the scoring tools, so I think whilst they definitely have their place you need to be wary". Source: K1 interview (ED consultant)*

This suggests a need for local agreement about the content of smartphone apps prior to their widespread use, and the future need to incorporate local policies in smartphone apps. One of the reasons why the ANPs trusted the content of the locally developed smartphone app was because they knew the developer.

> *"I use MED18 because I know who made it. So I trust the source, I don't use any others. And MED18 is the only UK based app for emergency medicine, the others are more likely to be US. So you have to be careful and know the source of the information you're getting". Source: ANP 5 interview*

In the same way that ANPs trusted the advice of ED consultants (see section 6.2.1) they also trusted the content of the app without questioning the origins of the information. There was clearly managerial support for the use of smartphones by ANPs to access knowledge in their discharge decision-making. No objections to their use in day-to-day clinical practice were observed.

A further barrier to accessing knowledge via smartphones was the lack of local Wi-Fi. At the start of the fieldwork ANPs complained about using their own phone data.

> *"Being able to access guidelines on a phone is a lot easier than computers. It would be even easier if we had access to Wi-Fi, which we don't at the moment. It will be coming in, it'll make things quicker". Source: ANP 3*

interview

There was a desire among ANPs to access knowledge quickly and without personal cost. A lack of Wi-Fi was therefore a barrier to using smartphones to access knowledge. Wi-Fi later became available for all staff and patients facilitating access to decision-making apps. The organisational support for the use of smartphones by ANPs was evident by the local development of the MED18 app and the widespread use of the apps by ANPs in the department without opposition. One senior nurse manager described smartphones as the way forward, as illustrated in the following extract.

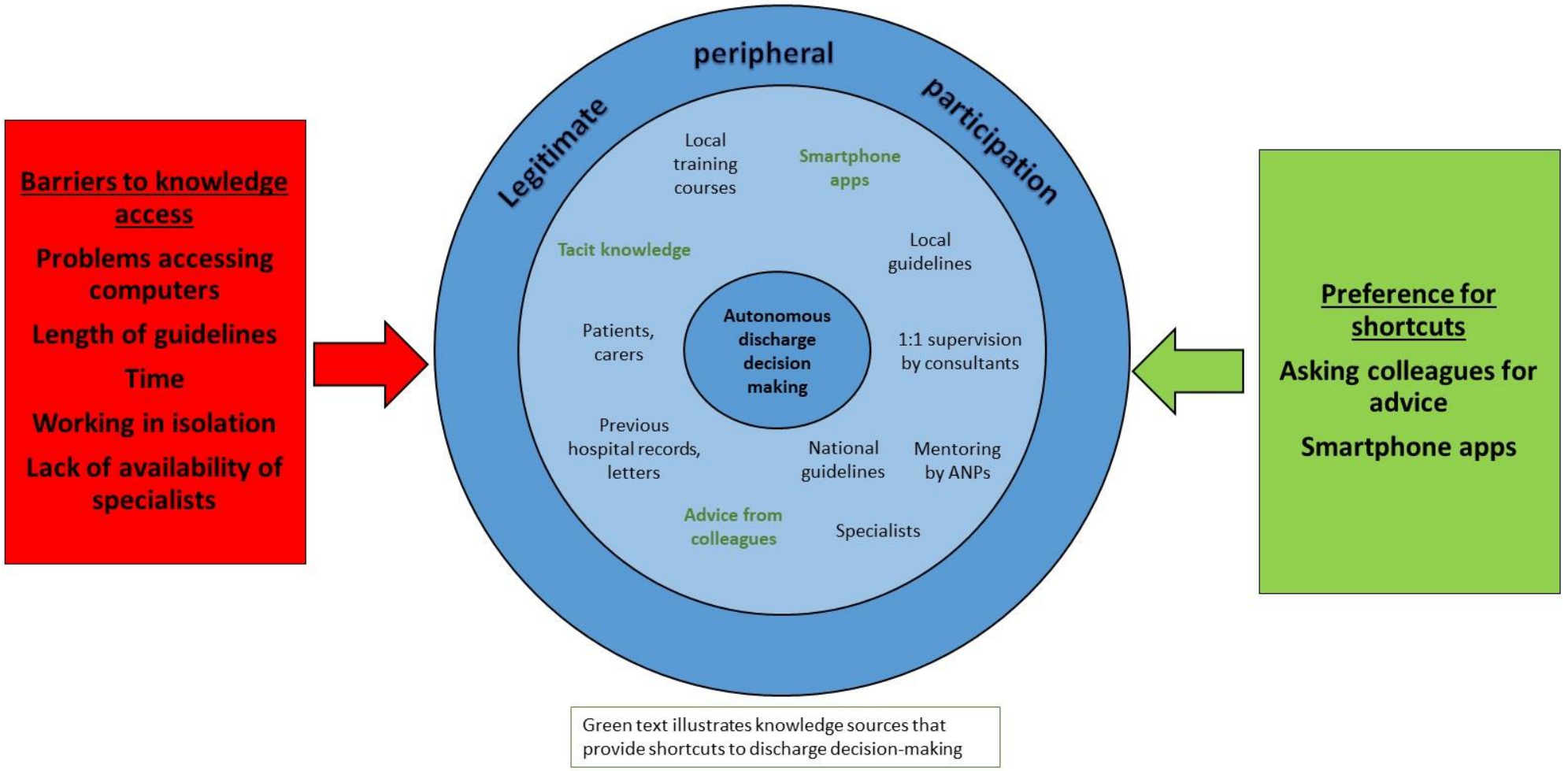
> *"If you're in the middle of a very busy ED and you need assistance with a decision then the apps are going to be the way forward…I think we're going to have to embrace technology and enable people to use apps….we've allowed people access to computers to aid decision-making, so this is just a computer in your pocket isn't it. You have to trust people's professionalism that they won't be on Facebook; they'll be using an app on their phone. So it's the way forward I think". Source: C4 interview (senior nurse manager)*

Managers trusted ANPs not to misuse smartphones, recognising the benefits of accessing evidence based guidelines efficiently. One senior nurse highlighted the importance of accessing a good discharge decision-making framework, incorporating new smartphone technology.

> *"Access to a good decision-making framework is important. So the use of apps, the access to other opinions; be it the consultant, largely the consultant, but to other people as well. So I think access is really important in decision-making, access to whatever it is you require to make your discharge decision". Source: C4 interview (senior nurse manager)*

There is acceptance here of the complexity of knowledge access in discharge decision-making, and a need for easy access to a wide range of resources. It was also clear that ANPs felt it was important to access a number of sources of knowledge in discharge decisions, particularly in the time-pressured context of the ED. ***Shortcuts such as smartphones were invaluable to ANPs in accessing high quality evidence in national guidelines to inform discharge decisions.***

Figure 6.4 Knowledge sources, barriers and preferences



6.5 CHAPTER SUMMARY

Discharge decision-making by ANPs in the ED was **complex and messy**. It was complex, in terms of the many different knowledge sources available, and messy in terms of the obstacles faced by ANPs in accessing relevant knowledge.

ANPs were under pressure to make timely, appropriate discharge decisions in light of the **contextual pressures** of waiting time targets and bed shortages. This created a tension between the organisational drive to meet targets and the ANP motivation to make an informed discharge decision. A consequence of these pressures was that ***ANPs required access to knowledge that was both readily available and relevant.***

Shortcuts were essential to efficient discharge decision-making. In light of the barriers to computer use, problems accessing specialists, and working in isolation, ANPs relied heavily on advice from senior colleagues (ED consultants and experienced ANPs) and access to decision tools via smartphone apps. Participants raised some reservations about the use of smartphones in clinical decision-making. There was some uncertainty among ANPs about the regulation of smartphones and how patients perceived the use of smartphones to aid decision-making.

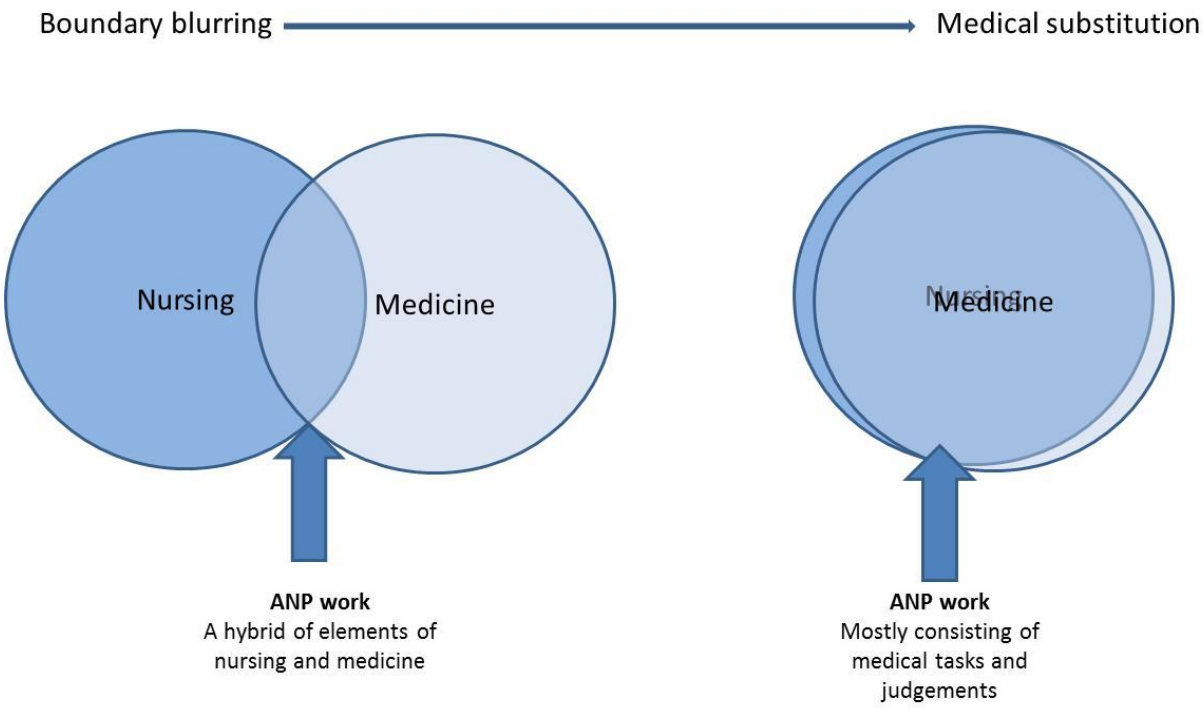
Role ambiguity was evident in the difficulties faced by ANPs in communicating with specialists, and was impacted by inconsistencies in the scope of ANP practice across the wider Trust. **Medical control** over knowledge production and sharing impacted ANP awareness of those resources, and suggests that medicine retains autonomy over knowledge in the ED.

It has been important to understand how ANPs access knowledge in practice and the social networks that they use. The next chapter presents the findings related to knowledge in boundary blurring, revealing the tensions between stakeholders in the motivations for ANP role development and the impact on knowledge requirements.

CHAPTER 7 KNOWLEDGE IN BOUNDARY BLURRING

7.1 INTRODUCTION

This chapter presents the findings on how boundary blurring in ANP role was characterised in the ED. Tensions were evident between the motivations of senior clinical managers (senior nurse managers and ED consultants) and ANPs in developing the role, in relation to expectations of the extent of medical substitution. The following diagram of the boundary blurring continuum is a useful reminder of the definitions used in this study.



The findings reveal similarities between the working patterns and scope of practice of ANPs and those of ED doctors at the registrar level. However, ANPs were found to retain elements of nursing in their boundary blurring role. They contributed to workforce stability by providing support to junior doctors.

As a consequence of boundary blurring ANPs experienced knowledge gaps in their discharge decision-making, leading to a lack of confidence among trainee ANPs.

Therefore, the extent of boundary blurring challenges the traditional definitions of nursing and has implications for the education and regulatory support of ANPs.

In this chapter boundary blurring in the context of ANP role development is first presented. This is followed by the nature of boundary blurring in clinical practice, and subsequent knowledge gaps experienced by ANPs in this ED setting.

7.2 BOUNDARY BLURRING IN ANP ROLE DEVELOPMENT

Participants in this study differed in their motivation for developing the ANP role, resulting in a tension between ANPs and senior clinical managers (senior nurse managers and ED consultants). The organisational driver was a shortfall in the medical workforce and a need to develop medical substitutes using ANPs, thereby providing stability. However, in contrast, the drivers for ANPs were career progression and improving patient care. Both sets of motivations meant that boundary blurring was inevitable, but with varied expectations regarding medical substitution. The tensions observed were a natural consequence of boundary blurring, and underpinning both sets of motivations was a desire to improve patient care. Therefore, the tensions were not found to lead to day-to-day inter-professional conflict in the ED, rather the different motivations led to a lack of clarity in terms of ANP role and knowledge expectations. Expectations depended on where stakeholders viewed ANPs on the boundary blurring continuum.

7.2.1 Senior clinical manager motivation: medical substitution

For senior clinical managers (nurse managers and ED consultants) the motivation for ANP role development was to create medical substitutes as a solution to the shortfall in junior doctors. This was driven by concerns about the current and predicted shortfall in the medical workforce, and subsequent increased waiting times for patients. The findings revealed three causes of medical workforce instability, a reduction in the numbers of junior doctors, a reduction in the duration of junior doctor placements, and the unreliable experience and skills of locum doctors. Junior doctor placements had been reduced from six months to four months, making it more difficult for consultants to train them in the relevant skills required for working in the ED.

"So the Emergency Department has traditionally been a very junior doctor led place, erm, the junior doctors used to rotate every 6 months, then it went to 4 months, it then becomes increasingly difficult to train them and keep them up to date. Then as soon as you've done that you get another lot of junior doctors, and the idea was, could we extend the role of the nurses to provide a more stable long term workforce, rather than people keep changing all the time". Source: K1 interview (ED consultant)

Junior doctors had traditionally provided stability to the ED however changes in the length of their placements had impacted this stability. ANPs were viewed by clinical managers as the hard and fast solution to medical workforce instability in this ED, as highlighted by an ED consultant during an interview. A reliance on locum doctors to fill gaps in the junior doctor workforce also contributed to instability.

"Using the ANPs we reduce our costs and have a, hopefully, stable workforce, who are a known quantity rather than 'Johnny Locum' who turns up at the weekend and you've no idea who he is in terms of what he can and can't do. Erm, so, it makes it in theory potentially a bit cheaper, probably a fair bit safer". Source: K2 interview (ED consultant)

There were concerns about the skills and experience of locum doctors; ANPs were viewed as a safer alternative. They were also viewed as cheaper alternatives to doctors in times of financial austerity. Interviews with nurse managers supported this finding.

"I think the ultimate driver to me would have been we're going to have a shortfall of doctors, we're going to have a shortfall what can we do and let's think about whether nursing can play a part in that". Source: C3 interview (senior nurse manager)

The discourse among senior managers was very much directed at the ANPs fulfilling traditional medical tasks. They hoped that ANPs would gain sufficient knowledge to substitute for the medical workforce shortfall, managing any patient presenting to the ED. However it was recognised that, although the ANPs were educated to an advanced level, they were trained as nurses, not doctors. Therefore, there would be

times when they might still need support in making judgements about patient discharge.

> *"They make a provisional diagnosis. And then if they can go on and treat or refer or discharge the patient then they will, but if they reach their level of their competence then they'll go and speak to one of the senior clinicians in the department to get some advice on what to do". Source: C1 interview (senior nurse manager)*

Where the expectation was medical substitution this led to a significant knowledge gap. Access to support from senior colleagues in discharge decision-making was messy and complex as previously discussed in chapter 6.

These findings show that the organisation expected ANPs to be substitutes for medicine, not to just blur the boundaries. Managers valued the experience and relative permanence of ANPs compared to the transience of doctors and viewed them as the solution to workforce instability. This was a straightforward assumption by the organisation, which may not have fully considered the implications of medical substitution for knowledge acquisition.

7.2.2 ANP motivation: career progression

ANPs presented with very different drivers for the development of their role. In contrast to the organisational drivers, the motivations presented by ANPs were career progression and the desire to provide more holistic patient care. ANPs saw this as an opportunity to carve out a new professional identity, rather than a managerial solution to workforce problems.

These motivations, whilst different, also led to an expectation that the ANP role would blur nursing with medicine. However, they differed regarding the extent to which this would occur. ANPs preferred the blurring approach retaining substantial elements of the nursing role. In contrast, the organisation wanted a substitution approach. Since all stakeholders were in agreement that boundary blurring would occur to some extent, there were no questions of ANP role legitimacy. Tensions, therefore were not found to occur over the legitimacy of the ANP role in the ED.

However some conflict was observed between ANPs and clinicians from other departments (discussed previously in section 6.2.3).

ANPs recognised that the principal organisational driver was a medical shortfall, and that they were viewed as the solution, but it was clearly not their motivation for undertaking the role. Some ANPs appeared to resent the idea of being used as medical substitutes:

> *"It was just a case of we haven't got any doctors, what can we do? Oh let's train nurses up to do a doctor's job" Source: ANP 2 interview*

Some ANPs felt like they were just there to fill the numbers, rather than for the added value that they bring. Similarly, some senior nurse managers felt that the role had been implemented hastily as a result of medical workforce shortages. One stated that the focus was the wrong way round, suggesting that ANP role implementation should ideally have been driven by patient need, not a system need.

> *"We sort of started to find ourselves with an issue, i.e. gaps in rotas. And as people often do, they say oh we can use nurses in those gaps. Which is completely the wrong way round for me, but what we did with that was take it and say we've got a patient need here, how can we best fill it" Source: C4 interview (senior nurse manager)*

One way that ANPs resolved this tension was to view their role as a new role, not a replacement role, with the broader view of boundary blurring incorporating both medical and nursing roles, rather than the remit of medical substitution described by clinical managers. They preferred to view themselves as working collaboratively with doctors, rather than replacing them.

> *"We recognised there was a reduction in the provision from junior doctors. Erm so we implemented the ANP role to work collaboratively, not replace any junior doctors…we've tried to be really clear that we're not replacing any junior doctors' posts, and we haven't replaced any junior doctors' post….They're funding more middle grade posts. So we haven't replaced any. So we are an extra resource". Source: ANP 5 interview*

This argument by ANPs that they are not replacing doctors can be viewed as an assertive claim about what their role should involve; a new addition to the workforce, not 'just' a replacement. For ANPs, 'replacement' implies a lower status or standing compared to doctors. However, a new role signifies a novel contribution to the workforce.

ANPs were keen to blur their nursing boundaries with medicine in order to progress their careers. This was not only evident among the ANP participants, but also the wider nursing community in the department. During the fieldwork several staff nurses in the ED discussed their hopes of training to be an ANP in the ED or another healthcare setting. This was accompanied by strong leadership from a senior nurse manager who saw the potential and enthusiasm for progression in the existing emergency nurse practitioner (ENP) cohort.

> *"I was very keen to develop nurses' roles and it seemed like a natural progression really. We had and still have practitioners that see minor injuries and illnesses and some of the nurses within that service wanted to progress further with a broader remit, so they wanted to go on and develop themselves and I also wanted them to go on and develop, because it was a really good thing to do". Source: C1 interview (senior nurse manager)*

In addition to career progression, ANPs also felt that their advanced role would improve patient care. One ANP explained that the ANP role enabled him to overcome the restricted boundaries of the emergency nurse practitioner (ENP) role, improving the continuity of care for patients.

> *"I was a bit frustrated that I had to stop at a certain point, and a lot of us did start to push the boundaries. When we initially started the ENP [emergency nurse practitioner] role it was very much; unless you've had an injury we can't see it. So if somebody came in and said my wrist's sore, we'd say have you fallen, or have you banged it, no it's just sore, oh, I can't see it then, and that's a bit daft. So we started to push the boundaries into seeing soft tissue injuries, or soft tissue problems…. And then I was aware of advanced practice in some other areas of nursing and I knew that it was coming along in emergency nursing in other parts of the country. So yeh, I was keen to extend my role…to*

do more for patients and not have to stop at a particular point, and to deliver the whole package. That's what I wanted". Source: ANP 3 interview

ANPs were driven by a desire to improve the quality of patient care by increasing their skills and providing a consistent service by adopting medical roles through boundary blurring. They did not describe their role in terms of medical substitution, but knowingly sought to blur boundaries with medicine, in order to develop themselves and improve patient care. ANPs described their role as a hybrid consisting of elements of nursing and medicine. ***The consequence of this tension in boundary blurring was an expectation by the organisation for ANPs to perform at a higher level of responsibility than they might have been comfortable with, and therefore to demonstrate the knowledge expected of doctors.***

7.3 BOUNDARY BLURRING IN PRACTICE

The findings in this section show the reality of boundary blurring between medicine and nursing in ANP clinical practice; evident in their broad scope of practice, which included discharge decision-making. There were also marked similarities between ANP and doctors' working patterns. Boundary blurring was also demonstrated by ANPs in their support of junior colleagues (both nurses and junior doctors) in their discharge decision-making. Evidence of how nursing is retained in the ANP role is also presented, along with regulatory confusion resulting from boundary blurring.

7.3.1 Contextual boundary blurring

During the fieldwork, boundary blurring was evident in the similarities between the shift times, places of work, roles, and uniforms of ANPs and doctors in the ED. Conversely, there was a clear distinction between the ANP role and that of other nurses in the ED who had different uniforms, different shift patterns, different roles, and different areas of working.

ANPs and doctors wore blue scrubs while nurses wore a uniform of lilac or navy tunic and trousers or dress. ANPs were distinguished from doctors by the title 'Advanced Nurse Practitioner' embroidered on their clothing in small white lettering,

and their scrubs were a slightly different shade of blue (ANPs wore royal blue, doctors wore navy blue).

ANP shift patterns also mirrored the doctors, however due to the small ANP numbers they did not work over night. The ANP shifts were early (8.00 to 18.30), late (10 to 20.30), or twilight (16.00 to 24.00). ANPs were allocated areas of work by the consultant in charge, alongside the registrars, either in a bay, or 'floating' across all areas of the ED, seeing patients in time order.

The significance of this contextual boundary blurring between the ANP role and doctors was that, to outside observers, such as patients and other ED staff, it gave the impression that ANPs performed similar roles to doctors within the ED with a resulting expectation of medical substitution. ***The apparent similarities between ANPs and junior doctors may lead to an assumption of similar knowledge levels, again highlighting the organisational pressure on ANPs to display levels of knowledge similar to medicine.***

7.3.2 Broad scope of practice

Boundary blurring was evident in the broad scope of ANP practice. It further revealed the organisational drive for medical substitution, as there were no boundaries to the extent of ANP skill development. The ANP role involved patient assessment (including history taking and physical examination), ordering and interpreting investigations, diagnosis and treatment, and patient discharge. ANPs were allocated a similar workload to the doctors by the consultant in charge as described by an ANP in the following extract.

> *"In a typical day we attend the morning handover with the rest of the medical team. We are usually either allocated to an area of the department, which can be anything from the green stream, which is ambulatory care through to resus. And you would just take the next patient who needs to be seen in the area….generally just the next patient to be seen, within a team, or within a department. So anything and everything". Source: ANP 3 interview*

The organisation expected ANPs to act as medical substitutes by managing any patient presenting to the ED with an undifferentiated condition, regardless of age, social care needs, or complexity.

> *"They'll see the next patient. In fact, that's what we said when we were setting up the service, that we wanted them to pick the next patient that was ready to be seen. We wanted them to have a really good education to enable them to do that and for us to be confident that they would be confident to be able to do that". Source: C1 interview (senior nurse manager)*

> *"Any patient that comes through. So the next in the box, anything from a cut finger to a heart attack, to a sepsis, to a stroke, and sort those out". Source: ANP 2 interview*

Experienced ANPs had developed extensive knowledge of the wide range of investigations available in the ED. They ordered and interpreted blood tests, X-rays, computerised tomography (CT) scans and electrocardiograms (ECGs). They also performed bedside ultrasound scans, and inserted chest drains. After making a diagnosis they prescribed treatments for their patients including analgesia, antibiotics, intravenous fluids and laxatives, in addition to their patient's regular medication. They provided the 'workforce stability' desired by the organisation.

On one occasion an ANP administered a nerve block to a patient with hip pain and suspected fracture; she explained that junior doctors were not able to undertake this procedure due to lack of time to develop the skills. Later, during an interview she described some of the other advanced skills she has developed.

> *"I use the ultrasound machine to do procedures and things. I can do manipulations of any limb now, I can do procedural sedation for procedures, interpret any blood results, gas results, ECGs". Source: ANP 2 interview*

The range and level of ANP practice in this site challenges the traditional distinctions between nursing and medicine; ANPs are moving firmly into what was previously doctors' territory. The above extract provides an example of ANPs using the organisational demands for medical substitution to gain skills to meet their own

agenda, for professional advancement and improved patient care. Although the medical substitution label was externally imposed, ANPs were able to consider how the adoption of new activities fitted with their view of their new identity, as professionals in their own right.

7.3.2.1 Discharge decision-making

Discharge decision-making by ANPs was the most striking example of boundary blurring with medicine. This was a key element of the ANP role traditionally distinguishing the two professions, as it was previously undertaken exclusively by doctors. There were a number of discharge options available to ANPs; sending patients home, admitting or readmitting them to hospital, or referring them to other teams and services. Examples of referrals included the deep vein thrombosis (DVT) nurses, the mental health team, or the front door response team (FDRT) to assess and provide support for social problems. ANPs also referred patients to the clinical decision unit (CDU) to wait for results of investigations, or to be observed for a period of time prior to discharge, a mechanism used by ANPs and doctors to avoid breaching the four-hour target.

The ANPs felt considerable pressure when formulating discharge decisions, especially when deciding to send patients home. They expressed fear at discharging patients home and conversely relief when admitting them to a ward, due to the magnitude of responsibility of the decision.

> *"I think that's the most difficult part of the ANP role, it's the discharging home bit. Because anyone can see a patient and say they need to go into hospital, and then they get seen by someone else and they sort them out. But if you're discharging a patient home, everything that happens to that patient is on you. I think that's the scary bit". Source: ANP 1 interview*

Discharge decisions were found to be more difficult when patients had a number of complex health problems. For example, on one occasion an ANP was unsure where to refer an elderly patient with hip pain following a fall. The ANP interpreted the hip X-rays as normal, however she was concerned about the patient's low oxygen saturations. After discussing the patient with an ED consultant the ANP referred the

patient to a frailty ward. ANPs described how the complexity of some patients made the discharge decision very challenging.

> *"I had one last week and it was a combination of somebody with abdominal pain who'd probably got three different disease processes going on including cancer and it's 'what is it? Is it a progression of the disease process or is it something acute, is it a combination of three things going on that were all intermingling? And it's untangling those and what we need to do from an emergency point of view or can they routinely be followed up as an out-patient. Erm yeh and it's reaching that decision point of do we need to do anything now, as that's our role as an emergency department, immediate intervention." Source: ANP 3 interview*

> *"It's very rare you get somebody who comes who's fit and well, doesn't take medication, has had one episode of chest pain, so that you can do your investigations that you need to and then safely discharge them. They've always got some weird and wonderful illness that you've never heard of, they're always on a multitude of medications that are all going to react with each other, they've always like got weird and wonderful social circumstances...Nothing's ever straightforward, ever". Source: ANP 2 interview*

ED consultants also recognised the challenge of making appropriate discharge decisions, particularly in situations where there were concerns about sending vulnerable patients home.

> *"And there's a level of clinical concern, there's a subgroup of patients that we could probably send home knowing that their GP will see them within 24 hours and review them. If we knew that was in place, there would probably be a group of patients that we could send home and not admit them, but there's always an element of fear and uncertainty about what happens when they get home, what will happen in the next 24 to 48 hours?" Source: C2 interview (ED consultant)*

ANPs made many judgments while managing their patients, and employed several aspects of practice that blurred the boundaries with medicine. However, ***both ANPs and medical consultants viewed the discharge decision as the most important, carrying the most risk. This highlights the importance of accessing relevant knowledge in boundary blurring***.

7.3.3 ANPs provided support and stability

The organisation hoped that ANPs would provide workforce stability. Evidence that this was achieved was illustrated by the support that experienced ANPs offered to other clinicians within the department (junior doctors, other nurses, and occasionally consultants).

As previously mentioned, junior doctors were transient in the ED with short placements. Therefore, they relied on ANPs for support during their time in the ED as reflected by the extract below.

> *"There's such a transient medical staff, you know, they rely quite heavily on us. You know, when starting in the department. As we relied on the registrars and the consultants, we're finding that the SHOs are using us more, in that way". Source: ANP 5 interview*

One example of this occurred when an ANP overheard two junior doctors discussing how to appropriately discharge a 90-year-old female patient. The patient had a long history of a tingling sensation in her limbs and they were discussing whether to refer her to the neurosurgeons. The ANP advised them that she would refer to physiotherapy and the patient's General Practitioner (GP). They followed her advice rather than the options they had been considering.

ED consultants viewed experienced nurses as an extremely knowledgeable and valuable resource to junior doctors. One consultant described how most of what she learned about sick children came from a senior nurse on her paediatric placement.

> *"In some ways I see the ANP role as an advancement, but also a formalisation of the senior sister in the ED role. When I worked at a Children's hospital many years ago, the senior sister told me who to admit and who to*

discharge and what to do and had had 20 years of experience and seeing all the patients. You didn't listen to them at your peril. I see them as a formalisation of that, with a little more experience, because I certainly know that most of what I learnt about sick children was from them". Source: K1 interview (ED consultant)

The provision of support to junior doctors by experienced nurses was not a new relationship, however it was more formalized in the ANP role. Indeterminate knowledge gained through clinical experience was important in providing this stability.

In addition to supporting junior doctors, ANPs also gave advice to other nurses. For example, on one occasion an ENP asked an experienced ANP to review an X-ray. The ANP not only interpreted the X-ray, but also went on to assist the ENP in providing treatment for the patient.

'An ENP asked ANP 5 if she could look at an X ray and help her treat a patient… The ANP interpreted the X ray as an impacted fracture of the wrist. She then assisted the ENP by holding the patient's elbow and advised the ENP how to lengthen the bone'. Source: ANP 5 observation 4

The ENP explained that she would have asked a consultant for support in her decision-making if the ANP had not been there. Therefore, experienced ANPs supported consultants in supervising junior colleagues. On another occasion, an ANP was stopped in a corridor by an ENP who asked her about the management of nosebleeds. The ANP gave advice on where to find the relevant equipment, how to apply it, then advised her to find a colleague working in that part of the ED if she needed further support.

'Before we went to see the next patient an ENP who was working in MIU [minor injuries unit] asked ANP 5 for advice about a patient she was assessing with a nose bleed. ANP 5 advised her how to treat the patient's nosebleed, and where to find the appropriate equipment. She also told her to ask someone in the MIU if she had any further queries'. Source: ANP 5 observation 3

In addition to supporting junior colleagues, one ANP was observed to support a consultant in undertaking a bedside ultrasound scan as he was unsure of how to use the machine. This highlights the breadth of skills previously undertaken by doctors that the ANPs have assimilated into their role in the ED.

ANPs were also given some opportunities to provide formal teaching to both nurses and junior doctors within the ED. Experienced ANPs undertook teaching in their areas of interest including trauma, minor illness and advanced practice. This alongside mentoring of trainee ANPs illustrates that experienced ANPs were involved in elements of training, despite overall control of teaching held by consultants (as discussed previously in section 6.3). One ANP had recently developed and delivered a session on minor illnesses to ENPs with support from a GP who occasionally worked in the MIU.

> *'ANP 2 told me she had recently been involved in developing a teaching session for ENPs on treating minor illnesses. She had developed the content and delivered the session alongside a GP who works in the ED. She said that she felt that teaching was an important skill for the ANP role'. Source: ANP 2 observation 1*

Although teaching was viewed as an important element of the ANP role trainee ANPs were not found to be involved in departmental teaching. They were more focused on developing their advanced skills and completing ANP training.

Opportunities for teaching were discussed during an ANP team meeting; the lead ANP asked the ANPs if any of them would like be involved in teaching junior doctors at a breakfast club.

> *'The lead ANP said the doctors were keen to include the ANPs at a lunchtime teaching club. She also mentioned that the ANPs were invited to teach junior doctors at a weekly breakfast club'. Source: ANP team meeting*

This invitation illustrates that the ANPs' expertise was recognised by the medical profession, and harnessed in inter-professional knowledge sharing.

This section has demonstrated ***the benefits of boundary blurring the ANP role***

with medicine to the medical profession. There were benefits to the organisation. ED consultants recognised the stability and support that ANPs could provide to junior colleagues. Despite exhibiting overall control over knowledge mobilisation, consultants were keen to provide opportunities to involve ANPs in some departmental teaching. In providing support and stability ANPs are perhaps being placed in situations that may compromise their core values of maintaining a nursing identity and not turning into medical substitues.

7.3.4 Maintaining 'nursing' in the ANP role

Throughout the fieldwork ANPs displayed elements of nursing care during their day-to-day clinical work. Despite the similarities between the ANP and junior doctor working patterns and scope of practice discussed in section 7.3.1, ANPs did not identify themselves as medical substitutes, even if others did. They had adapted their role significantly to incorporate many traditional medical tasks, however ANPs felt the nursing part of their role should not be lost, particularly in situations where patients were in urgent need of nursing care.

> *"We are nurses and that's our background and that's where we've come from, and it's important to keep that. And if I can and I'm not doing other things I'm not above doing any nursing roles or aspects if it helps and if I can. At the end of the day you're a senior nurse and if you see things going wrong and you see people struggling from the nursing side you really ought to step in and help and I think problems arise if you just say no, I don't do that anymore, I'm an ANP." Source: ANP 3 interview*

It was evident that ANPs wanted to retain their professional identity as nurses in their boundary blurring role. For example, ANPs provided care when patients appeared dehydrated, or required assistance with meeting their hygiene needs.

> '*ANP 2 approached an elderly male patient as he was calling for help. The patient was trying to use a urine bottle but said it was too difficult to pass urine lying down. He was wearing a neck brace as he had attended following a fall. The ANP asked a support worker to assist her to stand the patient and change the bedding and his pyjamas'. Source: ANP 2 observation 2*

'ANP 4 went to help the patient who was shouting and found he had been incontinent of urine and was confused. She closed the curtain and helped him use a urine bottle and changed the bedding. She had a small patch of urine on her trousers from helping him stand up. She told me it was no problem as she had spare trousers in her locker'. Source: ANP 4 observation 1

Providing nursing care was important to ANPs. They were proud to assist patients to meet their care needs. On occasions when they could not provide nursing care they delegated such tasks to other nurses or support workers. This is illustrated by the following example when an ANP noticed that a patient looked dehydrated:

'After walking through the bay the ANP stopped a staff nurse and asked about an elderly patient who she had noticed appeared dehydrated. The staff nurse said that the patient had been there all night but no one could get a cannula in him to give i.v [intra venous] fluids. The ANP replied, "He doesn't even have a drink near him, and looks as dry as a crisp". The staff nurse asked catering staff to give that patient a drink'. Source: ANP 2 observation 3

It was clear that, despite the medical elements of their role, these were still nurses who ultimately wanted to care for their patients. ANPs saw an opportunity to develop their nursing role and took it, but they did not intend to give up their nursing identity.

"For me personally it's carved out a role that suits me, because I wanted to stretch myself and push myself in terms of the knowledge and skills, and patient management side beyond what you could do in nursing…I think potentially we've got the best of both worlds, because we've stepped across that barrier and we're doing things that were traditionally medical erm but at the same time you bring all your experience with you from the other side of the fence." Source: ANP 3 interview

This section has shown that ANPs in clinical practice exhibit a boundary blurring role, rather than the medical substitution role desired by the organisation. They protected and valued the nursing aspects of their role. With a history of nursing training and clinical experience it would be impossible for nurses to completely substitute for medicine, therefore although the overlapping circles

described in section 5.2.3 may vary in their extent of overlap, they will never be completely superimposed.

7.3.5 Regulatory confusion in boundary blurring

A lack of clarity around the extent of boundary blurring in the ANP role was found to cause regulatory confusion among ANPs and their managers. Participants were confused about ANP accountability, scope of practice, and professional identity, each having a potential impact on knowledge mobilisation in discharge decision-making.

7.3.5.1 Accountability

There was uncertainty about the processes of accountability in situations where decisions may be questioned. It was clear that ANPs were concerned about how they would be judged if mistakes occurred, as a nurse or as a doctor. ANPs believed that overall responsibility for patient discharge from the ED resided with the consultant in charge, however they were aware that they were also fully accountable for their decisions.

> *"You take full responsibility for patient discharge, ultimately there's always a consultant who's the named consultant for the day, and ultimately they carry the clinical responsibility for the department, but as an individual practitioner, if you discharge a patient you're taking clinical responsibility for that discharge". Source: ANP 3 interview*

There was clearly some confusion about where the responsibility for professional accountability in the medical substitution aspects of the ANP role lay. ANPs seemed unclear about whether they or the consultant in charge had overall responsibility for patient discharge, or whether there was joint professional accountability. This confusion was also evident among senior managers as illustrated by the following extract.

> *"These are still registered nurses and they have an accountability for nursing, but they equally have an accountability, I was going to laugh then, as the medical staff do, you know in the same way. So I think it is perhaps an area*

that needs a little bit more understanding. In terms of regulating their activity, it fits within the medical model. Which is a bit alien to nursing, erm, largely because I don't think it has the same structure as nursing does. I think nursing is very clear on its codes of conduct and professional accountability, whereas medicine has a bit more breadth to it…You have very vigorous procedures and processes from both the governing body for nurses and the Trust internally, whereas with medicine the lines are a little bit more blurred, the accountabilities are very different. So you know, which road would we go down, I don't know. Source: C3 interview (senior nurse manager)

The procedures for the regulation and accountability of medical and nursing practice were described as very different. Medical regulations may be less attractive to nurses in the ANP role due to being less clear. Therefore, ***boundary blurring in this context may be high risk for ANPs, leading to an increased reliance on medical colleagues to give support.***

There was an expectation among senior managers that ANPs would undertake tasks that were traditionally seen as medical roles, and supplement their knowledge to meet those demands. This is illustrated by a comment from a senior nurse manager.

"I think these are nurses who will stand by their decisions; that will really understand, you know they will seek the knowledge and will thirst for the bits of that knowledge that enable them to make good decisions. And have the accountability and be prepared to stand up and say I made that decision at the time, in hindsight maybe we got it wrong but these were the things that influenced it". Source: Senior clinician C3 (senior nurse manager)

Clinical managers viewed individual ANPs as responsible for their actions in boundary blurring and for acquiring relevant knowledge to justify those actions. ***Accountability was therefore a key motivator for knowledge acquisition by ANPs.***

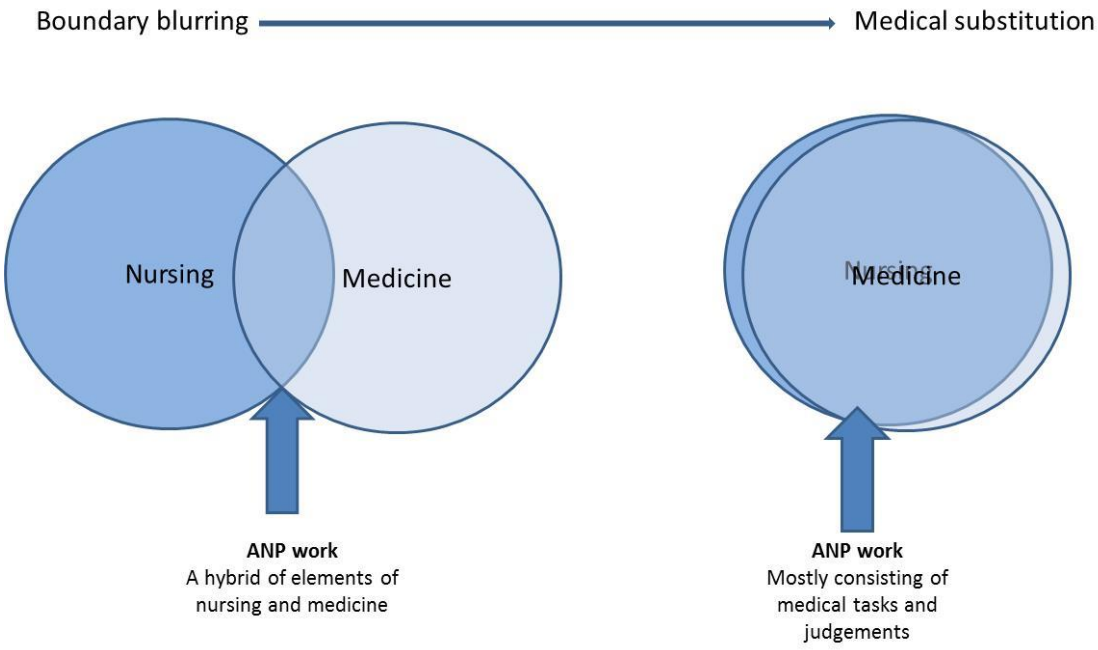
7.3.5.2 Scope of practice

Senior nurse managers felt that there needed to be more guidance on the scope of ANP practice in light of the perceived lack of national guidance from the nursing and

midwifery council (NMC) or professional colleges.

> *"We need to have national clarity on advanced roles. And the nursing and midwifery council isn't clear, colleges aren't clear because they all want their own rules, so it leaves us with that confusion. So ultimately we're going to have to pin down what is it in terms of credentialing that you need to have achieved to be where we need people to be on the architecture, on the rota in their role". Source: C4 interview (senior nurse manager)*

This highlights a need for local clarity around the regulation of ANP roles. There is the suggestion that the level of boundary blurring with medicine should be used as a point of reference. The position of ANPs on the boundary blurring continuum is important to clarify in understanding how to effectively regulate their practice.



Despite senior managers pushing for medical substitution, ANPs were still nurses, accountable to senior nurses and to their professional code of conduct (Nursing and Midwifery Council 2018). In reality however they showed significant overlap with medicine and required support from consultants. At the medical substitution end of the boundary blurring continuum 'nursing' is barely visible, illustrating the challenges faced by managers in articulating the mechanisms of accountability for the role.

Due to a lack of national regulation in the UK, ANPs and their employers in the study

setting recognized their responsibility for ANP role regulation.

> *"There's no formal clinical professional development, but we have to maintain our portfolio and that is reviewed every year, so there has to be evidence in the portfolio that we are developing". Source: ANP 5 interview.*

In response to this lack of national regulation a number of local strategies had been developed to ensure ANPs were prepared for their role.

> *"What we wanted was a standardised approach to advanced practice, looking at things like the education, professional support, role development, all that sort of thing". Source: C1 interview (senior nurse manager)*

Senior nurses were involved in regional networking aimed at standardising and supporting the training of ANPs and clearly defining their scope of practice. ***A consequence of the lack of national regulation was a need for local agreement on scope of practice and training. Therefore, the nature of local regulation had a significant impact on whether ANPs were responsible for patient discharge, and how they were prepared and supported in making those decisions.***

7.3.5.3 Dissatisfaction with remuneration

A further area of ambiguity related to the ANP role was regional differences in pay. ANPs were all paid at Agenda for Change band 7 when the study began. However, it became evident that senior ANPs felt they should be paid at a higher band. They were aware that ANPs working at another local hospital were being paid at band 8a. This is illustrated by the following extract from a conversation between ANPs, during which they speculated about the repercussions of the pay disparity between hospitals.

> *'ANP 3 said he had found out that a local hospital was now offering ANP posts at agenda for change band 8. He told me his hospital would become a training site for ANPs, who would then move to surrounding hospitals for the extra pay after they qualified'. Source: ANP 3 observation 4*

ANPs felt they were unfairly compensated for the high level of judgement and risk required in the medical substitution elements of the role. The regional pay

inconsistencies and effect on ANP retention was recognised by ED consultants.

> *"I think there's a lot of concern regarding agenda for change pay scale and hospitals are competing for them, some pay an 8a but our hospital pays a 7 for it. So some of our nurses, that we've spent a lot of time and money investing in, have chosen to go somewhere where they'll get more money. I'm not sure where it sits but certainly in my opinion, if you're seeing unselected patients, that should be recognised compared to somebody who follows a protocol in their job". Source: K1 interview (ED consultant)*

There was frustration among consultants at their potentially wasted investment in the training of ANPs. Consultants supported the argument for higher pay for experienced ANPs; acknowledging that the role in the ED involved more risky decision-making compared to other clinical areas; where there was perceived to be a greater reliance on protocols and subsequently less risk.

During the fieldwork it became evident that experienced ANPs were re-writing their job description, with the aim of achieving a pay increase. Towards the end of the data collection period they were successful in their application for their advanced level of practice to be recognised by appropriate remuneration. This was announced during an ANP team meeting and was received with much enthusiasm.

> *'During the team meeting it was announced by the lead ANP that the senior ANPs were to be re-banded as a band 8a. The lead ANP said this was really exciting as they were the first team of ANPs in the Trust to be re-banded' Source: ANP team meeting observation*

This news of the re-banding of experienced ANPs was met with palpable relief amongst the ANP team members who had fought for the change. There was an acceptance by the trainee ANPs that they should remain as band 7s due to the different levels of boundary blurring taking place and the marked difference in support required in discharge decision-making.

The issue of remuneration led to workforce instability in the ED, this time in nursing, in addition to those experienced by the medical profession (described previously in section 7.2.1). Therefore the organisational vision for ANPs to provide

workforce stability by their relative ‘permanence’ in contrast to the’ transience’ of junior doctors was under threat.

7.3.5.4 Professional identity

The traditional view of nursing’s professional identity is certainly challenged by the boundary blurring nature of the ANP role in the ED. ANPs talked about being mistaken for doctors. One ANP described his role as a practitioner, resisting the challenge of distinguishing between the professions of nursing and medicine.

> *“It’s about individual practitioners, there are doctors who are very holistic in their approach to patients and there are nurses who are rubbish at looking at the whole person, taking account of social circumstances, so I don’t think it’s about professions at all, I think it’s about individual practitioners, so the whole nursing-medicine differential I just think it’s a bit artificial, I don’t pay too much attention to it, you’re either a good practitioner or you’re not and it doesn’t matter what your profession is”. Source: ANP 3 interview*

This experienced ANP clearly found the distinctions between the roles of nursing and medicine too narrow to consider, choosing instead to merge them as one group of ‘practitioners’. Confusion over ANP professional identity in boundary blurring led to tensions in the level of responsibility expected of ANPs in the department. This tension caused by the organisational expectation of medical substitution in the ANP role was observed during an ANP team meeting. The lead ANP had suggested that ANPs might be required to start working night shifts on the registrar rota. This proposal was faced with opposition from some ANPs. One ANP argued that they did not want the responsibility of working at the level of speciality trainee (ST) level four doctors, using national guidelines from the Royal College of Emergency Medicine (RCEM) professional organisation to argue the point.

> *‘ANP 3 said the ANP role is matched by RCEM against ST3 and ST4 middle grade registrar level, and ST3 aren’t left on nights alone. He said he thought the current ANPs are functioning at ST1, 2 and 3, he said he didn’t want to replace an ST4. The lead ANP told him she has made it very clear the ANPs are not replacing doctors’. Source: ANP team meeting*

This reflected some anxiety and uncertainty among ANPs about their expected level of practice and their perceived position within the medical hierarchy. They seemed uneasy about taking on the responsibilities of doctors, evidence of their preferred position as boundary blurrers, and not substitutes. This highlighted the need for local agreement and regulation of the scope of practice and level of responsibility of ANPs in the ED by ensuring clarity around the position of ANPs on the boundary blurring continuum.

This finding raises important questions around ensuring clarity of the ANP role in the development and implementation stage, both for individuals and the organisation as a whole. Locating ANPs on the boundary blurring continuum may be one way to achieving this.

7.4 KNOWLEDGE GAPS IN BOUNDARY BLURRING

The extent of boundary blurring in the ANP role was found to have significant implications for their knowledge requirements. ANPs talked about their need for advanced knowledge beyond that of basic nursing training resulting from the role overlap with medicine. The impact that knowledge gaps had on ANP confidence in discharge decision-making was also evident.

7.4.1 Evidence of knowledge gaps

ANPs regularly sought further knowledge in their discharge decision-making, evidence that they encountered knowledge gaps in their clinical work. For example on one occasion when an ANP was reviewing an X-ray of a patient's cervical spine she was uncertain about how to interpret it, as she had not been taught how to assess neck injuries. Although the ANP scope of practice involved ordering and interpreting X-rays, not all ANPs felt prepared for making such decisions. To support her discharge decision, she asked an ED consultant for advice.

> *'The ANP told me that she had been trained to interpret X-rays in her ENP course, but that didn't include neck injuries so she would ask a consultant to review it'. Source: ANP 4 observation 3*

ANP levels of knowledge did not always meet the expected scope of practice in fulfilling the medical substitution elements of their role. On another occasion when a trainee ANP was assessing a patient in resus she asked two different consultants for advice. She initially treated the patient who was very unwell, confused and restless for sepsis (as advised by an ED consultant), however when the test results came back she was unsure of their significance so asked another consultant for support.

> *'The ANP discussed the latest blood results with a consultant…The consultant said he was concerned about the glucose result of 50 [normal values are 4-7] and sodium of 150 [normal values are 135-145], he asked the ANP what that could indicate. She said she didn't know. He said it showed HONK [hyper osmotic non ketotic acidosis]. The consultant searched for a treatment card specifically for this condition and he worked out how much insulin and fluids the patient would need'. Source: ANP 1 observation 3*

This trainee ANP appeared out of her depth in terms of her knowledge of medical problems and the interpretation of tests, however she was expected to assess any patients presenting to the ED as the organisation did not impose any boundaries on the complexity of patients to be managed by ANPs. This was further evidence of the organisational drive for medical substitution. Access to relevant knowledge was therefore extremely important to ANPs in order to bridge their knowledge gaps. Consultants were quick to take over the responsibility for clinical decision-making when ANPs requested advice, particularly in complex cases such as the example above.

When ANPs talked about knowledge gaps some referred to the well-known saying of 'the more you know, the more you know you don't know' (attributed to the Chinese philosopher Confucius).

> *"You need a lot more knowledge in the ANP role than traditional nursing roles, and the more you know, the more you know you don't know. I still learn something new every day". Source: ANP 5 observation 1*

ANPs recognized the huge challenge they had undertaken in their new role, and the life-long learning it would involve. Some ANPs felt that their formal training was insufficient to meet the learning needs of the ANP role.

> *'ANP 1 told me that it was a huge learning curve from staff nurse to advanced nurse practitioner; a completely different job with so much responsibility. She said that the ANP training is trying to fit medical school into two years'. Source ANP 1, observation 1*

The role was viewed by ANPs as a completely different job to nursing, suggesting that the organisational expectation of medical substitution had dominated ANP role development in this setting. The areas of knowledge that ANPs felt were particularly lacking included physiology, pharmacology and anatomy; areas that form the foundation of medical training.

> *"Because we're not medically trained, so we're not trained in the minutiae that the doctors are trained in. Erm with the physiology, the pathophysiology, the anatomy etc. And that's the big gap in our knowledge that we find. And the academic, the master's course doesn't fill that void. It doesn't fill that void. So we rely very heavily on our medical colleagues to help us learn that". Source: ANP 5 interview*

Another ANP also compared ANP training to junior doctor training outlining the resulting gaps in her educational preparation for the role.

> *"All the sciency stuff is, I think, is missing. Erm, just basic anatomy and physiology. Erm, how drugs work, pharmacokinetics and the pharmacodynamics. But that's what you do at med school, that's what we don't have. So give me a patient, clinically I can look after them that's fine, but a lot of the reasoning behind my decision-making is probably lacking. Not in a bad way. I mean I'm still safe in what I do. But the reasoning behind a lot of the stuff is a little bit more hazy I suppose to what the junior doctors might have". Source: ANP 1 interview*

A consequence of the expectation for medical substitution by the organisation was a large knowledge gap experienced by ANPs. ANPs recognised that medical

consultants held the knowledge that they required for their new role and that practice-based knowledge sharing by consultants was vital in bridging the gaps.

Knowledge gaps were a barrier to fulfilling the medical substitution elements of the ANP role. In boundary blurring whilst ANP work is similar to medicine, the formal training is not.

7.4.2 Lack of confidence due to knowledge gaps

Knowledge gaps, and comparing themselves to consultants were found to lead to a lack of confidence in discharge decision-making by trainee ANPs. This was evident when they tried to avoid seeing patients with conditions that they were unsure about managing. For example, on one occasion a trainee ANP appeared apprehensive about selecting the next patient on the list who had presented with headaches. She asked a nearby consultant to see the patient instead of her; however he encouraged her to assess the patient despite her anxieties.

> *'ANP 2 looked at the patient list on the computer, and said the next patient to be seen had a headache. She stated, "I hate headaches as I never know what to do with them". She asked a nearby consultant if he would see the patient instead, but he replied that it would be good for her to see it'. Source: ANP 2 observation 6*

This emphasised the external pressure on ANPs to fulfil the medical substitution role desired by the organisation; to manage any patient presenting to the ED regardless of the stage of training of the ANP and gaps in knowledge. ED consultants encouraged ANPs to gain experience in areas they were less confident in, and to seek support as required, rather than limit the boundaries of their role. Other ANPs admitted to feelings of anxiety about making mistakes by omission, or making wrong decisions.

> *"I just always worry that I've missed something or not done something right. But I don't know, I think I just need to learn to trust my gut more". Source: ANP 1 interview*

This highlights that ANPs felt the need to think like doctors 'trusting their gut' when managing uncertainty in order to undertake the medical substitution elements of

boundary blurring with more confidence. This trainee explained later during the fieldwork that the reason she regularly discussed patients with consultants was because she lacked confidence.

> *'She said, "I lack confidence because I'm useless". I asked what might improve her confidence and she said more support from consultants and consultants not making unhelpful comments'. Source: ANP 1 observation 6*

By predominantly working with and learning from consultants ANPs measured their worth by comparing themselves to doctors. ***The expectation of medical substitution by consultants alongside a lack of relevant knowledge by ANPs led to a lack of confidence by some ANPs in their abilities.***

Not all ANPs lacked confidence in their discharge decision-making. In reconciling the tension between scope of practice and knowledge gaps some ANPs compared themselves to the doctors with whom they were blurring boundaries, recognizing that doctors also experience uncertainty.

> *"There's always something that you've never heard of, or you've not thought of 'caus you know, even the consultants will come across things that they don't know what to do with. But you have to sort of try and make a sensible, safe decision". Source: ANP 2 interview*

Here the ANP is not only learning how to act as a doctor, but also to think like them too. They have been reassured by consultants that uncertainty is a normal part of the medical substitution element of the role. It was evident that experienced ANPs had developed strategies to manage uncertainty in discharge decision-making in boundary blurring. Mechanisms by which ANPs moved from the edge of the community of practice to becoming full members are presented in the next chapter.

7.5 CHAPTER SUMMARY

The findings in this chapter have revealed a tension between the motivations for developing the ANP role between key stakeholders. ANPs struggled to find their new identity in the context of the organisational demand to produce medical substitutes. Managers viewed ANPs as the solution to medical workforce instability whereas

ANPs preferred a boundary blurring approach to their role which allowed a more subtle (less radical) transition for them to achieve this goal. Complete medical substitution was impossible as nurses **retained their nursing identity**, several explicitly valuing the nursing aspect of their role.

The medical elements of boundary blurring required further knowledge beyond ANP training resulting in knowledge gaps in discharge decision-making. This was associated with a lack of confidence in trainee ANPs. The next chapter explores how ANPs learnt to fulfill the role of autonomous discharge decision-making, moving from legitimate peripheral participation to full membership of the inter-professional community of practice.

CHAPTER 8 KNOWLEDGE IN SITUATED LEARNING

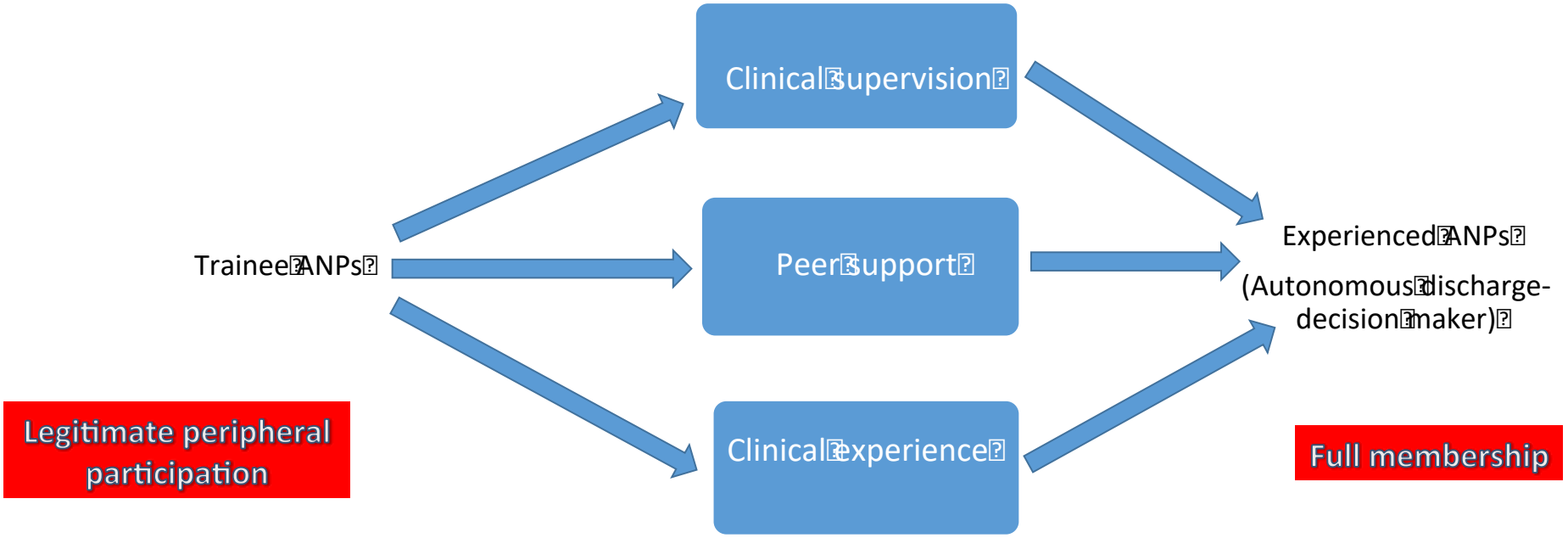
8.1 INTRODUCTION

This chapter presents three key mechanisms by which ANPs learnt how to fulfil their role as autonomous discharge decision-makers in the context of the emergency department (ED). Firstly, they valued a good supervisory relationship with ED consultants, secondly, peer support from other ANPs was very important to them and finally, the development of indeterminate knowledge from clinical experience gave them confidence in their new role.

Chapter 6 presented the types of knowledge accessed by ANPs in their day-to-day clinical practice in the fast-paced ED. This chapter looks at the mechanisms that facilitated more long-term situated learning in an inter-professional community of practice. It explores how ANPs overcame tensions resulting from boundary blurring, the messy nature of knowledge mobilisation in discharge decision-making and how they filled the gaps in their knowledge that were revealed in chapter 7.

The findings demonstrate how trainee ANPs were on the periphery of the inter-professional community of practice, learning from observing and working alongside more experienced colleagues and developing indeterminate knowledge. Experienced ANPs had become full members of the community, discharging most patients autonomously and providing stability to the department. Figure 8.1 illustrates how ANPs in this study mobilised knowledge through situated learning in the ED. In doing this they moved from being peripheral towards full members of the community of practice.

Figure 8.1 Knowledge mobilisation through situated learning



8.2 LEARNING FROM CONSULTANTS

The findings in chapter 6 showed that ANPs often asked consultants for advice in their day-to-day discharge decision-making. This section indicates the importance of a good working relationship between ANPs and consultants and how continued supervision in learning helped ANPs discharge patients appropriately. ANPs and consultants recognized that the opportunity to access consultants for advice throughout the clinical working day was a luxury that was not available to other ANPs across the wider organisation.

> *"If they're a deteriorating patient…I always escalate to the more senior doctor. So we're lucky to work with consultants all the time….other areas don't have the support that we do here. And they really, really struggle because that's where we get an awful lot of knowledge from, because we're not medically trained." Source: ANP 5 interview*

> *"I think our ANPs have an advantage over the ANPs in medicine because ours are being supervised by consultants and middle grades. And there are middle grades around every time they're on the shop floor. Whereas the medical ANPs have been traipsing around after junior doctors who are probably as clueless as they are when they're doing the training". Source: K2 (ED consultant)*

In this particular ED setting trainee ANPs were allocated a consultant clinical supervisor to oversee their development and assess their competencies. The structure for the clinical supervision of ANPs was based on the supervisory processes already in place for junior doctors and appeared to function like an apprenticeship.

> *"So we have a supervisor system that was implemented more for the junior doctors and registrars, so every junior doctor and registrar has to have a named supervisor wherever they are in their training. Erm, and what we've really done is take the advanced nurse practitioners and allocate a consultant*

to look after them in the same way that they would a junior doctor or a registrar. Source: C2 interview (ED consultant).

This system of clinical supervision of ANPs by consultants provided further evidence of the organisational vision for ANPs to supplement the medical workforce by medical substitution. ANPs were expected to learn the advanced elements of their role from the profession of medicine. This explains partly why knowledge mobilisation in discharge decision-making relied heavily on resources developed by consultants, as discussed in section 6.3.

8.2.1 Barriers to learning from consultants

Three barriers to ANP learning from consultants were identified in the data: first a fear of interrupting consultants with questions that may appear (to the consultant) obvious; second a lack of time given to consultants to support ANPs; and third competition with junior doctors for learning opportunities in the ED.

Trainee ANPs occasionally appeared apprehensive prior to approaching and interrupting consultants for advice about patient discharge. One reason for this was frustration by consultants at the lack of knowledge exhibited by some ANPs. For example, on one occasion a consultant became quite short-tempered with a trainee ANP when she asked for advice.

'ANP 1 asked a consultant sitting nearby whether she could discuss a patient with him. He agreed. She continued to type patient notes on the computer and he said, "I'm ready now" in a short-tempered manner. She grabbed the paper notes and started explaining the patient history. There was obvious tension between them'. Source: ANP 1 observation 2

This trainee ANP was observed to regularly ask consultants to support her discharge decisions. It seemed on this occasion that the ED consultant had become frustrated with the relentless support required by the ANP. On another occasion a different ED consultant appeared frustrated by the lack of knowledge exhibited by the trainee ANP. The ANP asked for advice about discharging a patient with a persistent cough.

The consultant suggested that the ANP should ask the patient to take an 'AFB sample' to their GP. The ANP had not heard of this test which seemed to surprise the consultant, who reacted sarcastically. The ANP appeared upset by this reaction and was immediately comforted by another trainee ANP.

> *'The consultant advised the ANP that the patient should take a sputum sample to his GP to test for acid-fast bacilli. The ANP asked him how to spell that. He told her to put AFB because "any healthcare professional will recognise AFB". She walked away saying "apart from me because I don't know anything". Another trainee ANP overheard this and said "this is what we have to put up with from some consultants". Source: ANP 1 observation 6*

This tension between trainee ANPs and consultants emerged from the data as an inevitable consequence of the organisational expectation of medical substitution, and the ambiguity regarding role preparation in bridging the knowledge to practice gap. The introduction of new roles to a setting is not as straight forward as some might expect, resulting in inter-professional conflict.

Another reason for this tension in the supervisory relationship between ED consultants and trainee ANPs was a lack of time allocated for supervision. One ANP explained the impact of scarce investment in clinical supervision, with the loss of the lead consultants for ANP development.

> *"There's never been any time allocated for supporting the ANPs, so unfortunately the two consultants that were the leads for us have stepped down…Whereas in other departments like ITU, they've got specific consultants that will run teaching for their ANPs". Source: ANP 4 interview*

There was a feeling among ANPs that not enough resources were put into their development, including protected time for ED consultants to provide clinical supervision for ANPs, who, as has been previously established, had significant knowledge gaps to fill. This finding highlights the importance of investment in the inter-professional relationship between ANPs and consultants.

A further barrier to ANP learning from consultants was the competing demand of supervising both junior doctors and ANPs. A consequence of consultant supervision of ANPs was that less time was given to junior doctor development. For example on one occasion when a consultant gave an ANP the opportunity to insert a chest drain for a patient with a pneumothorax a junior doctor was observed to verbalise his feelings of resentment.

> *'The ANP washed her hands and forearms, then put on a long-sleeved gown, followed by sterile gloves. A junior doctor walked past her and said, "how come you guys get to do that?" The ANP didn't respond and pulled the curtain round the patient to perform the chest drain, assisted by a support worker and supervised by a consultant'. Source: ANP 1 observation 7*

Junior doctors clearly felt they were missing valuable learning opportunities due to the support needs of the ANPs. Consultants were also aware of the tension emerging from their responsibility for supervising both professional groups.

> *"There's some tension between the junior doctors and ANPs in our department, and nationwide…. The junior doctors never have one to one consultant time, whereas the ANPs have…if there's an interesting patient some of the consultants take the ANP instead of them and they feel it's definitely having an impact on their training. There's quite a lot of bad feeling towards the way that it's been handled… if you've got 3 interesting patients in a shift and you show 3 to the ANP, where you'd have shown 3 to the junior doctor before…You've basically diluted what you can offer". Source: K1 interview (ED consultant)*

Competition between ANPs and junior doctors for clinical supervision was inevitable in the context of boundary blurring. The focus on ANP learning illustrates the commitment by ED consultants to develop ANPs into the stable and consistent medical substitution workforce they expected from the role, potentially at the expense of junior doctor development.

In the future, as the numbers of more experienced ANPs increases they will potentially be in a position to supervise trainee ANPs leaving consultants free to invest their time in junior doctor training.

8.2.2 Facilitators of learning from consultants

In boundary blurring, it was essential for ANPs to learn from the profession of medicine, who, prior to the emergence of ANPs, 'owned' the role of discharge decision-making. It was clear from the findings in chapter 7 that ED consultants had invested heavily in the successful development of the ANP role, with the long-term view that they would provide workforce stability as medical substitutes. Learning from consultants was found to be facilitated by a good relationship, formal one to one supervision, continued learning beyond the ANP training period, and access to inter-professional departmental teaching.

A good relationship between ANPs and consultants was key to facilitating inter-professional learning. This was found to be easier for experienced ANPs.

> *"It can sometimes take quite a while to find a consultant or a registrar, and you know if it's really busy or you feel you're interrupting them doing something… that's quite difficult. But I'm lucky enough to have known the consultants for years, and have known a lot of them throughout their medical progression. So I have a good relationship with them, but I think some of the trainee ANPs have struggled in the past". Source: ANP 5 interview*

This ANP revisits some of the barriers to learning from consultants; a fear of interrupting them and lack of time. The good relationship appears to emerge from a prolonged period of working together, and possibly by developing a shared knowledge base. In an effort to develop this good relationship through a prolonged period of learning, some trainee ANPs were keen to work every shift with their consultant supervisors.

> *"And some of the nurse practitioners have even gone to the point of saying that they will work every single shift with that individual, they'll match their*

shifts according to the consultant that's supervising them…. some of them are supernumerary so can do this as they don't have to fulfil certain roles". Source: C2 interview (ED consultant)

ANPs clearly valued opportunities to learn from ED consultants, recognising the importance of work-based learning. This was observed in practice as consultants and trainee ANPs worked side by side seeing patients together and discussing their management (see chapter 6). The supernumerary period during ANP training allowed them some flexibility about working patterns in order to maximize learning opportunities by working with their supervisors. Consultants were described by ANPs as an 'invaluable' source of knowledge.

"The consultants are invaluable. And we're very lucky, because I know talking regionally…. they don't have the support that we do here. And they really, really struggle because that's where we get an awful lot of knowledge from". Source: ANP 5 interview

This highlights the value of apprenticeship style learning, also described as 'situated learning' (Lave and Wenger 1991) in boundary blurring for bridging knowledge gaps. It was a mechanism of learning that was viewed as a long-term requirement by ANPs. Another ANP commented on the value of this ongoing support from her consultant supervisor, beyond the duration of formal ANP training.

"And even though he's signed me off now he'll still be considered my supervisor for as long as we ever work here. So now although I've got all my sign-offs done for the hospital, I've now gone over to the e-portfolio, so I need to get him to sign off that as well. And that just gives you a little bit more support in being, you know, an autonomous practitioner". Source: ANP 2 interview

The value of situated learning alongside formal training programmes that were available to ANPs is demonstrated by this example. The ANPs felt that the system of supervision by consultants worked well in their department in meeting their

knowledge needs resulting from adopting elements of medicine in boundary blurring. Senior nurses also supported the finding that consultant support should continue after the period of ANP training has been completed. One senior nurse felt that ANPs are not the finished product after they have completed their training and could benefit from continued support.

> *"The supervision is clear, and then let's say in inverted commas they "qualify", or they finish that training, it's then when the difference happens for me. So I think there's something like a 'novice to expert' framework that needs hanging around this. So when someone's finished their training… they're not the finished product at all". Source: C4 interview (senior nurse manager)*

In suggesting that Benner's (1984) novice to expert model could be used to frame the post-qualifying proficiency of ANPs this senior nurse is supporting the nursing element that remains in the boundary blurring role and the trajectory of ANPs from legitimate peripheral participants to more full members of the community of practice (Lave and Wenger 1991).

On a number of occasions ED consultants also invited ANPs to discuss work over a coffee during the clinical working day, providing the opportunity for informal social support. The coffee was either shared in the department, or during a short break in a nearby office, and was not extended to any other nurses in the bay. This is illustrated by the following field note extract.

> *'ANP 5 then had a coffee break with a consultant in his office. He had his own coffee machine on his desk. They chatted about the shift. During the discussion, the consultant told me that some ANPs are taking on roles that consultants don't even do, like doing bedside ultrasound scans in the ED'. Source: ANP 5 observation 1*

In suggesting that ANPs do more than doctors the consultant is elevating their position within the healthcare team, reinforcing the legitimacy of their role. This coffee break, although a small act, illustrates an acceptance by ED consultants of

ANPs into their community of practice. Consultants are supporting ANPs not necessarily out of their goodwill, but for an instrumental reason: to increase capacity of staff who could do the work of a doctor to fill labour shortages. This may not be something they necessarily want to do, but need to do as a pragmatic strategy.

ED consultants also invited ANPs to attend inter-professional teaching sessions, therefore acknowledging that their learning requirements, in terms of their medical substitution responsibilities, were parallel to junior doctors.

> *"They have regular teaching sessions in the seminar room on stuff like cardiology examination, respiratory examination, abdominal examination, or a 'complaint based' approach, so an approach to neck pain, or head injury patient, or a patient with shortness of breath and we discuss how to deal with those patients and trouble shoot". Source: Interview K4 (ED consultant)*

This description of the content of departmental teaching sessions reinforces the level of boundary blurring with medicine experienced by ANPs in their role.

This section has presented the importance of forming a good relationship with other professions (in this case medicine) when acquiring relevant knowledge to undertake new roles required in boundary blurring. ***ANP situated learning was facilitated by consultants through one to one supervision, informal conversations, and inter-professional teaching sessions.*** Consultants were largely supportive of ANPs taking on roles that were previously undertaken by medicine. In the future experienced ANPs could be involved in presenting at the departmental teaching sessions, rather than being limited to supporting junior colleagues.

8.3 ANP PEER SUPPORT

In addition to support in their discharge decision-making from consultants, ANPs also valued learning opportunities gained from more experienced ANPs. The key barriers to peer support were working in isolation and problems retaining experienced ANPs resulting from dissatisfaction with remuneration. Three mechanisms emerged which

enabled ANPs to learn from being in a community with each other, despite day-to-day isolation. These included working alongside other ANPs during clinical shifts, attending ANP team meetings, and communicating via social media. ANPs valued the sense of camaraderie that they gained from learning from other members of their sub-profession in fulfilling the medical elements of their role.

8.3.1 Barriers to learning from ANPs

The two key barriers to intra-professional knowledge sharing emerging from the findings were working in isolation, and problems with ANP retention arising from dissatisfaction with remuneration. A consequence of the loss of experienced ANPs was fewer mentors to support discharge decision-making by trainee ANPs.

The greatest challenge for ANPs in accessing more experienced ANPs for advice was their isolation; they rarely worked together as a result of the small numbers of ANPs working in the ED. This reduced the opportunities for intra-professional knowledge sharing to occur. The challenge of working in isolation, and the negative effect on peer support were frequently raised by ANPs.

> *"It would be nice to be able to work a shift and bounce things off another ANP. Because you'll see it happen with the ENPs [emergency nurse practitioners] a lot, because they work closely together. But we tend to work just on our own on shifts, don't we? Because there's not a lot of us". Source: ANP 5 interview*

The fact that this ANP asks the question "don't we?" suggests that this isolation was obvious to any observer in the field. Several ANPs related the feeling of isolation to not fitting into any particular professional team:

> *"I think people [ANPs] don't feel part of the nursing team any more, but they don't either feel part of the medical team, and because there's not many of us we tend to work almost as sole practitioners on a single shift, so I think people were feeling a bit isolated, thinking how am I getting on compared to other people, I'm facing these issues, are other people having the same issues? If you don't meet up and talk about those things and support each other you are*

going to feel isolated". Source: ANP 3 interview

Isolation clearly posed a barrier to accessing knowledge from other ANPs working in the department, and to developing a shared professional identity in boundary blurring. Interview extracts from trainee and experienced ANPs support this finding:

> *"I think this is the biggest problem that we've got at the minute. So, there's not enough of us, so there's generally only one of you on at a time, or two of you, and if there's two of you, you get sent to separate areas. Whereas for me as a trainee, I feel like I need someone experienced to work with or to you know go across to the other team and ask them, but if there's nobody else, you're on your own". Source: ANP 4 interview*

> *"I am formally a mentor for one of the trainees but I actually don't work with her that often, because there are not many of us, it's quite difficult to be rota'd on at the same time, to actually work with their specific mentors". Source: ANP 3 interview*

It was important for ANPs to learn from other ANPs who had experienced the same learning journey in developing the medical substitution elements of their role. ANP 5 highlighted the value of "bouncing ideas off other ANPs". ANPs occasionally felt overwhelmed when supervised by consultants due to the difference in knowledge levels, resulting from the difference in professional training.

> *"I feel like, you've got some sort of shared ownership when you're doing the same job, and you're a nurse together and you're doing this extended role. It's nicer to go to someone who's on the same sort of level as you". Source: ANP 4 interview*

This provides further evidence of tensions resulting from the different views of the ANP role as hard and fast medical substitution versus a hybrid of nursing and medicine in boundary blurring. ANPs who viewed their role as boundary blurring, retaining elements of nursing valued the opportunity to learn from other 'boundary

blurrers'. It was important to ANPs that they could develop a shared identity as ANPs rather than as 'medical substitutes' by spending time with other ANPs.

Learning through peer support was also impacted by problems with staff retention. During the fieldwork it was evident that ANP numbers in the department were falling. Initially there had been eight ANPs prior to data collection, however by the time fieldwork began there were five; one had left the job before the study began and two were on maternity leave, one of whom later also left the department for better pay elsewhere. It was revealed that there were no plans to recruit more ANPs due to a lack of funding and some ANPs talked about applying for work elsewhere for better pay.

8.3.2 Facilitators of ANP peer support

In light of the observed isolation experienced by ANPs they developed a number of ways to learn from each other. Three strategies adopted by the ANPs emerged from the findings; working together; ensuring trainee ANPs sometimes worked with more experienced ANPs, team meetings, and communicating via a social media group.

As mentioned in the previous section it was important for trainee ANPs to ask for advice from ANP colleagues who had experienced a similar learning journey. On occasions when there was more than one ANP working on the same shift, they were observed to seek advice from each other in their discharge decision-making. Trainee ANPs would walk to another part of the department to discuss their patients with a more experienced ANP rather than speak to the consultant in the same bay.

One experienced ANP described how trainee ANPs can feel under-confident in their role and explained how working with other ANPs can provide some reassurance that those feelings are normal.

> *"It would be nice for us to be able to work a bit more together. Because, you've heard of imposter syndrome, a lot of us feel that quite early on in training, you know, that we don't know enough, I'm thick, and you know someone's going to find out about me! So all of those thoughts, and it's just*

nice to say that's normal, that's absolutely normal. There aren't any stupid questions, you're not stupid. Source: ANP 5 interview

'Imposter syndrome' led to a decrease in confidence. It was important for ANPs to observe and learn how to make discharge decisions from other ANPs in addition to ED consultants, as they often felt intimidated by the knowledge exhibited by ED consultants (as described in section 8.2.1).

Another mechanism by which ANPs gained support and learnt from each other was via team meetings. Two ANP team meetings were observed during the fieldwork, one took place in a large meeting room in the ED and the second took place in a local restaurant. The meetings were said to take place every 6 weeks, however in reality they were less frequent (only three meetings took place during the 10 month fieldwork). The meetings were viewed by ANPs as key opportunities for knowledge sharing and support as illustrated by the following interview extract.

"We get together and talk about patients we've seen or things we've done, or for learning experiences or if there's courses coming up or things like that. Or if someone's seen like an interesting patient then they can present it, and learn from that, which is useful." Source: ANP 4 interview

ANPs wanted to learn from each other's experiences, to develop a shared body of knowledge and create a unique professional identity. The ANP community was a safe place for ANPs to define their role as something that was not medical substitution but an alternative new professional sub group. It gave trainee ANPs (on the periphery of the community of practice) opportunities to learn the art of boundary blurring from those who had more experience in blending nursing and medicine in the role. Therefore, ANPs drew on their own resources, or capital, to define their role.

During one team meeting, ANPs were found to negotiate funds for training with their managers to enable them to undertake their extended roles, again highlighting the lack of control exercised by ANPs in accessing knowledge.

'The lead ANP then discussed up-coming relevant study days; one on orthopaedics and one on plastic surgery. She also said there was a course on performing bedside ultrasound scans which the Trust had agreed to fund'. Source: ANP meeting

Team meetings were also an important forum for ANPs to socialize and chat about any concerns they had related to the new elements of their boundary blurring role.

"We try and have a meeting every 6 weeks or so. Erm, just to kind of catch up and air any issues that we've got which is quite useful. Even if it's just to have a bit of a sounding board for issues we've been having. Because yeah we don't work a lot with other ANPs, a lot of the time it will be just me as an ANP on the shop floor. So it's nice to kind of catch up with everyone, see how they're actually getting on". Source: ANP 1 interview

It was evident that ANPs' professional identity remained in nursing and they desired contact with other ANPs. ANP meetings provided an important forum for the negotiation of course attendance in accessing relevant knowledge to support boundary blurring. These meetings also allowed time for clarification of role boundaries and identity within the ANP team, again building on social capital.

Finally, ANPs were found to gain support and share knowledge via social media. All of the ANPs were members of a WhatsApp[4] group. They used the group to discuss rota issues, arrange ANP team meetings, and to share knowledge. For example one ANP explained how the ANP group offered advice to a trainee ANP who was undertaking her prescribing course via WhatsApp.

"We have an ANP WhatsApp group. So somebody like [name] was doing her prescribing course and she was struggling for something to write about so she put on, you know, 'got any idea about certain drugs?' So we all sort of chipped in. Things like that, or you can post articles, you know an interesting article

[4] WhatsApp is an instant messaging service available on smartphones, used to communicate with individuals or groups.

you might have seen about something current, you know, 'have you seen this?' And so everyone can see it" Source: ANP 2 interview

ANPs were able to access almost instant advice from their colleagues via social media, a luxury that was not available in clinical practice. It was also a virtual place where relevant research articles and internet sites were shared. For example, one ANP mentioned an internet site that had been shared via the WhatsApp group which helped to identify serious causes of dizziness while interpreting ECGs.

"Erm, so [ANP name] sent out this week 'WOBBLER', which is a new acronym; so we tend to share stuff like that... Erm, so, yeah. Resus-me WOBBLER, 'spot the wobbler in syncope'. You know. So we just WhatsApp stuff like that to each other". Source: ANP 5 interview

It was evident that social media groups were efficient methods of mitigating feelings of isolation in this particular context; where ANPs rarely worked together, team meetings were infrequent, and emails were not always accessed.

Although most ANPs spoke positively about the benefits of social media, one ANP felt that there was a risk of the WhatsApp groups causing problems by segregating the different nursing teams.

"It's like there's one for the ANPs and the one for the ENPs, and there's one for the ANPs and the ENPs together. And I know like the staff nurses have got one. But I think it segregates people". Source: ANP 2 interview

This criticism of the social media group was only mentioned by one ANP, therefore it seemed that generally the WhatsApp group was a useful forum by which knowledge could be shared instantly, and ANPs could feel part of a community of practice due to the widespread use of smartphones. One ANP also mentioned that she had been a member of a larger national Facebook forum, however she quickly became fed up of the regular posts from people she did not know, therefore could not trust. The WhatsApp group was therefore regarded as a credible knowledge source compared to larger social media forums.

This section has presented the ways in which ANPs formed an intra-professional community of practice. ***It was important to ANPs in their boundary blurring role to observe and learn from each other, rather than solely relying on ED consultants to support their development. In resisting full medical substitution ANPs were keen to develop their own professional boundaries and identity which was facilitated by intra-professional networking.***

8.4 DEVELOPMENT OF INDETERMINATE KNOWLEDGE THROUGH CLINICAL EXPERIENCE

Experienced ANPs were found to draw on tacit knowledge which they had developed over time through clinical experience, training courses, and previous knowledge gained from the wide range of sources mentioned in chapter 6. They applied this 'indeterminate knowledge' to situations of uncertainty in discharge decision-making. This sort of learning was revealed during the fieldwork by informal conversations with ANPs as it was difficult to identify in practice by observation alone. One ANP described the value of 'gut feeling' in making discharge decisions.

> *"So we have a lot of stuff to provide us with the skills and ability to be able to diagnose, but the actual discharge bit is the most difficult which I think we don't get a lot of teaching on, I suppose. It's more a case of do you feel like that patient's well enough to go home". Source: ANP 1 interview*

This illustrates that ANPs did not feel that their training alone equipped them for the complex judgments required to make discharge decisions. When assessing and treating patients ANPs often referred to knowledge gained from courses such as advanced physical assessment and consultation skills (APACS), X-ray interpretations, minor illness, and non-medical prescribing. However, in making judgments about patient discharge they were found to draw more on tacit knowledge including previous experience and gut feelings.

ED consultants placed great value on clinical experience in the success of the ANP role, however they often focused on the development of clinical skills rather than the

more intuitive judgments also required in boundary blurring. One consultant compared the difference in support required by experienced ANPs with those who had no previous experience of undertaking advanced nursing roles.

> *"I mean you look at someone like [name] who'd effectively done ANP stuff for years but had never been called an ANP, she didn't really need much supervision because she could do most of the things, it was just a case of ticking off the bit that nurses had been traditionally excluded from like the sedation and the airway stuff….For the people who hadn't been ENPs in the past and hadn't done the practitioner role, then they needed an awful lot more input in terms of just getting up to speed with the basic examination stuff, as well as all the practical procedures". Source: K2 interview (ED consultant)*

It was evident that prior to implementation of the ANP role boundary blurring was already occurring to a lesser extent via other advanced nursing roles, such as the ENP role. The ENP role had introduced nurses to the medical elements of diagnosis and discharge, but in a more limited way. Limitations were by patient group, and through the use of clear protocols for decision-making that limited the nursing autonomy regarding patient discharge. This appears to have been an important stepping-stone to autonomous discharge decision-making in the ANP role. Another ED consultant, who was an ANP clinical supervisor, also emphasized the value of clinical experience in discharge decision-making.

> *'The consultant supervising the ANP told me that his diagnostic decisions come from years of experience; what he has seen and what others have said they've seen. He said it can't be summed up in a guideline'. Source: ANP 4 observation 2 (conversation with ED consultant)*

A shared body of knowledge was developed within the community of practice, through the experiences of individuals and their colleagues through social networks. The importance of clinical experience in discharge decision-making was supported by observations that experienced ANPs based many of their decisions on prior

knowledge, rather than seeking advice from colleagues or searching for formal guidelines.

The sub-theme of ‘indeterminent knowledge through clinical experience’ reveals how knowledge mobilisation in discharge decision-making by ANPs shifted from relying on the support of senior colleagues (consultants and ANPs) to drawing more on their clinical experience as they moved towards the centre of the community of practice. One ED consultant described the resulting confidence in decision-making that comes with experience:

> *“I think the ones [ANPs] that have transitioned to being quite happy with discharge decisions are the ones with a lot more experience, life experience and have been around a lot longer. Source: C2 interview (ED consultant)*

ED consultants felt that experience was undervalued in ANP recruitment, negatively impacting the ‘success’ of the ANP role in autonomous discharge decision-making.

> *“My concern is that we undervalue experience, because I feel that you need a number of years of clinical experience as a nurse or in any job, to be extremely good at it, for example to become a consultant after medical school it has taken me 10 years and there’s still things that I don’t necessarily know everything about, and I erm think that in some of the appointments for the ANP role, that we’ve undervalued experience, and I think you can definitely tell. In my experience, from the selection of the nurses, the most successful ANPs are definitely the ones that have been nurses for longer”. Source: K1 interview (ED consultant)*

This highlights the benefits of nursing experience to the ANP role and supports the finding that nurses will never be complete medical substitutes as they bring valuable elements of nursing with them that contribute to the role. Another ED consultant described the increased confidence that ANPs display in their discharge decision-making compared to junior doctors, stemming from their breadth of experience:

"I think if anything the ANPs would probably be more confident in that [discharge decision-making], they have a lot more experience generally, life experience, and clinical experience, not necessarily the medical experience, but just being around patients longer than a lot of our junior doctors have and sort of just knowing what sort of patient you can still send home, versus the junior doctor who is in his second year of working who is very reluctant to send anyone home independently". Source: C3 interview (ED consultant)

This 'just knowing' who to send home involves applying indeterminate knowledge to the uncertainty presented by discharge decisions; a quality still in development in junior doctors. Despite the organisational driver of medical instability and the need for medical substitution it was clear that some ED consultants recognized the value of retaining nursing in discharge decision-making. Experienced ANPs exhibited a greater level of indeterminate knowledge than trainees, essential in complex decision-making such as patient discharge. The value of indeterminate knowledge was supported by observations of ANP discharge decision-making, as there was a clear difference between trainee ANPs and experienced ANPs in the level of support required. ANPs themselves also recognized the value of clinical experience as illustrated below:

"Well I think now it's just experience. I mean I'm trying to develop now like more, doing more sedation and more ultrasound and things, and doing things like chest drains…Now I'm comfortable with most of the presentations that come in, I'm trying to push myself a bit more. But it's just getting the opportunity and time to do it". Source: ANP 2 interview

This ANP described how experience has added to her knowledge of common conditions that she encounters in the ED, developing her 'indeterminate knowledge':

"Two years ago I wouldn't have dared to discharge a patient. I wouldn't have felt confident or felt as if I knew what I was doing, but now I've got another 2 years' experience under my belt, just seeing the same kind of presentations over and over again". Source: ANP 2 interview

Senior nurse managers also recognised the association between increased clinical experience and a reduced need to access other knowledge sources:

> *"When you're a novice, of course you need more access to things that will enable you to make a safe decision for the patient. As you become more experienced that contact will be less I think, but is still as important when required". Source: C4 interview (senior nurse manager)*

Another senior nurse discussed the importance of experience in gaining knowledge about the healthcare setting and other professionals involved in patient care:

> *"If you've grown up here as an ED nurse, and you know the hospital and you know a lot of the people and you know the clinicians you're referring to, compare that to a middle grade doctor who might have come here for a rotation and might not know all those things. I think there's something often unspoken in clinical practice you know that might give you more confidence if you know the organisation, know the people, that kind of thing". Source: C4 interview (senior nurse manager)*

This illustrates the value of contextual knowledge in boundary blurring, and the strength of the relative permanence of nursing compared to the transience of junior doctors. Contextual 'know how' was important in the transition towards medical substitution in boundary blurring as illustrated by the following interview extract:

> *"I just think sort of over the time you just sort of gather that knowledge from so many different sources, to be able to make a decision to discharge somebody". Source: ANP 2 interview*

Indeterminate knowledge developed from clinical experience was highly valued by all participants and successfully employed by ANPs in discharge decision-making. Indeterminate knowledge reduced the need to access other knowledge sources such as guidelines and colleagues in discharge decision-making by ANPs.

8.5 CHAPTER SUMMARY

This chapter has identified the key factors that enabled ANPs to learn how to undertake the medical substitution element of discharge decision-making in the ED. In light of the mess and complexity of knowledge access (chapter 6), and the tensions in motivations for role development (chapter 7) ANPs were found to learn how to autonomously discharge patients through membership of an inter-professional community of practice.

Trainee ANPs valued a supernumerary period during their training enabling them to maximize **inter-professional learning** opportunities by working alongside their ED consultant supervisors. It was evident that learning continued beyond the training period through a culture of inter-professional support during clinical work. **Peer support** was also important to ANPs in their discharge decision-making: through working alongside each other, sharing knowledge during team meetings, and via social media. The findings also revealed the value of **indeterminate knowledge** gained through experience, in discharge decision-making.

Trainee ANPs in this study were legitimate peripheral participants, at the edge of the community of practice where they lacked ANP skills and knowledge (Lave and Wenger 1991) and had much to learn from other ANPs, consultants, and clinical experience. Experienced ANPs were nearer the centre, where they were more confident in the medical substitution elements of their role, relying less on supervision by colleagues and more on indeterminate knowledge gained through experience. Trainee ANPs filled their knowledge gaps by accessing knowledge in discharge decision-making, and by developing knowledge through situated learning. Some of the regulatory barriers evident in boundary blurring were overcome through role clarity and consensus.

The next section presents a reflexive account of the experiences of undertaking ethnography as both a nurse and an observer.

8.6 REFLEXIVITY: The Ethnographer's Dilemma (see also section 4.6.7)

Some authors suggest that nurses are at an advantage when undertaking ethnographic research, due to their knowledge of health care settings, and their understanding of medical terminology (Allen 2001, Gabbay and le May 2004). Others warn that when a researcher is familiar with a particular group or setting, they should endeavour to treat it as 'strange' so as not to miss issues that they normally take for granted (Hammersley and Atkinson 2007).

It was important in this study to maintain a balance between getting close enough to the ANPs to understand what was happening, and remaining detached enough to look at the situation with fresh eyes (Gabbay and Le May 2011). Therefore, it was important for me to reflect on the effect of my clinical nursing background on the research process.

On several occasions I became aware that my motivations for shadowing the ANPs in the ED slipped from gathering data (as a researcher) to learning new skills (as an ANP). I observed ANPs taking a history and assessing patients, then discussing their discharge decisions with senior colleagues. Often, they also turned to me to share their thoughts about patient diagnosis and occasionally to ask for advice. I gently reminded them that my role was to observe their decision-making, not to offer advice as that could influence the findings. At one point during the fieldwork the lead ANP offered me a zero hours contract to work in the department, which I politely declined. I was very flattered by this offer and felt it indicated that I had gained the trust of participants and become an insider in the research setting. However, I felt that other ED staff treated me more as a researcher as there was never an expectation for me to provide care for patients.

During the fieldwork, I was conscious that participants might be nervous that my research findings would make a judgement about their clinical practice. They occasionally appeared suspicious when I wrote notes, so I reassured them about the processes I was recording. I tried to write discretely and over time they appeared less distracted by my note taking.

I felt that I was viewed by the ANPs as a nurse rather than a researcher. On one occasion the ANP clicked on the next patient to be seen, noticed the patient had tonsillitis, and said “this one’s for you”, knowing that I worked as an ANP in primary care. On another occasion when a patient was dying an ANP confided in me how difficult it is to care for palliative patients in the ED. On that occasion I felt the need to give her reassurance that she was doing a great job, speaking to her as a peer, rather than an outsider.

On one occasion, despite putting posters in the department, a locum doctor asked me what I was doing while I was observing in the resus bay. I explained the study and showed him my badge. He was instantly reassured and suggested I move closer to the ANP I was shadowing to ensure nothing was missed. ANPs were very happy for me to observe all of their consultations which I felt was a consequence of my nursing background, however I felt that my clinical experience had given me the skills to judge when it was or was not appropriate to approach patients.

This experience has taught me the value of building a good rapport with participants, particularly during long periods of data-collection. It also emphasised the importance of being transparent about undertaking research in order to minimise confusion and to reduce the distraction that may be caused to other clinicians.

It also highlights the challenges of role conflict when clinicians undertake applied health research. They must resist the temptation to revert back to the more familiar (in my case) clinical role. The next chapter discusses the key findings from the ethnographic data collection; clarity in boundary blurring, shortcuts in knowledge access, and situated learning in becoming a full member of the inter-professional community of practice.

CHAPTER 9 DISCUSSION

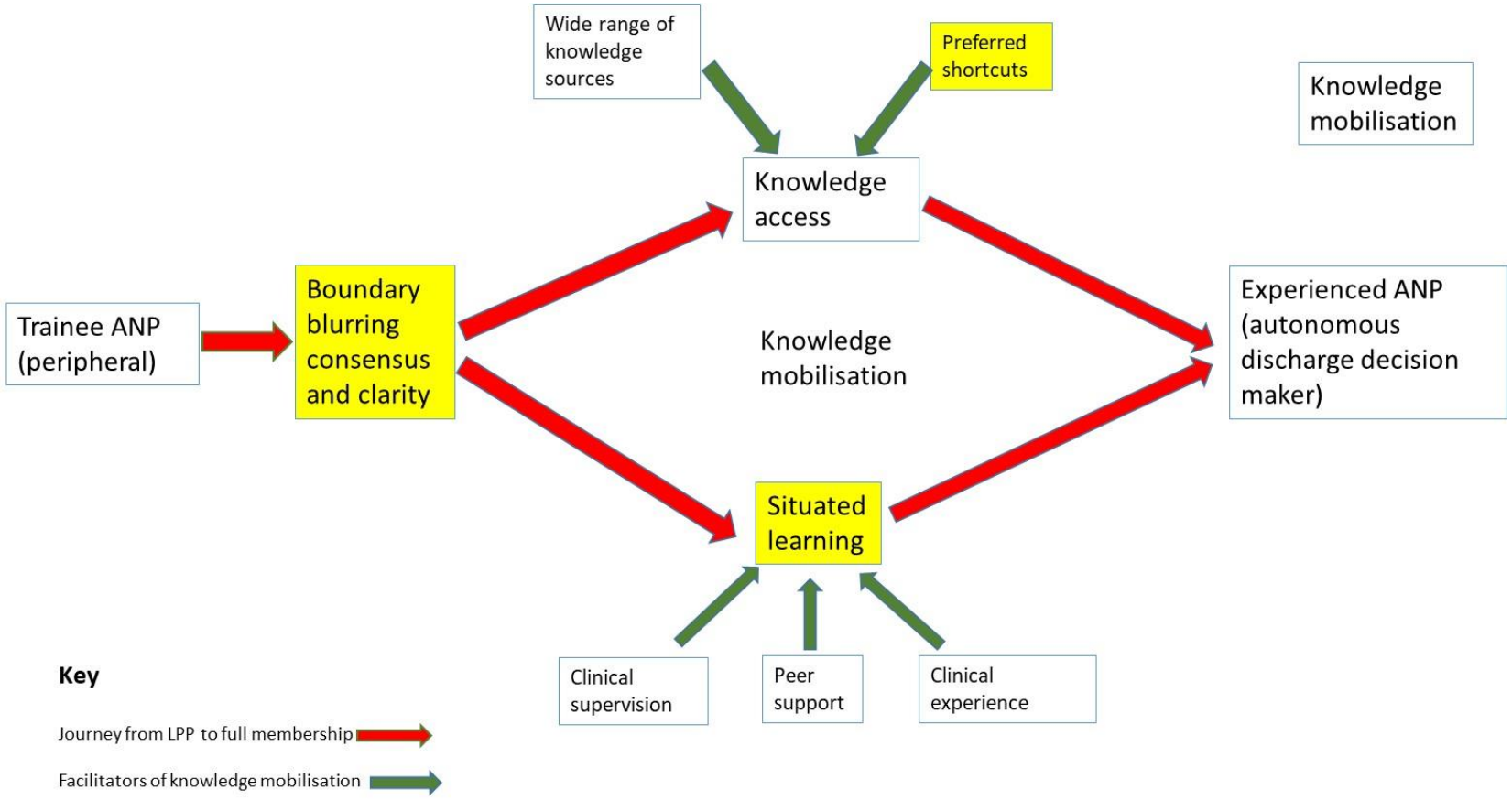
9.1 INTRODUCTION

The aim of this study was to understand knowledge mobilisation (KM) in discharge decision-making by advanced nurse practitioners (ANPs) in the emergency department (ED). The findings have revealed a number of key insights related to the three elements of the theoretical framework. Firstly, the nature of boundary blurring between ANPs and doctors in the ED. Secondly, a reliance on shortcuts to knowledge in discharge decision-making, and finally the importance of situated learning in becoming full members of the inter-professional community of practice.

Figure 9.1 summarises the findings, with the three key elements highlighted in yellow. Trainee ANPs are situated on the periphery of the inter-professional community of practice. More experienced ANPs are in a more central position. The journey from trainee to autonomous discharge decision-maker requires clarity and consensus in boundary blurring, access to knowledge via shortcuts, and opportunities for situated learning. These processes contribute to the development of ANPs' clinical mindlines.

This chapter presents how the findings make a unique contribution to knowledge, how they relate to previous literature, and how they add to the theoretical framework. The strengths and weaknesses of the study are discussed, followed by the implications of the findings for practice, education, policy and research, with recommendations for future research.

Figure 9.1 Knowledge mobilisation in discharge decision-making by ANPs in an inter-professional community of practice in the ED



9.2 CLARITY IN BOUNDARY BLURRING

The findings reveal important implications of boundary blurring for knowledge mobilisation (chapter 7). Tensions between the motivations for ANP role development between stakeholders lead to differences in expectations of the scope of practice. The significant overlap with medicine in boundary blurring (including autonomous discharge decision-making) in the ED has implications for the professional identity of nursing. Boundary blurring in the ANP role provides stability within the department through the relative permanence of nurses compared to junior doctors.

A further consequence of boundary blurring is that ANPs experience knowledge gaps in discharge decision-making. It is important to ensure clarity and consensus in boundary blurring in order to facilitate knowledge mobilisation in discharge decision-making by ANPs in the ED.

9.2.1 Tensions in motivations for boundary blurring

Tension between the motivations for ANP role development by different stakeholders, leads to a difference in how boundary blurring is understood. Senior clinicians are driven by medical workforce shortages (section 7.2.1), and ANPs are driven by career progression (section 7.2.2). This tension can be understood using a boundary blurring continuum (figure 5.2). Senior managers expect ANPs to fill medical roles, as medical substitutes (with complete overlap of the circles in figure 5.2). Whereas, ANPs themselves see their role as a hybrid, a unique blend of the two professions, retaining their nursing expertise, and developing advanced skills (traditionally owned by medicine) to increase their autonomy in treating and discharging patients. In both cases ANPs are required to develop the knowledge and skills to autonomously assess, diagnose and discharge patients from the ED. Despite a similar scope of practice to medicine, the ANP training is significantly shorter. ANPs talk about the difference in duration and depth of medical and ANP training (section 7.4). Consequently trainee ANPs lack confidence, regularly checking their discharge decisions with more senior colleagues.

Previous studies have identified similar reasons for ANP role development; a shortage of doctors, a need to improve access to health care, inter/ intra-professional collaboration, and nurse career progression (Ketefian et al. 2001, Schober and Affara 2006, Currie et al. 2010, McMurray 2011). However, this tension between stakeholders has not been discussed previously.

Boundary blurring between nursing and medicine has been a topic of discussion in the nursing and sociological literature for many years, often focusing on the differences between the roles and the barriers encountered (Read 1995, Svensson 1996, Allen 1997, Nancarrow and Borthwick 2005, Johannessen 2018). Nurses have continued to adjust their boundaries in response to medical workforce shortages, turning such challenges into opportunities to advance their practice and enrich their profession (Read 1995, Sheer and Wong 2008). ANPs undertake many traditional medical tasks and judgements, however true medical substitution cannot be achieved in the ANP role for two reasons. Firstly, it would fail to recognise the contribution of nursing to the role; and secondly, ANPs have not undertaken traditional medical training. The findings from this study indicate that it is important for ANPs to own their role in boundary blurring, and not to feel pressured into replacing doctors. In order for them to move forward in their careers there needs to be role clarity and consensus among the healthcare professions. This is similar to recommendations put forward by Schober and Affarra (2006), who suggest that a clear scope of practice and the involvement of stakeholders in role development will improve inter-professional relationships between ANPs and medicine.

9.2.2 Impact of boundary blurring on nursing's professional identity

The hybrid nature of the ANP role has implications for the professional identity of nursing. There is a significant shift from the traditional nursing role, to one which largely overlaps with medicine, displaying a unique blend of nursing with medical tasks and judgments. Previous authors have endeavoured to highlight the differences between the professions of nursing and medicine, comparing the caring

nature of nursing with the quest for cures in medicine (Fleming and May 1997). However, rather than searching for the differences, Allen (2007) argues that definitions of nursing should be based on what they actually do in practice. The current study reveals the hybrid nature of the ANP role in the ED, and the added value that experienced ANPs bring, through their autonomous discharge decision-making and support of more junior colleagues.

ANPs continue to provide care for their patients, such as meeting their hygiene and hydration needs, thus retaining their traditional holistic nursing values. This finding supports those of McDonnell et al. (2015) who, in their study of ward based ANPs found there was no loss of traditional nursing values in boundary blurring. It is important therefore that the value of 'nursing' is not lost in future definitions of advanced nursing roles. This is currently under threat from the emergence of the title 'Advanced Clinical Practitioner' (Health Education England 2017a), which encompasses a variety of professions. The use of such a broad title underestimates the unique contribution and value that nursing brings to the role.

The current study reveals findings from this study show a lack of inter-professional conflict regarding the negotiation of role boundaries between ANPs and doctors. This consensual change in boundaries is consistent with previous authors (Nancarrow and Borthwick 2005, Johannessen 2018) who suggest that dynamic role boundaries not only benefit the single profession, but other professional groups. However, other studies found that nurses experience resistance by doctors when developing more advanced clinical skills (Svensson 1996, Barton 2006, Norris and Melby 2006, Pulcini et al. 2010, McMurray 2011). The lack of conflict in the current study can be explained by a clear scope of practice and widespread support across the professions of nursing and medicine in this ED, highlighting strong inter-professional consensus within the department. This may be due to the significant profile of advanced practice in recent national policy and workforce strategies (Health Education England 2017a, Health Education England et al. 2017). Allen (1997) similarly found that changes in the division of labour between nurses and doctors

that were driven by changes in policy, resulted in a lack of face to face negotiation of clinical work and a lack of inter-professional conflict.

Despite a lack of local inter-professional conflict in this study there is clearly some ambiguity regarding the role of ANPs nationally. A recent document published by the Royal College of Physicians (2018) has failed to recognise the extent of the ANP role in boundary blurring, describing their remit as to 'make an initial assessment of patients'. They describe three tiers of the workforce: tier one - competent clinical decision makers, able to make an initial assessment; tier two - senior clinical decision makers, described as 'registrars', able to make a diagnosis, order investigations, and provide treatment; and tier three - expert clinical decision makers such as medical consultants, with overall responsibility for patient care. The current findings would situate experienced ANPs clearly in tier two, however the Royal College of Physicians (2018) places them in tier one. This reveals a lack of understanding or acknowledgement across professional groups of the work undertaken by ANPs in clinical practice. This further highlights the importance of clarity and consensus in boundary blurring.

The outward appearance and work patterns of ANPs provide further evidence of boundary blurring. They wear very similar scrubs and their shifts are aligned. This similarity between ANPs and doctors in this study may be unique to the ED, as doctors remain in the department throughout their shift. Hospital wards and primary care provide different contexts, therefore may not exhibit such temporal-spacial similarities. These similarities give an outward appearance of clinicians undertaking similar roles, supporting the organisational desire for medical substitutes. This has implications for the expectations of the role to observers, such as other healthcare professionals and patients; an issue that warrants further research.

The significant blurring of boundaries with medicine raises important questions about the regulation of ANPs. There is an argument here that ANPs are providing a generic service alongside junior doctors recognised by some in the medical and non-medical

professions (Health Education England 2017a, Royal College of Emergency Medicine 2017), more than others (Royal College of Physicians 2018). This has potential implications for the regulation of ANPs. Currently in the UK, the responsibility for ANP regulation lies with local employers in primary and secondary care, as unlike many other countries, there is no compulsory national regulation (Pulcini et al. 2010, King et al. 2017). This has led, in some cases, to the use of the ANP title without any advanced educational preparation (Royal College of Nursing 2012), however strategies have been introduced to standardise the role (Royal College of Emergency Medicine 2017, Royal College of Nursing 2017, Health Education England 2017a). Local regulation of ANPs is supported by the introduction of a process of revalidation by nursing's professional regulatory body (Nursing and Midwifery Council 2017), and more recently, the introduction of ANP credentialing by nursing and medical professional bodies (Royal College of Emergency Medicine 2017, Royal College of Nursing 2017). Previous literature has called for clarification of training standards for ANPs (Griffin and Melby 2006, Lloyd-Rees 2016). The findings reveal that current practice is moving some way towards this, with the use of local competency frameworks and national credentialing (Royal College of Emergency Medicine 2017, Royal College of Nursing 2017).

Boundary blurring also leads to ambiguity about ANP accountability. ANPs are accountable to their professional body (Nursing and Midwifery Council 2018). However, their support network crosses over the professional boundary to medicine, leading to confusion about governance procedures. Dissatisfaction with remuneration is also a consequence of regulatory ambiguity and leads to ANPs moving to areas offering better pay. This has an impact on knowledge mobilisation as it reduces the number of experienced ANPs available to support new trainees.

9.2.3 ANPs provide stability in boundary blurring

Experienced ANPs provide stability to the ED. They mitigate the departmental instability, caused by junior doctor shortages, and the unknown skills of locum

doctors. ANPs achieve stability by their ‘permanence’ in the setting; developing advanced clinical and decision-making skills and passing on their expertise to nursing and medical colleagues. The mechanisms by which they develop knowledge through permanence are discussed in section 8.4.

The importance of ‘permanence in providing workforce stability builds on previous research (Svensson 1996, Allen 1997) which presents nursing as a cohesive force, providing continuity of care, in contrast with doctors who spend little time on wards, and undertake short junior doctor placements. Allen (1997) describes the value of the relative ‘permanence’ of nurses in contrast to the ‘transience’ of doctors. The positive impact of ward based ANPs in knowledge sharing with frontline nurses and junior doctors has also been reported in more recent studies (Williamson et al. 2012, McDonnell et al. 2013).

As mentioned previously, ‘nursing’ is clearly still evident in boundary blurring in this study, supporting the idea of a hybrid role, rather than a medical substitution role (see section 7.3.4). Permanence is an added value in the high pressure chaotic environment of the ED. This supports the findings of previous research which found that ANPs view their role as adding to the service, rather than replacing doctors (Maddox et al, 2016).

Despite the stability provided by ANPs, the current study also reveals medical control over knowledge production and sharing. This is consistent with Allen (2007) who describes resistance when professions try to expand their mandate. For example, medicine has traditionally been happy to pass on ‘dirty work’ or skills they no longer want to undertake, but has been less keen to pass on higher-level decision-making (Allen 1997, Hughes 1984). This finding differs from previous research on ANP roles in the UK, which found that ward based ANPs were involved in developing new policy (McDonnell et al. 2015). One reason for medical control over knowledge mobilisation in this study might be the infancy of the ANP role in the ED, and the subsequent position of trainee ANPs on the periphery of the community of practice

(Lave and Wenger 1991). As a relatively new role in the ED ANPs are still developing their skills, therefore are not yet in a position to produce knowledge resources. Alternatively (and perhaps more cynically), it could be a mechanism by which medicine retains autonomy in healthcare. This would be consistent with previous literature, which identifies the persisting autonomy of medicine in situations of boundary blurring (Svensson 1996, Allen 1997, Currie and White 2012).

Two key processes led ANPs to develop sufficient knowledge to make autonomous discharge-decisions. The first is access to shortcuts and the second is through situated learning.

9.3 SHORTCUTS WERE ESSENTIAL IN DISCHARGE DECISION-MAKING

This section describes how clinical mindlines (Gabbay and Le May, 2004) operate in the ED. This has not ben reported in any previous study, and provides a unique contribution to the literature on clinical mindlines. The knowledge ANPs need to access is dictated in part by the boundary blurring in the ED ANP role. There is therefore a close relationship between the extent of boundary blurring (on the continuum) and the reliance on clinical mindlines in discharge decision-making by ANPs in the ED.

ANPs develop their individual clinical mindlines to inform discharge decision-making through a variety of ways (illustrated in figure 6.4). All of the observed types of knowledge are important to ANPs, however in light of barriers to some, and the fast-paced context of the ED, ANPs prefer accessing shortcuts in discharge decision-making (shown in green in figure 6.4). Shortcuts facilitate boundary blurring by overcoming barriers to knowledge mobilisation. In addition to tacit knowledge, the two key shortcuts are informally asking colleagues for advice (ED consultants or more senior ANPs), and using smartphone apps to access summaries of formal guidelines. ANPs use shortcuts to bypass the mess and complexity of discharge decision-making and mitigate the barriers to accessing other knowledge sources in the fast-paced ED context.

The findings build on previous research which identifies a wide range of knowledge accessed by nurses in their clinical work. These include patients and other professionals, local policies and procedures, in-house training courses, conferences, newly prescribed treatments, nurse-training, intuition, journal articles, audit reports, textbooks, clinical experience, information from the internet and the media (Estabrooks 1998, Gabbay and Le May 2004, Gerrish et al. 2008, Traynor 2009, Traynor et al. 2010a). The current study makes an important contribution to the clinical mindlines literature; the preference for formal and informal shortcuts in discharge decision-making by ANPs in the ED setting.

Barriers to accessing knowledge are a consequence of discharge pressures (the four hour target), and problems with access. ANPs find guidelines too long and irrelevant and specialists difficult to access (see section 6.2). ANPs are required to make timely autonomous discharge decisions in the ED; therefore knowledge needs to be easily accessible. Previous studies have also identified similar barriers to the use of research knowledge in practice, including lack of access, time, relevance and skills to appraise research, lack of authority to implement findings and lack of support by colleagues, (Funk et al. 1991, Hutchinson and Johnston 2006, Gerrish et al. 2008, Rowley et al. 2012). The difficulties in accessing specialists in the current study conflicts with findings by Thompson et al. (2001) who found that specialist nurses were regularly consulted by ward nurses in decision-making. This may be due to differences in the availability of specialists in wards and emergency departments, and the time pressure to discharge patients promptly.

ANPs exhibit high levels of trust when accessing advice from senior colleagues. This is evident by a lack of questioning of the original source of the advice given by colleagues in discharge decision-making. Gabbay and Le May (2004) also found that professional networking was vital to accessing knowledge from trusted colleagues in primary care, and similarly found that they were not questioned about where their knowledge came from. Therefore, this finding supports the importance of social

networks in knowledge mobilisation (Gabbay and Le May 2004) in the very different context of the ED.

Smartphones were important in knowledge access by ANPs. In contrast to Gabbay and Le May's (2004) findings, which revealed that clinicians rarely access formal guidelines, ANPs in this study were keen to access formal knowledge, but in a short convenient format. They used their personal smartphones several times a day to access summaries and decision tools, to inform their discharge decision-making, preferring the speed and convenience compared to desktop computers. It has been suggested that medical smartphone apps have the potential to change the way healthcare professionals deliver evidence-based practice in the future (Buijink et al. 2013). This is consistent with previous studies, which found smartphones were used to access drug formularies, clinical decision tools, and medical calculators (Wyatt and Krauskop 2012, Moore and Jayewardene 2014).

ANPs did not face any opposition by senior managers when using smartphones in accessing clinical guidelines during discharge decision-making. This managerial support contrasts with the findings of a study undertaken in New Zealand in which nurse managers had reservations about the professional and ethical use of such devices (McNally et al. 2017). The current findings did reveal some concerns among ANPs themselves about the unprofessional appearance of using phones to access knowledge. Previous studies have also raised concerns about the lack of regulation of smartphone apps (Wyatt and Krauskop 2012, Buijink et al. 2013). They argue that apps need to be up to date in order to ensure patient safety, particularly when used to make decisions about diagnosis, and discharge. Buijink et al (2013) suggest that government health authorities should provide a certificate guaranteeing quality of smartphone apps used in clinical decision-making.

In addition to trusting the verbal advice from colleagues, ANPs also trust smartphone apps that are developed or recommended by colleagues (see section 6.4.2). This is consistent with a previous study, which found that, in the absence of formal

mechanisms, healthcare professionals used informal methods of risk assessing smartphone apps, such as recommendations by colleagues (Moore and Jayewardene 2014).

Shortcuts to informal and formal knowledge enable boundary blurring by ANPs in this ED. They are vital in meeting the knowledge requirements faced by ANPs in discharge decision-making. Senior colleagues are convenient due to their close proximity to ANPs in the ED, and perceived as trusted sources. Smartphones also offer quick, convenient access to summaries and decision-tools to inform clinical decisions.

9.3.1 Contribution to the theory of clinical mindlines

The theory of clinical mindlines provides a valuable lens to understand how knowledge is managed in clinical decision-making in the primary care setting. As a reminder, clinical mindlines are defined as:

> *"Collectively reinforced, internalised tacit guidelines, which were informed by brief reading, but mainly by their interactions with each other and with opinion leaders…and by other sources of largely tacit knowledge that built on early training and their own and colleagues experience"* (Gabbay and Le May 2004, p329).

The findings from the current study support the theory of individual and collective clinical mindlines, and the importance of social networks in knowledge sharing in discharge decision-making by ANPs in the ED. ANPs access a wide range of knowledge sources that build on previous knowledge developed from training courses, experience and conversations through face-to-face and virtual social networks. Situated learning is a key element of this (figure 9.1). Through informally asking for advice in discharge decision-making, ANPs accessed the clinical mindlines of senior colleagues, a mechanism recognised by Gabbay and Le May (2004) in primary care.

A unique contribution to knowledge is the reliance on both formal and informal shortcuts by ANPs in this ED. The use of smartphones to access shortcuts to formal knowledge reveals the value that ANPs in this ED place on formal research-based knowledge in addition to informal advice from colleagues. A finding which differs from those of Gabbay and Le May (2004), but which may be due to the knowledge gaps emerging from boundary blurring and advancing smartphone technology.

9.4 SITUATED LEARNING IS IMPORTANT FOR CLINICAL AUTONOMY

The theory of legitimate peripheral participation (LPP) (Lave and Wenger 1991) provides a framework to understand how ANPs in the ED move from trainee to autonomous discharge decision maker. The ED is clearly an important learning environment for ANPs, as they talk about learning something new every day during their clinical work (section 7.4.1). This is consistent with previous literature which emphasises the importance of social networking in knowledge mobilisation (Lave and Wenger 1991, Gabbay and Le May 2011). In their theory of LPP Lave and Wenger (1991) explain the changing identity of ‘newcomers’ as knowledge and skills are acquired by participation in the social world of clinical practice. Full participation occurs as new knowledge and skills develop.

As discussed in the previous section, ANPs often draw on tacit knowledge, which develops over time and becomes part of their ‘clinical mindlines’. Experienced ANPs who are autonomous discharge decision-makers talk about the importance of situated learning, via an inter-professional community of practice, in developing their expertise. The community of practice is described as ‘inter-professional’ due to the similarities of the ANP and medical roles in boundary blurring (as discussed in section 9.2). In chapter 8 three key mechanisms of situated learning are revealed; clinical supervision from ED consultants, peer support from other ANPs and clinical experience. Each of these factors contributes to moving ANPs from a position of legitimate peripheral participation towards full membership of the inter-professional community of practice (Lave and Wenger 1991), as illustrated in figure 9.1.

Firstly, clinical supervision by ED consultants is vital to ANPs in their discharge decision-making (see section 6.2.1). Trainee ANPs discuss almost every discharge decision with a nearby consultant. This reveals a new shift in nurse-doctor interactions. Historically nurses and doctors have organised separate mechanisms of communication, through profession-specific meetings, training courses and conferences (Svensson 1996). The findings from the current study reveal a significant improvement in opportunities for inter-professional learning between nursing and medicine. This adds to the findings of previous studies, which have highlighted the importance of 'inter-professional support' in the development of clinical skills and knowledge, and the implementation of new roles, ensuring competence and confidence (Barton 2006, MacLellan et al. 2015, Schober et al. 2016).

ANPs value supervision by ED consultants both during and beyond the duration of their training. This highlights the need for ANPs to access similar learning opportunities to doctors in the ED through continuing professional development (CPD). This is consistent with the findings of an ethnographic study by Maclellan et al. (2015), who concluded that mentoring of ANPs should continue beyond the duration of training in order to reduce self-doubt and increase confidence. ANPs in this ED have overcome some of the perceived challenges of knowledge mobilisation within organisations; how to connect disparate communities of practice (Currie and White 2012), and inter-professional conflict in boundary blurring (Barton 2006, Schober and Affara 2006).

Secondly, ANPs value situated learning through peer support. Despite often working in isolation ANPs develop ways of networking to enable knowledge sharing. There are three key forums for peer support in this ED; regular ANP team meetings, arranging to work alongside other ANPs (particularly supernumerary trainees) and communicating via a social media group. They use a "WhatsApp" group to share relevant journals and support each other in their academic work. This is similar to

previous literature, which points out that secure social networking sites could be important in developing clinical mindlines (Greenhalgh and Wieringa 2011).

These findings reveal the importance of sharing knowledge within an inter-professional community of nurses and doctors with the same common goal. This supports the definition of a community of practice by Ferlie et al. (2012) as *"groups of people who, through working together, develop into a cohesive work community with mutual understandings p1304."* Previous studies have also identified the value of communities of practice to learning in the healthcare context (Goodwin et al. 2005, Li et al. 2009, Gabbay and Le May 2011, Mann 2011, Ranmuthugala et al. 2011). Knowledge sharing has been described as internal knowledge brokering; sharing practice-based tacit knowledge in real time (Currie and White 2012). Experienced ANPs and ED consultants acted as internal knowledge brokers in this ED. As discussed in section 8.3, Gabbay and Le May (2004) found a similar preference for asking colleagues for advice in clinical decision-making, rather than searching for more formal knowledge sources such as guidelines and research articles.

The third mechanism of situated learning by ANPs is the development of indeterminate knowledge, defined as the '*depth of experiential knowledge on which to intuitively draw* (Abbott *et al.* 2007, p416)*'*. This knowledge is added to ANPs' clinical mindlines to inform their discharge decisions. Experienced ANPs access formal knowledge sources less often than trainees and rely more on indeterminate knowledge. This finding is consistent with others who have also identified the importance of tacit knowledge, from clinical experience or practical knowledge, in clinical decision-making (Estabrooks 1998, Malterud 2001a, Gabbay and Le May 2004, Abbott et al. 2007, Gerrish et al. 2008, Traynor 2009, Gabbay and Le May 2011).

As an ANP moves towards full membership of the inter-professional community of practice, the extent of overlap in boundary blurring increases to a position close to medical substitution. However, it is evident in the findings that complete medical

substitution is not achieved for two reasons. Firstly, the training of an ANP is very different to medicine. Secondly, ANPs are proud of their nursing background, bringing important elements of their profession to the role, such as meeting the care needs of patients, and having a broad understanding of their social needs from a nursing perspective.

9.4.1 Legitimate peripheral participation in boundary blurring

Legitimate peripheral participation (LPP) is a useful theory to explain how ANPs acquire sufficient knowledge to become autonomous discharge decision-makers in the ED. It explores how situated learning adds to ANPs' clinical mindlines which are used to inform discharge decisions. Situated learning does not remove the need for ANPs to seek formal knowledge (as evidenced by the regular use of smartphones to access guidelines), therefore the two processes complement each other (as illustrated in figure 9.1).

As a consequence of boundary blurring the ANP role is more like medicine than nursing (as discussed in section 9.2.2), however initially ANPs lack knowledge and skills, feel isolated, and struggle with their professional identity. The periphery of the inter-professional community of practice is sometimes a bleak position for trainee ANPs therefore employers should invest in moving them towards the centre.

Conversely, experienced ANPs are more confident in their professional identity and knowledge, displaying a more central position in the community of practice (Lave and Wenger 1991). They make claims to legitimise their role; by referring to expertise and competence and comparing their discharge decision-making to senior doctors, who, they argue, also experience knowledge gaps. This is consistent with previous research which identifies that such claims to legitimacy are useful in strengthening role credibility (Sanders and Harrison 2008). Experienced ANPs are not in the centre of the community of practice as that position is firmly occupied by ED consultants, as demonstrated by their control over knowledge production and sharing, and their position as clinical supervisors of ANPs. The difference between

the confidence shown by trainee and experienced ANPs in discharge decision-making is explained by their position in the inter-professional community of practice, which impacts whether they feel empowered or disempowered in their role (Lave and Wenger 1991).

An ethnography of the Brazilian marshal art of Capoeira (Stephens and Delamont 2010) provides a useful metaphor to understanding how ANPs increase their knowledge through participation in social practices. This sport combines dancing, music and fighting, the complexity of which can be compared with the complexity of discharge decision-making. In capoeira those who are new and do not want to participate stay still rather than moving around the circle to take their turn; they are legitimate peripheral participants, lacking the skill and knowledge to fully take part. In the same way trainee ANPs occasionally resist seeing patients who they are not confident about managing, recognising their lack of knowledge. An example of this can be found in section 7.4.2 when an ANP tried to avoid seeing a patient with a headache due to a lack of confidence in treating that condition.

In managing knowledge gaps trainee ANPs seek support from more experienced colleagues. Similarly, in capoeira, new members learn the various elements of the dance from more experienced members (Stephens and Delamont 2010). Although trainee ANPs attend relevant University courses, they recognise the importance of developing knowledge through situated learning to undertake the medical elements of their role in boundary blurring. The development of indeterminate knowledge over time is also important in Capoeira as it can take 20 years to understand the many rules and become an expert. In the same way, the development of knowledge in the ANP role takes time, as revealed by the differences in knowledge access between trainee and experienced ANPs in discharge decision-making. Access to knowledge in the moment of discharge decision-making is not always enough: ANPs need to learn from their more experienced colleagues to develop their clinical mindlines.

It has previously been recommended that LPP is a useful theory in understanding medical education (Mann 2011), however as a consequence of boundary blurring the current findings illustrate that it is equally as useful in understanding the development of trainee ANPs as 'newcomers' to the community of practice.

9.5 STRENGTHS AND WEAKNESSES

The key strength of this study is the use of ethnographic methodology to explore complex social interactions (Allen 2007, Hammersley 1992). The combination of observations and interviews facilitates the production of rich, in-depth data, in context (Hammersley 1992, Allen 1997, Allen 2007). Other research methods would have been less able to explore what is actually happening during discharge decision-making by ANPs in the ED rather than what is said to occur (Hammersley 1992, Gabbay and Le May 2004, Allen 2007, Gabbay and Le May 2011, Ritchie et al. 2014).

A further strength arose from the researcher's background as an ANP in primary care. This facilitated the development of a good rapport through a common understanding of the role and language of participants, enabling in-depth conversations. The different context of the ED allowed the researcher to remain detached and to observe the setting with fresh eyes.

Potential limitations of this study relating to the choice of ethnographic methodology include the use of a single site and the risk of researcher bias. Some may argue that undertaking data collection in a single site is a limitation as the findings apply to that group of participants only. However, this is usual for ethnographic fieldwork allowing for in-depth study (Hammersley and Atkinson 2007). This study focused on the ANP role. The findings provide important insight to the emergence and development of ANP and other boundary blurring roles and the importance of effective knowledge mobilisation through knowledge access and situated learning. The findings may also be relevant to different levels of junior doctor due to the role similarities exhibited in

boundary blurring. This could be tested in further research. It is recognised that generalisability could be strengthened by future multi-site studies.

A further potential limitation of observational fieldwork is that there may be a focus on topics that reflect the researcher's own experiences and interests rather than those of the participants. The risk of this has been reduced by ensuring reflexivity throughout the process (sections 4.6.6. and 8.6) and spending an extensive period of time in the setting. Through reflexivity, the researcher questioned why certain observations evoked strong feelings, and made their background experiences explicit to the reader (Malterud 2001b, Hammersley and Atkinson 2007). The impact of the researcher's background on the interpretations was also minimised through discussion of the findings with the supervisory team.

Furthermore, it could be argued that the presence of the researcher may cause participants to change how they would normally work. This initial disruption is temporary and over time trust develops between researcher and participant, as mentioned above, reducing the uneasiness about being observed (Gold 1958, Schatzman and Strauss 1973). Ritchie et al. (2014) argue that the researcher's presence in the study setting is a strength rather than a limitation as it adds to the richness of the findings.

9.6 IMPLICATIONS

The findings from this study have important implications for the implementation and support of ANP roles in clinical practice, for education and research in higher educational institutes, and for policy makers. Ultimately, any research on the nursing workforce and knowledge mobilisation should improve patient care (Estabrooks 1998) and this study is no exception.

9.6.1 Implications for service development and clinical practice

The findings will inform employers of the areas to consider in *ANP implementation, recruitment and retention*. When planning to introduce ANPs to a setting there needs

to be a shared vision and clear career pathway to enable ANPs to move from LPP to full membership of the community of practice. ANPs provide stability, through boundary blurring and their permanence in the setting. This should be the driver for future ANP role recruitment. Boundary blurring requires inter-professional *clarity of role and consensus of scope of practice* in order to identify knowledge gaps and improve knowledge access. Strategies to improve retention should include appropriate remuneration, by adhering to national guidance and ensuring adequate access to inter-professional continuing professional development (Royal College of Nursing 2012, Health Education England 2017a).

Employers must take account of the position of trainee ANPs on the periphery of the community of practice; ensuring processes are in place to *provide opportunities for situated learning; quality inter-professional clinical supervision, forums for peer support and the development of clinical experience.* They should harness social media as a mechanism of knowledge sharing and support in decision-making.

Employers and clinicians should be aware of the reliance on shortcuts for knowledge and the concerns raised here about the use of smartphones. They should ensure that the apps used in discharge decision-making are based on up to date evidence, and relevant to the local context, and that Wi-Fi is available to staff. They should also ensure availability of experienced colleagues for support.

ANPs need to become more involved in developing and sharing relevant resources within their workplaces. It is important for ANPs to collaborate with doctors in all processes of knowledge mobilisation in the future in order to successfully fill their knowledge gaps and have a shared understanding, alongside medicine, of the resources available in discharge decision-making. As the role continues to develop, the increasing numbers of more experienced ANPs will enable them to provide the clinical supervision and the development of local resources, currently delivered by ED consultants.

9.6.2 Implications for advanced practice education

Educators in advanced nursing practice need to recognise the importance of situated learning and access to knowledge in practice in addition to university courses in supporting the development of autonomous ANPs. They should keep up to date with advances in smartphone technology and encourage ANP trainees to access reliable resources. They must recognise the importance of online social networks, and the role of communities of practice in knowledge sharing should be included when teaching evidence based medicine. This is particularly important in light of the current lack of national ANP regulation despite significant boundary blurring (King et al. 2017), and revalidation requirements (Nursing and Midwifery Council 2017).

9.6.3 Implications for research dissemination

Researchers should consider the mechanisms by which nurses currently access knowledge when planning dissemination of work relevant to ANPs. In the fast-paced ED context ANPs need to access shortcuts to knowledge. Research findings must be presented in short summaries or tools, which can ideally be incorporated into smartphone apps. The findings also identify the potential of harnessing existing communities of practice in facilitating the implementation of new knowledge into practice (Gabbay and Le May 2004, Davies and Nutley 2008). Researchers should identify opinion-leaders within naturally occurring communities of practice so that knowledge is shared among relevant groups.

9.6.4 Implications for policy makers

Advanced practice is a priority for workforce transformation leads (Health Education England 2017a). The findings suggest there needs to be role clarity and standardised remuneration to minimise ANP retention problems. ANPs had to campaign to be paid at the recommended grade of band 8a (Royal College of Nursing 2012). However, employers are not obliged to adhere to those guidelines, and ANP pay has been found to vary from band 6, to band 8a (Marsden et al. 2013,

Fawdon and Adams 2013).

The findings also reveal ANP role ambiguity among other clinicians throughout the organisation, contributing to barriers in discharge decision-making. This lack of role clarity has been associated with lack of national ANP regulation (Maier 2015). Previous authors have argued that role clarity is important in improving the acceptance and implementation of ANP roles in practice (Maier 2015, Lovink et al. 2017).

ANP policy should ensure a minimum standard of training. In the current study ANP development followed a local competency framework which included a Master's degree in advanced practice. There has been wide variation in the training of ANPs globally, and within the UK (Griffin and Melby 2006, Gerrish et al. 2011). Consequently there has been confusion about the level of competence required to meet the ANP scope of practice (Department of Health 2010a). Although masters level education is not compulsory in the UK (Pulcini et al. 2010) it is recommended for future ANP development (Health Education England 2017a), and will be required for ANP credentialing by 2020 (Royal College of Nursing 2017).

In light of the growing number of ANPs in the UK, and challenges related to local regulation, the nursing profession needs to continually reconsider the most effective mechanism of supporting staff in these roles. The development of recent frameworks have gone some way to providing much needed clarity (Health Education England 2017a). Future ANP regulation should ensure minimum standards of training, supervision and remuneration of ANPs, with clear pathways for accountability and continuing professional development. Future policies should ensure that ANPs have access to the same opportunities for continuing professional development (CPD) as medicine. This needs addressing in light of recent cuts to nurse education budgets (Royal College of Nursing, 2018a).

The findings provide evidence for reconsideration of the UK position on national regulation of ANPs; a role with more similarities to medicine than nursing in the ED

setting. The ANP role is significantly different to the role of nurses post-registration to counter previous arguments against national regulation (The Council for Healthcare Regulatory Excellence 2009). National regulation would allow for dynamic boundaries to exist and would protect nurses from their roles being taken back by medicine if those boundaries are contested (Nancarrow and Borthwick 2005).

The findings have policy implications for the development of other new roles in health care, for example the new nursing associate role, which aims to bridge the gap between support workers and registered nurses (Health Education England 2017b). Issues related to professional identity in boundary blurring and processes of knowledge mobilisation would be relevant to all developing roles in healthcare.

9.7 RECOMMENDATIONS FOR FUTURE RESEARCH

Following on from this work on knowledge mobilisation in discharge decision-making by ANPs in the ED it is important for future research to explore a number of areas to further our understanding of this exciting new role in nursing.

- Firstly, the need for a shared vision in boundary blurring in the ANP role is important to explore in other healthcare contexts, particularly those with recent significant investment such as primary care.
- Secondly, the preparation of ANPs to meet the knowledge requirements of boundary blurring should be explored in other settings. With a focus on situated learning in inter-professional communities of practice.
- Thirdly, the impact of boundary blurring on the nursing workforce overall should be further explored. Future research should evaluate the impact of national strategies to standardise ANP training and supervision (RCEM/RCN credentialing) and understand the value that ANPs bring to healthcare teams and patient care.

The increase in advanced nursing roles and other new roles in healthcare is an exciting time for researchers to be at the forefront of understanding how those roles

fit into existing healthcare teams, how they can be supported effectively and the impact they have on patient care.

CHAPTER 10 CONCLUSION

This study set out to explore knowledge mobilisation in discharge decision-making by ANPs in the ED using ethnographic methods. The findings have generated novel insights into how ANPs access and develop knowledge to inform their discharge decisions in the context of boundary blurring.

Ethnography has been a valuable methodological approach. It facilitated the collection of in-depth data to understand **what** knowledge is being accessed by ANPs, **why** they require access to such knowledge (in boundary blurring), and **how** experienced ANPs develop autonomous discharge decision-making skills through situated learning. The findings reveal a wide range of knowledge accessed by ANPs with a preference for shortcuts. Gabbay and Le May's (2004) theory of clinical mindlines, and Lave and Wenger's (1991) theory of legitimate peripheral participation (LPP) have been useful in explaining how trainee ANPs move from the edge of the inter-professional community of practice, with feelings of isolation and much to learn, towards the centre making autonomous discharge decisions.

The model in figure 9.1 illustrates the key factors that facilitate knowledge mobilisation in discharge decision-making by ANPs in this ED. It is important for ANPs to experience clarity and consensus in boundary blurring, with recognition of the nursing element of the role. They develop knowledge from situated learning via clinical supervision, peer support and clinical experience. In discharge decision-making ANPs use a wide range of knowledge, exhibiting a preference for shortcuts in the form of smartphone apps and asking senior colleagues for advice.

This study has highlighted that nurses will expect to blur boundaries with medicine, but what is less clear is the extent of overlap and the preparation required. Future research into this subject should further enhance our understanding of boundary blurring and situated learning in other healthcare settings, with the aim of improving knowledge mobilisation and consequently patient care.

APPENDICES

Appendix 1 Data extracts supporting the description of the ED setting

Reception and triage

'While sitting with the triage nurse I observed a very unwell patient (pale, and breathless, and complaining of chest pain) who had walked in to the ED and had been labelled as 'urgent' by the receptionist. The triage nurse assessed the patient quickly and referred them immediately to the Resus bay'. Source: Triage observation

'The computer screen shows a list of patients who have been allocated to MIU from triage, their problem, and whether they have been assigned to see an ENP or Dr/ANP. A nurse in the MIU explained to me that four cubicles in one area are generally for patients with injuries to be seen by ENPs, and the second area with three larger cubicles and a side room is for patients with illnesses to be seen by a doctor or ANP.' Source: Minor injuries unit observation

'Green indicates they need to wait in the waiting room to be triaged, then seen in minor injuries, those patients should really be seen by their GP. Very unwell patients are transferred straight to the resus bay'. Source: Staff nurse. Pitstop observation

Resus

'Patients in this area appeared much more unwell than other parts of the ED. There was much less focus on time pressures; to meet the four hour target'. Source: Resus interpretation

Clinical decision unit (CDU)

'This area functions as an overflow facility, enabling clinicians to stop the clock on the four-hour waiting time target while waiting for a discharge decision to be made or completed'. Source: clinical decision unit, interpretation

Patient factors influencing discharge decision-making

"I think it's harder to discharge elderly people with all their care needs. I definitely have some reluctance discharging an elderly person at 3 in the morning, compared to 3 o' clock in the afternoon. We talk a lot about services being 24/7 and improving services. But actually we can't get away from the fact that someone who's 90 probably shouldn't go home at 3 in the morning. Whether or not there's a physio to get them up and walking, it doesn't make a difference really". Source: Senior clinician K1 interview

'The ANP closed the curtains, then started to take a history (from the carer), but the patient became agitated as she didn't like the curtains round her, so the ANP opened them and the patient got up and went for a walk. A few minutes later the ANP tried to listen to the patient's chest, but she refused. The ANP requested a CXR and a porter took the patient and carer to radiology. The other nurses said they didn't think she would stay still for an X ray. Source: Blue bay observation

"I had one last week and it was a combination of somebody with abdominal pain who'd probably got three different disease processes going on including cancer and it's 'what is it? is it a progression of the disease process or is it something acute, is it a combination of three things going on that were all intermingling? And it's untangling those and what we need to do from an emergency point of view or can they routinely be followed up as an out-patient. Erm yeh and it's reaching that decision point of do we need to do anything now, as that's our role as an emergency department, immediate intervention, is there anything critical going on". Source: ANP 3 interview

'ANP 3 said he had never heard of Tigrinya, and he may need to use language line for a telephone interpreter. ANP 3 then found the phone number for language line on the hospital intranet and phoned them. He spoke to an interpreter and went back to the patient to gather further information. He asked the interpreter to clarify how long the patient had been unwell and if there were any urinary symptoms. Source: ANP 3 observation 3

Contextual factors influencing discharge decision-making

“The four hour quality standard is there to help us provide patients with timely care and although it can be seen as a stick to beat you with, it’s actually there for patient benefit, we want our patients to be seen as quickly as we can and get them the treatment that they need so we can provide an excellent standard of care”. Source: Senior clinician C1 interview

“The bottom line is if we don't achieve it, financially we are penalised, and if we don't have money we can't maintain the service. You know, but on the other side it's actually there because patients want a good journey. They want to come in and they want to go through”. Source: Senior clinician C3 interview

“We start struggling to hit our four hour targets when there are no beds or the department’s overcrowded. And that’s when all the hassle starts to be applied, either from the consultants in charge, the nurse in charge, the patient flow matrons, the non-clinical managers who inhabit the shop floor. So the pressure from everyone comes at the time when you least want patients to be admitted to hospital. And when that happens, I suspect the proportion of patients we admit goes up slightly rather than going down. Purely because no one’s worked out that hassling people to make a decision doesn’t really work”. Source: Senior clinician K2 interview

‘The ANP said that all patients in the bay had been assessed and referral decisions had been made, but the ED was full due to a lack of beds in the rest of the hospital’. Source: ANP 4 observation 1

‘I asked ANP 5 what had changed and she said that due to the hospital pressures two days ago, elective surgery had been cancelled which freed up beds for emergency admissions’. Source: ANP 5 observation 1

Resistance to discharge pressures

“If my patient’s coming into hospital, they’re coming into hospital. I hate targets.

Absolutely hate them. I think they're very detrimental to a patient's health. I think if a patient needs to be in hospital, they need to be in hospital and shouldn't be discharged. And I hate breaches. I don't care, 'my patient's not well enough to go to CDU, leave them alone!' Bug bear of mine!" Source: ANP 1 interview

"The pressure put on people is to make a decision early about whether or not you're going to admit or discharge them. And what our glorious leaders haven't quite seemed to have worked out is if you start hassling people to make a decision early, they'll make the safest decision. Which is just admit them. Erm whereas if they weren't getting hassled to make a decision and were allowed to see things through, the ultimate end point for a proportion of those patients would actually be discharged home". Source: Senior clinician K2 interview

Appendix 2 ANP email invitation

School of Health and Related Research (ScHARR)

The University Of Sheffield.

Dear……,

My name is Rachel King. I am a PhD student at the University of Sheffield, School of Health and Related Research (ScHARR), under the supervision of Dr Tom Sanders, Prof Kate Gerrish, and Prof Angela Tod. I also work part time as a nurse practitioner in primary care. My PhD study is exploring how ANPs use different knowledge sources in discharging patients with long term conditions from the emergency department.

I would be very grateful if you would consider taking part in observations, which will involve being shadowed for periods of 2-3 hours and an interview (lasting a maximum of 1 hr), which will be part of the project. You have been chosen as you work as an ANP in the ED.

I have included an information sheet explaining more about the project. If you are happy to participate in the study then please send me an email (rlking1@sheffield.ac.uk). I will then get in touch with you by email to arrange a time and date that is convenient. The observations and interviews will take place between Sept 2016 and June 2017.

If you have any further questions about the project and what it involves please do not hesitate to get in touch with either me or Dr Tom Sanders (contact details on information sheet).

I look forward to hearing from you.

Kind Regards,

Rachel King

(email signature)

Appendix 3 Participant information sheet for ANPs

Participant Information Sheet

Study Title

A study of knowledge mobilisation activities of advanced nurse practitioners in discharging patients with long term conditions from the emergency department.

Invitation and brief summary

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

The aim of the study is to explore how advanced nurse practitioners (ANPs) access, understand, and use knowledge when discharging patients with exacerbations of long term conditions (LTCs) from the emergency department (ED). In this study 'discharge' may be to the patient's home, to a ward, or to another setting.

Explanation: purpose of and background to the research

Emergency care is under increasing pressure, partly due to the aging population and increasing number of patients with LTCs. The ANP role has been recently implemented in the ED to assess, diagnose and treat patients with undifferentiated conditions. Previous studies have found that nurses use a wide range of different knowledge sources to make clinical decisions (e.g. clinical experience, colleagues, research, patient's views, local guidelines, expert opinion, training courses). Few studies have explored how knowledge is chosen, interpreted and applied to practice. It is hoped that by increasing our understanding of how knowledge is currently used by ANPs, it can improve the use of research knowledge in practice in the future.

Why have I been chosen?

You have been chosen to participate in the observations and interviews because you currently work in the ED as an Advanced Nurse Practitioner. ***The study is not focusing on quality of care,*** but it is exploring the different ways that decisions are made.

What would taking part involve?

Observations: I would like to spend some time observing you and other ANPs in your daily work. Periods of observation will last up to 3 hours. I anticipate shadowing each ANP on a maximum of 10 occasions over the 12 month period.

The first phase of the study, lasting 4 months, will explore the role of ANPs in discharging patients. The second phase will aim to explore how you process knowledge in discharging patients with LTCs from the ED. I will ask you to identify patients with LTCs and ask their permission for me to be present during the consultation. I will stop observing at any time at your or the patient's request. During the observations I will make notes on how knowledge is applied to discharging patients with LTCs and would like to discuss and clarify any queries around knowledge use during the observations.

Interviews: I would also like to interview you about the pressures on hospital discharge, your role, and how you use knowledge to inform the decision to discharge patients. In a second interview I would like to explore further issues around knowledge-use and any barriers or facilitators to the use of knowledge. Interviews will last up to 1 hour at a place and time convenient to you.

If you are happy to participate in the observations and interviews please confirm by sending an email to me. My email address is given at the bottom of this information sheet. I will then contact you by email to arrange a mutually convenient date and time for the observations and interview to take place. Prior to taking part in the observations and interviews you will be asked to sign a consent form.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time until data has been collected without it affecting any benefits that you are entitled to in any way. You do not have to give a reason.

What are the possible benefits of taking part?

The findings will provide an increased understanding about knowledge use by ANPs in the ED, and any barriers to knowledge use. This will be useful to researchers and educators in improving the methods of translating research knowledge into clinical practice, by using current methods of knowledge use.

What are the possible disadvantages and risks of taking part?

Disruption: I will try to minimise any inconvenience caused by my observations in the ED and will be sensitive to the busy environment, and avoid causing any disruption to staff.

What if something goes wrong?

If you have any concerns about how the research is conducted, please contact Rachel King, or Dr Tom Sanders (contact details below). If the issue is not handled to your satisfaction please contact the Dean of the School of Health and Related Research, Professor Jon Nicholl (0114 222 5454, j.nicholl@sheffield.ac.uk).

Will I be recorded, and how will the recorded media be used?

Yes, I would like to audio record the interview. The recorded media will only be used for analysis by the research team. The audio recording will be transcribed. If you want to stop the interview at any time then the interview will end, however the interview responses previously given may be kept. The transcription will not include any names of individuals or organisations. You will be given an individual code relating to your role (e.g. ANP 1, manager 2), which will only be known to me as the researcher, and if you refer to any other individual by name they will also be given a code. Quotes from the transcription may be used to illustrate points in publications, reports and presentations.

Will my taking part in this project be kept confidential?

All information collected about you during the course of the research will be kept strictly confidential. Nobody outside the research team will be able to see your personal information. Your name will not be associated with any reports or publications. All identifiable data will be stored confidentially and securely when it is still being used; audio recordings will be destroyed immediately after transcription. Anonymised interview transcripts and observational notes will be kept for 5 years and may be shared and used in future research.

What will happen to the results of the research project?

The results of the research project will be written up in a student report. I intend to publish the results in an academic journal and present them at conferences. At no point will your name be associated with any published report or presentation.

Who is organising and funding the research?

The project is being carried out by a PhD student at the University of Sheffield and is funded by the NIHR Collaboration for Leadership in Applied Health Research and Care for Yorkshire and Humber (NIHR CLAHRC YH).

Contact for further information

If you would like more information about this research project please contact Rachel King (PhD student) or Dr Tom Sanders (PhD supervisor).

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Appendix 4 Consent form

Participant Identification Number:

Title of Project: An ethnographic study of the knowledge mobilisation activities of advanced nurse practitioners in discharging patients with long term conditions from the emergency department

The University Of Sheffield.

Please initial box

1. I confirm that I have read 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. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without any negative consequences. In addition I understand that should I not with to answer any particular questions I am free to decline. ☐

3. I understand that the information collected about me will be kept confidential. I give permission to other members of the research team to have access to my anonymised responses. I understand that my name will not be linked to the research materials. ☐

4. I agree for the data collected in this study to be used in future research. ☐

5. I agree to quotations being included in any written reports and presentations ☐

6. I agree to the interview being audio recorded ☐

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

Name of participant	Date	Signature
Name of person taking consent	Date	Signature

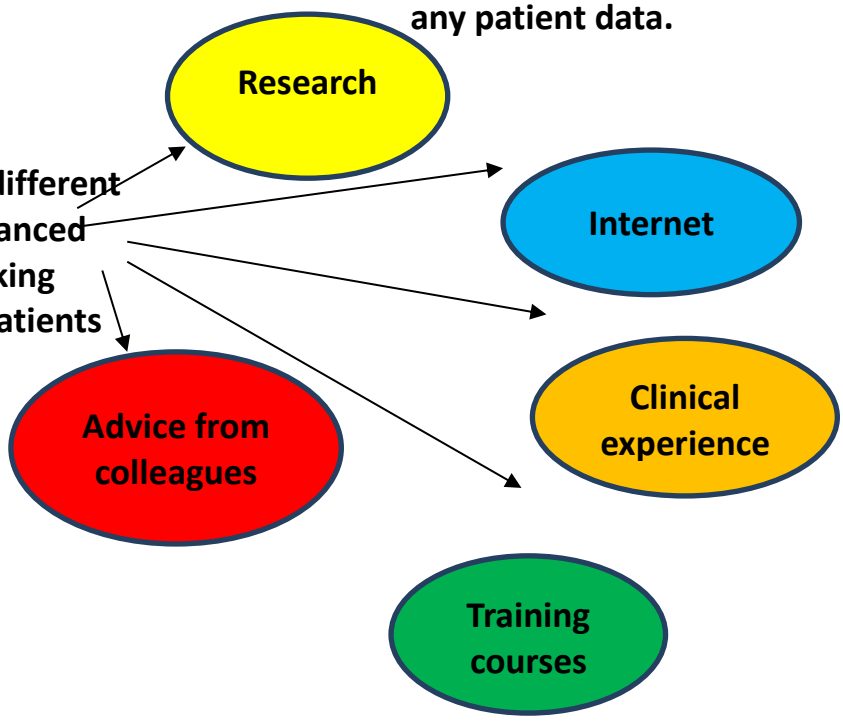
Appendix 5 Patient poster

Research on Advanced Nurse Practitioners (ANPs) in A and E

I'm Rachel King, a community ANP studying for a PhD at the University of Sheffield.
I plan to do a research project in A and E. It will start in July 2016, and will take a maximum of 12 months (2-3 days per week)

Patients/carers: You may be asked if it is OK for me to observe your consultation. I will observe ANPs while they assess and treat patients with long-term conditions (e.g. diabetes, heart or respiratory problems) focusing on how the ANP uses information. I will NOT be collecting any patient data.

The research will look at the different types of information that advanced nurse practitioners use in making decisions about discharging patients



Contact details
Rachel King (PhD student)
rlking1@sheffield.ac.uk
Dr Tom Sanders (PhD supervisor)
tom.sanders@sheffield.ac.uk
ScHARR
The University of Sheffield
Regent Court, 30 Regent Street
Sheffield, S1 4DA

Please let the ANP know if you do not want me to observe, this will NOT affect your treatment.

Appendix 6 Interview topic guide

Senior clinicians/managers

1. Context- Emergency Department

- Pressures around discharging patients
- How admission/discharge decisions are made

2. ANP role

- Influences on implementing the ANP role
- The scope of the ANP role
- Educational training standards for the role?

3. Knowledge mobilisation

- Knowledge used in own practice and how it is accessed, interpreted and used
- Barriers to accessing, understanding or applying knowledge
- Knowledge available to ANPs in the ED
- Facilitators or barriers to the knowledge-use by ANPs

ANPs

1. Context- Emergency Department

- Pressures in discharging patients
- How admission/discharge decisions are made

2. ANP role

- Scope of practice (Probe: how it differs from previous nursing roles)
- Training for the ANP role

3. Knowledge mobilisation

- How knowledge is used to discharge patients with LTCs
- Facilitators/barriers to use of knowledge in discharging patients with LTCs
- Exploration of clinical mindlines using examples from observations.

Specialists who interact with ANPs in the discharge- decision

1. Context- Emergency Department

- Role in the ED
- How admission/discharge decisions are made

2. ANP Role

- How they interact with ANPs in the ED (Probe- what knowledge/guidance do ANPs request)
- How their specialist knowledge is made usable by ANPs

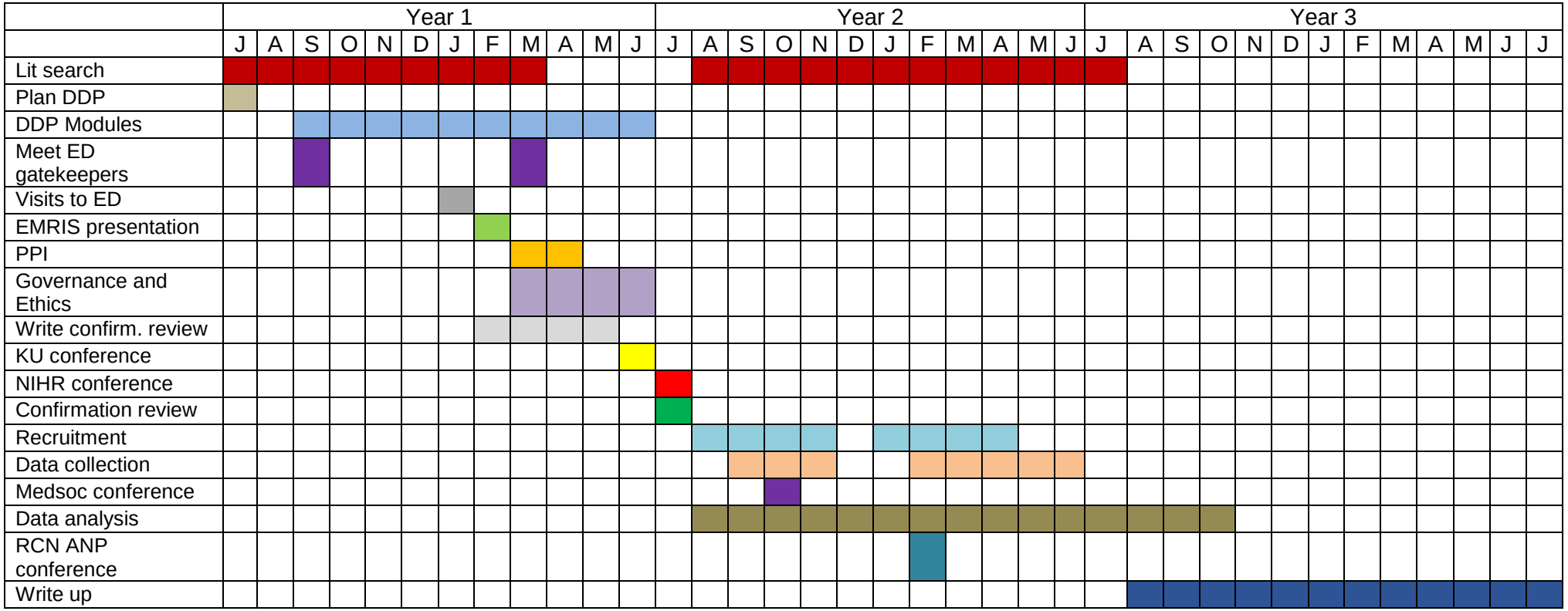
3. Knowledge mobilisation

- How they use knowledge in their work
- Barriers /facilitators to accessing, understanding or applying knowledge

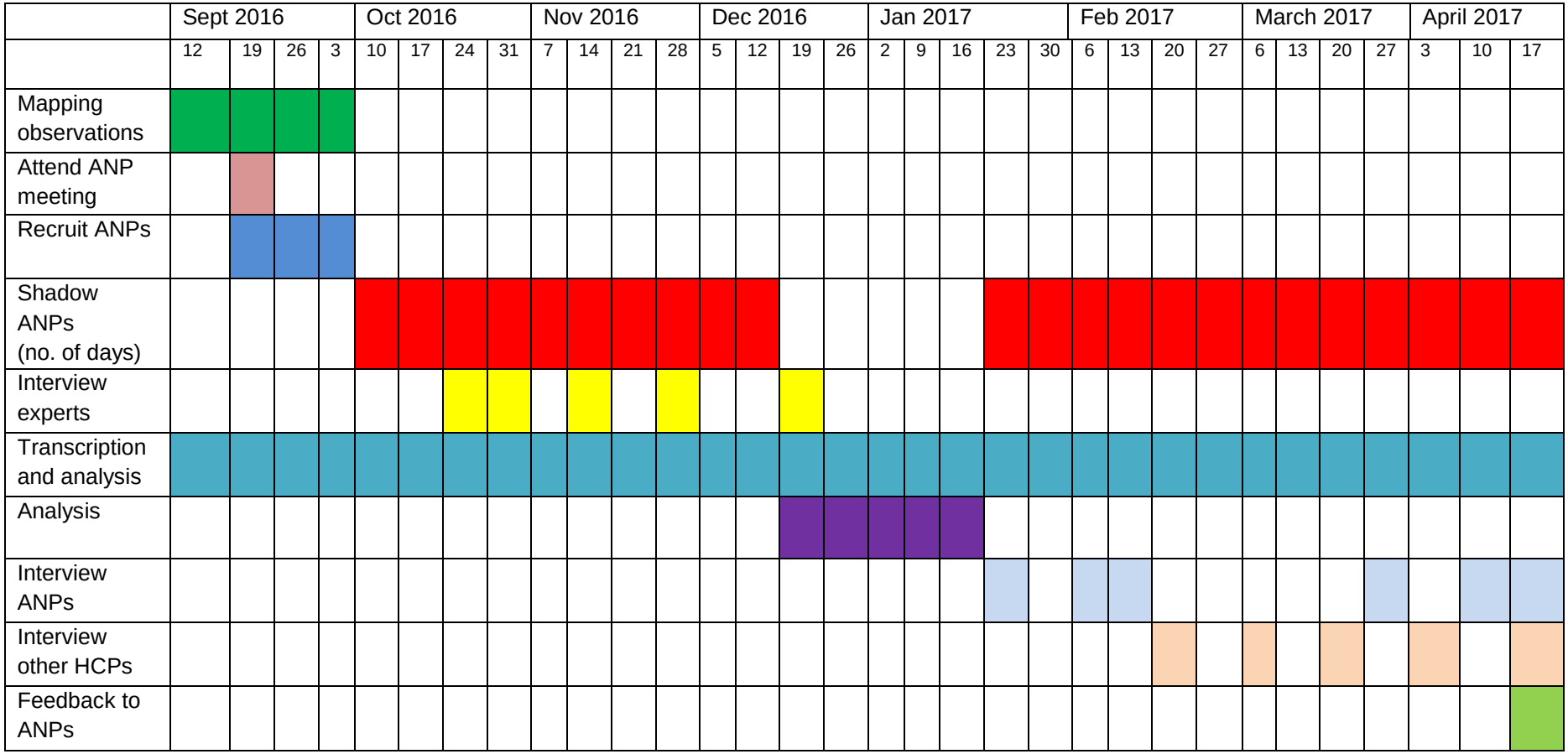
N.B this topic guide may evolve as the study progresses

Appendix 7 Gantt charts

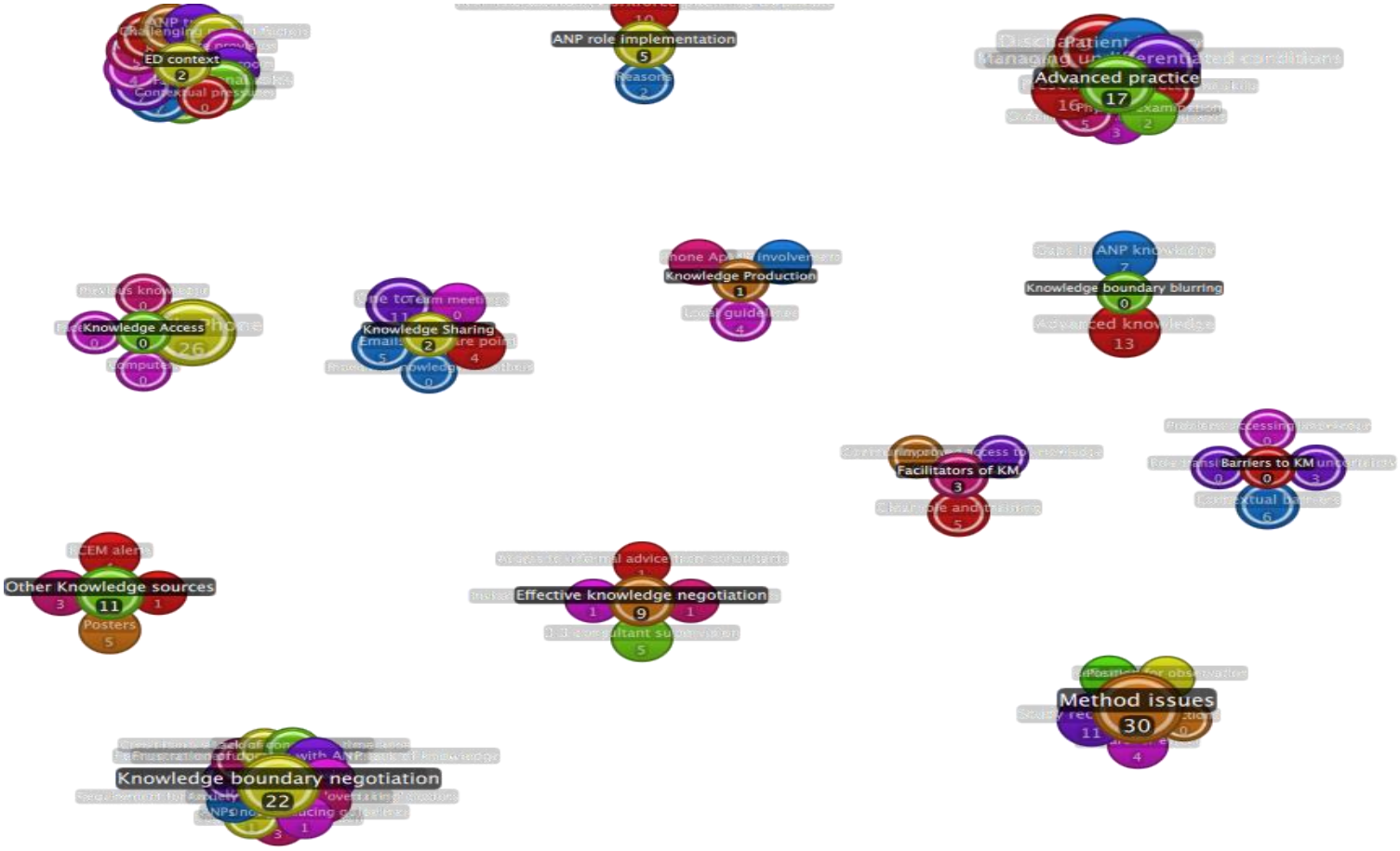
An ethnographic study of knowledge mobilisation in discharge decision-making by advanced nurse practitioners in the emergency department



Gantt chart for data collection



Appendix 8 Quirkos canvas



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